

Determinants of Educational Expenditure in Vietnam

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Abstract: Using the Vietnamese Household Living Standards Survey from 2006 (VHLSS 2006), this study investigates the factors affecting household expenditure on children's education. The main findings from the Tobit model in this study are as follows: First, household income has significant effects on the total amount of educational expenditure. In most cases, increase in the income of the household is always associated with an increase in educational expenditure. Second, households where the household heads have a higher level of education or with professional jobs, enhances the probabilities of educational expenditure. Third, households with more primary-school-age or secondary school-age children spend more on education, while households with pre-school-age or college-age children spend less on education. These results show that families with more resources and better human capital are those who are able to spend more resources on their children's education.

Keywords: educational expenditure, educational demand, Vietnam

JEL Classification: I21, I22

1. Introduction

Education and investment in human capital is always regarded as one of the most important factors for economic development in any country, especially in a developing country like Vietnam. At a macro level, education allows individuals to gain better skills and knowledge that enhances economic growth. At a micro level, for many families, investment in human capital is seen as the principal route out of poverty. Another reason is social standing. Well educated people are generally more respected in society.

Traditionally, the Vietnamese place a very high value on education and households tend to spend a significant amount of resources on their children's education. For example, according to Glewwe and Patrinos (1999), a family with three children in public schools, one in primary, one in lower secondary and one in upper secondary will spend about 10 percent of annual household expenditures on education. Elsewhere, for example in Australia, average household expenditure on children's education was about 1.1 percent in 2003-04 (Watson, 2008). The purpose of this study is to investigate the determinants of the demand for education in Vietnam by examining the education expenditure pattern of Vietnamese households. The contribution of this study is fourfold. First, the paper focuses on the determinants of the demand for education rather than on the supply-side for education. Pushkar (2003), as well as Glewwe and Jacoby (2003) shows that supply side policies aimed at increasing education levels in developing countries have been less successful in promoting human capital development. Second, this study focuses on the determinants of household educational expenditure rather than educational attainment. Traditional studies have used educational attainment as a proxy for educational demand (e.g. Pushkar 2003, Li and Min 2001). As argued by Qian and Smyth (2010), educational attainment can only partially capture the demand for education because educational attainment also depends on the child's ability. Accordingly, focusing on educational expenditure would be an advantage because it

measures the willingness of the parents to pay for their children's education. Third, the determinants of demand for education in Vietnam have received only little attention in the literature. The few existing studies have used data from surveys restricted to a small number of villages in a province or have used data from the early 1990s (Duong 2004; Glewwe and Patrinos 1999). The use of more recent data in this study covering all of Vietnam's provinces will provide us a better picture on the effects of social-economic changes on the household educational expenditure. Fourth, methodologically, analysis of the educational expenditure in this paper is conducted using a Tobit model. Existing studies in the literature have used standard OLS or logistic regression model. However, since data on educational expenditure of many poor families is characterized by zero educational expenditure, ignoring this left censoring in the data will bias results.

The rest of this paper proceeds as follows. Section 2 summarizes previous studies on determinants of educational expenditure in Vietnam and other countries. Section 3 describes the dataset and section 4 presents the econometric framework for analysis. The results are discussed in section 5. The conclusion is in section 6.

2. Literature Review

There have been numerous studies of private education expenditure of households in many countries. Universal findings show there is always a positive and significant effect of parental educational attainment, as well as household income on children's schooling (e.g. Binder 1998, Blanden and Gregg 2004, Qian and Smyth 2010). However, these studies also suggest that the effects on demand for education in different countries are not the same. For example Hashimoto and Health (1995) examined the determinants of educational expenditure using data from Japanese households. They found that the income educational expenditure elasticity is the highest in households with a middle range of income, lower with low-income households, but is negative for the highest income families. On the other hand, using the household expenditure survey from Turkey in 1994, Tansel and Bircan (2006) found a unitary elasticity of private tutoring expenditure. They also found that households in urban areas and single mothers put more resources toward private tutoring of their children. Psacharopoulos and Papakonstantinou (2005) found evidence that private tutoring in Greece is highly inelastic and therefore is a necessity household expenditure. There are also studies in China that explored the effect of household characteristics on children educational attainment. For example, Qian and Smyth (2010) analyzed survey data from 32 selected cities across China in 2003. They found that households where mothers have senior secondary school or college education, and fathers are working in professional occupations, are likely to spend more on education. They also suggested that highest income households in coastal area with college educated fathers and mothers are cadres or middle professional will most likely send their children overseas for education. Similarly, Knight and Shi (1996) used household sample survey and they found that parents' educational attainment is the most important factor influencing children's education. They also found that father's education is more important factor than mother's education. Connelly and Zheng (2003) used Chinese census data and they found that siblings had a negative effect on the educational attainments of urban youth.

