# DETERMINANTS OF EDUCATION ACHIEVEMENTS IN PAKISTAN

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**Abstract**

*The study estimates the determinants of education achievement by employing Censored Ordered Probit model using the PSLM data 2010/11. The results depict that mother education has more prominent effects on children's education achievement than father education. The gender wise results indicate that the father education has more effects on boys' education achievement while the mother education has more effects on girls' education achievement. The relationship between age of children and education achievement is of inverted 'U' shaped. The results show that land ownership and income have significant positive effects on education achievement. School distance and household size are major problems for children education achievements especially for girls. The study also finds that boys have more chances of education achievements than girls in rural, urban and overall Pakistan. Regional level results show that children have more chances of education achievements in urban areas as compared to rural areas of Pakistan. The study suggests that there should be more emphasize on school education achievement especially for girls who are going to become mother tomorrow especially in rural areas. The government should enhance awareness to control family size and provide schools nearest to the homes of children. The land reforms should be reconsidered and economic growth enhancing policies should be adopted.*

***Keywords***: Education, Income, Land Ownership, Age , Family Size, Pakistan.

**JEL Classification**: Z 000

## Introduction

Revelation of Holy Quran starts with verses of emphasizing on education. Allah Almighty order His believers to seek knowledge and cognizance on exploring whatever exists in the universe. In Holy Quran (Sura al Alaq; verses 4 and 5) Allah Almighty says ‘‘read by the name of Allah who has

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educated by pencil? Man learned by Allah that he knew not''. Holy Prophet Muhammad (SAW) stresses on knowledge in Ibne Maaja (Hadith No. 224) and said that it is the duty of every Muslim men and women to get knowledge. Dakar (2000) at world forum explained that it is the basic right of every individual to achieve education. The goal of education for all (EFA) should be attained urgently without any delay. Many studies at international and national level have been conducted to find the determinants of education. At the former level the important studies are the following; Cambel and Barry (1967), Eamon (2005) showed that demand for higher education was positively associated with income, Eshiwani (1993), Otunga (1994), Knight and Shi (1996), Binder (1998), Colclough et al. (2000), Bernard (2002), Jayachandran (2002), Maitra (2003), Chapman (2004), Abdulahi (2005), Smyth et al. (2010), Aghili and Kashani (2012), Quang (2012), Basant and Sen (2013) and David (2014) showed that male had more chances of education achievement than female. Kodde and Jozef (1988) and Bernard (2002) showed that the demand for higher education was believed to be effected by educational policies, income level, access to educational institutions and the educational background of the parents. Kuo (1998) and Bauer and Gang (1999) showed children education achievement in a family is not affected by number of lower age children and their male female sex ratio in countries like Germany and the USA. Glewwe and Jacoby (1992) found that household expenditure is a major determinant of education achievement. Maitra (2001), Banerjee and Duflo (2011) and Aghili and Kashani (2012) showed that mother's education had more prominent effect on education achievement of children than father's education. Study also showed that mother's education had more effect on female education while father's education had more effect on male children's education achievement. Appleton (1996), Maitra (2001), Jayachandran (2002), Okoijie (2002), Yucel's (2007), Ming (2010), Aghili and Kashani (2012), Quang (2012) and Basant and Sen (2013) showed that boys had more chances of educational achievement than girls. Family income, age of child, land ownership positively while household size, age square of child and school distance had negative relationship with achievement of education. David (2014) showed that there was a positive but not a significant relationship among parent's education and children's education achievement in Nigeria. The study also found that there was no difference in boys and girls education achievement.

