

**Determinants of Household Expenditure on Children's Education:  
Evidence from MENA countries**

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First Draft

**Abstract**

MENA region place a very high value on education for achieving social mobility. This paper attempts to study the contributing factors of household education expenditure. This is implemented using survey data from five MENA countries to understand the nature of household expenditure on schooling. The main findings that emerge from this study are three folds. First, education expenditure in all five Arab countries responds highly to household income. Second, education and occupation of household head matter. Heads with post-secondary or university degree, and works in professional occupations are likely to spend more on children's education. Third, households residing in center provinces of countries are likely to spend more than their counterparts living in the southern and northern provinces except for Sudan .

JEL Classification: I21, I22, C25

Keywords: Family/ Household Expenditure on Education, educational demand, MENA

**1. Introduction**

In recent years, education is at the top of the reform agenda for many policymakers in the Arab countries. According to human capital theory, education is considered an antidote for reducing poverty levels and promoting economic growth, both at the national and household levels. In

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addition, education is seen as a solution against authoritarian governments and a condition for achieving democracy. However, many criticisms is given to the education system in the Arab countries as a part of the underdevelopment problem rather than a solution. The average level of education among MENA population is still very low compared to East Asia and Latin America. In fact, the average gross enrollment in the secondary school was about 75% in MENA, 78% in East Asia and 90% in Latin America. While average gross enrollment in higher education reached about 26% in 2003 in MENA which represent two-thirds of the other two regions average. However, spending on education as a percentage of GDP reaches 5% compared to 3.6% and 3.9% in East Asia and Latin America, respectively (World Bank, 2008). This could be attributed to the free education applied to secondary and higher education compiled. Altogether, lead to low level of Arab countries human capital. The dynamics of this sector and its relation to some economic variables is discussed in the literature. Some studied the relation between education and household income (Psacharopoulos, 1993; Tansel & Bircan, 2006; Hori & Shimizutani, 2012). Others examined the relation between education and productivity (Carnoy, 1995; Jung & Thorbecke, 2003; Justino, 2012; Baldacci, Clements, Gupta, & Cui, 2008). The last type of empirical analysis examined the impact of investment in education on economic growth (Pritchett, 1996; Glewwe & Jacoby, 2004; Blankenau & Simpson, 2004; Annabi, Harvey, & Lan, 2011). While there is a reasonable literature on education public expenditure in the Arab region, research available on household expenditure is very limited. An alarm is raised for considering such information trivial for planning of public resource allocation to education. It is increasingly realized that continuing ignoring the household expenditure quantum proves to lead to incorrect long run government educational policies. In short the relation between public and private spending on education could be either complementary or substitute. If the government increases spending on education sector, household encouraged and contribute more to education and vice versa if government spend less, households have to finance their education (Pryor, 1968). There are two types of education cost on the household, direct and indirect costs. The present study confined with the direct costs which include tuition fees, registration fees as well as expenditure on textbooks, uniforms and private lessons tuition and ignored indirect costs. The study is primarily concerned with the reasons that drives household to spend on education. In the life cycle of household decision-making for investment in education, there are several factors:

economic, social and cultural. In terms of economic factors, the rate of return on education could be high, households may prefer to consume less now and invest in education and obtain increased future earnings. Furthermore, if a household earns low income, families may not be willing to invest in education. Also, household may be forced to invest in education if governments spending in terms of physical and human infrastructure in schools are inadequate. In terms of social and cultural factors, several household characteristics as parental level of education, occupations as well as household size and location can influence the extent of household investment in education (Tilak, 2002).

In a nutshell, our research objectives is summarized in three questions. First, to what extent the amount of household income affects the demand on education in MENA? Second, what are the patterns of household education expenditures in Arab countries? And, to what extent it differs with household characteristics? Third, what are the various factors that determine household expenditure on education in Arab countries? Do they differ from one country to another in the region? And why?

The remainder of the paper is organized as follows. Section 2 presents the stylized facts of household educational expenditure in MENA. Section 3 describes the data. Section 4 presents the model and section 5 the empirical results. Section 6 concludes.

## **2. Literature Review**

Very few studies examine the nature of education expenditure in Arab countries. They also differ from the scope of the proposed study. Selim (2012) focused on analyzing the influence of “free education for all” policy on higher education from an economic productivity point of view using a three- stage game theory model. Hartmann (2008) theoretically analyzes the role of private tutoring in Egypt and the existence of informal market for education. Kanaan, Al-salamat and Hanania (2009) focus on financing higher education in Jordan. The study shows that household spending on higher education rose up from 6.17 % in 2002 to 7.03% of total spending in 2006 which accounts for about 3% of GDP. Chemingui and Sánchez (2010) show that public spending in Tunisia would need to rise from 5.7% to 7.1% every year to meet the MDG’s in

primary education, sanitation and infant mortality by 2015 using computable general equilibrium model (GCE). Galal (2003) attempts to assess the extent to which public expenditure influence education, health and food subsidy in an effective way and tries to find optimal ways to rationalize and improve public expenditure in Egypt. Assaad (2010) focused on analyzing “equity for all” policy in ensuring access to higher education in Egypt and argued that it ends up subsidizing the well-off instead of the poor. Abdessalem (2010) assess the impact of public expenditure on higher education in Tunisia, with respect to its adequacy, efficiency and equity. Pritchett (2001) underscores the point that public expenditure on education doesn’t always lead to better quality and may even negatively impact economic growth. Assaad, Salehi-Isfahani, and Hendy (2014) use survey data from seven MENA countries to understand the relationship between school attendance of youth and their socioeconomic community characteristics. Tansel and Bircan (2006) analyze the demand for education from the view point of spending on private tutoring in turkey. The paper finds that households allocated to private tutoring from 1 to 15 percent of their income on average.

Looking at the WEI (World Education Indicators) huge disparity in household education expenditure across countries is observed. The share of private expenditure per student ranges from 2 percent in Jordon to 30 percent in Chile on primary and secondary education (OECD, 2002).

However, in some advanced countries, the problem received some attention. Psacharopoulos and Papakonstantinou (2005) shows that spending on private tutoring in Greece is found to be income inelastic, indicating its importance in household budget. However, Gustafsson and Li (2004) found that education expenditure in China is directly related to household income between 1988 and 1995. In Burkina Faso, Kazianga (2009) studied the impact of future income shocks on household education spending. He concluded that income shocks increases as household spending on schooling outcomes declines.

Tilak (2002) found that household expenditure on education is income inelastic in India by compiling time series of household expenditure estimates over the period 1960-61 and 1984–85. Glewwe and Jacoby (2004) examine the relation between household resources and demand on education in Vietnam using household survey data covering the period 1993-1998. Using consumption expenditure as a proxy for measuring household income, a positive relation is

found between household income and demand for education. Alves (2012) investigates the distribution of returns to education at the household level using quintile regression in Portugal in 2005-2006. The paper finds that education has positive impact on income inequality and no significant impact on expenditure inequality.

