The Effect of Foreign Remittances on Schooling: Evidence from Pakistan

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C O N T E N T S

List of Tables

List of Figures

ABSTRACT

The underlying study intends to show the impact of foreign remittances on the educational performance of children in the households receiving these remittances. Much of the literature in this area covers the effects of remittances on poverty, consumption, and investment behaviour of the receiving households. The literature on the impact of remittances on educational performance, however, is rare, especially in Pakistan. To investigate the impact of remittances on educational performance, primary data at the household level is collected from four main cities of the Khyber Pakhtunkhwa Province, Pakistan. The OLS results illustrate that, without considering parental education, remittances have significant adverse effects on educational performance. However, the effect becomes insignificant once parental education is included, as a control variable, in the regression. The results also reveal that the low level of parental education, current income, assets, family type, and family size play an important role in the educational performance of children.

1. INTRODUCTION

There are numerous factors, which contribute significantly to the improvement of a society's standard of living. However, some of these factors have a special importance in a particular community. One such factor is the foreign remittances inflow to the Third World economies. Remittances are important because they contribute conspicuously in the economic uplift of the households and overall economy in these poor countries. They are not only important source of valuable foreign exchange for the Less Developing Countries in general and Pakistan in particular, but are also a source of poverty reduction and enhancement of human capital.

In Pakistan, research on international migration has primarily focused on investigating the magnitude and demographic profiles of the out-migrants. More recently, however, the implications of migrant manpower at the macro-level, such as employment of labour force, GNP growth, private savings, private investment, consumption, and balance of payments have also been investigated. Moreover, the uses of remittances by migrants' households and by migrants themselves, on return, has been the subject of much empirical research to search not only for incentives and policy prescriptions but also to channelled these resources into productive uses [Shah (1995)].

Within this context, the current study contributes to the empirical literature with the objective of investigating the effects of remittances on the migrant households' decision regarding education of children in the home country. The main focus of this research is to explore the impact of workers' remittances on educational performance of the children of the emigrant household. For this purpose primary data has been collected from four cities of Khyber Pakhtunkhwa Province of Pakistan. To analyse the behaviour of households regarding education of children; descriptive statistics, cross tabulation, test of independence, and regression analysis have been used. Further, to differentiate between the behaviour of remittances receiving and non-receiving households, we have taken sample from both types of households. In the regression analysis the behaviour is differentiated with the help of dummy variable. Interestingly, the remittances have negative effect on education of children in a household. However, this result is subject to parent's education.

Rest of the study proceeds as follows; the following section gives an overview of remittances in Pakistan. Section 3 outlines a review of theoretical and empirical findings in previous studies. Theoretical channels are explained in Section 4. Section 5 discusses the methodological issues. The description of variables and sample profile is given in the Section 6. Section 7 explains the empirical results in detail, while Section 8 concludes the study.

2. REMITTANCES TO PAKISTAN: AN OVERVIEW

Migration of workers from Pakistan to other countries has a long history, however, a large-scale movement of skilled and unskilled workers, especially to the countries of the Middle East, has taken place in 1970s. Today, Pakistan's workers are performing their duties brilliantly throughout the world, especially in Gulf, Europe and USA. Because of the dynamic nature and expanding size of these economies along with the low level of population, these countries have great potential to attract both skilled and unskilled labour force from various parts of the world. Due to the easy access to the labour market of the Gulf States, majority of Pakistani work force prefer to perform their duties in these economies. That is why Arab countries contribute more than 55 percent of the total remittances inflow to the Pakistan. Figure 1 provides a summary of the percentage share of USA, UK, Saudi Arabia, UAE, other Gulf Countries, EU countries, and other countries in total remittances receipt of Pakistan for the period 2008-2009.

Fig. 1. Percentage Share of a Country in Total Remittances Receipt of Pakistan
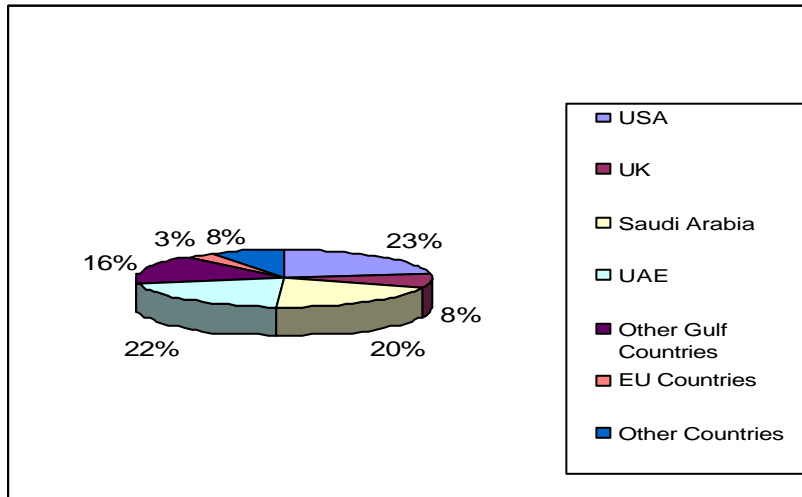
Source: State Bank of Pakistan.

Remittances have remained time dependent in Pakistan, as unfavourable events in Pakistan and the rest of the world have affected this inflow from time to time. Due to this, a great deal of fluctuations in remittances inflow has been experienced. The given Figure 2 highlights that in the late 1970s and earlier 1980s, the remittances inflow to Pakistan touched the historical peak, as this was the time when most of the Gulf States inducted hardworking labour force from Pakistan to take active part in the construction of their economies.

Fig. 2. Remittances Receipt (% GDP)
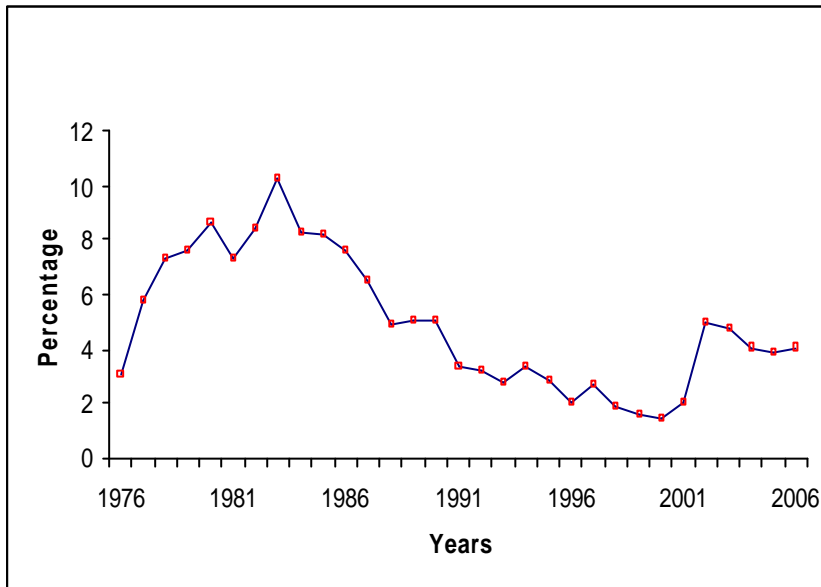
Source: World Development Indicators.