At the national level also many studies have been conducted. Sathar and Lloyd (1994), Khan et al. (2002) and Hijazi and Naqvi (2006) showed that income and parental education had positive significant effect on children education achievement. The study also found that children in the Punjab had more chances of education achievement. Holmes (1991), Anjum and Uzma (2007), Maitra and Sharma (2009), Saifi and Mehmood (2011) and Hamid et al. (2013) showed that girls had lower chances of education achievement in rural areas. Education achievement of boys' and girls' had positive significant relationship with parental education. While mother's education focused more on daughter's education and father's education influencing more son's education achievement. Coleman (1966), Holmes (1999), Anjum and Uzma (2007), Hashmi (2008) and Lodhi and Gerber (2011) showed that male children had more chances of education attainment than female children. Children education achievement especially for female children was mainly determined by household income (Anjum & Uzma, 2007; Ahmed et al., 2009; Asghar et al., 2012; Lodhi et al., 2011; Akhtar, 2012). Age

square, family size and school distance had negative significant effect on children education achievement (Anjum & Uzma, 2007; Ahmed et al., 2009; Akhtar, 2012) while Baluch and Shahid (2008) found that school distance and family size were positively related with education achievement.

It is well recognized that education achievement is very important factor of economic growth and development. Many researchers estimated determinants of education achievement nationally and internationally. Land ownership is also very important factor for education achievement in international studies (Miller, 2007; Sanchez & Sbrana, 2009) but it has been ignored in Pakistan yet. Thus, this study aims at estimating the determinants of education achievement in Pakistan by using Pakistan Social and Living Standard Measurement Survey data 2010-11 which has never been used for this purpose.

The structure of the article is as follows: Following the introduction section two discusses the data and methodologies employed. The results and discussions are presented in section three, whereas section four draws some conclusions and policy implications.

## Data and Methodology

Education achievement is indispensable for developing labor force skills and productive efficiencies. In developing countries, low education achievement causes a decline in human capital, that ultimately reduces economic growth and development. Therefore, it is necessary to measure the determinants of education achievements. For measuring the determinants of education achievement the study uses PSLM data 2010/11 that is presenting in section 3.1. The study is employing Censored Ordered Probit model for estimating the determinants of education achievements that is presenting in section 3.2.

### *Data*

This study uses PSLM data 2010/11. For finding the determinants of education achievements, study selects currently school going children of age group 12-24 years. Here also assuming that in this age group children can achieve some levels of education. Many studies selected this age of children for estimating the determinants of education achievement such as (Ali et al., 2000; Dereze & kingdon, 2001; Maitra, 2001; Tansel, 2002; Anjum & Uzma, 2007; Aghion, 2009; Hanushek & Wobman, 2014). The sample of the study consists of 12,313 children. There are 0.5% children they have achieved zero years of education, 27% children passed primary education level and 35% children achieved middle level education. As well as matric and intermediate to the highest level of education achieved by 26% and 11.5% children consequently. The detail of data description about education achievement is presented in appendix.

*Methodology*

Education achievement is an inevitable factor of economic growth and development. Education achievement encouraged societies to develop creative and well knowledge persons, it also provides more chances of development to underdeveloped parts of community. Education is crucial for learning, expertise development, for fitness and for the developing abilities of human beings that can improve their output and effectiveness. The education achievement is the most important factor which played a leading role in human development. Only as educated workforce equipped with modern skills can compete and benefit from exploiting the opportunities created by globalization. Education achievement is a critical component of human capital which is unanimously accepted as an essential part of financial improvement of a nation.

*Determinants of Education Achievement*

Previously, many studies have used Censored Ordered Probit model to find the determinants of education achievement such as (King & Lillard, 1987; Tansel, 1997; Holmes, 1999; Ali et al. 2000; Dereze & kingdon, 2001; Maitra, 2001; Anjum & Uzma, 2007; Aghion, 2009; Hanushek & Gabril, 2014). This study has also used Censored Ordered Probit model, the econometric model is presenting below.

$$E = \beta_0 + \beta_1 PCE + \beta_2 Age + \beta_3 \mathrm{LO} + \beta_4 AGSQ + \beta_5 SD + \beta_6 HS + \beta_7 FE + \beta_8 ME + \varepsilon_0 \quad (2.1)$$

The study selects five equally exclusive education levels like zero, primary, middle, matric and intermediate to higher. The categories of education achievement can be defined as.

$$E = \begin{Bmatrix} 0\ if E = \mu_0 \\ 1\ if \mu_0 < E \leq \mu_1 \\ 2\ if \mu_1 < E \leq \mu_2 \\ \cdot \\ \cdot \\ j if \mu_{j-1} \leq E \end{Bmatrix}$$

'E' is desire level of education achievement; μ's are threshold parameters that denote transition from one schooling category to another. There are following five categories of dependent variable.

