



Gender Inequality In Education In Northern Midland And Mountainous Area In Vietnam

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Abstract

Using the result of Vietnam household living standard survey 2016, this paper examines the effects of gender on three different sides of education including the opportunities to access to education, education expenditure and education outcomes in the Northern midland and mountainous area in Vietnam. Firstly, the data show that children have the similar chances to attend general education no matter what their gender are, but at tertiary education the portion of enrolment of women is larger compared with that figure of men. Next, although the average education expenditure for female is higher than male, the gender has no effect on the household's educational investment. Lastly, women have lower rate of literacy and lower rate of achievement of primary degree than men. In addition, there is no discrimination between male and female in the ratio of completion of middle school as well as high school.

Keywords: cultural industry, economic growth, input – output table



1. Introduction

Gender equality is defined as the equal rights and benefits that men and women received (UNESCO, 2003). Law on Gender equality of Vietnam stated that “Gender equality indicates that man and woman have equal position and role; are given equal conditions and opportunities to develop their capacities for the development of the community, family and equally enjoy the achievement of that development” (National Assembly of Vietnam, 2006). Gender equality is one of the criteria for assessing the sustainable development of society. Gender equality in education has positive impact on economic growth (Hill and King, 1995; David Dollar and Robera Gatti, 1999; Stephan Klasen and Francesca Lamanna, 2008). There are many studies of measurement of gender inequality in education. Gender inequality in education referred to the inequalities between man and woman in three aspects of education including the rights to education, within education and through education (Wilson, 2003 & Subrahmanian, 2005). According to the report of USAID’s Office of Women in Development 2007, there were four main aspects of assessing gender equality or inequality in education including equality of access, equality in the learning process, equality of educational outcomes and equality of external results. Sabir (2003) had another view and presented several ways of evaluation of gender disparity in education including gross enrolment, net enrolment, completion and leaving school ratios and education spending instead of dividing it into three or four dimensions as the researches above. Unterhalter (2006) had the same opinion to assess gender inequality in education but he extended and divided the indicators into three groups containing gross and net enrolment ratios, gender-related EFA index (comparing the number of male and female students at all educational levels), attendance and progression (mentioning the completion of schools). Stephanie Psaki et al. (2017) had evaluated gender equality in education through the differences between boys and girls in school enrolment and progression, in educational attainment (grade completion and literacy) basing on the comparative analyses of Demographic and Health Survey (DHS) data of 43 low and middle-income countries from 1997 to 2014.

Using quite similar indicators to measure gender equality in education, however the situation of gender inequality in education is different by countries.

Subha Mani et al. (2013) researched the determinants of school enrolment and relative grade attainment of primary school children in rural Ethiopia. Using data which collected from the Ethiopian Rural Household Survey in a decade since 1994, the results of IV and OLS regressions showed that the ratio of school enrolment of girls was higher than boys because boys were useful in farm works. Junxia Zhang et al. (2012) indicated that there were disparities between male and female in China using meta-regression approach. In spite of the improvement in gender equality in China from 1980s to 2000s, there was a bigger discrepancy between girls and boys in rural than in urban area, in ethnic minority groups than in Han ethnic. Not only Chinese but also Indian believed that men were superior to women. In the investigation of children ages 8-11 in India in 2005, Gregory White, Matt Ruther and Joan Kahn (2016) implemented descriptive statistics and logit regressions to point out that the educational results of girls were worse than boys in terms of increasing family’s size. Shaleen Khanal (2018) had researched the gender difference in education



expenditure in Nepal by using the information from Nepal Living Standards Survey in three periods 1995-1996, 2003-2004 and 2010-2011. The education expenditure of household on a child was set as the dependent variable in OLS model with the independent variables of female, poor, rural, ethnic, total income, school type, current grade, distance from home to school, order of birth, household size, mother and father' level of education. Besides, he used the Blinder-Oaxaca decomposition method to explain the differences between men and women. As his expectation, female had significant negative impact on the education expenditure. Moreover, over 60% of the gap in education investment between boys and girls could be explained by the partial of boys.