Remittances have remained an important source of foreign exchange reserves for Pakistan over decades. For the last fiscal year 2008-09, remittances have caused a reduction of over $2 billion in the current account deficit, and even for the month of February 2009, we have witnessed first surplus in monthly current account surplus since June 2007 [*Economic Survey* (2008-09)]. Table 1 shows the comparison of remittances inflow between 2007-08 and 2008-09. The table clearly depict that there is about 20 percent increase in the remittances receipt in one year from 2007-08 to 2008-09. Like international trade and capital flows, international labour migration offers greater potential to benefit both the source and host country. Migrants are often more productive and more skilled, which leads to the reduction of labour cost in the host country. These migrants also send their income in the form of remittances, boosting the quality of life in their home country.

4

Table 1

Workers' Remittances ($ Million)

Monthly Cash Inflow	2007-08	2008-09	% Change
July	495.69	627.21	26.53
August	489.51	592.3	21.00
September	516.05	660.35	27.96
October	580.24	466.13	−19.67
November	505.58	620.52	22.73
December	479.26	673.5	40.53
January	557.07	637.3	14.40
February	502.76	641.32	27.56
March	602.21	739.43	22.79
April	590.71	697.52	18.08
June-April	5,319.08	6355.58	19.49
Monthly Average	531.91	635.56	19.49

Source: State Bank of Pakistan.

From mid Seventies to early Eighties, no other factor has so dramatically affected domestic employment and the balance of payments situation in a number of Asian countries like the inflow of workers' remittances from the Middle East, USA and European Union. The major labour exporting countries in Asia are Pakistan, India, Sri Lanka, Bangladesh, Thailand, and Philippines. Amjad (1986) has showed that Pakistan is highly reliant on migration and remittances. Burki (1995) expounds this by quoting that during 1975-85, almost $20 billion were sent to Pakistan by the migrants from different parts of the world. In 1982-83, it was at the peak, i.e., $ 2885.67 million. This was equivalent to 9.39 percent of the total GDP of Pakistan. There was a general downward trend in the inflow of remittances after 1985 and it was $1897 million at the end of eighties [Shah (1995)]. The share of remittances from the Middle East in total inflow was 70 to 80 percent. The volume of remittances in total merchandise trade was 37 percent in 1989; 5.9 percent of GDP. Recently, Pakistan received a record amount of $4,450.12 million remittances during the first 10 months (July 2006 to April 2007) against $3,629.68 million in the corresponding period of last year, registering an increase of $820.44 million or 22.60 percent, making remittances the second largest contributor to GDP [*Economic Survey* (2006-07)].

3. REVIEW OF LITERATURE

The literature on remittances can be divided into two categories: motivation to remit and uses of remittances. Acosta (2006) has pointed out that the first category has been comprehensively studied over the past two decades.

However, a number of recent papers have been focused on the uses of remittances receipt at the micro level. The present study is conducted to make a contribution to the existing literature on the uses of remittances at destination by focusing on the impact of remittances on household decision of investing in the education of their children. Considered to be the first study that addressed the economic consequences of remittances at destination, Funkhouser (1992), finds that the remittances increase self-employment in men and decrease labour supply in women. However, Adams (1998) observes no effects of remittances from foreign on non-farm asset accumulation in rural Pakistan. Woodruff and Zenteno (2004) conclude that, in Mexico, investment in small enterprises is higher in states with higher migration rates and higher remittances receipt.

Remittances not only positively affect physical investment but they can also expand human capital accumulation, such as investment in health and education. Cox-Edwards and Ureta (2003) studied that remittances decrease school drop-out rates. Hanson and Woodruff (2003) come across with a positive interaction between the two variables (education and remittances). Lopez (2005) provides evidence in Mexico that remittances can increase children's school attendance, decrease infant mortality, and reduce child illiteracy. Similar results are derived by Hildebrandt and McKenzie (2005) in their study which shows a positive effect of migration on child health (reducing infant mortality and increasing birth weight) in Mexico. Lu and Treiman (2007) try to examine the effects of remittances on the community of Black South African children's schooling, because a significant amount of remittances to the South Africa are sending by the Black community of the country. The study finds that remittances receipts increase the likelihood of child being schooled in three ways: increase education spending of the household, decrease child labour, and alleviate the negative effect of parental absence on educational attainment due to migration. Remittances receipt also reduces inter and intra families gender inequalities in likelihood of child being schooled.

However, Booth (1995) studies that labour immigration and receipt of remittances may have opposing influences in children's education improvement. Similarly, Kandel (2003) conclude that Mexican labour force migration to U.S.A provides financial support to the Mexican Population that permits children to continue their schooling and improve their performance. Nevertheless, it may also reduce the inspiration in the children to continue above-average years of schooling. Mboya and Nesengani (1999) has also analysed that whether there are significant differences in academic achievements of a child whose father is present with that child whose father is out-migrated from the country. The result shows that, the father absenteeism due to work conditions is very deleterious for the left behind child's performance.

A detailed research is conducted by Dorantes, *et al.* (2008) to analyse the impacts of remittances on the educational attainment of children in Haite. The

study made a significant contribution to the literature by separating the "migration effect" from "remittances effect" for the first time. Although the receipt of remittances by the household lifts budget constraint and raises the children's likelihood of being schooled, but out-migration of a family member increases the social and economic responsibilities of the remaining household members as well and thus reduces the likelihood of children being schooled. To find a net impact of remittances receipt child's education, the study divided the sample size into two groups. They first took pooled data for children from all household and, subsequently, using a sub-sample of children from households who do not experience an out-migration, but still receiving remittances. The results show that remittances raise school attendance for all children regardless of whether they have household member abroad or not. These results suggested that remittances offset significantly the negative effect of migration of a household member on its children education attendance and leads to the accumulation of human capital. Similar results have also analysed by Acosta (2006) who investigates the effects of remittances on household's spending decision in El Salvador. Controlling wealth of the household, the study point out that school enrolment for both boys and girls (under age fifteen) in remittances receipt households is high as compared to non-remittances receipt households. These remittances also decrease child labour and adult female labour force participations; however, male labour force participation is unaffected. It conclude that international remittances increases girls education and decreasing women's labour supply leaving male labour supply unaffected, which suggests the presence of gender differences in the use of remittances across and within household. Bryant (2005) shows the socio-economic impacts of international migration on the lives of Indonesia, Thailand, and Philippine's children. The study evidence suggests that the children of these countries do not, on average, suffer greater from social and economic problems as compared to those whose parents are nearby child.