There are few studies that investigate the educational demand for children of Vietnamese households. The first study was done by Glewwe and Patrinos (1999) using household data survey in 1992-1993. Their findings revealed that as the incomes of households increase, the willingness to spend on education will increase, and there is a large tendency for households

in urban areas to spend more resources for their children education (79 percent more). They also found that educational expenditure tend to increase as one moves from Northern to Southern regions, and Chinese households spend more education than any other ethnic group (about 35 percent more than the amount spent by Vietnamese). There was also some gender discrimination as the amount spent on girls is about 5 percent less than the amount spent on boys.

In another study of the demand for education, Glewwe and Jacoby (2003) used the panel data from Vietnam over the 1993-1998 period and investigated determinants of child school enrollment. They found that child school enrolment increased faster in households that experienced greater increases in wealth. Glewwe and Jacoby (2003) did not find returns to education play a role in increasing education demand in Vietnam.

Duong (2004) conducted a survey in 360 households of six villages in the Me Linh district, Vinh Phuc province from March to September 2001. Using the logistic regression model, the author found parents' education levels and the interaction between parents and their children significantly increase the school enrolment of children. In addition, the author found that family social capital, combined with financial and human capital, added significantly to children's education attainment.

Dang (2007) investigated the determinants and impact of private tutoring classes in Vietnam using the Vietnam Living Standards Survey 1997-1998 and 1992-1993. The author found there is no gender discrimination on private tutoring expenditure. Ethnic minority students spend less on private tutoring, but only at the primary level. Dang (2007) also found that spending on private tutoring would fall significantly if the quality of schools was improved.

3. Data

This paper used data from the 2006 Vietnam Household Living Standards Survey (VHLSS). The VHLSS is carried out every two years by the General Statistics Office Vietnam (GSO) with technical assistance from the World Bank. The VHLSS 2006 data makes up 9,189 households with 39,071 individuals covering 64 provinces. Similar to Qian and Smyth (2010), I only considered households with dependent children and where the dependent children's age was not older than 22 as most people graduate from university by that age. Overall, there were 4,578 valid responses for all the variables needed for the study.

Table 1 summarizes the characteristics of the survey respondents in the sample. 73.8 percent of the household heads were male, 91 percent of the household heads were married and 44.5 percent of the households lived in the Southern provinces of Vietnam. On average, each household spent about VND 2.5 million on their children's education, which was equivalent to about 9 percent of the total household income. There was quite a disparity between household incomes in Vietnam. The bottom 20 percent income households (first quintile) on average only earned 5.6 million VND in 2006, which was less than half of the total income from the second quintile households. The top 20 percent income households on average earned approximately 64.6 million VND, twice as much as households from the second top 20 percent. Of the household heads, only 7.25 percent had a minimum degree of college or above, 41.4 percent completed secondary school, and 26.7 percent finished primary school.

In terms of occupation, 11.1 percent were professionals, 34.5 percent were blue-collar and more than half were not in the labor force, being either unemployed, retired, self-employed or students.

In terms of children's age, 15.7 percent of the households had 1 or 2 preschool-age children living with them, 28 percent had at least 1 child of primary school-age, 60 percent had at least 1 child of secondary school-age and 46 percent had at least 1 child at college-age. Almost 80 percent of all the households had only 1 or 2 children of school-age, which probably reflects Vietnam's one or two child policy.

Table 2 summarizes the total amount of educational expenditures by household income quintile. As can be seen, richer households appear to spend more on their children's education than poorer households. However, it is interesting to see that out of the percentage of the total household income, poorer households spent at a greater percentage, which probably supports the common argument that poorer households view investment in human capital as the principal route out of poverty.