As displayed above, studies examining household education expenditure in Arab countries are very limited. The scarcity of empirical studies on household education expenditure in Arab countries is being attributed to the reliance on public spending on education and free education policy applied to elementary education as well as higher education. But when public spending allocated to education sector has dwindled, household and private financing especially on private tutoring has gone up. It reflects the willingness and ability of a segment of the society to spend on education. This should encourage the government to redirect funds and revisit the structure of free education system. Moreover, households could spend less on education, if large portion of their income is allocated to education while the rate of return to education is low. To the authors knowledge there is no empirical evidence in this context leaving a gap in that area of research. The present project could be an attempt to fill this gap.

### **3. Data**

This study relies on OAMDI (2014) Harmonized Household Income and Expenditure Surveys (HHIES). The data sets used from this database are the 2010/2011 round of the HHIES of four Arab countries, namely, Egypt, Jordan, Palestine and Tunisia. In addition to the 2009 round of Sudan.

It should be noted that, for Egypt a sample of 50 percent is drawn from the Household Income, Expenditure and Consumption (HIECS) and in the case of Jordan 25 percent... are nly made available on OAMDI. In the meantime a 100 percent set of Harmonized data is available on OAMDI for the remaining countries. The actual number of observation used in this paper may be found in Table 1. This table further offers the mean value of the variables adopted.

The aforementioned surveys provide large amount of information measuring the living standards of households and individuals. It includes data that facilitate measuring poverty and relative incomes, income distribution, as well as households' ownership of assets. Besides, data can be

found on the characteristics of household education, health and demography in addition to household expenditure on food, health and education. Education expenditure has not been covered in depth using the survey data in the MENA region. However, there is sufficient information to undertake the analysis.

#### **4. Methodology**

Household decision-making behavior models are first introduced by Behrman (1982) and by Behrman, Pollak, and Taubman (1982). These models facilitate the usage of expenditure functions that relate individual household expenditure to its determinants. Behrman model is an individual maximizing model, based on education expenditure decisions are mainly taken from the view point of efficiency. While Behrman, Pollak, and Taubman model is a household maximizing model. In the latter, the decisions are made based on different household criteria including number of children in the family, their age, or if there are any prejudices against girls. Both models are taken into account, but household expenditure functions are considered more suitable for analyzing the determinants of household expenditure on education in the MENA countries. Education decision in developing countries and especially at elementary levels of education is taken from a household view point.

Estimation of expenditure function in the cross-sectional analysis of this paper is undertaken for five countries in two different time points due to data availability. The data covers Egypt, Jordan, Palestine Tunisia in 2010/2011 and Sudan in 2009. Expenditure function involves a group of household characteristics that correlates with the level of expenditure on education such as household income, household location, household head education level, household's number of children and other characteristics that might affect household education expenditure decision<sup>3</sup>. Precisely, the conceptual model employ Mincer's schooling model. It is a typical earnings function that relates expenditure to its HH determinants:

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<sup>3</sup> To assess potential bias due to multicollinearity, we estimate variance inflation factor (VIF). The mean of the VIF is closer to unity for all countries. In addition, we examine the pairwise correlation coefficients between variables. It shows that the correlation between each pair of variables are smaller than 0.5. The multicollinearity problem is not well defined.

$$HHEX=f(X, W) \quad (1)$$

where HHEX refers to household education expenditure<sup>4</sup>, X includes a group of explanatory variables that affects household expenditure on education and W represents household income. Then, we empirically specify household education expenditure in each of the five countries. A linear functional form is considered in the empirical specification as follows:

$$\text{Log } HHEX = \alpha + \beta g_w + \gamma_i X_{S_i} + \epsilon \quad (2)$$

where *Log HHEX* refers to the logarithm of annual household education expenditure,  $\alpha$  is a constant term,  $\beta$  is the coefficient of household income  $g_w$ ,  $\gamma_i$  is a set of regression coefficients to be estimated that measures the extent to which various variables  $X_i$  influence household education expenditure, and  $\epsilon$  is the stochastic error term.

Equation (2) is estimated using the Ordinary Least Squares (OLS) technique for each selected country. Suitable endogeneity and heteroscedasticity testing are applied. This study empirically estimates several equations based on exclusion and inclusion of various household characteristics for the sake of comparison. First, a pooled sample model including all household characteristics is estimated. Second, we follow Quang (2012) in estimating separate regressions for different income quintiles aiming to examine various household characteristics at different income levels. Third, we follow Hannum (2005) and Qian & Smyth (2010), to estimate separate models for each sub-sample based on the number of offspring in each education level. This aims at detecting the impact of various household characteristics on its diverse levels. Four categories are deployed starting with primary school-age and ending with college-age. Finally, we compute income elasticity of household education expenditure to measure household income effect and magnitude.

## 5. Empirical Results

### a. Individual Determinants of offspring's expenditure on education

Table (2) presents Robust OLS estimation results for the ordinary least squares model of the individual determinants of household education expenditure in five Arab countries. Of household income variables, households at the fifth income quintile are positive and significant for all countries. The effect of different income levels indicates that households at fifth quintile spend 53%, 51%, 28%, 22% and 12% more on education than those at the fourth income quintile in Sudan, Egypt, Tunisia, Jordan and Palestine respectively. Father's education is positive and significant for all countries. It is observed that father's with secondary and college levels were found to spend higher on education compared than those with no education. Father's with college level is found to spend 42.1%, 39%, 33.5%, 14% and 4.3% more than father's with secondary level in Jordan, Sudan, Palestine, Egypt and Tunisia respectively. Mothers who received college level of education spend more compared to those with secondary educational level in all countries. In terms of occupation, fathers whose occupation was cadres, middle-level professional and low-level professional were found to spend more compared to those not in labour force. While mother's occupation, not all countries are significant, it is observed that mother's with cadre jobs were found to spend 16%, 54% in Tunisia and Palestine respectively. Mothers with low profession were found to spend 12% in Egypt and 17% in Tunisia compared to mothers not in labour force. In Sudan, father's and Mother's occupation are not reported in the survey of 2009. Based on, mothers and father's employment status are used instead, Father's employment status are insignificant, while unemployed mothers are found to spend 22% less on education compared to employed ones, and those who are not in labor force are found to spend more compared to the employed. This is due to presence of properties or husband inside the household. In fact, father's occupation effect is found to be larger than that of mother's on educational spending. One more child at secondary –school age children increases total education expenditure of household by 77% in Egypt, 67% in Tunisia and 53% in Sudan. This attributed to the extensive reliance on private lessons required passing secondary level examination for university entrance (Bray & Kwok, 2003). While, one more child at college school age observed to increase total spending on education by 52% in Jordan and 53.5% in

Palestine. Finally, one more child at preschool and primary-school aged children spend less on education in most MENA countries This is attributed to the higher costs of formal schooling and private tutoring (Qian & Smyth, 2011).