The literature is further improved by Acosta (2007) who highlights the resultant impact of remittances on poverty, education, and health in eleven Latin American countries. The study also considered the potential income loss, of the migrant household, that is earned at home. The main finding of the study explores that remittances receipt have an impact on poverty reduction; though, the estimated relationship is modest. The study also point out that although significant heterogeneity in poverty reduction exists among the sample countries; however remittances always tend to have positive effects on education and health levels achieved. Similar contribution is also made by Rehman, *et al.* (2000) who investigates the impact of overseas workers earning on education and other activities in Pakistan. The nature of the research is based on primary date which was collected through field survey. Overseas job workers constituted the experimental group while non-migrant formed the control group. Education

of the workers, their age, and length of overseas stay are important variables which influence the income during migration. The results of the research show that remittances are very important part of income of household in Pakistan and affect educational attainment and other economic activities significantly.

4. THEORETICAL CONSIDERATIONS

The importance of remittances as a source of income in developing countries is undeniable. It is now an established fact that remittances have tremendous impact on level of consumption, and investment in physical assets. However, the impact of remittances on socioeconomic conditions of the households is ambiguous. In particular, the debate over the effects of migration and remittances on education of the children of migrants remains controversial [see for example, Booth (1995); Hanson and Woodruff (2003); Kandel (2003)].

Assuming that parents are able to borrow in order to relax their budget constraints, the decision to invest optimally in their children's education depends on the net rates of return (i.e. by comparing costs and benefits). However, in the absence of borrowing ability, parents' decision regarding investment in their children's education will be constrained by their resources. This is evident from the Becker and Tomes (1976) model which suggests that under binding borrowing constraint, poor parents may invest less than the optimum in their children's education. However, the willingness of these parents to invest is a positive function of their income up to the point where marginal return to investment equals market rate of return. Moreover, if there is more than one child in the family, parents may also decide the allocation of resources across children. This is particularly important for the families with both male and female children as female are placed in the second place in the attainment of education in developing countries, as the male child is considered the prospective earner for the family.

Now we come to important question that what will be the effects of migration and remittances on the education of the children? This effect may both be positive and negative. There are studies that found positive relationship between remittances and children's education. When parent(s) go abroad and send remittances to home, it relaxes the budget constraint of the family, so that they are able to invest more in the children's education. This extended investment may either be used for the higher education of already studying children or it may be invested in those children who could not go to school (especially female children) due to budget constraints, or it can be used for both purposes. Remittances also reduce child labour and hence can have a positive impact on education.

On the other hand, going abroad of one or both of the parents may have negative effects on the schooling of the children. These effects may take various channels. Firstly, when the parent(s) go abroad, the children have to come

forward to take the social responsibilities that were initially done by the parent. These responsibilities take a lot of precious time and may become a hurdle in the education of the children. Secondly, the out-migration may disrupt the family life and the resulting absence of parental attention may badly affect the children's performance in the school. This is particularly obvious in the case of nuclear families. Especially in developing country like Pakistan, in the case of nuclear families, the absence of father may lead to the adaptation of bad company by the children as mother cannot keep a hold on the children outside home. These unhealthy activities ultimately lead to the drop-out of children from schools.

The above two channels are usually found in the literature. However, both of these theoretical channels consider the "out-migration" or "parental absence" to be responsible for the negative effects on children's schooling. They do not blame remittances for the negative effects. Another possible channel through which remittances may be responsible for the negative effects on schooling is the raise in family income due to inflow of remittances that may reduce children's motivation for getting education. Education is mostly considered a better way to get more incomes. Nonetheless, this motive looses its worth when households receive higher incomes through remittances. This effect is stronger particularly in those cases where the migrant person has a business abroad as compared to those who works as a labourer. The children get a negative motivation of going abroad, when they grow up, and sharing their parents' business and hence they do not consider education as a source of future earnings. Such thinking has tremendous negative effects on their school attainment, ultimately resulting in their drop out.

The above theoretical discussions do have empirical support. There are studies that found positive relationship between remittances and schooling of the children [see Bryant (2005); Curran, *et al.* (2004); Jones (1995); Lu (2005); Morooka (2004); Taylor (1987)]. In addition, Kandel and Kao (2001) show that remittances can play important role in reducing obligatory child labour. On the other hand, some studies blame parental absence for the detrimental effects on children's school performance [see Mboya and Nesengani (1999); Haveman and Wolfe (1995)]. These mentioned theoretical channels suggest that finding out the impact of remittances on education is an empirical question and the contradictory empirical findings in the literature suggest that their results may be region specific and hence separate studies should be conducted for different regions or countries.

Besides remittances, other variables that are expected to affect the children's educational performance include parental education, household size, type of family, assets of the family and total expenditures of the family. Parental education is considered an important determinant of the children's school performance. When parents are educated, they can improve their children's

educational performance by inspiring them to get education. An increase in a household size is expected to adversely affect the performance of children in school as it divides the attention of the parents and they cannot give proper time to each and every child. In addition, it also reduces the per capita income of the household putting constraints on educational expenditure of the household. However, if the size is large because the family is joint or extended, it may have a positive impact on children's education. The reason is that in an extended family the effect of the parental absence can be offset by the presence of other family members as they take care of the children. To our knowledge, our study is first one which is taking family type as the determinant of children educational performance. This variable is taken keeping in the view the culture of the country in general and of the Khyber Pakhtunkhwa province in particular. Another variable is the total assets of the households. A rise in the assets increases the lifetime income of the family and hence may have positive impact on education of the children.

5. METHODOLOGICAL ISSUES

It is essential to have sound, well-developed and recognised tools and techniques, for any good survey and research activity. Any primary level empirical research study passes through a number of steps like survey design/techniques, questionnaire design and preparation, field team selection and training, field data collection and monitoring, computer programming, data entry and cleaning, data analysis and cross tabulation, and finally the report writing. The relevant review of literature is also very important. All these steps are very well taken and adequate time was allocated to each of them. Brief description of each step is presented in the following sections.