In Vietnam, Nguyen Viet Cuong (2013) by the evidences from VHLSSs 2004, 2006 and 2008 proved that women had higher probability of enrolling upper-secondary school however lower probability of literacy than men. By using logit regressions for education enrolment, education completion and literacy at different age group which were controlled by sex, age, ethnic, region and per capita income, the research proved that female had lower probability of enrolling high school and lower probability of literacy than male while both groups have no disparities in enrolment and literacy at lower levels of education. Moreover, the percentage of women at aged 17 and above owning upper-secondary degree is 55.2 percentage points higher than that figure of men and that relationship was statistically significant. Two years later, Nguyen Viet Cuong (2016) had updated and extended his research with the data from 2014 Intercensal population and housing survey to examine some important factors affecting Vietnamese children's education. He one again used the logit model to estimate the effects of characteristics of individuals and household head on the school enrolment and the completion of upper-secondary school and post-secondary school. There were some new findings in his research. Boys had little chances to go to school as well as lower probability to graduate high school and university than girls.

Then, the differences of educational opportunity between girls and boys in Mekong river delta were created by the distinction family resources such as the parents' level of education and family's finance (Nguyen Van Tiep, 2015). Le Thuc Duc and Nguyen Thi Thu Hang (2016) analysed the Young Lives data in 2002, 2006, 2009 and 2013 of two groups of 3,000 children (group 1 was born in 2001 and 2002, group 2 was born in 1994 and 1995) to find out the inequality in educational opportunities and outcomes in Vietnam. The result shows that although the boys were expected to have higher probability to leave high school than girls, the beta coefficient was not statistically significant.

Northern midland and mountainous region is the largest area in Vietnam with 100,965 km² including 15 provinces of Ha Giang, Cao Bang, Lao Cai, Bac Kan, Lang Son, Tuyen Quang, Yen Bai, Thai Nguyen, Phu Tho, Bac Giang, Lai Chau, Dien Bien, Son La, Hoa Binh and Quang Ninh. The unwell-invested infrastructure and the extreme weather cause many obstacles for education, health and employment of the inhabitant in this region. Besides, Northern midland and mountainous area is the habitation of major ethnic minorities who have difficult economic conditions and low level of awareness in gender equality. However, up to now, there are no study on gender inequality in education in Northern midland and mountainous region of Vietnam.



Therefore, researching on gender inequality in education in this region is very necessary. This paper by using VHLSS 2016 aims to analyzing the situation and propose solutions for promote gender equality in education in the Northern midland and mountainous area in Vietnam.

2. Method and Data

2.1. Method

Similar to almost the researches before, this paper will use the quantitative method to estimate the gender inequality in education in the Northern midland and mountainous area in Vietnam. This thesis will combine the measures that were presented by Sabir (2003), Unterhalter (2006) and Stephanie Psaki et al. (2017). In which, the gender inequality in education will be assessed in three aspects including opportunities to access to education, education expenditure and education outcomes. The two indicators used to evaluate the education accessibility are gross enrolment rate and net enrolment rate. For education expenditure, the thesis uses the educational expenditure on child. With respect to the last aspect, the literacy rate and the education completion ratio will be chosen to evaluate the gender inequality education outcomes. The factors controlling the education of a child will be divided into three groups including household characteristics (the number of school-age children, household size, income per capita), parents' characteristics (parents' attainment and parents' occupation) and individual characteristics (gender, age, level of education, type of school).

This study will combine the results of proportion test, student's test. logit and OLS regressions to examine the difference between men and women and the impact of gender on education in three sides involving opportunities to access to education, educational expenditure and educational outcomes.

In order to estimate the effect of explanatory variables on educational expenditure on child, the OLS regression is applied as follows:

$$y_{i,j} = \beta_0 + \beta_1 age_{i,j} + \beta_2 male_{i,j} + \beta_3 level_{i,j} + \beta_4 public_{i,j} + \beta_5 nchild_j + \beta_6 hhsz_j \\ + \beta_7 incomepercap_j + \beta_8 moeduc_{i,j} + \beta_9 faeduc_{i,j} + \beta_{10} mooccup_{i,j} \\ + \beta_{11} faoccup_{i,j}$$

in which:

$age_{i,j}$ is the age of $child_i$ in $household_j$;

$male_{i,j}$ is the gender of $child_i$ in $household_j$;

