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Female Education and Gender Inequality

A study of Indian children's enrolment and future outcomes

ABSTRACT

The objective of this thesis is to investigate the educational gender inequality and the differences among boys' and girls' educational attainment and outcomes in India. India is considered to be the most fast growing economy in the world but there are still major gaps between men and women, already apparent at young ages. Son preferences in Indian families has led to low female literacy rates compared to male where girls have less opportunities to attend school. By using panel data on 3,000 children in four different periods of time, we estimate the effect of a negative income shock on enrolment rate for boys and girls in Andhra Pradesh and Telangana. The shock appears to have a negative significant effect on both girls and boys' enrolment rate which drops when the household has been affected by the shock. However, no evidence was found that enrolment has an effect on health or income, for either girls or boys.

Keywords: India, son preferences, gender inequality, gender gap, income shock, education, enrolment, income, health.

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1 INTRODUCTION

An essential part of human rights is gender equality. It is a fundamental part of the United Nations values and it is every country's responsibility to protect the equal rights of men and women and to promote women's human rights (United Nations Human Rights Office of the High Commissioner [OHCHR], n.d.). Since the Millennium Development Goals were agreed upon in 2000, true progress has been made towards women's empowerment and decreasing the gender inequality in the world but millions of girls and women continue to face the consequences of gender discrimination in every part of the world (United Nations [UN], n.d. Goal 5). They face policies and laws that prevent them from having the same rights as men, gender-based violence, social and economic circumstances that diminishes the power that they have over their life and denied access to sexual and reproductive healthcare. To truly achieve equal human rights, a complete understanding of the power dynamics and social context that affects the economy, politics, social norms and household life is essential. It is also important to destroy certain damaging stereotypes to eliminate the traditional views of what women are supposed to do and rather see them as the individuals that they are (OHCHR, n.d.). Along with being a fundamental human right, gender equality is also a crucial element in obtaining a sustainable, peaceful and prosperous world. By ensuring equal rights, we will contribute to sustainable economies and foster societies, humanity and the world as a whole (UN, n.d. Goal 5).

Research shows that education is a key contributor to economic growth in developing countries where better and higher education leads to better health, income, human capital and empowerment and it should therefore play a significant role in policymaking (IIASA Policy Brief, 2008). In India, approximately 75 percent of children between 6 and 17 years old attend school and the education system has shown clear signs of gender inequality for a long time which can be seen through enrolment rates, participation rates etc. (Bose, 2012; Azim Premji Foundation, 2004). In 2010, 91 percent and 86 percent of boys and girls respectively in the age group 10 to 13, reported attending school. When they get older, 14 to 17 years old (secondary education), these numbers drastically change, 75 percent of boys and only 38 percent of girls attend school (Kelly and Bhabha, 2014). As we can see from these numbers, there is quite a large difference in attendance rates between girls and boys and this pattern can also be found in enrolment rates (Bose, 2012).

For centuries, a powerful son preference has existed in Indian families. This son preference has led to discrimination against daughters in education among other things, and boys are more likely to get the opportunity to attend school. Because of financial reasons and because they are needed at home to help with chores and siblings, girls have a higher risk of being withdrawn from school. Other reasons for girls being taken out of school are that the families need to protect their purity and some parents do not want their daughters to travel a long way to school, particularly in rural areas. This is not just the case in India and statistics show that in 40 developing countries, less than 25 percent of the women in reproductive age have finished any secondary education (Bose, 2012).

According to Bose (2012), consequences of this gender inequality has led to Indian women having one of the highest illiteracy rates in Asia and a large national difference between men and women's literacy. It has also caused long-term differences in life quality and opportunities. A woman's life is greatly improved when she has an education by increasing her status in society and at home and also by increasing the opportunity of financial self-sufficiency. She also suggests that to improve women's lives, it is essential to understand why this gender discrimination prevails and why it substantiates the urgent need for policy makers to take education and literacy initiatives, especially for women.

This paper reviews and analyses the importance and benefits of girls' education with a focus on India, as well as documents the comparative differences of the effects of a negative shock on education. For the reasons mentioned above, it is of great policy interest to investigate the degree of educational gender inequality and its effects on the population. The paper tries to clarify if girls' education is deemed less valuable than boys' when something happens that affects the family income negatively. We also want to investigate what effects and benefits the education has for girls compared to boys when it comes to income and health. In particular, we will try to answer the following questions:

- Does a negative income shock have a negative effect on enrolment rate and are girls more likely to be withdrawn from school than boys when the household is affected by this shock?
- How does enrolment affect future health and income for girls and boys?