Both formal and informal sampling techniques were adopted for the survey. In case of informal survey Participatory Reflection and Action (PRA) Techniques were adopted. Under these group discussion (GD), key informant survey (KIS), direct observations, transaction walks, triangular methods, etc were used.

In case of formal sampling different sampling techniques were adopted at different stages for the selection villages and then households. In order to have an in-depth analysis, primary data is collected for the underlying study through questionnaires from randomly selected households. The sample area covers four main cities of the Khyber Pakhtunkhwa province, which include Peshawar, Mardan, Nowshehra, and Charsadda. These cities share almost same socio-economic and cultural characteristics.[1] The selected sample size is 400

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[1]Although the result of current study may be generalised for the Khyber Paktunkhwa Province of Pakistan due to common socio-economic conditions in the province, the limited sample size of 400 may prevent the generalisation of results for the whole country.

households; 100 from each city. In our empirical analysis, we include the children whose age was 6 years and above. It is interesting to note that the sample also includes individuals who have never attended school or were dropped out from the school.

After several group discussions, a comprehensive questionnaire is designed. Two sets of questions are included; one pertaining to the information regarding the households while the other is related to information regarding the children in the household. The questionnaire elicited the following information

(a) Household Information

The survey begins with information regarding the households, which includes gender based information related to education, age, income and expenditures, HH members, employment, occupation and earnings, etc.[2]

(b) Information Related to Children

This part of the questionnaire collects information related to children in the family. This include, age of the children, gender, current enrolments (i.e. whether they are currently enrolled in school, college, university, madrassa, or any other institution), institution of education (private or public), child's competence in education (i.e. whether s/he is a position holder or not and information about his/her marks in the last class), education attained by the child (i.e. whether s/he has completed the education or dropped out and what was the reason of drop out), distance of the educational institution from home and the availability of transport to that educational institution.[3]

For field data collection a team was constituted, which consisted of female and male master degree holders. One day extensive training for field survey, data collection, questionnaire understanding, etc was conducted at Peshawar. Objective of the training was to acquaint the field team with questionnaire. The team also visited different villages for field experience and the questionnaire was also pre-tested. During and after the field visits, the observations, clarifications, suggestions, and explanations related to the questionnaire were discussed, explained and elaborated. Most of the enumerators were experienced and they showed keen interest in the survey.

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[2]The reason for using household as a unit of analysis is that we were interested in investigating the impact of remittances on the educational performance of all the children in a household and not of an individual child. Furthermore, the theoretical model that we are using focuses on the household budget constraint and the possibility of substitution of investment on one child's education to another. Lastly, the children in a household include school going, college and university fellows. Since the dynamics of their performances may include other factors which may differ from each other, it was essential to merge them into one index. Interestingly, the use of household as a unit of analysis was also second by the referee who evaluated the proposal submitted for the project.

[3]The questionnaire can be obtained from authors on request.

The data was collected in April 2009. Sixteen field enumerators and four field supervisors visited households at their premises for data collection. Four enumerators and one field supervisor were allocated to each city. There was close collaboration between male and female enumerators. Before the survey, the field supervisors informed the community or senior villagers about the purpose of the visit. However, due to bad law and order situation in Khyber Pakhtunkhwa, the people were hesitant in giving data, especially about their incomes and assets. To cater this problem, the enumerators were accompanied by the villagers known to and reliable for, the residents of the respective villagers. This was really a daunting task for the enumerators, which they achieved with their hard work and commitment to duty. Each questionnaire was checked and signed by the field supervisor. All team members stayed at the same premises, and therefore during evening and at night, they held sound discussion on questionnaires and shared their field experiences.

6. VARIABLE CONSTRUCTION AND SAMPLE PROFILE

This section consists of two major sub-sections. In the first sub-section we briefly describe the construction of different variables. In the second major sub-section, a brief description of the data is presented by investigating the sample profile. This will be helpful in understanding various characteristics of the sample area.

6.1. Construction of Variables

In this section we discuss the details of construction of variables used in the estimations. Our dependant variable is an index of educational performance of the children in the households. It ranges from 0 to 100 where highest values indicate good performance. This index is constructed by using various characteristics and variables that could affect educational performance of the children. These characteristics and variables included gender of the child, current enrolment (i.e. the child is currently enrolled in school, college, university, maddrassa or any other institution), institution of education (private or public), whether the child is a position holder or not, and whether the child is dropped out or not. For example, if a child is enrolled in the university, he or she gets the highest score of 6. Similarly, a position holder child gets the score of 3. The maximum score a child could get is 24, whereas the minimum score is 0. It is then converted to the range of 0-100.

As far as the independent variables are concerned, the first and most important variable is "Remittances". This variable is used to determine the effects of remittances on the educational performance of the children in the households. It is used as a categorical variable. The remittances receiving households were given the value "1" and the non-remittances receiving households were assigned the value "0". The second explanatory variable is

"Family Type". We use dummy variable to quantify this variable. It is divided into two categories namely nuclear family system, and joint and extended fa mily system. Nuclear family system was assigned the value "0", whereas the other category was given the value "1". The third explanatory variable is "Household Size" which shows the total number of family members. The variable "Assets" was taken as an estimate of lifetime income of the households. Assets include both financial and real assets. Real assets include house(s), agricultural and non-agricultural land, vehicles, and all other durable assets. The monetary value of these assets was calculated by taking their average market prices.

The variable "Expenditure" per month was used as a proxy for income per month. People either do not give data about their actual income or give unreliable data by underestimating their income. The same objection can be raised against expenditure that people try to overestimate it. However, we used expenditure for two reasons; firstly, people do not hesitate to give data about their monthly expenditure and secondly, it is more reliable proxy for income than the data on income given by the household. Another important determinant of educational performance of the children identified in the literature is "Parental Education". We calculated this variable separately for mothers and fathers. We made five categories of education attainment for each parent. These categories include illiterate (0 to 4 years of education), primary (5 to 9 years of education), metric (10 to 13 years of education), graduate (14 and 15 years of education) and postgraduate (16 or above years of education). For this we took four dummies. The quantification is as follows:

|		
Father Primary	=	1, if father's years of schooling lies between 5 to 9
	=	0, otherwise
Father Metric	=	1, if father's years of schooling lies between 10 to 13
	=	0, otherwise
Father Graduate	=	1, if father's years of schooling is 14 or 15
	=	0, otherwise
Father Postgraduate	=	1 if father's years of schooling is 16 or above
	=	0, otherwise
Similarly, Mother Primary	=	1, if mother's years of schooling lies between 5 to 9
	=	0, otherwise
Mother Metric	=	1, if mother's years of schooling lies between 10 to 13
	=	0, otherwise
Mother Graduate	=	1, if mother's years of schooling is 14 or 15
	=	0, otherwise
Mother Postgraduate	=	1 if mother's years of schooling is 16 or above
	=	0, otherwise

We have used ordinary least square (OLS) method for estimation because the data fulfilled all the classical assumptions.