With respect to the place of residence of household, households reside in north and south of Egypt, Jordan and Tunisia are found to spend less on education compared to central provinces. In Palestine, households located in west bank spend more on education compared to Gaza strip. Finally, in Sudan, where households who are located to eastern and western provinces are found to spend more compared to center provinces of Sudan.

#### **b. Education expenditure by household income**

Next, we turn to the results tabulated by income quintiles (look from table 3-6). In Egypt (table 3), father's education is found to be significant and positively correlated with higher income groups. This result shows that households endowed with less financial resources would have less desire to spend on education. However, mother's occupations displayed a very interesting result; households whose mother's belong to cadres, medium and lower professional jobs are found to be significant and higher among low income quintiles. This result also shows indirectly that mother's always views education as an opportunity for their off-springs to move up and have better future life. For Jordan (table 4), Mother's education is found to positive and significant at bottom income quintiles as Egypt and reflects her strong desire towards educating her children and her bargaining power inside household. However, father's education tends to be higher at top income quintiles and as father's level of education increases that will cause spending on education to increase too. While parental occupation is found to be positive and significant at top income quintiles. In Tunisia (table 5), the case is different, the influence of mother's education is significant and positive at top income quintiles. For father's occupation are found to positive and significant at all income quintiles, while mother's who belongs to middle –level occupation tends to positive and significant at bottom income quintiles only while women with blue collar jobs tends to be positive and significant at second, third and fourth income quintiles . In Palestine (table 6), household with father's primary and secondary level of education tends to be positive and significant at the bottom income quintiles. However, father's with college level of education is found to positive and significant at all income quintiles. With respect to mother's

education, spending on education is likely to increase with mother's hold secondary and college level of education. With respect to father's occupation, was found to positive and significant at all income groups , while mother's with cadres jobs were only found significant and positive. This may be explained that women with cadres' jobs are having strong influence on the future of their off-springs. In Sudan (table 7), Parental education is found to be positive and significant at all income quintiles.

The number of secondary and college-aged children played a significant role in determining household expenditure on education; however, the magnitude of the effects is different across countries and income groups. In Egypt, an increase in the number of secondary-aged children was found to increase spending on education 73% more in the first and fifth income quintiles. Similar results appeared in both Tunisia and Sudan. While Jordon, an increase in the number of college-aged children, households at first and second income quintiles spend 137% and 15% respectively on education. This result found also for Palestine.

For household place of residence, In Egypt, households who reside in upper Egypt spent 71% and 113% less on education compared to metropolitan areas at the bottom two income quintiles while spend 163% and 125% lower for the top income quintiles. This explained by the fact that metropolitan areas in Egypt have higher income levels and more education resources. While, Lower Egypt case is much better developed compared to Upper Egypt where households are found to spend 35% and 55% at bottom income quintiles and 37% at second income quintile. This is also the case of Jordon where households reside in northern and southern of Jordon spent less compared to the central provinces. In Sudan, Households who reside in the north spent 29% and 24% more on education at first and second income quintile. While, households who are reside in Western, Eastern and Northern provinces of Sudan are found to spend 51%, 80% and 41% less compared to center at top income quintiles.

### **C. Household expenditure on education by children's age**

Finally, we turn to the results tabulated by children's age (look from table 7-11). Many of the results are similar to what we found for the full sample. The effects of household income vary across sub samples. In general, regardless of children's age, households spend more on education

as household income increases. This result is found significant and positive for all Arab countries. In terms of number of school-age children, within household with preschool and primary-aged children, are having another child at preschool and primary-school aged children decreases spending on education decreases in Jordan, Egypt, Palestine and Sudan. While in Tunisia, within households with secondary and college aged children are having one more child at preschool and primary aged children increases spending on education by 15% and 24% respectively. It is observed that having one more child at secondary age for household with preschool and primary school aged children increases spending on education by 66%,70%,50%,22% and 52.4% in Egypt, Tunisia, Jordan, Palestine and Sudan respectively. However, opposite effects were found with within household with secondary and college age children. Within households with secondary aged children , adding one more secondary aged child increases spending on education in Jordan (25%)and Palestine (6%), while decreases spending on education in Egypt (37%) and Tunisia (9%). With respect to households with college children, having one more child at secondary age increases spending on education in all five countries. In addition, opposite results also revealed by having child at college age with in households with preschool, primary and secondary aged children will result in increasing education spending in education in all countries except Egypt. While, within households with college aged children, adding one more child at college aged decreases spending on education in Egypt and increases spending on education in all other countries.

#### **D. Household Determinants of educational expenditure on off-spring's education**

Estimation results of household determinants on off-Springs's educational expenditure are shown in table (12). Generally speaking, household income is considered a key determinant for household spending on education. Household's spending on education at top income quintile are found 119% , 111%,169% ,77%and 98% in Egypt, Tunisia, Jordan, Palestine and Sudan respectively compared to the bottom income quintile. In terms of occupation , household heads who belongs to cadres jobs are found to spend 17%,26% and 30% more in Egypt, Tunisia and Palestine compared to household who heads are not in labor force. Besides , household heads whose occupation belongs to middle and lower professional are found to spend more in Tunisia compared to those not in labor force.

Household head's level of education has positive and significant effect on off-spring's educational spending and that was uncovered for all Arab countries with different magnitude. The size of household has an opposite effects on off-spring's educational expenditure. One more child at primary-aged increases spending on children's education in Egypt (12.6%) and Tunisia (21.3%) and decreases total spending on education in Jordan (16.6%) and Palestine (13.3%). While adding one more child at secondary age increases total spending on off-spring's education in Egypt (44%), Tunisia (30%) and Sudan (31%). Finally, adding one more child at college-aged increases total spending on children's education for all countries.

With respect to household place of residence, Households who reside in Northern and southern provinces are found to spend less on off-spring's education in Egypt, Tunisia and Jordan compared to central provinces. In Sudan, as mentioned before western areas are found to spend more on education compared to central areas.

For household's head being a female is found to be significant and positive only in Egypt, Jordan and Tunisia. Besides, being married or ever married is found to positive and significant on off-spring's education in Tunisia.