E= 0 if education achievement is 0
E= 1 if education achievement is 1- 5 years
E= 2 if education achievement is 6 - 8 years
E= 3 if education achievement is 9-11 years
E= 4 if education achievement is 12+

The dependent variable is education achievement that consists of five categories. If a child is

completing zero year of schooling it assumes the value of zero, if a child is completing or continues in primary education it takes value of 1. For children completing or continues in middle, matric and inter to higher take values of 2, 3 and 4 subsequently. For estimating the determinants of education achievement this study selected sample of currently school going children of age group 12-24 years. The Censored Ordered Probit regression technique has been employed for estimating the determinants of education achievement.

This study considers number of independent variables that affects the children education achievement. In order to analyze the determinants of education achievement, the study takes into account various factors. Hence, education achievement depends on following most important factors e.g. father education, mother education, household size, age of student, per capita expenditures, land ownership and school distance. The detail of independent variables is as presenting in Table 3.1.

Table 3.1
*Measurement of Variables for Education Achievement*

| Variables | Measurement |
|---|---|
| **Father Education (FE)** | Number of year of education |
| **Mother Education(ME)** | Number of year of education |
| **Age** | Age of children |
| **Age Square (AGSQ)** | Square of children age |
| **Household size (HS)** | Number of total members in Household |
| **Land ownership (LO)** | If individual own land=1, otherwise=0 |
| **Per capita expenditures(PCE)** | Total expenditures/ household size |
| **School distance (SD)** | High school distance. |

Source: Author's own calculations

## Hypothesis Testing

*Null Hypothesis*

*H0:* $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0$

*Alternative Hypothesis*

*H1:* $\beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0, \beta_8 \neq 0$

Under the assumption that '**ε**' is normally distributed:

$$\Pr(E=0)=\Phi(\mu_0-\beta_i X_i) \quad (2.2)$$

$$\Pr(E=1)=\Phi(\mu_1-\beta_i X_i)-\Phi(\mu_0-\beta_i X_i) \quad (2.3)$$

$$\Pr(E=2)=\Phi(\mu_2-\beta_i X_i)-\Phi(\mu_1-\beta_i X_i) \quad (2.4)$$

$$\Pr(E=3)=\Phi(\mu_3-\beta_i X_i)-\Phi(\mu_2-\beta_i X_i) \quad (2.5)$$

$$\Pr(E=4)=1-\Phi(\mu_3-\beta_i X_i) \quad (2.5)$$

Where 'Pr' is probability of each category; 'Φ' is normal cumulative frequency distribution. These equations represent the probability of outcome of each category. If the dependent variable has more than two ordinal categories then Ordered Probit regression is best measure for estimating the model.

*Marginal Effects in Probit Regression*

In linear regression, the effect of explanatory variable is directly measured by one unit change in independent variable then what will be change in dependent variable, But in Probit model exactly does not it mean the coefficients only show positive or negative trends. The actual magnitude of coefficient is measured by marginal effects. The value of marginal effects coefficients exactly tells about 1% change in independent variable causes how much change in dependent variable. This mathematically is written below.

$$E_i=\Phi(\beta_i X_i) \quad (2.6)$$

$$\frac{\partial E_i}{\partial X_i}=\beta_i\Phi(\beta_i X_i) \quad (2.7)$$

This expression depends on not just β_i but on the value of X_i.