4. Empirical Specification

To estimate household education expenditure, I used a Tobit model where the households with no education expenditure are censored (y_i^*):

$$y_i^* = x_i\beta + \varepsilon_i \quad (1)$$

where y_i^* is the latent variable, and x_i is the vector of household characteristics as defined in Table 1. The observed y_i (education expenditure) is defined as $y_i = 0$ if $y_i^* = 0$, and $y_i = y_i^*$ if $y_i^* > 0$. To reduce heteroscedasticity, household education expenditures were transformed into a logarithmic scale. However, since there are a large number of households with zero expenditure on education, a value of one was assigned in the place of the zero for education expenditure.

There are several model specifications employed in this paper depending on the inclusion of different household characteristics to give some comparison. The model was first estimated for full sampling to include all family characteristics. Then separate regressions are estimated for different income quintiles in order to investigate the effects of family characteristics at each income level. Finally, similar to Hannum (2005) and Qian and Smyth (2010), the model was estimated separately for each subsample with primary school-age, secondary school-age and college-age children. Such estimations focus on the income effect and other family characteristics on the patterns of educational expenditure allocation among school-age children.

5. Empirical Results

Estimation results of the determinants of annual educational expenditure and their marginal effects are shown in Table 3. Almost all of the variables are statistically significant at the 1 percent level. With respect to household income variables, the marginal effects of different income levels show that there were substantial differences in terms of educational expenditure between households with different levels of income. Specifically, households at the second income quintile spent 61 percent more on children education than those at the bottom income level, and households in the third income quintile spent 30 percent more than

households in the second income quintile. Households in the top income quintile spent the most on children education, 59 percent more than those in the fourth income quintile. There seems to be no significant difference in educational expenditure between households in the third and those in the fourth income quintile. Taking the logarithm of the overall income and the overall model was estimated again, the coefficient on household income can be roughly interpreted as the income elasticity of education expenditure. The elasticity equals to 0.32.

In terms of occupation, household heads whose occupation were leaders, high professional, medium professional and elementary professional spent 123 percent, 104 percent, 99.4 percent and 118 percent, respectively, more than those who were in blue-collar occupations. Surprisingly, households where the household heads were not in the labor force spent the most on their children education. These households spent as much as 1.65 times more than those in blue-collar jobs. This might reflect that more than half of the household heads in the dataset were not in the labor force, being either unemployed, retired, self-employed or students. Unfortunately, the data available does not allow us to differentiate those household heads into further subgroups.

Household head's level of education has an increasingly positive effect on children educational expenditure. Household heads who received education at the lower secondary school, college level and above were found to spend about 2.2 times more than those who did not get any education qualifications. Households where household heads received an upper secondary school diploma were found to spend the most on their children's education.

Overall, the general trend is that households with higher income, where household heads are better educated and with professional occupations tend to spend more on education for their children. As discussed earlier, the finding that household income has a significant effect on education expenditure is nearly universal. Consistent with the results from this study, Glewwe and Patrinos (1999) found that as the incomes of households increase, the willingness to spend on education will increase. However, they found the income elasticity was stronger than the one calculated in this study, equal to 0.53. Dang (2007) investigated the determinants of private tutoring in Vietnam. The author found that mothers' education has a positive impact on private tutoring at the primary level, but no impact at the lower secondary level. In contrast, the father's education has a significant impact at the lower secondary level, but no impact at the primary level. In this study, there was not enough information about the fathers or mothers in the households, but rather, only information on household heads. I could not calculate the impact of fathers and mothers' education on children's educational expenditure.

The size of the household has some interesting impact on education expenditure. One more child at primary school-age increases total educational expenditure of the household by 136 percent, while having another child at secondary school-age increases the total expenditure by 60 percent. However, an increase in the number of preschool-age children or college-age children reduces total expenditure on education. This suggests the cost of education is likely to be higher at the primary and secondary stage. Similar results are also reported in China. Qian and Smyth (2010) found that households with preschool-age children spend less on education.

I also find that the household's head being male or whether the household's head is married or divorced did not have any significant impact on the children educational expenditure. However, households whose household heads are separated or widowed spent significantly

less on children's education than those who are single. In terms of geography, both households in the Northern and Southern provinces spent less on their children's education than households in the Central provinces of Vietnam. Similar evidence is also found in Dang (2007). This is probably to do with cultural factors. Households in the central provinces of Vietnam are known to set aside a large investment for their children's education.