### **Conclusion**

This paper uses available survey data from five MENA countries to understand the determinants of household expenditure on children's education. Specifically, the paper focuses on the income effect and the role of other household's characteristics such as head's education and occupation levels, geographic residence, number of children in different age categories and single parents' status. The study finds that income is a key determinant for estimating the magnitude of household's expenditure on education. Household's spending on education increases with income between and within countries but with different magnitudes. Household's with college degree and professional occupation heads are likely to spend more on education for their children. This is highly observed in Tunisia, Palestine and Sudan. With respect to the number of school age children in household, the study suggests high levels of spending on education when households have secondary school aged children. This is due to private tutoring incurred to pass examination required for college entrance. In terms of geographical residence of household,

central provinces of the countries are spending more on children's education as compared to northern and southern provinces. This may be explained that heads living in center provinces enjoys high income levels and more education resources compared to their counterparts.

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**Table (2): OLS estimation for individual determinants of educational expenditure in MENA (Full sample )**  
**Dependent variable : Log educational expenditure**

	<b>Egypt</b>	<b>Tunisia</b>	<b>Jordon</b>	<b>Palestine</b>	<b>Sudan</b>
<b>Household income</b>					
<b>First quintile (omitted group)</b>					
Second quintile	0.290*** -0.04	0.234*** -0.024	0.024 -0.105	0.036 -0.041	0.072 -0.049
Third quintile	0.423*** -0.04	0.490*** -0.025	0.190* -0.101	0.229*** -0.044	0.275*** -0.052
Fourth quintile	0.499*** -0.041	0.721*** -0.027	0.170* -0.101	0.294*** -0.047	0.365*** -0.057
Fifth quintile	1.002*** -0.047	1.094*** -0.031	0.394*** -0.103	0.418*** -0.051	0.899*** -0.059
<b>Father's education</b>					
<b>Illiterate (omitted group)</b>					
Primary ( including preparatory)	0.169*** -0.038	0.055 -0.054	0.113 -0.098	0.290*** -0.049	-0.026 -0.042
Secondary	0.298*** -0.036	0.171*** -0.027	0.283** -0.11	0.416*** -0.056	0.209*** -0.054
College	0.442*** -0.051	0.214*** -0.043	0.704*** -0.121	0.751*** -0.062	0.599*** -0.064
<b>Mother's Education</b>					
<b>Illiterate (omitted group)</b>					
Primary	0.301*** -0.041	0.162** -0.064	0.039 -0.091	0.074 -0.048	0.279*** -0.041
Secondary	0.403*** -0.036	0.140*** -0.032	0.099 -0.106	0.454*** -0.057	0.538*** -0.056
College	0.590*** -0.06	0.201*** -0.05	0.512*** -0.111	0.403*** -0.07	0.623*** -0.083
<b>Father's Occupation</b>					
<b>Not in Labor force (omitted group )</b>					
Cadres	0.327*** -0.064	0.315*** -0.037	-0.712 -0.798	0.439*** -0.085	

Middle professional	0.137**	0.295***	0.377***	0.218***	<i>Omitted group : Employed</i>
	-0.06	-0.041	-0.097	-0.07	Unemployed
Lower professional	-0.038	0.162***	0.283***	0.180***	0.333
	-0.056	-0.029	-0.077	-0.058	-0.094
					Not in labor force
Blue collar and service	-0.014	0.145***	-0.015	0.082	0.516
	-0.054	-0.029	-0.077	-0.06	-0.094
			-		
Unemployment	0.015	-0.084	0.649***	-0.032	
	-0.157	-0.051	-0.12	-0.069	
					<i>Omitted group : Employed</i>
<b>Mather's Occupation</b>					
Not in Labor force (omitted group )					Unemployed
Cadres	0.028	0.161**	-0.441	0.541**	-0.224**
	-0.096	-0.078	-0.306	-0.21	-0.104
					Not in labor force
Middle professional	0.029	0.065	0.219*	0.551***	0.242***
	-0.05	-0.047	-0.13	-0.076	-0.049
Lower professional	0.035	0.141***	-0.49	0.185***	
	-0.063	-0.032	-0.152	-0.07	
Blue collar and service	0.128***	0.177***	-0.653	-0.079	
	-0.049	-0.032	-1.378	-0.042	
Unemployment	-1.106	-0.390*	-0.054	-0.194	
	-0.727	-0.215	-0.171	-0.119	
<b>Household Place of residence</b>	Omitted :			Omitted :	
	Center			Gaza strip	
	Lower Egypt	North	North	west bank	Western
			-		
	-0.371***	-0.02	0.397***	0.105***	0.155***
	-0.031	-0.02	-0.056	-0.033	-0.042
	Upper Egypt	South	South		Eastern
			-		
	-1.215***	-0.034*	0.598***		0.123**
	-0.036	-0.019	-0.089		-0.057
					Northern

					0.032
					-0.044
<b>Number of school aged children</b>					
No. of pre-Prim school-aged children	-0.194***	0.015**	0.445***	-0.227***	-0.200***
	-0.012	-0.008	-0.019	-0.009	-0.012
No. of secondary school aged children	0.715***	0.669***	0.488***	0.234***	0.529***
	-0.02	-0.013	-0.036	-0.016	-0.027
No. of college-aged children	0.056***	0.404***	0.517***	0.535***	0.438***
	-0.017	-0.01	-0.03	-0.013	-0.019
Constant	5.180***	2.971***	4.848***	4.680***	3.485***
	-0.068	-0.036	-0.128	-0.083	-0.075
Number of observation	10276	17307	3046	11394	6144
R-square	0.441	0.321	0.459	0.324	0.377

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (3):OLS Estimation for household education expenditure by income quintile (Egypt 2010)**

<b>Log educ. Exp.</b>	<b>Quin1</b>	<b>Quin2</b>	<b>Quin3</b>	<b>Quin4</b>	<b>Quin5</b>
<b>Father's education</b>					
Primary ( including preparatory)	0.028	0.044	0.053	0.208***	0.499***
	-0.091	-0.079	-0.076	-0.079	-0.105
Secondary	0.140*	0.236***	0.237***	0.310***	0.606***
	-0.08	-0.077	-0.074	-0.078	-0.091
College	-0.400**	-0.004	0.284***	0.436***	0.990***
	-0.166	-0.122	-0.104	-0.098	-0.113
<b>Mather's education</b>					
Primary ( including preparatory)	0.254***	0.133	0.251***	0.344***	0.505***
	-0.088	-0.094	-0.084	-0.082	-0.106
Secondary	0.309***	0.341***	0.487***	0.394***	0.453***
	-0.084	-0.073	-0.074	-0.075	-0.098
College	0.145	0.346**	0.313**	0.293***	0.832***
	-0.197	-0.151	-0.147	-0.11	-0.12
<b>Father's occupation</b>					
Cadres	-0.069	-0.272	0.076	0.475***	0.485***
	-0.199	-0.188	-0.147	-0.115	-0.113
Middle professional	0.191	0.149	-0.206	0.267**	0.219**
	-0.178	-0.163	-0.129	-0.106	-0.111
Lower professional	0.024	-0.081	-0.275**	-0.016	0.054