## Results and Discussion

Education achievement is crucial for learning, expertise development, fitness and for developing abilities of human beings that can improve their output and effectiveness. Education achievement has encouraged to the people who are creative and knowledgeable , it also provides more chances of development to underdeveloped parts of community. Education achievement is one of the most important factors which plays a leading role in human development. Through globalization and advance technologies the competition among individuals have increased. At this time only educated and well skilled person can compete with worldly created challenges. Keeping in view so much importance of education achievement this study estimates determinants of education achievement in Pakistan. Urban and rural areas of Pakistan have different economic and demographic characteristics

therefore, their chances of achieving education are also different. This study estimates the determinants of education achievement due to different urban and rural characteristics. The outcomes of analysis are presented in the Table 3.1.

Table 3.1
*Determinants of Education Achievement by Region in Pakistan*

| Variable | Pakistan | | Urban | | Rural | |
|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Girls |
| **Father Education** | 0.09 (9.17)* | 0.04 (3.77)* | 0.08 (5.95)* | 0.029 (2.85)* | 0.09 (6.74)* | 0.05 (3.06)* |
| **Mother Education** | 0.08 (5.68)* | 0.13 (9.09)* | 0.09 (5.44)* | 0.15 (8.29)* | 0.06 (2.29)* | 0.11 (3.52)* |
| **Age of Child** | 1.14 (22.29)* | 1.08 (16.63)* | 1.22 (16.45)* | 1.21 (13.83)* | 1.09 (15.33)* | 1.02 (10.21)* |
| **Age Square of Child** | -0.02 (-13.75)* | -0.01 (-9.[illegible])* | -0.02 (-10.50)* | -0.02 (-8.43)* | -0.02 (-9.33)* | -0.02 (-6.31)* |
| **Per capita Expenditure** | 4.84 (6.83)* | 4.50 (5.85)* | 3.80 (4.63)* | 3.62 (4.10)* | 8.48 (5.38)* | 8.40 (4.41)* |
| **Land Ownership** | 0.14 (4.38)* | 0.12 (3.04)* | 0.26 (4.15)* | 0.16 (2.16)* | 0.08 (2.19)* | 0.15 (2.92)* |
| **Household Size** | -0.003 (-0.91)* | -0.01 (-2.61)* | -0.06 (-0.87)* | -0.01 (-1.01)* | 0.01 (0.13)* | -0.02 (-2.55)* |
| **School Distance** | -0.11 (-7.81)* | -0.19 (-9.07)* | -0.15 (-4.31)* | -0.22 (-4.93)* | -0.09 (-5.77)* | -0.17 (-7.94)* |
| | **N** = 7426 **LR chi2** =7043.41 **Prob> chi2** =0.00 **Pseudo R2** =0.35 | **N** = 4883 **LR chi2** =4750.45 **Prob> chi2** =0.00 **Pseudo R2** =0.36 | **N** = 3409 **LR chi2** =3543.90 **Prob> chi2**=0.00 **Pseudo R2**=0.39 | **N** = 2811 **LR chi2** =3000.54 **Prob> chi2** = 0.00 **Pseudo R2** = 0.40 | **N** = 4017 **LR chi2** =3332.34 **Prob> chi2**=0.00 **Pseudo R2** =0.32 | **N** = 2072 **LR chi2** =1581.36 **Prob> chi2** =0.00 **Pseudo R2** =0.29 |

Source: Author's own calculations, * Shows within brackets are z-value, N = number of observations

Source: Author's own calculations, N = number of observations

The results show that mother's education positively significantly affects more children education achievement than father's education in Pakistan. Mothers spend more time with their children than father because they are mostly housewives in Pakistan. If mother is educated it influences children education achievement more than father. The results are consistent with those of Holmes (1999) in Pakistan, Dreze and Kingdon (2001) in India, Maitra (2001) in Bangladesh, Jayachandran (2002) in Chicago, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Angel et al. (2010) in Mexico, Lodhi et al. (2011) in Pakistan and Juma and Simatwa, (2014) in Kenya similar results find at regional level. Results show that the relationship between age and education achievement of children is inverted 'U' shaped. As age of children increases, there are more chances of education achievement. If age of children is high and still he/she is in lower class then he/she has low chance to continue education. The most probable reasons for late enrolment might be financial problem, disease or lack of awareness of their parents. The results are equally valid in urban and rural areas. The results are similar with those of Holmes (1999) in Pakistan, Dreze and

