Factors Determining the Choice of Level of Education in Bangladesh: Empirical Evidence from HIES

Mir Tanzim Nur Angkur

Senior Lecturer, Dept. of Economics

East West University

&

K.M Nafiz Ifteakhar

Assistant Professor, Institute of Health Economics

University of Dhaka.

Outline of the Presentation

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Background of the Study

❑ Education is considered to be one of the fundamental factors of economic development since it has significant positive externalities that leads to broad social benefits to individuals and society as a whole.

❑ Education not only raises people's productivity and creativity but it also promotes entrepreneurship and technological advancement.

❑ Moreover, it also assumes to play a pivotal role in securing economic and social progress and improving income distribution within an economy.

❑ For long, economists have talked about the role of education and in particular investment in education or human capital as one of the most important sources of economic growth.

❑ Countries that invest in primary education today are likely to grow faster in the future as most research findings confirmed that rate of return on investment in education are the highest. Success stories of such economies include South Korea and China.

Objectives

The paper aims to address the following set of queries:

✓ The overall objective is to ascertain the relevant factors which determines the choice of level of education from individual point of view.

✓ Specific objectives:

- How remittance affect the decision of attaining the level of education?
- Whether there is any discrimination between rural and urban areas in case of educational attainment?
- Whether there is any presence of gender discrimination in educational attainment at different levels of education?

Literature Review

❑ A number of empirical studies have been carried out to determine the factors that affect the decision of choosing the level of education. The factors arising out from those studies include individual characteristics, household characteristics such as family size, location and attributes of family members, financial factors such as household income and landholding.

▪ Glewwe and Jacoby (2004) found a positive relationship between household income and demand for education by using consumption expenditure as a proxy for measuring household income for Vietnam.

▪ Reham and Ali (2014) confirmed that households residing in center provinces are likely to spend more than their counterparts living in the peripheral provinces around the center provinces for five MENA countries.

Literature Review (Contd..)

- Fredriksson and Ochert (2004) finds no conclusive evidence of the relationship between age and educational attainment.

- The larger the family size, the greater the dilution of parental resources, and the more limited are the educational chances of each child. (Blake 1981; Downey 1995, 2001)

- Remittances raise educational attainment or investments in schooling has received support in a growing number of studies, including those by Ilahi (2001) for Peru; Cox Edwards and Ureta (2003) for El Salvador; Borraz (2005) for Mexico.

- However, there also found a rather different scenario in that for a sampling of Latin American countries, Acosta et al. (2007) conclude that remittances do not raise educational attainment in the Dominican Republic.

Methodology and Data

We are proposing the following regression model to determine the factors influencing the choice of level of education:

$$Literacy_{it} = \beta_0 + \beta_1 age_{it} + \beta_2 male_i + \beta_3 rural_i + \beta_4 total\_cons_{it} + \beta_5 avg\_othrfam\_edu_{it} + \beta_6 landholding_{it} + \beta_7 remitt\_rec_{it} + \beta_8 fam\_size_{it} + \beta_9 \, dummy2010_t + \beta_{10} remitt\_rec * dummy2010_{it} + \beta_{11} rural * dummy2010_{it} + \mu_{it}$$

The dependent variable is literacy i.e. the level of education passed by an individual and it is also considered as categorical variable with five following categories:

1. Literacy=0 (Below primary; $0 \leq$ schooling year ≤ 4)
2. Literacy=1 (Primary passed; $5 \leq$ schooling year ≤ 9)
3. Literacy=2 (S.S.C passed; $10 \leq$ schooling year ≤ 11)
4. Literacy=3 (H.S.C passed; $12 \leq$ schooling year ≤ 15)
5. Literacy=4 (Graduation and above; schooling year ≥ 16

Methodology and Data (Contd...)

Since Literacy is defined as a categorical variable with more than two categories and can be ordered for instance: "Below primary", "Primary passed", "S.S.C passed", "H.S.C passed", "Graduation and above".

Therefore we are opting for an econometric estimation of **ordered logistic education function** to determine the factors influencing the probability of being educated.

The actual values taken on by the dependent variable are irrelevant (Literacy=0,1,2,3 & 4) except that larger values are assumed to correspond to "higher" outcomes.