Turning our attention to the determinants of education expenditure by income quintile, Table 4 reports the marginal effects for the Tobit estimates. Household's head occupations were mainly found to be significant among households with medium to high income quintiles. This reflects that households with lower incomes probably also have the household heads not in the labour force. Similar to the results from full sample, expenditure on children's education increases as household's head obtained higher level of education. What is also interesting is, given that the household heads have the same level of education, that educational expenditure tends to increase as household income decreases. Again, the results indirectly reflect that households with medium or low socio-economic status have the strongest desire for their children to move upward in society.

The number of primary and secondary school-age children was also found to have a positive and significant effect on household educational expenditure. Educational expenditure incurred on one more child at primary school-age, increases as household income decreases. For an increase in the number of secondary school-age children, households in the first, third and fourth income quintiles, have the same increases in total expenditure on education, about 50 percent more. The largest increase was found in the highest income group (137 percent more), and the smallest increase was not in the lowest income group, but rather in the second quintile group (23 percent more). This reflects that households in the lower income quintile make a significant effort for their children to complete primary school education. They probably view secondary or higher education as not important or they could not afford such education for their children.

The results for the North and the South residents are interesting with some opposite effects. For households in the bottom four income quintiles, residents in the North or in the South spent between 47 percent and 160 percent less than those who resided in the Central provinces. Between residents in the North and in the South, those in the South spent significantly less than those residents in the North. It could be that the Central provinces of Vietnam, being relatively undeveloped or poor, have a stronger desire for their children to move upward. Similarly, the Southern provinces are relatively more developed than the Northern provinces meaning that there might be other factors other than education for the children to become upwardly mobile. In contrast, for households in the top income quintile, both residents in the North and in the South spent between 42 percent and 48 percent more than those living in the Central areas.

Table 5 presents the results tabulated by children's age. Many of the results are similar to those found for the full sample, except for the magnitude of the effects are different across household subsamples. Specifically, I found regardless of the children's age, households with higher income always spend more on educational expenditure. I also observed that except for household heads with college education level and above, the higher level of education of the household head increases educational expenditure on children.

In terms of the number of school-age children, regardless of any child's age, also having children of primary school-age or secondary school-age increases the probability of having

educational expenditure. However, opposite effects were found in the households with preschool-age and college-age children. Within households with college-age children, having another child at preschool-age or college-age increases spending on education. However, within households with preschool-age or primary school-age or secondary school-age children, having another child at preschool-age decreases spending on education. This probably suggests that for families with children less than college-age, also having children at pre-school age will require the households to share the resources among their children. Considering preschool-age education is not as important as other types of education, educational expenditure on preschool-age children will decrease. On the other hand, families with college-age children able to work, more resources can be spent on other children regardless of the child's age.

6. Conclusion

Since 1986's *Doi Moi – Renovation* policy, increasing education levels in Vietnam is a constant important strategy of the Vietnamese government. Accordingly, the Vietnam education system has been expanding significantly, in which the gross enrolment rates at the secondary level has been more than doubling from 32 percent to 73 percent, and increasing fivefold from 2 percent to 10 percent at the tertiary level from 1991 to 1994 (World Bank, 2006). Educational expenditure in Vietnam was among the highest in the World, at about 8.3 percent of GDP in 2005 compared with OECD countries of 6.1 percent (Vu, 2006). However, of the total educational expenditure, the Vietnamese private sector contributed 40 percent, while in the OECD countries, the private sector only contributed 20 percent (Vu, 2006). Accordingly, educational expenditure was among the biggest factor contributing to the economic burden for the families. There were some concerns that as the cost of education is high, poor families would not be able to send their children to school even with school subsidy. Belanger et al. (2004) found that only 11 percent of those received a school fee exemption in the VHLSS 1997-98 due to poverty. They concluded that poor children in Vietnam received very little benefit and most of them continued to face financial difficulties.

The findings from this paper suggest that income, household heads' level of education and the numbers of primary and secondary school-age children are the key factors determining the total amount of households' expenditure on education. Higher income families tend to spend more on their children. In addition, the greater numbers of primary school-age or secondary school-age children contributed to higher expenditure on education. Finally being in the households where the household heads have a higher level of education or with professional occupations, enhances the probabilities of education expenditure. These results show that families with more resources and better human capital are those who are able to spend more resources on their children's education.