Kingdon (2001) in India, Maitra (2001) in Bangladesh, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Angel et al. (2010) in Mexico, Lodhi et al. (2011) in Pakistan and Juma and Simatwa, (2014) in Kenya. Per capita expenditure is being used as a proxy to income. Further results show that per capita expenditures and land ownership positively statistical significantly affect children education achievement. The results are equally valid in urban and rural areas. The results are similar with those of Holmes (1999) in Pakistan, Dreze and Kingdon & Dreze (2001) in India, Maitra (2001) in Bangladesh, Jayachandran (2002) in Chicago, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Angel et al. (2010) in Mexico and Juma and Simatwa, (2014) in Kenya. The results show that household size and school distance are major causes of low education achievement in Pakistan. The breakup of analysis at regional level shows that household size and school distance are more problematic in rural than urban region. The results are consistent with those of Singh (1992) in Brazil, Holmes (1999) in Pakistan, Dreze and Kingdon (2001) in India, Maitra (2001) in Bangladesh, Jayachandran (2002) in Chicago, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Angel et al. (2010) in Mexico, Lodhi et al. (2011) in Pakistan and Juma and Simatwa, (2014) in Kenya.

Are there equally treated male and female children in education achievement decisions in Pakistan? The study estimates the determinants of education achievement for boys and girls at overall and regional level in Pakistan. The outcomes are presented in Table 3.2.

Table 3.2

*Determinants of Education Achievement by Gender in Overall, Urban and Rural Pakistan*

| Variable | Pakistan | | Urban | | Rural | |
|---|---|---|---|---|---|---|
| | Boys | **Girls** | **Boys** | **Girls** | **Boys** | **Girls** |
| **Father Education** | 0.09 (9.17)* | 0.04 (3.77)* | 0.08 (5.95)* | 0.029 (2.85)* | 0.09 (6.74)* | 0.05 (3.06)* |
| **Mother Education** | 0.08 (5.68)* | 0.13 (9.09)* | 0.09 (5.44)* | 0.15 (8.29)* | 0.06 (2.29)* | 0.11 (3.52)* |
| **Age of Child** | 1.14 (22.29)* | 1.08 (16.63)* | 1.22 (16.45)* | 1.21 (13.83)* | 1.09 (15.33)* | 1.02 (10.21)* |
| **Age Square of Child** | -0.02 (-13.75)* | -0.01 (-9.90)* | -0.02 (-10.50)* | -0.02 (-8.43)* | -0.02 (-9.33)* | -0.02 (-6.31)* |
| **Per capita Expenditure** | 4.84 (6.83)* | 4.50 (5.85)* | 3.80 (4.63)* | 3.62 (4.10)* | 8.48 (5.38)* | 8.40 (4.41)* |
| **Land Ownership** | 0.14 (4.38)* | 0.12 (3.04)* | 0.26 (4.15)* | 0.16 (2.16)* | 0.08 (2.19)* | 0.15 (2.92)* |
| **Household Size** | -0.003 (-0.91)* | -0.01 (-2.61)* | -0.06 (-0.87)* | -0.01 (-1.01)* | 0.01 (0.13)* | -0.02 (-2.55)* |
| **School Distance** | -0.11 (-7.81)* | -0.19 (-9.07)* | -0.15 (-4.31)* | -0.22 (-4.93)* | -0.09 (-5.77)* | -0.17 (-7.94)* |
| | **N** = 7426 **LR chi2** =7043.41 **Prob> chi2** =0.00 **Pseudo R2** =0.35 | **N** = 4883 **LR chi2** =4750.45 **Prob> chi2** =0.00 **Pseudo R2** =0.36 | **N** = 3409 **LR chi2** =3543.90 **Prob> chi2**=0.00 **Pseudo R2**=0.39 | **N** = 2811 **LR chi2** =3000.54 **Prob> chi2** = 0.00 **Pseudo R2** = 0.40 | **N** = 4017 **LR chi2** =3332.34 **Prob> chi2**=0.00 **Pseudo R2** =0.32 | **N** = 2072 **LR chi2** =1581.36 **Prob> chi2** =0.00 **Pseudo R2** =0.29 |