$level_{i,j}$ is the level of education of $child_i$ in $household_j$;

$public_{i,j}$ is the type of school that $child_i$ in $household_j$ attended;



$nchild_j$ is the number of school-age children in $household_j$;

$hsize_j$ is the number of members in $household_j$;

$incomepercap_j$ is the income per capita of $household_j$;

$moeduc_{i,j}$ is the level of education of $child_i$'s mother in $household_j$;

$faeduc_{i,j}$ is the level of education of $child_i$'s father in $household_j$;

$mooccup_{i,j}$ is the occupation of $child_i$'s mother in $household_j$;

$faoccup_{i,j}$ is the occupation of $child_i$'s father in $household_j$;

2.2. Data

This paper uses Vietnam household living standard survey (VHLSS) 2016 data set according to the decision of Government statistics office no 1095/QD-TCTK dated November 18th, 2015. VHLSS is a sample survey of households which are selected in 3,133 communes. This survey is conducted every 2 years by General Statistics Office (GSO) of Vietnam in order to provide information for compiling national statistical indicators to assess the poverty and the gap between the rich and the poor.

In Northern midland and mountainous area, there are 1,809 households corresponding to 7,356 individuals. In this study, the author will focus on the data of the households who have under-22-year-old individuals.

3. Results and Discussions

In 2016, there was 1,971 individuals in the schooling age (6 – 21) in the Northern midland and mountainous area including 927 girls and 1,044 boys.

Gender inequality in opportunities to access to education

In general, the enrolment rates of male differed from that of female at all levels of education. The gross enrolment rate of female (78.1%) was 1.86% higher than male (76.24%), however the result of proportion test pointed out that difference was not statistically significant. As can be seen from the table 1, while there were small gaps in percentage of male and female attending primary, lower-secondary and upper-secondary school, there was a significant difference in college and university enrolment rate between men and women at right age.



Table 1. Enrolment rates by sex in the Northern midland and mountainous area in 2016

Gender	Gross enrolment	Enrolment at right age			
		Primary school	Lower-secondary school	Upper-secondary school	College/ University
Male	76.24%	95.10%	83.15%	56.61%	17.47%
Female	78.10%	94.60%	78.20%	55.90%	30.83%

Source: The authors' calculation from VHLSS 2016

The result of applying model in previous part shows that gender has an effect on the gross enrolment rate. In particular, the probability of accessing to school of male is 34.22 percentage points lower than that of female. The coefficient of that variable is statistically significant at 10% level. For the net enrolment, the gender does not influence the proportion of accessing to school at right age at primary, lower-secondary and upper-secondary levels, however, it has strong impact on the rate of tertiary education enrolment (the result of model is presented in appendix). In primary education, the ratio of enrolment of both sex groups were very high (95.10% for boys compared with 94.60% for girls) and nearly equal to each other. However, that ratio was still lower in comparison with the rate of the whole country (97.08% for boys and 96.99% for girls) as well as other five regions. There is an evidence showed that there is no significant statistical difference between boys and girls in the enrolment rate. Besides, the gender has no effect on the ratio of primary school enrolment. In fact, at aged 6-10, the children are small, they do not have to join in working market to help families, therefore, the opportunities to go to school of two genders are similar. Besides the tuitions fee reduction or exemption for the pupils at age 6-10, the Prime Minister had approved the project on consolidating and developing the system of boarding schools for ethnic pupils for the period from 2011 to 2015 (decision no.1640/QD-TTg dated 21 September 2011) to support the education of students who were ethnic minority and lived in mountainous area. Specifically, more classes were constructed, the school infrastructure was improved and the primary education and lower-secondary education level 1 were universalized at all provinces. From the result of logit estimation, the number of school-age children household size, income per capital, parental education and occupation have also no effects on the primary enrolment of a child. *In other words, all children have the same chances to go to primary school in spite of their gender and their household characteristics.* Moreover, almost households in this region believe that the basic knowledge in primary school is necessary for their children in the future, therefore, they try to send their children to school as they can.