Endnotes

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Table 1: Summary Statistics

Variable Name	Description of Variable	Means / Frequency
Educational Expenditure	Expenditure for education in 2006.	2.476.383 VND (max 26.318.000 VND)
Household Income	Average yearly income of household.	27.606.030 VND (max 279.000.000 VND)
Household Income – 1st quintile	Average income of the bottom 20% income households.	5.618.000 VND
Household Income – 2nd quintile	Average income of the 20% lower middle income households.	13.769.000 VND
Household Income – 3rd quintile	Average income of the 20% middle income households.	21.258.000 VND
Household Income – 4th quintile	Average income of the 20% upper middle income households.	33.027.000 VND
Household Income – 5th quintile	Average income of the top 20% income households.	64.654.000 VND
Years of Education	Years of education for all respondents.	8.18 years.
Below Primary	A binary dummy variable of the household's head where 1=highest education is below primary, 0 otherwise.	24.6% did not complete primary education.
Primary	A binary dummy variable of the household's head where 1=highest education is primary, 0 otherwise.	26.7% finished primary school.
Lower Secondary	A binary dummy variable of the household's head where 1=highest education is lower secondary, 0 otherwise.	21.4% finished lower secondary school.
Upper Secondary	A binary dummy variable of the household's head where 1=highest education is upper secondary, 0 otherwise.	20% finished upper secondary school.
College and above	A binary dummy variable of the household's head where 1=highest education is college and above, 0 otherwise.	7.25% finished college and above.
Cadres	A binary dummy variable where 1 = household's head being cadres, 0 otherwise.	2.2% were cadres.
High Professionals	A binary dummy variable where 1 = household's head being high professionals, 0 otherwise.	3.8% were high professionals.
Medium Professionals	A binary dummy variable where 1 = household's head being medium professionals, 0 otherwise.	5.5% were medium professionals.
Elementary Professionals	A binary dummy variable where 1 = household's head being elementary professionals, 0 otherwise.	1.8% were elementary professionals.
Blue-Collar	A binary dummy variable where 1 = household's head being blue-collar, 0 otherwise.	34.4% were blue-collar.
Not in the Labor Force	A binary dummy variable where 1 = household's head not in labor force, 0 otherwise.	51.5% were not in the labor force.
Number of Preschool-Age Children	The number of children aged 1 to 5 living in the household.	14% had one, 1.7% had two.

Variable Name	Description of Variable	Means / Frequency
Number of Primary School-Age Children	The number of children aged 6 to 10 living in the household.	24.4% had one, 3.63% had two, 0.11% had three.
Number of Secondary School-Age Children	The number of children aged 11 to 17 living in the household.	40.5% had one, 16.6% had two, 2.9% had three, 0.17% had four and 0.17% had five.
Number of College-Age Children	The number of children aged 18 to 22 living in the household.	35.1% had one, 9.2% had two, 1.33% had three, 0.13% had three.
North	A binary dummy variable where 1 = being a resident in the North of Vietnam, 0 otherwise.	29.5% were living in the Northern areas.
South	A binary dummy variable where 1 = being a resident in the South of Vietnam, 0 otherwise.	44.5% were living in the Southern areas.
Centre	A binary dummy variable where 1 = being a resident in the Centre of Vietnam, 0 otherwise.	26% were living in the Centre areas.
Single	A binary dummy variable where 1 = household's head being single, 0 otherwise.	0.7% were single.
Married	A binary dummy variable where 1 = household's head being married, 0 otherwise.	90.9% were married.
Divorced	A binary dummy variable where 1 = household's head being divorced, 0 otherwise.	1.46% were divorced.
Widowed	A binary dummy variable where 1 = household's head being widowed, 0 otherwise.	5.98% were widowed.
Separated	A binary dummy variable where 1 = household's head being separated, 0 otherwise.	0.9% were separated.
Head Male	A binary dummy variable where 1 = household's head being male, 0 otherwise.	73.8% were male household's head.