Source: Author's own calculations, * Shows within brackets are z-value, N = number of observations

The results show that father's and mother's education has positive statistical prominent cause to children's education achievement. At gender level results show that father's education affect more on boys' education achievement while mother's education effects more on girls' education achievement. The results are equally valid in urban and rural areas. The results are consistent with those of Holmes (1999) in Pakistan, Dreze and Kingdon (2001) in India, Maitra (2001) in Bangladesh, Jayachandran (2002) in Chicago, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Angel et al. (2010) in Mexico, Lodhi et al. (2011) in Pakistan and Juma and Simatwa (2014) in Kenya. The results show that the relationship between age and education achievement of children is inverted 'U' shaped. As age of children increases, there are more chances of education achievement. The results are equally valid in urban and rural areas. The results are consistent with those of Holmes (1999) in Pakistan, Dreze and Kingdon (2001) in India, Maitra (2001) in Bangladesh, Jayachandran (2002) in Chicago, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Lodhi et al. (2011) in Pakistan and Juma and Simatwa (2014) in Kenya. The results show that per capita expenditure and land ownership have positive effect on education achievement. The results are equally valid in urban and rural areas. The results are consistent with those of Holmes (1999) in Pakistan, Dreze and Kingdon (2001) in India, Maitra (2001) in Bangladesh, Jayachandran (2002) in Chicago, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Angel et al. (2010) in Mexico and Juma and Simatwa, (2014) in Kenya. Results also show that household size and school distance are major determinants of low education achievement. At gender level results show that household size and school distance have negative significant effect more on girls' education achievement than boys in Pakistan. Similar results found by these studies Singh (1992) in Brazil, Holmes (1999) in Pakistan, Dreze and Kingdon (2001) in India, Maitra (2001) in Bangladesh, Jayachandran (2002) in Chicago, Khan and Ali (2005 in Pakistan, Anjum and Uzma (2007) in Pakistan, Cheng (2009) in China, Angel et al. (2010) in Mexico, Lodhi et al. (2011) in Pakistan and Juma and Simatwa (2014) in Kenya.

It is very important to estimate which is the highest level of education a child can achieve. The study estimates the determinants of the highest education achievement in Pakistan. The outcomes are given in Table 3.3.

Table 3.3
*Marginal Effects of Highest Education Achievement*

| Variables | Zero | Primary | Secondary | Higher Secondary | Inter to Higher |
|---|---|---|---|---|---|
| **Father Education** | -0.001 | -0.01 | 0.0005 | 0.006 | 0.007 |
| **Mother Education** | -0.001 | -0.02 | 0.001 | 0.01 | 0.01 |
| **Age of Child** | -0.01 | -0.21 | 0.01 | 0.10 | 0.12 |
| **Age Square of Child** | 0.0002 | 0.004 | -0.0001 | -0.002 | -0.002 |
| **Land Ownership** | -0.001 | -0.02 | 0.001 | 0.01 | 0.01 |
| **Per capita Expenditure** | -0.01 | -0.01 | 0.03 | 0.04 | 0.05 |
| **Household Size** | 0.0001 | 0.001 | -0.00005 | -0.0007 | -0.001 |
| **School Distance** | 0.002 | 0.02 | -0.001 | -0.01 | -0.01 |