6.2. Sample Profile

This section unveils the various characteristics of the respective sample area. For this purpose we present the sample profile with the aid of "Bar Charts". In the following lines, responses to different questions have been illustrated.

6.2.1. *Type of Family*

The first question asks about the type of family i.e. whether the family system is nuclear, joint or extended. Since the effect of the joint and extended family systems is the same in the context of this particular study, we merged these two categories into one and called it joint family system collectively. The responses are shown in Figure 3 In our sample, almost 50 percent of the respondents belong to nuclear family system where as the remaining 50 percent represents joint or extended family systems collectively. We take it as a blessing since it gives equal representation to both the family systems and therefore may improve our results.

Fig. 3. Type of Family

Family Size
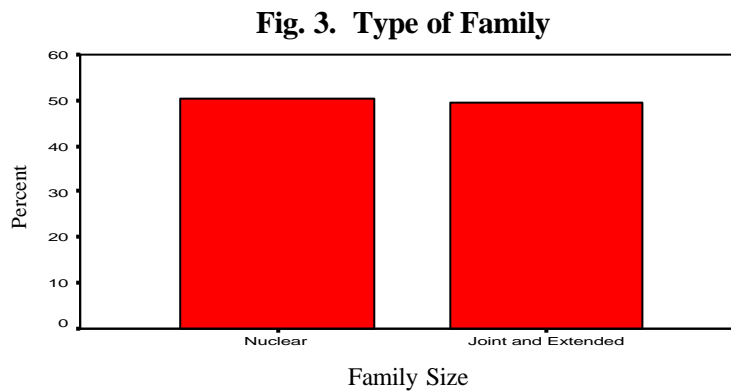
6.2.2. *Household Size*

The second question is related to the household size. The result in the chart shows that household size in our sample ranges from 3 to 40. In a way this variation is very high. However, this really is good representation of the sample area because in Khyber Pakhtunkhwa, there is a culture of joint and extended family system, as is obvious from the previous chart. In addition, people do have large family size. Figure 4, however, depicts that household size of 7 has the highest frequency (almost 15 percent) in the sample. The data is positively skewed in this graph showing that the higher household size has diminishing trend.

Fig. 4. Family Size
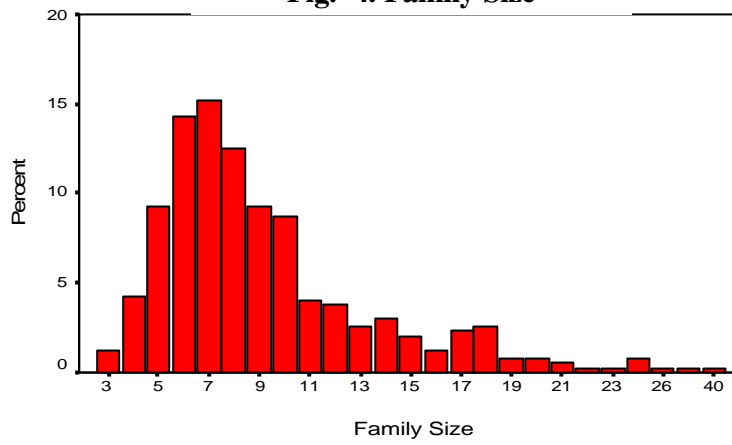
6.2.3. *Total Number of Earning Persons in the Household*

An important factor is the total number of bread-earners in the household. This includes earners both in domestic as well as in foreign countries. Figure 5 illustrates that 44 percent households of sample have only one bread earner whereas only 0.3 percent have 7 (the highest) bread earners. It is also obvious from the figure that very few households have higher number of bread earners whereas higher number of households has very few bread earners. In fact, 69 percent of the households have only up to two bread earners.

Fig. 5. Number of Earning Persons
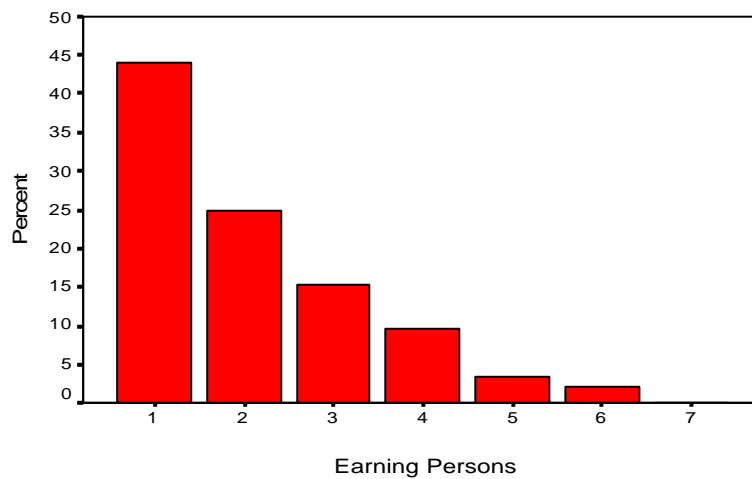
6.2.4. *Monthly Expenditures per Family Member*

If we use the standard 1 dollar per day definition for measuring the poverty line, then in Pakistan poverty line is estimated to be Rs 2400 per month. Any person whose per month income is below this amount may be considered as poor. In our sample, almost 71 percent of the households may be considered as poor, as is evident from Figure 6. Only approximately 29 percent of the households have the incomes above the poverty line. This indicates the economic conditions of the people of the sample area.