At higher levels of education, the net enrolment rate of male and female seems to be lower because at that age the children are considered to continue studying or to drop out to work. The difference between men and women in the proportion of lower-secondary school enrolment was 4.95%, however, it was not statistically significant ($z = -1.3850$, $p > 0.05$). Although the logit estimation showed that boys had a portion of lower-secondary education enrolment 33.77 percentage points higher than girls, the p-value was higher than 0.1. *It means that there is no evidence to prove gender affecting the lower-secondary school enrolment ratio at significant level of 10%.* In terms of upper-secondary schools, the percentage of attendance of male and female was 56.61% and 55.90%, respectively. Similar to the lower-secondary level, *the difference between male and female in the portion of upper-secondary education enrolment is not statistically significant* ($z = -0.1341$, $p > 0.05$) and whether the individual is male or female that probability of enrolling upper-secondary schools will not be influenced.



The enrolment rate at tertiary level for women was 30.83% whereas it was only 17.83% for men. *The result of proportion test certified that the proportion of enrolling in college and university of female at age 18-21 is higher than that of male ($z = 3.3732$, $p < 0.01$).* Moreover, the gender is one of the factors affecting the decision of studying college and university. *Specifically, in the case that other conditions are unchanged, men have a proportion of tertiary education enrolment 81.62 percentage points lower than women.* The interaction was statistically significant at 1% level, therefore, there is an evidence to suggest that the probability of enrolling in college and university of male is lower than female. The highest ratio of child marriage in 10 – 17 age group was found in the Northern midland and mountainous area. Women at age 17 who do not marry early will continue studying at higher levels of education. On contrary, at the same age male tend to stop their studying to help families in farm works or to earn money. Those ideas may be the reasons why there are differences between male and female in the percentage of college and university enrolment in this region.

Gender inequality in education expenditure

The average education expenditure on a girl was 2.68 million/year while that figure on a boy was 2.28 million/year. Basing on t-test, the average expenditure on education of female is higher than that figure of male ($t = 1.5599$, $p < 0.1$). It could be the result of the higher expenditure in almost sections listed in table 2. Considering the structure of educational expenditure and the result of t-test as showed in table 2, the two sides in that female is more invested than male (the p-value is statistically significant) are tuition fees and other educational expenditure such as exam fees, languages, insurance, etc.

Table 2. Average education expenditure on child in the Northern midland and mountainous area in 2016 (thousand dong)

Expenditure	Female	Male	p-value of t-test
Tuition fees	664.650	496.329	statistically significant
Out-of-school-boundary	2.229	2.339	statistically insignificant
Contributions to school	217.144	205.791	statistically insignificant
Parents fund, class fund	147.030	139.342	statistically insignificant
Uniforms and costumes	123.160	124.621	statistically insignificant
Textbooks, reference books	181.713	182.315	statistically insignificant
Study instruments (paper, pens, etc.)	207.941	202.249	statistically insignificant
Extra classes for compulsory subjects in school	237.830	231.435	statistically insignificant
Other educational expenditure (exam fees, languages, insurance, etc.)	661.063	489.841	statistically significant

Source: The authors' calculation from VHLSS 2016



Table 3. Average education expenditure by income levels on child in the Northern midland and mountainous area in 2016 (thousand dongs)

Gender	Average education expenditure	Average education expenditure by income levels				
		1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile
Female	2,687	818	1,398	2,829	4,032	6,976
Male	2,282	619	1,236	2,130	2,751	6,983

Source: The authors' calculation from VHLSS 2016

Table 3 shows the average education expenditure on child by gender in different levels of income. Overall, while four groups of lower income level tended to spend more on education of female than male, the top income households did opposite thing. The t-test result indicates that the differences between men and women in average education expenditure in almost levels of income are statistically significant except in the 20% lower and the 20% top income group. It can be seen from the result of OLS regression, because of all statistically insignificant coefficients, there is no effect of gender on the education expenditure on child of households at all income levels.

Gender inequality in education outcomes

In Vietnam, the person who completes 3rd grade is considered in literacy group. In Northern midland and mountainous area, the percentage of men and women at aged from 9 to 21 know how to read and write was 97.75% and 95.83%, respectively. The literacy rate in this region seemed to be very high because the government had universalized primary education and the children had more chances to go to primary school. Nowadays the completion of 3rd grade was quite easy. Because p-value of proportion test is 0.0146 (<0.05), the difference between male and female in proportion of literacy rate is statistically significant. By applying logit regression, it is clear that the proportion of literacy of men is 50.23 percentage points higher than that of women. The higher ratio of primary school enrolment boys leads to the more opportunities for men to complete the basic read and write program.