	-0.139	-0.147	-0.121	-0.107	-0.12
	-0.123	-0.248*	-0.136	0.220**	-0.067
Blue collar and service	-0.136	-0.143	-0.115	-0.099	-0.109
	-0.402	-0.021	0.695**	0.677***	1.346***
Unemployment	-0.371	-0.344	-0.336	-0.26	-0.158
	-0.371	-0.344	-0.336	-0.26	-0.158
<b>Mother's occupation</b>					
Cadres	0.931***	-0.017	0.423***	0.076	-0.202
	-0.235	-0.203	-0.153	-0.197	-0.155
Middle professional	0.616**	0.217	0.263**	0.105	0.272***
	-0.25	-0.177	-0.115	-0.091	-0.083
Lower professional	0.624***	0.449***	-0.238*	0.256**	0.17
	-0.148	-0.134	-0.129	-0.107	-0.152
	-0.17	0.328***	-0.027	0.239***	-0.128
Blue collar and service	-0.112	-0.113	-0.102	-0.078	-0.161
		-			
	#	0.604***	#	#	-0.97
Unemployment		-0.091			-0.689
<b>Household place of residence</b>					
		-	-	-	-
Lower Egypt	0.115	0.368***	0.210***	0.352***	0.553***
	-0.096	-0.071	-0.068	-0.058	-0.063
	-	-	-	-	-
Upper Egypt	0.717***	1.138***	0.932***	1.631***	1.251***
	-0.092	-0.081	-0.077	-0.075	-0.081
<b>Number of school aged children</b>					
No. of pre-Prim school-aged children	-	-	-	-	-
	0.259***	0.184***	0.180***	0.252***	0.108***
	-0.029	-0.029	-0.025	-0.024	-0.024
No. of secondary school aged children	0.728***	0.724***	0.667***	0.768***	0.728***
	-0.055	-0.055	-0.042	-0.038	-0.04
No. of college-aged children	0.158***	0.123***	0.120***	-0.001	0.080***
	-0.052	-0.042	-0.038	-0.03	-0.031
Constant	5.105***	5.634***	5.646***	5.773***	5.661***
	-0.16	-0.172	-0.136	-0.117	-0.132
Number of observation	1310	1822	2278	2432	2434
R-square	0.349	0.323	0.287	0.417	0.377

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (4): Robust OLS Estimation for household education expenditure by income quintile (Jordan 2010)**

<b>Log educ. Exp.</b>	Quin1	Quin2	Quin3	Quin4	Quin5
<b>Father's education</b>		b/se			b/se
Primary ( including preparatory)	-0.769***	0.006	0.268	0.474**	-0.287*
	-0.251	-0.224	-0.254	-0.212	-0.174
Secondary	-0.874***	-0.561**	0.251	0.980***	0.566***
	-0.312	-0.25	-0.276	-0.237	-0.187
College	0.339	0.397	0.502	1.022***	0.505**
	-0.372	-0.31	-0.306	-0.253	-0.205
<b>Mather's education</b>					
Primary ( including preparatory)	1.892***	0.424**	-0.284	-0.216	-0.073
	-0.255	-0.193	-0.219	-0.204	-0.158
Secondary	2.025***	0.871***	-0.008	-0.370*	-0.701
	-0.31	-0.228	-0.25	-0.223	-0.199
College	2.676***	1.179***	0.839***	-0.463	-0.149
	-0.387	-0.241	-0.265	-0.239	-0.189
<b>Father's occupation</b>					
Cadres	#	#	#	-0.309	#
				-0.797	
Middle professional	-0.862**	1.983***	0.224	1.116***	0.194
	-0.384	-0.379	-0.216	-0.196	-0.157
Lower professional	0.128	1.491***	-0.091	0.734***	0.196
	-0.251	-0.167	-0.182	-0.158	-0.135
Blue collar and service	-0.008	1.252***	0.516***	0.422***	0.410***
	-0.253	-0.174	-0.173	-0.16	-0.148
		-	-		-
Unemployment	0.035	2.338***	0.876***	-0.209	1.467***
	-0.337	-0.245	-0.239	-0.245	-0.383
<b>Mother's Occupation</b>					
Cadres		#	#	#	-0.472
					-0.319
Middle professional		#	-0.134	0.487**	0.597***
		(.)	-0.456	-0.218	-0.199
		-			
Lower professional	1.021*	1.032***	-0.838*	-0.485*	-0.232
	-0.571	-0.362	-0.447	-0.293	-0.263
Blue collar and service	-1.738	#	#	#	#
	-1.205				
Unemployment	0.344	0.425	-0.628*	-0.226	-0.414

	-0.315	-0.301	-0.344	-0.565	-0.534
<b>Number of school aged children</b>					
		-	-	-	-
No. of pre-Prim school-aged children	-0.492***	0.427***	0.269***	0.512***	0.420***
	-0.066	-0.045	-0.04	-0.041	-0.037
No. of secondary school aged children	0.154	0.873***	0.774***	0.517***	0.361***
	-0.157	-0.085	-0.079	-0.078	-0.064
No. of college-aged children	1.379***	0.152**	0.676***	0.347***	0.349***
	-0.145	-0.077	-0.055	-0.059	-0.061
<b>Household place of residence</b>					
		-	-	-	-
North Jordan	-0.264	0.577***	-0.037	-0.033	0.834***
	-0.176	-0.116	-0.118	-0.117	-0.11
		-	-	-	-
South Jordan	-0.172	1.308***	0.193	0.621***	1.029***
	-0.333	-0.187	-0.194	-0.175	-0.175
Constant	3.498***	5.906***	3.823***	5.582***	5.998***
	-0.289	-0.258	-0.295	-0.265	-0.199
N	285	472	650	729	910
R-square	0.665	0.652	0.514	0.41	0.303

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (5): Robust OLS Estimation for household education expenditure by income quintile Tunisia 2010)**

<b>Log educ. Exp.</b>	Quin1	Quin2	Quin3	Quin4	Quin5
<b>Father's education</b>					
Primary ( including preparatory)	0.312	0.045	0.211*	-0.219**	0.246**
	-0.236	-0.133	-0.109	-0.104	-0.103
Secondary	0.208*	0.161**	0.360***	0.223***	0.042
	-0.114	-0.07	-0.057	-0.052	-0.05
College	0.144	-0.007	0.01	0.220**	0.218***
	-0.225	-0.192	-0.121	-0.093	-0.058
<b>Mather's education</b>					
Primary ( including preparatory)	0.273	0.203	-0.06	0.116	0.317***