Fig. 6. Monthly Expenditure per Household
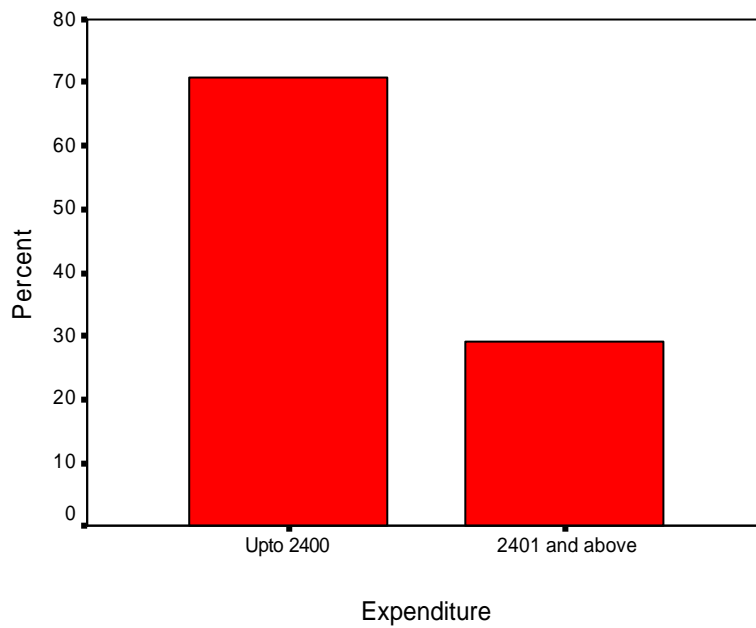
6.2.5. *Financing of Monthly Expenditures Through Remittances*

It is important to see how much remittances are helpful in financing the monthly expenditures. For this purpose we made four categories. Figure 7 shows that more than 75 percent of the monthly expenditures are financed through remittances by almost 35 percent of the households, whereas almost 19 percent of the households use remittances to finance less than 25 percent of their monthly expenditures. 7 percent of the households did not know or were not able to provide information regarding this question. However, one can see that we have almost every type of households regarding the use of remittances in monthly expenditures in the sample area.

Fig. 7. Financing through Remittances

Proportional Financing
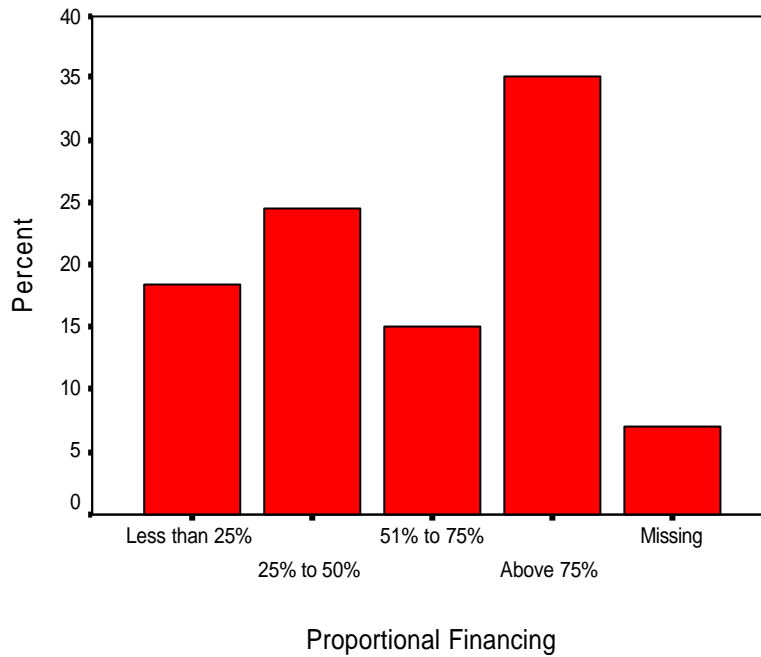
7. RESULTS AND DISCUSSIONS

This section presents the estimation results of our main model and some of its extensions. However, before we discuss our main estimation results, it would be of great importance to present some descriptive statistics of the variables to be used in the final estimation. For this purpose we made cross-tabs between the dependant (Index of educational performance) and the explanatory variables one by one. In addition, for the test of independence between the dependant and various explanatory variables, use was made of chi-square test. The tables presenting these cross-tabulations and chi-square tests are given in Appendix I. It is interesting to see that almost all of the results of the cross-tabs and chi-square tests support our estimation results. For example, those variables which are found to be independent from each other (such as remittances and educational performance) are also found insignificant in the regression analysis.

Now we come to the estimation results. We have estimated four models separately which as presented in Table 2. In each model along with remittances, some other variables have been included as controls. We explain each model one by one as follows.

Table 2

Results of Regression Analysis

Variables	Model 1	Model 2	Model 3	Model 4
Intercept	51.03883***	48.95890***	51.24201***	50.76872***
	(1.797234)	(1.920229)	(2.160297)	(2.157887)
Remittances	–2.780399*	–2.327839	–2.028528	–1.840750
	(1.623157)	(1.625993)	(1.634442)	(1.630071)
Family Type	3.844402**	3.682985*	4.078843**	4.134206**
	(1.949346)	(1.928407)	(1.937795)	(1.919748)
Household Size	–1.055292***	–0.987767***	–1.020952***	–0.983451***
	(0.214366)	(0.215454)	(0.212543)	(0.214232)
Assets	8.55E-08***	9.01E-08***	8.33E-08***	8.51E-08***
	(2.64E-08)	(2.61E-08)	(2.62E-08)	(2.60E-05)
Expenditure	0.000280***	0.000250***	0.000263* **	0.000237***
	(6.34E-05)	(6.39E-05)	(6.30E-05)	(6.37E-05)
Mother Primary	–	5.634906***	–	6.062927***
		(2.175892)		(2.249181)
Mother Metric	–	5.965160***	–	4.884334**
		(2.124805)		(2.364691)
Mother Graduate	–	0.891504	–	–0.325583
		(3.807223)		(3.950999)
Mother Postgraduate	–	–3.211437	–	–7.073183
		(8.200001)		(8.531965)
Father Primary	–	–	–5.008430**	–5.669210**
			(2.499622)	(2.487998)
Father Metric	–	–	–1.794519	–3.458149*
			(1.912977)	(1.989701)
Father Graduate	–	–	2.168798	0.174275
			(2.780881)	(2.894996)
Father Postgraduate	–	–	4.035430	1.848147
			(2.657896)	(3.051513)
Adjusted R-Squared	0.129326	0.150920	0.147226	0.165750
F-statistic	11.33811***	7.872796***	7.675579***	6.318559***
Observations	349	349	349	349
White's stats	0.8807	1.1503	0.7158	1.0249

Note: The values in parenthesis show the standard errors of the coefficients. ***, **and * show significance at 1 percent, 5 percent and 10 percent levels of significance. White stats indicate the values of the White tests used to diagnose the heteroscedasticity in the models. The complete test results of White Heteroscedasticity tests are given in Appendix II.