Table 4. Education completion rates by sex in the Northern midland and mountainous area in 2016

Gender	Completed primary education	Completed lower-secondary education	Completed upper-secondary education
Female	91.74%	78.80%	56.25%
Male	95.25%	80.62%	46.7%

Source: The authors' calculation from VHLSS 2016

As was presented, the completion rate of basic education of women in Northern midland and mountainous area in 2016 was lower than that of men. At aged 10-21, 91.74% girls and 95.25% boys had completed their primary education. The difference in the proportion of completion primary education of two groups was 3.51% and was statistically significant ($z = -2.4583$, $p < 0.01$). Young men have statistically significantly graduated primary school 62.22 percentage points larger than young women at 5% level. The investment for education could be a reason to explain that reason. In practice, the average education expenditure for male (1.3 million



dongs) is higher than female (1.1 million dongs) in primary education and that difference was statistically significant.

At lower-secondary level, there was a difference between male and female at aged 15-21 in completion rate however that it was not statistically significant ($z = -0.6473$, $p > 0.05$). Although the logit estimation showed that boys had a portion of lower-secondary education completion 8.17 percentage points higher than girls, the p-value was higher than 0.1. It means that there is no evidence to prove gender affecting the lower-secondary school completion ratio.

The percentage of upper-secondary school graduation of male and female from 18 to 21 years old was 46.7% and 56.25%, respectively. The portion of upper-secondary education completion of female was higher than male and this difference was statistically significant ($z = 2.0633$, $p < 0.05$). One possible explanation is that boys from the poor families tend to drop out of school to join the labour market. However, similar to the lower-secondary level, the gender did not influence the probability of having upper-secondary certificate. It can be seen from the result of OLS regression, the completion of lower and upper-secondary education is influenced by the household income and the parental education and occupation. It means that, parents hold a key in the completion of education of their children.

4. Discussion and Conclusion

The implementation of gender parity in different sides of education in the Northern midland and mountainous area is getting better and better.

Firstly, female has higher possibility of enrolment than male does. Men and women almost receive the equal opportunities to access to school from primary to upper-secondary level. There are no statistically significant differences in net enrolment rates in general education between girls and boys. However, female is more likely to attend college and university at right age than male and that disparity is considerable.

Secondly, the families spend more on educating and training their daughter than their son, especially from the first to the fourth quintile of income, however, the gender of child is not a factor affecting the educational expenditure of household.

Finally, although there is a gap between man and women in education achievement, it is not remarkably. In particular, the literate ratio of men under 22 years old is higher than that of women. Besides, boys have larger portion of completion of primary school in comparison with girls. Basing on the highest level of education that the observations achieved, it is clear that the differences of two gender groups in obtaining lower-secondary, upper-secondary degrees are not statistically significant.

In Northern midland and mountainous area, the gap between men and women in education is now closer in spite of the economic and social difficulties. Therefore, the policies that improve educational and economic conditions will contribute to promote gender equality in all fields in general and in education in particular.



The first recommendation is the group of education policies. Increasing the number of public schools, improving the infrastructure and encouraging more teachers to work in this region will make better conditions for children to have chances to go to school. Besides the spread of primary education, the government should universalize the higher levels of education including lower and upper-secondary. Government should continue supporting in tuition fees reduction or exemption for primary school.

Next, the government need to concern about the economic condition of this region. The wealth of household is one of factors influencing not only in education enrolment and achievement but also in education expenditure. In fact, the poverty causes the school leaving and it is disadvantage for children to access education, especially for young men. The poverty is one of reasons why boys have to leave school to earn money and girls have to leave school to do house works. That's why the policy makers have to consider the subsidy for the poor and make more jobs for the ethnic minorities.

At last, the government should focus on enhancing the awareness of the habitant. It is necessary to continue popularizing widely the Law on gender equality and the gender knowledge in the whole country, especially in the Northern midland and mountainous area. Besides, because household size and the number of children have negative impacts on all aspects of education, the policy makers have to propagate family planning further.