The data used in this paper has been retrieved from an international study of childhood poverty in India, Vietnam, Ethiopia and Peru called Young Lives, conducted by a research team at the University of Oxford. Our hypothesis, based on previous research, is that the enrolment rate of both girls and boys should be affected negatively by the income shock but that this effect should be more pronounced for girls. We also expect enrolment to have a positive effect on income and health for both girls and boys.

Our main findings indicate that a negative income shock affects enrolment rate for girls and boys negatively and approximately by the same magnitude. However, the results from the second part of our analysis show no significant effect of enrollment on the outcomes of interest.

The second part of this paper provides an institutional background about the educational system in India and the programs promoting women's education. The third section is a literature review that sums up previous research and literature in the area. This is followed by the fourth section which gives a description of the data source and the basic features of the data used in the analysis. Section five presents the econometric models used and an explanation of how the research and analyses were carried out. In section six we present the results followed by section seven which presents a discussion about the results and our concluding thoughts.

2 INSTITUTIONAL BACKGROUND

This section presents the background concerning international and national programs, goals and acts that support and promote women's equal rights to education and includes a brief explanation of the school system in India. This section is included to give readers a brief overview of the educational inequality and disadvantages possibly due to the school system. It is also of interest to take into account different existing programs and goals in India in order to clarify and illustrate the work that is being done in the field.

2.1 THE SCHOOL SYSTEM IN INDIA

According to the Azim Premji Foundation (2004), the education system in India was founded and formed in line with the British education system. This school system consists of three different stages: elementary education, which consists of primary school and upper primary school, for children between 6 and 14 years old; secondary education, divided into secondary school and senior secondary school, for children between 14 and 17 years old; and higher education which is university or college studies. For children between 3 and 6 years old, there is also a pre-school education program (Ward, 2007). The schools in India are also mainly divided into three types: government schools, private schools and private schools aided by the government. In private schools that get aid from the government, teachers are recruited and paid by the state while the operations are run by private management. Private schools are significantly more expensive than government schools and statistics show that boys are considerably more likely to attend them (Azam & Kingdon, 2013). 87 percent of all schools in India are located in villages and 90 percent of those schools that are elementary schools are financed by the government. The numbers, however, look different in secondary education where only 55 percent of students are in government schools, 35 percent are in private schools aided by government, and the rest are in unaided private schools (Ward, 2007).

In 2003 there were about 25 million children that were so called "out of school children". This number drastically decreased during the following years and in 2009 the number had gone down to about 8.1 million. There has been great progress in improving the school system and increasing access to elementary education in rural areas (The World Bank, 2011; Ward, 2007). However, access to secondary education in those areas is still limited and the

number of enrolled girls in India is lower than boys at all levels of education (Ward, 2007). According to UNESCO's EFA global monitoring report from 2015 the female literacy rates for adults and youths in India was 24 and 14 percentage points, respectively, lower than for males. Ward (2007) claims that the next challenge should be to increase the possibility, especially for girls, to attend secondary school.

2.2 PROGRAMS PROMOTING WOMEN'S EDUCATION

India is one of the founding members of the United Nations and, although at that time still under the rule of the British, has therefore been a member of the UN since 1945 (UN, n.d. Founding Member States; The National Archives, n.d.). At a summit in 2000, eight goals such as reducing poverty, halting the spread of AIDS and providing universal primary education etc. known as the Millennium Development Goals were agreed upon with a deadline of 2015 (UN, n.d. Background). In 2015, the UN built on these goals and created the 17 Sustainable Development Goals with a time frame of 15 years as well (UN, n.d. The Sustainable Development Agenda). Among these 17 goals there are two that are particularly related to women's education: goal 4 "Quality education" and goal 5 "Gender equality" (UN, n.d. Sustainable Development Goals). The quality education goal aims to ensure free and equal quality education for all boys and girls in primary and secondary school, equal access to affordable quality higher education and to eliminate gender differences in all levels of education (UN, n.d. Goal 4). The gender equality goal aims to provide equal access to social and professional systems in society such as politics, decent work, health care and education. It also endorses policies and regulations that promote gender equality and women's empowerment and tries to put an end to all discrimination against females all over the world (UN, n.d. Goal 5).

The Right of Children to Free and Compulsory Education (RTE) Act says that all children should have a right to equal quality primary education in schools that satisfies predetermined standards. This act is connected to Article 21-A in the Constitution of India which was included to provide free and compulsory education for all children between 6 and 14 years old (Government of India, Ministry of Human Resource Development [MHRD], 2016).