Table 2: Household Expenditure on the Children Education – By Income

Household	Mean Income	Mean Educational Expenditure	Percentage
Quintile 1	5.618.000 VND	1.374.000 VND	24.46%
Quintile 2	13.769.000 VND	2.063.000 VND	14.98%
Quintile 3	21.258.000 VND	2.125.000 VND	10.00%
Quintile 4	33.027.000 VND	2.869.000 VND	8.69%
Quintile 5	64.654.000 VND	3.960.000 VND	6.12%

Table 3: Tobit Estimation Results and Marginal Effects for Household Education Expenditure (Full Sample)

Variables	Coef.	t - stat	Marginal Effects (dy/dx)	z - stat
<i>Dependent Variable: logarithm of education expenditure</i>				
Household Income				
Second quintile	0.681***	4.83	0.614***	4.77
Third quintile	1.012***	7.07	0.918***	6.96
Fourth quintile	0.986***	6.78	0.893***	6.67
Fifth quintile	1.625***	10.75	1.486***	10.52
Household's Head Occupation				
Cadres	1.332***	4.17	1.230***	4.05
High Professionals	1.132***	3.62	1.039***	3.52
Medium Professionals	1.086***	4.87	0.994***	4.76
Elementary Professionals	1.276***	3.72	1.177***	3.62
Not in Labor Force	1.860***	18.64	1.646***	18.79
Household's Head Education				
Primary	1.271***	9.77	1.151***	9.62
Lower Secondary	2.451***	17.01	2.261***	16.61
Upper Secondary	3.207***	20.07	2.984***	19.57
College and above	2.268***	8.51	2.120***	8.23
Household's Number of Children				
Preschool-Age	-0.793***	-6.9	-0.706***	-6.89
Primary School-Age	1.535***	16.54	1.366***	16.55
Secondary School-Age	0.672***	11.34	0.598***	11.33
College-Age	-0.371***	-5.2	-0.330***	-5.2
Other Household's Head Characteristics				
Male	-0.122	-1.08	-0.109	-1.08
Married	0.017	0.03	0.015	0.03
Divorced	0.692	1.07	0.628	1.05
Widowed	-1.149**	-2.04	-0.982**	-2.14
Separated	-1.460**	-2.08	-1.225**	-2.23
North	-0.356***	-2.91	-0.316***	-2.93
South	-1.060***	-9.47	-0.938***	-9.53
Constant	2.325***	4.17		
Model N	4578			
Pseudo R ²	0.0665			
Log likelihood	-10452.01			

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Marginal Effects for Tobit Estimation for Household Education Expenditure by Income Quintile

Variables	First Quintile		Second Quintile		Third Quintile		Fourth Quintile		Fifth Quintile	
	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat
Household's Head Occupation										
Cadres	0.71	(0.93)	0.89	(1.42)	0.19	(0.24)	1.63**	(2.5)	1.92***	(3.51)
High Prof.	#		1.26	(0.92)	2.98***	(4.2)	2.43***	(4.08)	0.13	(0.32)
Medium Prof.	-0.42	(-0.72)	1.17*	(1.74)	2.11***	(4.87)	0.30	(0.59)	1.37***	(4.65)
Elementary Prof.	2.33*	(1.8)	#		1.71***	(3.14)	1.39**	(2.13)	1.29**	(2.54)
Not in Labor Force	0.23	(1.17)	1.65***	(9.19)	2.00***	(11.35)	2.46***	(11.44)	2.69***	(13.34)
Household's Head Education										
Primary	1.43***	(5.84)	1.74***	(7.1)	1.16***	(4.8)	0.51*	(1.71)	-0.48	(-1.56)
Lower Secondary	2.19***	(7.37)	3.08***	(9.75)	1.99***	(7.29)	1.70***	(5.42)	1.17***	(3.83)
Upper Secondary	3.13***	(7.8)	3.77***	(10.26)	2.59***	(8.09)	2.98***	(8.57)	1.95***	(6.47)
College and above			2.40***	(3.62)	0.84	(1.57)	0.35	(0.58)	2.71***	(7.18)
Household's Number of Children										
Preschool-Age	-1.44***	(-5.91)	-1.18***	(-6.1)	-0.83***	(-3.64)	0.06	(0.23)	0.65***	(2.88)
Primary School-Age	1.49***	(8.78)	1.44***	(8.15)	1.31***	(7.52)	1.23***	(6.1)	1.05***	(5.42)
Secondary School-Age	0.53***	(5.1)	0.23**	(2.11)	0.52***	(4.44)	0.51***	(3.78)	1.37***	(10.84)
College-Age	0.11	(0.71)	-0.51***	(-3.93)	-0.47***	(-3.22)	-0.51***	(-3.46)	0.30**	(2.2)
Other Household's Head Characteristics										
Male	0.22	(0.84)	-0.87***	(-3.81)	0.25	(1.21)	-0.40*	(-1.73)	-0.07	(-0.34)
North	-0.47**	(-2.13)	-0.70***	(-2.95)	-0.30	(-1.24)	-0.49*	(-1.94)	0.48**	(2.05)
South	-1.27***	(-6.16)	-0.91***	(-4.24)	-0.92***	(-4.24)	-1.61***	(-7.09)	0.42*	(1.86)
Married	0.25	(0.3)	1.57	(1.43)	0.25	(0.36)	3.03***	(3.89)	-0.18	(-0.14)
Divorced	-1.23	(-1.48)	2.60	(1.62)	0.91	(0.78)	6.19***	(4.02)	1.18	(0.78)
Widowed	-0.22	(-0.25)	-1.33	(-1.16)	-0.46	(-0.58)	2.58**	(1.91)	-0.57	(-0.44)
Separated	-0.46	(-0.48)	1.01	(0.54)	-0.93	(-1.02)	#		#	