For the estimation, we have constructed a pooled data using Household Income and Expenditure Survey (HIES) of 2005 and 2010.

Methodology and Data (Contd...)

The description of the independent variables:

- ✓ *age-* age in years of the individuals;
- ✓ *male-* dummy and equal to 1 if individual is a male and 0 otherwise;
- ✓ *rural-* dummy and equal to 1 if the individual belonging to rural household and 0 otherwise;
- ✓ $avg\_othrfam\_edu$ - average education level of the other family members;
- ✓ $landholding$ - decimals of land owned by household;
- ✓ $remitt\_rec$ - dummy and equal to 1 if the household concerned received remittance and 0 otherwise**;
- ✓ fam_size- number of family members of individuals;
- ✓ $dumm2010$ - dummy for the year 2010 .
- ✓ $remitt\_rec * dummy2010$- interaction term for remittance received dummy with year 2010 dummy.
- ✓ $rural * dummy2010$ -interaction term for rural dummy with year 2010 dummy.

**(both domestic and foreign remittances)

Estimated Regression Results

Table 1(a): Ordered Logistic Regression Estimated Results		
literacy	Coefficients	Robust S.E
age_years	-0.0043***	0.0005
male	0.3405***	0.0190
fam_size	-0.0181***	0.0040
avg_othrfam_edu	0.3144***	0.0035
remitt_rec	-0.2752***	0.0295
dumm2010	-1.2354***	0.0460
remitt_rec*2010	-0.1818***	0.0396
rural	-0.4618***	0.02530
rural*2010	-0.0297	0.0341
total_cons	0.00005***	0.000003
landholding	0.0003***	0.000053

Table 1(b)	Coefficients	Robust SE
/cut1	-0.0628	0.0460
/cut2	2.0701	0.0462
/cut3	3.6343	0.0492
/cut4	7.3224	0.1215
N	61430	
Wald Chi2(11)	15297.22	
Prob > chi2	0	
Log pseudo likelihood	-56946.303	
Pseudo R2	0.1407	

Note: *** p<0.01, ** p<0.05, * p<0.1

Interpretation of Table-1:Estimated Regression Results

- Age seems to have a negative significant association with educational attainment.

- Being male increases the chance of choosing higher level of education compared to that of a female.

- Family size decreases the chance of choosing higher level of education.

- Average education level of other family members increases the chance of achieving higher level of literacy.

- Total consumption of households increases the probability of achieving higher literacy levels for an individual.

- Landholding of households increases the chance of choosing higher level of literacy for an individual.

Interpretation of Table-1:Estimated Regression Results (Contd..)

- The individuals coming from rural areas has more chance of achieving lower literacy levels as compared to that individuals belonging to urban areas.

- In 2010 the chances of achieving higher level of literacy remain same as compared to that of 2005 for individuals coming from rural areas.

- The chance of achieving higher literacy levels reduces for an individual belonging to a remittance receiving households compared to that of non-remittance receiving households.

- In 2010 the chances of achieving higher level of literacy gets even slimmer compared to that of 2005 for remittance receiving households.

Estimated Marginal Effects Results

Literacy Category	Age	Male	Family size	Avg. Other Family Member Education	Remittance Receiving HH	Dummy for 2010
Table 2(a) : Marginal Effects						
Below primary	0.0008*** (0.000093)	-0.0651*** (0.003587)	0.00346*** (0.0007625)	-0.06014*** (0.000531)	0.0526*** (0.005654)	0.2363*** (0.008756)
Primary passed	-0.0004*** (0.000040)	0.0286*** (0.001570)	-0.00152*** (0.0003351)	0.02644*** (0.000278)	-0.0231*** (0.002514)	-0.1039*** (0.004044
S.S.C passed	-0.0003*** (0.000033)	0.0229*** (0.001283)	-0.00122*** (0.0002684)	0.02116*** (0.000286)	-0.0185*** (0.001991)	-0.0831*** (0.003147
H.S.C passed	-0.0002*** (0.000019)	0.0131*** (0.000777)	-0.00070*** (0.0001545)	0.01211*** (0.000249)	-0.0106*** (0.001139)	-0.0476*** (0.001889)
Graduation and above	-0.00003*** (0.00001)	0.0005*** (0.000059)	-0.00002*** (0.0000061)	0.00043*** (0.000049)	-0.0004*** (0.000057)	-0.0017*** (0.000196)
Note: Parenthesis shows Standard Error ; *** $p<0.01$, ** $p<0.05$, * $p<0.1$						

Estimated Marginal Effects Results(Contd..)