Source: Author's own calculations

The results show that if father and mother are educated there are more chances of their children to get inter and higher level of education. Especially mother education affects more children achievement of higher level of education. The results show that the relationship between age and higher level of education achievement of children is inverted 'U' shaped. As age of children increases, there are more chances of higher education achievement. If age of children is high and still he/she is in lower class then he/she have fewer chances to get inter and higher level of education. The results show that per capita expenditure and land ownership increases chances of children to achieve inter and higher level of education. The results are equally valid in urban and rural areas. The results of marginal effects show that by increasing household size, school distance cause less chances of highest education achievement. The results are similar with those of Dreze and Kingdon (2001) in India, Maitra (2001) in Bangladesh and Jayachandran (2002) in Chicago. Similar results found in urban and rural areas of Pakistan. The results are given in Table 3.4 and 3.5.

Table 3.4
*Marginal Effects of Education Achievement in Urban Pakistan*

| Variables | Zero | Primary | Secondary | Higher secondary | Inter to Higher |
|---|---|---|---|---|---|
| **Father Education** | -0.0003 | -0.01 | -0.001 | 0.004 | 0.01 |
| **Mother Education** | -0.001 | -0.02 | -0.003 | 0.01 | 0.02 |
| **Age of Child** | -0.006 | -0.20 | -0.02 | 0.07 | 0.15 |
| **Age Square of child** | 0.0001 | 0.004 | 0.0004 | -0.001 | -0.003 |
| **Per capita Expenditure** | -0.02 | -0.06 | -0.07 | 0.02 | 0.05 |
| **Household Size** | 0.00003 | 0.001 | 0.0001 | -0.0004 | -0.001 |
| **School Distance** | 0.001 | 0.03 | 0.004 | -0.01 | -0.02 |
| **Land Ownership** | -0.001 | -0.03 | -0.004 | 0.01 | 0.03 |

Source: Author's own calculations

Table 3.5
*Marginal Effects of Education Achievement in Rural Pakistan*

| Variables | Zero | Primary | Secondary | Higher Secondary | Inter to Higher |
|---|---|---|---|---|---|
| **Father Education** | -0.001 | -0.02 | 0.003 | 0.008 | 0.006 |
| **Mother Education** | -0.002 | -0.02 | 0.003 | 0.009 | 0.007 |
| **Age of Child** | -0.02 | -0.22 | 0.04 | 0.01 | 0.09 |
| **Age Square of Child** | 0.0004 | 0.004 | -0.0007 | -0.002 | -0.002 |
| **Per capita Expenditure** | -0.02 | -0.02 | 0.03 | 0.09 | 0.07 |
| **Household Size** | 0.0001 | 0.001 | -0.0002 | -0.0007 | -0.0005 |
| **School Distance** | 0.002 | 0.02 | -0.004 | -0.01 | -0.008 |
| **Land Ownership** | -0.002 | -0.02 | 0.004 | 0.01 | 0.009 |

Source: Author's own calculations

## Conclusion and Policy Implications

This study estimates the determinants of children's education achievement by employing Censored Ordered Probit model. For this purpose the study selects the children of age group with 12-24 years. The results showed gender discrepancy in the probability of children's education achievement in rural, urban and overall Pakistan. The gender wise results show that boys have more chances of education achievement than girls in rural, urban and overall Pakistan. The regional level results show that children in urban areas have more chances of education achievement than rural areas. The study estimates show that mother's education has prominent effects on education achievement than father's education in rural, urban and overall Pakistan. The gender wise results show that mother's education affects more girls' education achievement while father's education affects boys' education achievement in Pakistan. The results also depict that land ownership and income have positive significant effect on children's education achievement. The results also indicate that school distance and household size are main obstacles in children education achievement. The results also show that the household size and school distance have prominent negative effects on girl's education achievement than boys, especially in rural areas. The government should put more emphasis on children education achievement especially female education achievement in rural areas. Government should provide schooling facilities nearest to the homes of children; especially girls in rural areas. Family planning should be encouraged to control family size. Land reforms should be implemented in letter and spirit. Growth enhancing policies should be adopted.

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