Notes: # Not enough observations; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Marginal Effects for Tobit Estimation for Household Education Expenditure by Children's Age

Variables	Preschool-Age		Primary School-Age		Secondary School-Age		College-Age	
	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat
Household Income								
Second Quintile	1.65***	(4.90)	0.63***	(5.00)	0.28**	(1.96)	0.21	(0.94)
Third Quintile	1.95***	(5.17)	0.90***	(6.74)	0.55***	(3.89)	0.69***	(3.07)
Fourth Quintile	2.54***	(6.48)	1.43***	(9.82)	0.63***	(4.31)	0.51**	(2.35)
Fifth Quintile	3.59***	(9.26)	1.73***	(12.11)	1.50***	(9.73)	0.86***	(3.72)
Household's Head Occupation								
Cadres	2.90***	(3.44)	0.77	(1.42)	0.01	(0.03)	1.67***	(3.21)
High Prof.	2.44***	(3.21)	-0.43	(-1.26)	0.73	(1.91)	0.87*	(1.78)
Medium Prof.	1.32***	(2.92)	0.69***	(2.56)	0.46	(1.82)	1.26***	(3.59)
Elementary Prof.	1.97**	(2.27)	-0.35	(-0.74)	0.74	(1.99)	2.02***	(4.19)
Not in Labor Force	0.92***	(3.59)	0.36***	(3.56)	1.48***	(15.21)	2.10***	(15.05)
Household's Head Education								
Primary	1.35***	(4.34)	0.85***	(7.67)	1.26***	(10.07)	0.78***	(3.55)
Lower Secondary	0.86**	(2.09)	0.95***	(6.42)	2.40***	(16.93)	2.97***	(12.51)
Upper Secondary	1.39***	(3.18)	0.98***	(5.21)	3.42***	(19.47)	3.24***	(13.31)
College and above	-1.03*	(-1.85)	0.94***	(2.96)	2.67***	(8.67)	3.03***	(6.59)
Household's Number of Children								
Preschool-Age	-1.55***	(-4.46)	-0.60***	(-6.85)	-0.63***	(-4.55)	1.23**	(2.33)
Primary School-Age	1.24***	(7.17)	0.63***	(5.02)	0.93***	(9.64)	2.00***	(10.09)
Secondary School-Age	0.40***	(2.76)	0.24***	(4.20)	0.22***	(2.96)	0.62***	(7.53)
College-Age	0.95*	(1.91)	0.10	(1.05)	-0.42***	(-5.95)	0.22*	(1.77)
Other Household's Head Characteristics								
Male	-0.97***	(-3.57)	-0.61***	(-4.69)	0.06	(0.51)	-0.08	(-0.49)
North	-0.59**	(-2.16)	0.04	(0.34)	-0.28**	(-2.24)	-0.36**	(-2.08)
South	-0.96***	(-3.54)	-0.40***	(-3.87)	-1.00***	(-9.28)	-1.25***	(-7.97)
Married	1.91***	(3.34)	0.39	(0.67)	-0.58	(-1.19)	-0.68	(-0.75)
Divorced	#		-0.57	(-0.68)	0.39	(0.64)	-0.23	(-0.25)
Widowed	#		-0.44	(-0.68)	-1.68***	(-3.51)	-1.09	(-1.41)
Separated	3.19*	(1.77)	0.77	1.10)	-0.99	(-1.59)	-2.89***	(-5.00)

Notes: # Not enough observations; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$