Overall, the Northern midland and mountainous area has achieved success in reducing the disparities between men and women in education. Although the gender inequality is existence in some aspects such as post-secondary enrolment, education expenditure, literacy and primary completion, male and female are receiving the similar treatment in opportunities to go to school and ratio of completion of their own studies.

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Appendix

Appendix 1. Logit regressions of education enrollment

VARIABLES	enroll	enrollright1	enrollright2	enrollright3	enrollright4
	<i>age 6-21</i>	<i>age 6-10</i>	<i>age 11-14</i>	<i>age 15-17</i>	<i>age 18-21</i>
age	-0.5532*** [0.044]	0.3928** [0.178]	0.5965*** [0.138]	0.7395*** [0.189]	0.3840*** [0.137]
male	-0.3422* [0.189]	0.1523 [0.386]	0.3377 [0.258]	-0.3530 [0.271]	-0.8162*** [0.301]
nchild	2.1852*** [0.178]	0.2360 [0.269]	0.5300*** [0.185]	1.1168*** [0.225]	1.6647*** [0.259]
hhsiz	-1.1476*** [0.085]	-0.1108 [0.215]	-0.4228*** [0.127]	-0.6877*** [0.146]	-1.2220*** [0.250]
incomepercap1	-1.2089*** [0.389]	-0.7451 [1.182]	-0.5481 [0.905]	-0.8206 [0.668]	-2.0436*** [0.776]
incomepercap2	-0.3612 [0.391]	-0.1236 [1.251]	-0.0614 [0.904]	0.0571 [0.609]	-1.2679** [0.620]
incomepercap3	-0.3715 [0.360]	-1.1704 [1.107]	-0.3468 [0.836]	-0.6401 [0.599]	-0.0447 [0.459]
incomepercap4	-0.0234 [0.356]	-0.5756 [1.078]	-0.2551 [0.842]	0.8142 [0.615]	-0.2273 [0.422]
incomepercap5	-	-	-	-	-
moeduc1	-0.1963 [1.426]	0.1853 [2.806]	-0.7183 [0.848]	-1.1958 [0.857]	0.6726 [1.311]
moeduc2	-0.3068	1.2605	0.1549	-0.6060	0.1838



	[1.429]	[2.611]	[0.819]	[0.840]	[1.213]
moeduc3	-0.2153	0.5715	1.2583	-0.3628	0.3509
	[1.422]	[2.556]	[1.144]	[0.891]	[1.183]
moeduc4	0.5768		-1.7822	-1.5188	1.1784
	[1.417]		[1.143]	[1.134]	[1.245]
moeduc5	1.1416	0.8019	0.6840	-0.1644	0.8605
	[1.569]	[2.819]	[1.578]	[1.275]	[1.103]
moeduc6	0.3754	0.9187	-1.7396	-1.8794	1.4570
	[1.659]	[2.617]	[1.346]	[1.245]	[1.317]
faeduc1	-0.1674	-1.0530	-0.3615	-0.1603	-1.1722
	[0.601]	[2.987]	[0.732]	[0.837]	[0.934]
faeduc2	0.7257	-1.5132	-0.2620	0.7866	-0.1370
	[0.573]	[2.851]	[0.737]	[0.892]	[0.792]
faeduc3	1.2025**	-1.6699	-0.3870	0.6007	1.0800
	[0.597]	[2.792]	[0.735]	[0.866]	[0.709]
faeduc4	1.3171*	-0.9528	0.7384	0.7460	0.0635
	[0.722]	[2.774]	[1.546]	[0.969]	[0.972]
faeduc5	1.7592**	-2.0517	-1.2459	0.2610	0.9187
	[0.726]	[3.024]	[1.037]	[0.963]	[0.857]
faeduc6	1.4052	-2.2228	0.4036	-	2.9855**
	[1.125]	[3.061]	[1.375]		[1.239]
mooccup1	-	-	-	-	-
mooccup2	-	-	-	-	-