	-0.228	-0.206	-0.124	-0.118	-0.118
Secondary	-0.043	0.188*	0.358***	0.017	0.149***
	-0.201	-0.098	-0.078	-0.062	-0.052
College	0.09	-0.410***	0.209	0.129	0.234***
	-0.368	-0.121	-0.138	-0.105	-0.073
<b>Father's occupation</b>					
Cadres	0.104	0.064	0.308***	0.162**	0.534***
	-0.133	-0.081	-0.084	-0.077	-0.068
Middle professional	-0.242	0.442***	0.297***	0.308***	0.376***
	-0.246	-0.115	-0.108	-0.088	-0.067
Lower professional	0.167**	-0.075	0.087	0.299***	0.320***
	-0.066	-0.057	-0.064	-0.066	-0.069
Blue collar and service	0.180***	-0.081	0.158**	0.225***	0.153**
	-0.066	-0.057	-0.062	-0.065	-0.068
Unemployment	0.03	-0.175*	0.647***	0.273	#
	-0.089	-0.089	-0.096	-0.189	
<b>Mother's occupation</b>					
Cadres	-0.424	-0.962***	-0.183	-0.045	-0.135
	-0.398	-0.106	-0.239	-0.119	-0.124
Middle professional	1.596**	0.585***	-0.222	0.088	0.097
	-0.68	-0.102	-0.202	-0.102	-0.062
Lower professional	0.309***	0.004	-0.052	0.270***	0.152*
	-0.062	-0.068	-0.079	-0.07	-0.081
Blue collar and service	-0.017	0.212***	0.169***	0.228***	0.332***

	-0.068	-0.058	-0.061	-0.076	-0.114
Unemployment	-0.02	-0.687***	-0.112	-0.161	0.206*
	-0.258	-0.26	-0.147	-0.155	-0.121
<b>Household place of residence</b>					
North Tunisia	0.046	0.134***	0.065	0.131***	0.238***
	-0.04	-0.043	-0.045	-0.046	-0.048
South Tunisia	0.039	0.244***	-0.045	0.196***	0.257***
	-0.052	-0.036	-0.042	-0.045	-0.047
<b>Number of school aged children</b>					
No. of pre-Prim school-aged children	-0.054***	0.026*	0.043***	0.074***	0.023
	-0.015	-0.014	-0.017	-0.02	-0.021
No. of secondary school aged children	0.655***	0.602***	0.783***	0.693***	0.674***
	-0.026	-0.024	-0.029	-0.033	-0.033
No. of college-aged children	0.458***	0.349***	0.393***	0.387***	0.502***
	-0.021	-0.019	-0.022	-0.027	-0.03
Constant	3.025***	3.359***	3.366***	3.636***	3.978***
	-0.069	-0.061	-0.067	-0.068	-0.064
N	3108	3950	3612	3183	3454
R-square	0.345	0.265	0.281	0.233	0.227

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (5): Robust OLS Estimation for household education expenditure by income quintile Palestine 2010)**

Log educ.exp.	Quin1	Quin2	Quin3	Quin4	Quin5
<b>Father's education</b>					
Primary ( including preparatory)	0.476***	0.104	0.530***	0.044	0.189

	-0.083	-0.096	-0.112	-0.132	-0.154
Secondary	0.803***	0.136	0.786***	0.105	0.141
	-0.104	-0.105	-0.126	-0.151	-0.175
College	1.128***	0.574***	0.782***	0.489***	0.634***
	-0.136	-0.139	-0.133	-0.153	-0.174
Mather's education					
Primary ( including preparatory)	0.101	-0.021	0.029	-0.089	0.341***
	-0.089	-0.094	-0.105	-0.133	-0.123
Secondary	0.253**	0.204*	0.446***	0.422***	0.866***
	-0.107	-0.113	-0.122	-0.157	-0.147
College	0.921***	0.496***	-0.105	0.341**	0.832***
	-0.142	-0.167	-0.149	-0.167	-0.162
Father's occupation					
Cadres	0.860***	-0.723***	0.161	0.088	1.021***
	-0.153	-0.268	-0.262	-0.193	-0.174
Middle professional	0.700***	-0.069	0.258*	-0.053	0.727***
	-0.196	-0.17	-0.144	-0.166	-0.169
Lower professional	0.341***	-0.494***	-0.104	0.287*	0.737***
	-0.094	-0.15	-0.123	-0.152	-0.155
Blue collar and service	0.262***	-0.491***	0.061	-0.275*	0.657***
	-0.097	-0.156	-0.134	-0.154	-0.154
Unemployment	-0.009	-0.542***	-0.273	-0.295	0.681
	-0.104	-0.176	-0.171	-0.22	-0.221
Mother's occupation					

Cadres	1.984***	#	0.032	1.401***	0.482*
	-0.119		-0.148	-0.144	-0.291
Middle professional	0.458	0.194	-0.156	1.074***	0.452***
	-0.375	-0.186	-0.14	-0.14	-0.143
Lower professional	-0.07	-0.013	0.237*	-0.291*	0.630***
	-0.217	-0.161	-0.133	-0.171	-0.126
Blue collar and service	-0.012	-0.155*	-0.114	0.297***	0.097
	-0.087	-0.09	-0.093	-0.102	-0.096
Unemployment	-1.061***	-0.164	1.482***	0.491**	0.496
	-0.116	-0.182	-0.394	-0.197	-0.46
Household place of residence					
West bank	-0.255***	0.124**	0.205***	0.431***	0.046
	-0.065	-0.062	-0.075	-0.075	-0.124
Number of school aged children					
No. of pre-Prim school-aged children	-0.243***	-0.204***	0.132***	0.247***	0.284***
	-0.019	-0.021	-0.022	-0.021	-0.021
No. of secondary school aged children	0.180***	0.319***	0.202***	0.302***	0.131***
	-0.034	-0.033	-0.035	-0.041	-0.042
No. of college-aged children	0.499***	0.556***	0.667***	0.490***	0.469***
	-0.031	-0.03	-0.027	-0.03	-0.026
Constant	4.618***	5.389***	4.481***	5.343***	4.708***
	-0.142	-0.202	-0.184	-0.201	-0.24
N	2240	2360	2338	2294	2162
R-square	0.367	0.334	0.305	0.327	0.294

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (6): Robust OLS Estimation for household education expenditure by income quintile Sudan (2009)**