In model 1, all the variables are highly significant at standard level of significance except for "remittances" which is only marginally significant. In addition, the variables have expected signs. The value of adjusted R-square is reasonably well for cross sectional analysis. F-statistics shows the overall significance of the model. The value of White's stats indicates that there is no heteroscedasticity in the model. As is evident from Table 2, remittances have negative sign pointing that it has adverse effect on the educational performance of the households. The main reason is that most of the remittances receiving

households face the problem of the absence of care taker in general and parental absence in particular. In the sample area, those who went abroad for earning are fathers or elder brothers, which lead a vacuum in the house. This can have two effects; (i) it put pressure on other children in the house to fulfil the social responsibilities which is time consuming, (ii) the absence of care taker from the home leads these children to involve in socially undesirable activities which are detrimental for their studies. Hence the positive effect of remittances on education is countered by the negative effects of the parental absence.

The variable "family type", which to our knowledge is used for the first time in the analysis, is also significant. The positive sign of its coefficient indicates that a joint family system is beneficial for educational performance of the children because it may reduce the negative impact of parental absence. Moreover, the results show that household size can adversely affect children's educational performance as was expected theoretically. An increase in the household size reduces the per capita income in a household and hence reduces the amount allocated for educational attainment. On contrary, a rise in the household assets relaxes the budget constraints and the allocated amount for the education increases. This fact is obvious from our estimation results. The variable "expenditure" which is used as a proxy for household income in the respective analysis is highly significant. This reveals a very important fact that it is not the income from remittances, rather the parental absence due to remittances, which is detrimental for households' educational performance.

The marginal significance of the variable "remittances" forces us to check its robustness and hence we make some extensions in the first model by including various levels of "parental education" in the analysis. In model 2, we first include various levels of mothers' education only. "Illiteracy" is used a base category. We observe two interesting results here. Firstly, the variable "remittances" becomes insignificant unveiling the fact that if the parents are educated, remittance may have no significant impact on children education in the household. Educated mother may effectively improve the children's educational performance even in the absences of remittances. She can also fill the gap created due to father absence. Secondly, among the various levels of mother education, primary and metric are significant. Higher education does not have significant impact on children's educational performance. At higher levels of education, the opportunity cost of being staying at home for mothers is higher and hence they may transfer their services to labour market which may again lead to partial parental absence. This model is also good fit as is evident from the value of adjust R-square and F-stats. Moreover, there is no heteroscedasticity in model as revealed by White's stats.

In model 3, we include various levels of fathers' education only. Again the base category is "Illiterate". We can observe that "remittances" has no significance if the father has some level of education. In this case, only primary

education is significant; however, the sign of its coefficient is negative. The reason is that at such a low level of education, the father may have to involve in such jobs for earning that reduces his attentions to his children, and hence may adversely affect children's educational performance. At higher levels of education, his job may not be too hectic, yet his attention may have no significance for the children's educational performance. The overall performance of the model is good as can be seen from adjusted R-square and F-stats. White's stats show the absence of heteroscedasticity in the model.

In the last model, father's and mother's education are taken together. It is obvious that all variables are significant at same levels of significance and with same signs as in the previous models. Again remittances is insignificant in the presence of parental education indicating that parental education is more important variable that remittances. Interestingly, mothers' education is more important than fathers' as far as the children educational performance is concerned. It is mother who stays at home and gives proper attention to the children. Father, on the other hand, remains in the market for most of the time and may not play significant role in the children education except for earning income to be spent on their educational expenditure. Here again the good performance of the overall model is evident from F-stats, adjusted R-square and White' stats.

Lastly, we discuss the robustness of the results. Starting with remittances, we can see that in first model it is only marginally significant; however, in the presences of parental education in other three models it becomes insignificant. The robustness of this variable is clear from the values of its coefficient (varying from 2.78 to 1.84) and its signs in the models. The variable "family type" is also very robust as it remains significant in all the models and with the same sign and less variation in the coefficient values (ranging from 3.84 to 4.13). Similarly, household size is also robust in terms of significance, sign and coefficient values which remain between 1.05 and 0.98. The other two variables "assets" and "expenditure" are also robust in term of the above mentioned characteristics. Parental education which is separated in mother and father education, have been classified in various levels. The significance, sign, and variation in the values of coefficients of these variables prove the robustness of these variables as well.

8. CONCLUDING REMARKS

To recapitulate, the objective of the underlying study is to investigate the impact of remittances on the educational performance of children in the family in the presence of some control variables. For this purpose, primary data was collected from the four cities of Khyber Pakhtunkhwa from 400 households. An index of educational performance of the children in the households is constructed, which is used as dependant variable in the analysis. Along with remittances, other explanatory variables include the type of family, household

size, assets of family, total monthly expenditure by the family, and parental education. Expenditure was used as proxy for income of the households. Using Ordinary Least Square (OLS) method, four models were estimated in the analysis. The main conclusions drawn from the study are as follows.

Remittances have a marginally significant negative impact on the educational performance of the children in the absence of parental education. However, the impact becomes insignificant in the presence of parental education. It means that the positive impact of remittances in the form of inflow of income is offset by the negative impact of the parental absence. Particularly the absence of father or any other close relative from home leads to situations where there can be no checks on the outside home activities of the children. The cultural constraints in province of study restrict mothers or any female member of the household to go outside to look after their children's activities.

Moreover, our study concludes that parental education is more important determinant of children's educational performance than remittances. Among parents, however, mother education play dominant role since in Pakistan in general and in Khyber Pakhtunkhwa in particular, mother is considered responsible for the look after of the children. Even the negative effects of father's absence from home can be offset by an educated mother as she grows her children taking particular interest in their education. However, the results also demonstrate that higher level of mother's education may have no significant effect on children's education as mother's opportunity cost of staying at home becomes high and this may force her to go to the job market which again leads to partial parental absence and may reduce mother's time allocation for children.

The respective study also illustrates that joint family system has significant beneficial effects on children's education as such a system may fill the vacuum created due to parental absence. Nonetheless, a rise in the household size may be harmful for children's performance in the school. In addition, current income as well as assets may play positive role in children education. An increase in either or both of these relaxes the households' budget constraint, which allows them to allocate more amounts for education of the children. The increased amount may either be used to enrol another child in school, or if all the children are already enrolled, this amount can be used for their higher education. In either way, this will improve the overall educational performance of children in the family.

APPENDIX I

Results of Cross-Tabs between Dependant and Explanatory Variables

The following tables presents the cross-tabulations between the dependant variable (Index of education performances) and the explanatory variables used in the regression analysis. Chi-square tests are used for test of independence between the two variables (i.e. dependant and each explanatory variable) one by one. The index of educational performance has been converted into a dichotomous variable. The index is assigned value "1", if it values lie between 0 and 50, and "2" if the values lie in the range of 51 to 100. The value "2" indicates good performance.