mooccup3	-	-	-	-	-
mooccup4	0.2415 [1.343]	-0.0883 [0.834]	-0.4272 [0.617]	-0.1096 [0.563]	0.3287 [1.014]
mooccup5	0.2701 [1.360]	-	0.4894 [0.817]	0.9062 [0.740]	0.4126 [0.993]
mooccup6	0.7561 [1.374]	-	-	-	0.5825 [1.092]
mooccup7	-	-	-	-	-
faoccup1	-	-	-	-	-
faoccup2	-	-	-	-	-
faoccup3	-	-	-	-	-
faoccup4	-0.7785 [0.521]	0.1415 [0.800]	0.3400 [0.463]	0.2513 [0.679]	0.1857 [0.706]
faoccup5	-0.5217 [0.545]	1.4699 [1.197]	0.7866 [0.684]	0.3774 [0.714]	-0.2220 [0.660]
faoccup6	-0.8005 [0.736]	-	-	-	1.0415 [0.823]
faoccup7	-	-	-	-	-
Constant	12.5090***	0.8098	-4.2072**	-9.7527***	-5.6386**



	[0.924]	[1.654]	[1.797]	[3.024]	[2.612]
Observations	1,971	599	486	331	469
R-squared	0.650	0.0939	0.179	0.273	0.451
Robust standard errors in brackets					
*** p<0.01, ** p<0.05, * p<0.1					

Appendix 2. Regression of educational expenditure on child (age<22)

<i>log_educexp (logarithm of education expenditure on child under 22 years old)</i>		
VARIABLES	Coef.	Std. Err.
age	0.0303**	0.015
male	-0.0450	0.043
level1	-	
level2	0.6592***	0.236
level3	0.9675***	0.254
level4	1.4087***	0.282
level5	2.4342***	0.317
level6	-	
public	-0.0455	0.328
nchild	-0.0762**	0.032
hhsize	-0.0562**	0.024
incomepercap1	-	
incomepercap2	0.2946***	0.063
incomepercap3	0.4994***	0.073



incomepercap4	0.7165***	0.081
incomepercap5	0.8913***	0.098
moeduc1	-0.6549**	0.325
moeduc2	-0.1849	0.325
moeduc3	0.0558	0.325
moeduc4	0.1846	0.324
moeduc5	0.1368	0.329
moeduc6	0.0577	0.339
faeduc1	-0.2346	0.209
faeduc2	-0.1229	0.205
faeduc3	-0.3244	0.210
faeduc4	-0.0304	0.217
faeduc5	-0.2252	0.221
faeduc6	-0.0917	0.236
mooccup1	-	
mooccup2	-	
mooccup3	-	
mooccup4	-0.0443	0.310
mooccup5	0.0760	0.308
mooccup6	0.0508	0.320
mooccup7	-	
faoccup1	-	
faoccup2	-	
faoccup3	-	



faoccup4	0.1484	0.193
faoccup5	0.3161*	0.191
faoccup6	0.5173**	0.211
faoccup7	-	
Constant	6.0770***	0.424
Observations	1,422	
R-squared	0.627	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix 3. Regressions of literacy rate

<i>literacy rate (age 9 – 21)</i>		
VARIABLES	Coef.	Std. Err.
age	-0.0239	0.055
male	0.5023*	0.301
nchild	-0.2320	0.163
hhsz	-0.0754	0.193
incomepercap1	-16.6066***	2.486
incomepercap2	-16.3958***	2.566
incomepercap3	-15.7030	.
incomepercap4	-	.
incomepercap5	-15.0736	.
moeduc1	-0.2599	0.928



moeduc2	1.2811	1.048
moeduc3	0.5344	1.107
moeduc4	-0.5665	1.089
moeduc5	-	
moeduc6	-	
faeduc1	0.6348	0.562
faeduc2	0.6390	0.696
faeduc3	0.9213	0.832
faeduc4	-	
faeduc5	0.2841	1.017
faeduc6	-	
mooccup1	-	
mooccup2	-	
mooccup3	-	
mooccup4	-0.6132	0.767
mooccup5	0.7572	0.514
mooccup6	-	
mooccup7	-	
faoccup1	-	
faoccup2	-	
faoccup3	-	
faoccup4	0.2109	0.398
faoccup5	-0.1397	0.601
faoccup6	-	
faoccup7	-	



Observations	1,588
R-squared	0.161

Robust standard errors in brackets

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