<b>Log educ.exp.</b>	<b>Quin1</b>	<b>Quin2</b>	<b>Quin3</b>	<b>Quin4</b>	<b>Quin5</b>
<b>Father's education</b>					
Primary ( including preparatory)	-0.154*	0.169**	0.191**	0.382***	-0.206*
	-0.081	-0.076	-0.097	-0.13	-0.118
Secondary	0.169*	0.206*	0.337***	-0.077	0.232*
	-0.101	-0.107	-0.119	-0.155	-0.131
College	0.528***	0.634***	1.232***	0.159	0.457***
	-0.132	-0.222	-0.154	-0.157	-0.118
<b>Mather's education</b>					
Primary ( including preparatory)	0.195**	0.392***	-0.04	0.511***	0.251**
	-0.078	-0.074	-0.09	-0.119	-0.109
Secondary	0.201*	0.597***	0.346***	0.749***	0.543***
	-0.11	-0.116	-0.121	-0.149	-0.129
	-	-	-	-	-
College	0.397***	0.147	0.833***	0.663***	0.654***
	-0.127	-0.275	-0.167	-0.177	-0.143
<b>Father's employment status</b>					
Unemployed	0.172	-0.06	0.620***	0.23	1.266***
	-0.176	-0.217	-0.205	-0.182	-0.322
Not in Labor force	0.317***	0.392***	-0.236	0.826***	-0.138
	-0.103	-0.105	-0.145	-0.102	-0.098
<b>Mather's employment status</b>					
Unemployed	-0.129	0.348	0.578*	0.955***	0.937***
	-0.113	-0.218	-0.298	-0.252	-0.254
Not in Labor force	0.699***	0.098	0.02	0.455**	1.335***
	-0.164	-0.173	-0.153	-0.212	-0.268
<b>Household place of residence</b>					
Western	0.211***	0.308***	0.392***	0.429***	0.512***
	-0.08	-0.077	-0.104	-0.104	-0.114
	-	-	-	-	-
Eastern	0.211	0.452***	0.537***	0.263**	0.802***
	-0.189	-0.107	-0.117	-0.128	-0.127
	-	-	-	-	-
Northern	0.295***	0.236***	0.095	0.055	0.408***
	-0.091	-0.091	-0.088	-0.113	-0.115
<b>Number of school aged children</b>					
No. of pre-Prim school-aged children	-	-	-	-	-
	0.115***	-0.202***	0.241***	0.237***	0.158***

	-0.022	-0.023	-0.027	-0.032	-0.028
No. of secondary school aged children	0.390***	0.725***	0.624***	0.537***	0.484***
	-0.06	-0.056	-0.071	-0.062	-0.062
No. of college-aged children	0.467***	0.391***	0.518***	0.294***	0.440***
	-0.05	-0.05	-0.043	-0.048	-0.039
Constant	3.262***	3.122***	4.029***	3.654***	5.000***
	-0.14	-0.136	-0.186	-0.174	-0.167
N	1051	1395	1216	1264	1218
R-square	0.277	0.307	0.407	0.263	0.335

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (7): Robust OLS estimation for household education expenditure by children's age (Egypt 2010)**

Dependent variable : Log educational expenditure

	Pre and primary -school aged	Secondary-school aged	College - aged
<b>Household income</b>			
Second quintile	0.390***	0.455***	0.280***
	-0.041	-0.07	-0.091
Third Quintile	0.638***	0.642***	0.453***
	-0.041	-0.065	-0.087
Fourth Quintile	0.784***	0.885***	0.581***
	-0.042	-0.066	-0.084
Fifth quintile	1.490***	1.506***	1.257***
	-0.049	-0.07	-0.087
<b>Household place of residence</b>			
Lower Egypt	-0.337***	-0.354***	-0.411***
	-0.033	-0.048	-0.052
Upper Egypt	-1.263***	-1.265***	-1.503***
	-0.04	-0.054	-0.059
<b>Number of school aged children</b>			
No.of pre-Prim school-aged children	-0.294***	-0.103***	-0.157***
	-0.014	-0.017	-0.018
No. of secondary school aged children	0.663***	-0.371***	0.528***
	-0.023	-0.038	-0.033
No. of college-aged children	-0.061***	-0.112***	-0.194***
	-0.018	-0.022	-0.03
Constant	5.750***	6.756***	6.105***
	-0.053	-0.083	-0.098

N	9043	4936	4292
R-square	0.394	0.307	0.309

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (8): Robust OLS estimation for household education expenditure by children's age Tunisia 2010)**

Dependent variable : Log educational expenditure

	Pre and primary -school aged	Secondary-school aged	College - aged
<b>Household income</b>			
Second quintile	0.278***	0.252***	0.282***
	-0.025	-0.031	-0.032
Third Quintile	0.570***	0.594***	0.572***
	-0.026	-0.034	-0.035
Fourth Quintile	0.893***	0.899***	0.759***
	-0.027	-0.035	-0.037
Fifth quintile	1.365***	1.292***	1.257***
	-0.028	-0.037	-0.038
<b>Household place of residence</b>			
North	-0.066***	0.022	0.063**
	-0.021	-0.029	-0.028
South	-0.073***	-0.066***	0.033
	-0.02	-0.025	-0.025
<b>Number of school aged children</b>			
No. of pre-Prim school-aged children	-0.183***	0.154***	0.240***
	-0.009	-0.01	-0.01
No. of secondary school aged children	0.697***	-0.091***	0.451***
	-0.014	-0.025	-0.018
No. of college-aged children	0.473***	0.284***	-0.219***
	-0.012	-0.013	-0.016
Constant	3.583***	4.045***	4.095***
	-0.032	-0.05	-0.045
N	13644	7815	8754
R-square	0.432	0.189	0.223

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (9): Robust OLS estimation for household education expenditure by children's age Jordon 2010)**

Dependent variable : Log educational expenditure

	Pre and primary -school aged	Secondary-school aged	College - aged
<b>Household income</b>			
Second quintile	-0.039	-0.083	-0.124
	-0.11	-0.186	-0.178

Third Quintile	0.326***	0.369**	0.482***
	-0.109	-0.173	-0.163
Fourth Quintile	0.296***	0.037	0.379**
	-0.107	-0.165	-0.159
Fifth quintile	0.651***	0.414**	0.480***
	-0.114	-0.166	-0.155
<b>Number of school aged children</b>			
No. of pre-Prim school-aged children	-0.395***	-0.360***	-0.248***
	-0.024	-0.028	-0.024
No. of secondary school aged children	0.500***	0.253***	0.039
	-0.045	-0.082	-0.045
No. of college-aged children	0.562***	0.207***	-0.351***
	-0.03	-0.047	-0.042
<b>Household place of residence</b>			
North	-0.372***	-0.364***	-0.518***
	-0.062	-0.087	-0.069
South	-0.734***	-0.507***	-0.803***
	-0.098	-0.134	-0.11
Constant	4.767***	5.712***	6.917***
	-0.105	-0.2	-0.161
N	2548	1638	2031
R-square	0.395	0.18	0.166