What is the Type of Your Family? * DEP1 Crosstabulation

		DEP1 1.00	DEP1 2.00	Total
What is the type of your family? 0	Count	126	58	184
	% within What is the type of your family?	68.5%	31.5%	100.0%
	% within DEP1	54.3%	47.9%	52.1%
1	Count	106	63	169
	% within What is the type of your family?	62.7%	37.3%	100.0%
	% within DEP1	45.7%	52.1%	47.9%
Total	Count	232	121	353
	% within What is the type of your family?	65.7%	34.3%	100.0%
	% within DEP1	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.296	1	.255		
Continuity Correction	1.053	1	.305		
Likelihood Ratio	1.295	1	.255		
Fisher's Exact Test				.264	.152
Linear-by-Linear Association	1.292	1	.256		
N of Valid Cases	353				

Standard Family Size* DEP1 Crosstabulation

		DEP1 1.00	DEP1 2.00	Total
Standard Family Size 0	Count	68	35	103
	% within STANDFAM	66.0%	34.0%	100.0%
	% within DEP1	29.3%	28.9%	29.2%
1	Count	164	86	250
	% within STANDFAM	65.6%	34.4%	100.0%
	% within DEP1	70.7%	71.1%	70.8%
Total	Count	232	121	353
	% within STANDFAM	65.7%	34.3%	100.0%
	% within DEP1	100.0%	100.0%	100.0%

Note: In the respective study, a standard family size is 6 or below. Hence the value of "0" is assign to household size 6 or below and "1" otherwise.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.006	1	.940		
Continuity Correction	.000	1	1.000		
Likelihood Ratio	.006	1	.940		
Fisher's Exact Test				1.000	.521
Linear-by-Linear Association	.006	1	.940		
N of Valid Cases	353				

Whether they send remittances? * DEP1 Crosstabulation

			DEP1		Total
			1.00	2.00	
Whether they send remittances?	0	Count	120	63	183
		% within Whether they send remittances?	65.6%	34.4%	100.0%
		% within DEP1	51.7%	52.1%	51.8%
	1	Count	112	58	170
		% within Whether they send remittances?	65.9%	34.1%	100.0%
		% within DEP1	48.3%	47.9%	48.2%
Total		Count	232	121	353
		% within Whether they send remittances?	65.7%	34.3%	100.0%
		% within DEP1	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.004	1	.951		
Continuity Correction	.000	1	1.000		
Likelihood Ratio	.004	1	.951		
Fisher's Exact Test				1.000	.521
Linear-by-Linear Association	.004	1	.951		
N of Valid Cases	353				

Expenditure Per Household * DEP1 Crosstabulation

			DEP1		Total
			1.00	2.00	
Expenditure per Household	.00	Count	182	63	245
		% within EXPPHH	74.3%	25.7%	100.0%
		% within DEP1	79.5%	52.5%	70.2%
	1.00	Count	47	57	104
		% within EXPPHH	45.2%	54.8%	100.0%
		% within DEP1	20.5%	47.5%	29.8%
Total		Count	229	120	349
		% within EXPPHH	65.6%	34.4%	100.0%
		% within DEP1	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	27.390	1	.000		
Continuity Correction	26.116	1	.000		
Likelihood Ratio	26.663	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	27.312	1	.000		
N of Valid Cases	349				

Fathers' Education * DEP1 Crosstabulation

			DEP1 1.00	DEP1 2.00	Total
Fathers' Education	0	Count	58	32	90
		% within Q16F_1	64.4%	35.6%	100.0%
		% within DEP1	25.4%	28.1%	26.3%
	1	Count	38	10	48
		% within Q16F_1	79.2%	20.8%	100.0%
		% within DEP1	16.7%	8.8%	14.0%
	2	Count	91	36	127
		% within Q16F_1	71.7%	28.3%	100.0%
		% within DEP1	39.9%	31.6%	37.1%
	3	Count	20	15	35
		% within Q16F_1	57.1%	42.9%	100.0%
		% within DEP1	8.8%	13.2%	10.2%
	4	Count	21	21	42
		% within Q16F_1	50.0%	50.0%	100.0%
		% within DEP1	9.2%	18.4%	12.3%
Total		Count	228	114	342
		% within Q16F_1	66.7%	33.3%	100.0%
		% within DEP1	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.675	4	.020
Likelihood Ratio	11.640	4	.020
Linear-by-Linear Association	2.910	1	.088
N of Valid Cases	342		

Mothers' Education * DEP1 Crosstabulation

			DEP1 1.00	DEP1 2.00	Total
Mothers' Education	0	Count	160	61	221
		% within Q16M_1	72.4%	27.6%	100.0%
		% within DEP1	69.0%	51.7%	63.1%
	1	Count	28	24	52
		% within Q16M_1	53.8%	46.2%	100.0%
		% within DEP1	12.1%	20.3%	14.9%
	2	Count	31	28	59
		% within Q16M_1	52.5%	47.5%	100.0%
		% within DEP1	13.4%	23.7%	16.9%
	3	Count	11	4	15
		% within Q16M_1	73.3%	26.7%	100.0%
		% within DEP1	4.7%	3.4%	4.3%
	4	Count	2	1	3
		% within Q16M_1	66.7%	33.3%	100.0%
		% within DEP1	.9%	.8%	.9%
Total		Count	232	118	350
		% within Q16M_1	66.3%	33.7%	100.0%
		% within DEP1	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.616	4	.013
Likelihood Ratio	12.345	4	.015
Linear-by-Linear Association	5.223	1	.022
N of Valid Cases	350		

APPENDIX II

Results of White Heteroscedasticity Tests

White Heteroscedasticity Test for Model 1

Null Hypothesis: There is no heteroscedasticity.	
F-Statistics	0.880750
Probability	0.532832
Obs*R-squared	7.085675
Probability	0.527418

White Heteroscedasticity Test for Model 2

Null Hypothesis: There is no heteroscedasticity.	
F-Statistics	1.150392
Probability	0.318373
Obs*R-squared	13.77295
Probability	0.315442

White Heteroscedasticity Test for Model 3

Null Hypothesis: There is no heteroscedasticity.	
F-Statistics	0.715866
Probability	0.736002
Obs*R-squared	8.700315
Probability	0.728292

White Heteroscedasticity Test for Model 4

Null Hypothesis: There is no heteroscedasticity.	
F-Statistics	1.024917
Probability	0.429413
Obs*R-squared	16.42698
Probability	0.423578

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26

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