Literacy Category	Interaction: Remittance HH & 2010 Dummy	Rural	Interaction: Rural & 2010 Dummy	Total Consumption (per thousand Tk.)	Landholding (in decimals)
Table 2(b) : Marginal Effects					
Below primary	0.0348*** (0.007555)	0.0883*** (0.004838)	0.0057 (0.006524)	-0.000009*** (0.0000005)	-0.00005*** (0.000010)
Primary passed	-0.0153*** (0.003310)	-0.0388*** (0.002178)	-0.0025 (0.002865)	0.000004*** (0.0000002)	0.00002*** (0.000004)
S.S.C passed	-0.0122*** (0.002665)	-0.0311*** (0.001705)	-0.0020 (0.002297)	0.000003*** (0.0000002)	0.00002*** (0.000004)
H.S.C passed	-0.0070*** (0.001534)	-0.0178*** (0.001019)	-0.0011 (0.001315)	0.000002*** (0.0000001)	0.00001*** (0.000002)
Graduation and above	-0.0002*** (0.000062)	-0.0006*** (0.000078)	0.0000 (0.000047)	0.000001*** (0.0000001)	0.000005*** (0.000001)

Note: Parenthesis shows Standard Error; *** p<0.01, ** p<0.05, * p<0.1

Interpretation of Marginal Effects

❑ Gender

▪ Compared to female, male has 6.5 percentage points lower probability of being in the group of below primary.

▪ However, as we move to the upper education level , the difference between male and female gets lowered.

❑ Education level of Other Family Member

▪ A one year rise in average education of other family members initially reduces the probability of being in the lowest level of education i.e. below primary by 6.01 percentage points.

▪ However, the effect gets reversed and therefore increases the probability of being in the primary passed, SSC passed, HSC passed and graduation & above by 2.6,2.1 ,1.2 and 0.043 percentage points respectively. Implying that as we move to the upper level of education the favorable effect of other family member education on educational attainment gets lowered.

Interpretation of Marginal Effects

❑ Effect of Remittance

▪ An individual from remittance receiving household has 5.3 percentage points higher chance of being in the group of below primary as compared to that of an individual from non remittance receiving household.

▪ However, the effect gets reversed and therefore reduces the chance of being in the primary passed, SSC passed, HSC passed and graduation & above by 2.3,1.9 ,1.1 and 0.04 percentage points respectively as compared to that of an individual from non remittance receiving household. Implying that as we move to the upper level of education the adverse effect of remittance gets lowered.

❑ Effect of Location

▪ An individual coming from rural area has 8.8 percentage points higher chance of being in the group of below primary as compared to that of an individual from urban areas.

▪ But the effect gets reversed and therefore reduces the chance of being in the primary passed, SSC passed, HSC passed and graduation & above by 3.9,3.1 ,1.8 and 0.06 percentage points respectively as compared to that of an individual from urban areas.

Conclusion & Policy Implications

- Till 2010 there exists gender discrimination specially at the lower level of education in spite of several policies already in place to address the issue. It indicates scope for reform of those policies.

- Other family members' education has a positive influence on individual choice of higher level of education. This recognizes the outcome of educational policies in terms of having multiplier effect.

- Individuals from rural areas are lagging behind their urban counterparts in case of achieving higher levels of education. It is high time to reform policies targeting the education system in rural areas.

- Interestingly remittance adversely affect individual's choice of attaining higher level of education which is quite alarming for the future generation. Recognizing the importance of remittance we should come up with policies to mitigate such adverse effects of remittance.

Limitations

However the current study has some limitations:

✓ Due to data constraint, failed to ascertain the effect of parents' occupation on choosing the level of education as other papers have found significant effect.

✓ Failed to capture individual fixed effect by applying dynamic approach such as fixed effect estimator for which panel data is required.

Thank You!!!