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (10): Robust OLS estimation for household education expenditure by children's age Palestine 2010)**

Dependent variable : Log educational expenditure

	Pre and primary -school aged	Secondary-school aged	College - aged b/se
<b>Household income</b>			
Second quintile	0.097**	0.075	0.143**
	-0.041	-0.058	-0.07
Third Quintile	0.460***	0.450***	0.466***
	-0.045	-0.06	-0.072
Fourth Quintile	0.619***	0.501***	0.566***
	-0.046	-0.062	-0.074
Fifth quintile	0.712***	0.572***	0.518***
	-0.05	-0.068	-0.078
<b>Household place of residence</b>			
West bank	-0.122***	0.039	0.04
	-0.031	-0.043	-0.048
<b>Number of school aged children</b>			
No. of pre-Prim school-aged children	-0.225***	-0.132***	-0.176***

	-0.01	-0.013	-0.014
No. of secondary school aged children	0.217***	0.061**	0.106***
	-0.017	-0.03	-0.028
No. of college-aged children	0.548***	0.521***	0.119***
	-0.013	-0.017	-0.022
Constant	5.293***	5.280***	6.251***
	-0.05	-0.08	-0.082
N	10557	6829	6059
R-square	0.289	0.2	0.057

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (11): Robust OLS estimation for household education expenditure by children's age Sudan 2009)**

Dependent variable : Log educational expenditure

	Pre and primary -school aged	Secondary-school aged	College - aged
<b>Household income</b>			
Second quintile	0.112**	0.287***	0.205**
	-0.05	-0.078	-0.095
Third Quintile	0.337***	0.459***	0.583***
	-0.053	-0.077	-0.084
Fourth Quintile	0.520***	0.682***	0.604***
	-0.058	-0.078	-0.087
Fifth quintile	1.229***	1.228***	1.410***
	-0.057	-0.076	-0.083
<b>Household place of residence</b>			
Western	0.100**	0.105	0.132*
	-0.042	-0.064	-0.073
Eastern	0.117**	-0.260***	-0.111
	-0.059	-0.075	-0.092
Northern	0.092**	0.071	0.195***
	-0.045	-0.059	-0.063
<b>Number of school aged children</b>			
No. of pre-Prim school-aged children	-0.187***	-0.193***	-0.245***
	-0.013	-0.017	-0.018
No. of secondary school aged children	0.524***	-0.03	0.455***
	-0.028	-0.05	-0.041
No. of college-aged children	0.432***	0.365***	0.138***
	-0.02	-0.022	-0.032
Constant	3.883***	4.776***	4.611***
	-0.062	-0.111	-0.106
N	5912	3110	2929
R-square	0.321	0.221	0.211

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively

**Table (12): Robust OLS estimation results for household determinants on education expenditure (Full sample)**

	Egypt	Tunisia	Jordon	Palestine	Sudan
<b>Dependent variable : Log educational Expenditure</b>					
<b>Household Income</b>					
Second quintile	0.367***	0.259***	0.401***	0.142	0.217***
	-0.052	-0.038	-0.129	-0.096	-0.071
Third quintile	0.542***	0.502***	0.755***	0.243**	0.341***
	-0.055	-0.039	-0.141	-0.098	-0.071
Fourth quintile	0.711***	0.776***	0.862***	0.573***	0.465***
	-0.058	-0.041	-0.151	-0.102	-0.077
Fifth quintile	1.190***	1.117***	1.694***	0.768***	0.985***
	-0.066	-0.045	-0.159	-0.106	-0.083
<b>Other household's head characteristics</b>					
female	0.216***	0.107*	0.447***	0.233	0.141
	-0.068	-0.056	-0.172	-0.146	-0.113
Married	#	0.773**	#	#	#
		-0.336			
Ever Married	#	0.703**	#	#	#
		-0.339			
<b>Household's head education</b>					
Primary ( including preparatory)	0.230***	0.042	0.560***	0.297***	0.237***
	-0.055	-0.077	-0.143	-0.098	-0.055
Secondary	0.490***	0.186***	1.275***	0.570***	0.519***
	-0.046	-0.039	-0.169	-0.114	-0.076
College	0.812***	0.303***	1.521***	0.800***	0.986***
	-0.063	-0.058	-0.188	-0.124	-0.098
<b>Household's head occupation</b>					
Cadres	0.167**	0.255***	#	0.301*	#
	-0.085	-0.051		-0.17	
Middle professional	-0.04	0.232***	0.056	0.047	#
	-0.075	-0.057	-0.175	-0.135	
Lower professional	-0.079	0.132***	-0.039	-0.131	<b>Not in LF</b>
	-0.072	-0.038	-0.141	-0.106	0.451***
	-				
Blue collar and service	0.178***	0.108***	-0.193	-0.07	-0.116
	-0.066	-0.037	-0.147	-0.109	<b>Unemployed</b>
Unemployment	0.164	-0.411**	-0.103	-0.354**	0.119
	-0.261	-0.208	-0.205	-0.143	-0.119
<b>Number of school aged children</b>					
No. of pre-Prim school-aged children	0.126***	0.213***	0.166***	0.133***	0.003

	-0.017	-0.012	-0.032	-0.02	-0.015
No. of secondary school aged children	0.438***	0.304***	0.09	0.055	0.316***
	-0.029	-0.02	-0.062	-0.038	-0.036
No. of college-aged children	0.090***	0.223***	0.305***	0.527***	0.378***
	-0.026	-0.016	-0.059	-0.03	-0.027
<b>Household Place of residence</b>				<b>Gaza strip</b>	<b>Western</b>
	<b>Lower</b>	<b>North</b>	<b>North</b>		
	-		-		
	0.392***	-0.027	0.377***	0.015	0.239***
	-0.043	-0.028	-0.099	-0.072	-0.057
	<b>Upper</b>	<b>South</b>	<b>South</b>		<b>Eastern</b>
	-	-	-		
	1.321***	0.076***	0.811***		0.062
	-0.053	-0.029	-0.149		-0.088
					<b>Northern</b>
					0.023
					-0.068
Constant	5.546***	3.336***	3.517***	5.816***	3.968***
	-0.085	-0.339	-0.188	-0.141	-0.08
N	4233	6406	1881	2659	2624
R-square	0.391	0.229	0.257	0.229	0.255

Notes: values of standard errors are reported

\*, \*\*, \*\*\* denote coefficients that are statistically significant at 0.1, 0.05 and 0.001 levels, respectively