A group of interventions called Sarva Siksha Abhiyan, SSA, was implemented in 2000-2001 to work towards eliminating social and gender gaps in education, accomplish country wide

access and retention and improving the education quality. These interventions include, among other things, opening new schools and support for academic resources. SSA works towards many goals and with many questions where equality and gender concern are an important part (MHRD, 2017).

In 2009, a scheme called Rashtriya Madhyamik Shiksha Abhiyan (RMSA) was launched with the vision of making quality secondary education accessible to everyone between 15 and 16 years old. Some of the scheme's objectives are to improve the education quality by having prescribed norms, by 2017 ensure total availability of secondary education, accomplish extensive retention rates by 2020 and to eliminate disability, socio-economic and gender impediments by providing extra support for these groups (MHRD, 2016).

Kasturba Gandhi Balika Vidyalaya (KGBV) is a program implemented in 2004 to set up upper primary schools with residences for girls belonging to disadvantaged castes and minority communities. This program was implemented in parts of the country where the literacy gender gap is above national average and the female rural literacy is below. The majority of places in these schools are reserved for girls belonging to the disadvantaged castes and minority communities and the rest are reserved for girls from families below the poverty line. In the KGBV schools, the girls get access to free textbooks and uniforms, medical facilities, residential schooling, support, guidance etc. (Andhra Pradesh Kasturba Gandhi Balika Vidyalaya Society, 2015; Sarva Siksha Abhiyan Department of Public Instruction, n.d.).

3 LITERATURE REVIEW

Research shows that education is a key contributor to economic growth in developing countries. According to IIASAs Policy Brief *Economic Growth in Developing Countries: Education Proves Key* (2008), better and higher education leads, not only to better health advantages and higher individual income, but also increases the long-term effects of human capital necessary to bring people out of extreme poverty. Education empowers people and benefits a country's economy and it should therefore have a significant role in international policymaking when planning towards a sustainable development. The world's poorest children's, especially girls', lack of education is one of the obstacles to development in their countries. Girls' education is considered important for fighting HIV and other illnesses and health problems (Sperling, 2005). Anne M. Hill and Elizabeth King (1995) have provided research in the area regarding women's education and have established that higher educated mothers are more likely to have healthy children and protect them from unhealthy environments. This is often due to more knowledge about personal hygiene, a healthy diet and better information about health services. They also bring up research from Brazil that has proven that mothers' earnings have a greater impact on both sons' and daughters' health than the fathers'.

Investment in education, particularly in secondary education, is considered to be very important (IIASA, 2008). Ethiopian women who have some secondary education are 260 percent more likely to have access to antenatal care than those with no education, and an additional year of female education decreases the infant mortality by five percent. Mothers with at least five years of primary education are 40 percent more likely to have children who live five years or more, compared to those with no education (Sperling, 2005). Drèze and Murthi (2001) state in their article based on data from India that female literacy is highly significant and that it decreases the number of births per woman. This article also brings up the fact that son preferences keep up the level of fertility rates and that satisfaction with the surviving children regardless of their gender would reduce the incentives to have more children. As a consequence, educating more women should also slow down the population growth rate (Sperling, 2005).

Researchers have found a gender bias, which occurs due to the different amount of money that parents are willing to spend on their sons and daughters' education. This bias appears already at young ages but gets stronger when the children transition to secondary school. Boys have a better chance of completing primary education than girls in many parts of the world, and more especially in developing countries (Azam and Kingdon, 2013). Björkman-Nyqvist (2013) analyses the causal effect of changes in household income in Uganda on children's education, where he uses rainfall as a shock to estimate the effect of households' economic conditions and how the shock affects children's enrolment and their performance in school. This study has shown a negative effect of a decrease in rainfall on, especially girls, enrolment in primary school, which gets stronger the older they get and do not affect boys or younger girls. It is stated in the article that a 15 percent decrease in rainfall compared to its mean, decreases female enrolment in grade seven by five percentage points. Even academic performance of girls is negatively affected when rainfall decreases. As a result, negative income shocks have different effects on children depending on gender, where boys' enrolment is prioritized by families and the value of girls' labor differs from boys. Björkman-Nyqvist (2013) also found that the abolishment of primary school fees in 1997 had strong and positive effects on the enrolment of both sexes, especially for girls. However, the effects previously discussed of a negative income shock on both girls and boys' enrolment remained unchanged.

Education in India has been characterized by inequalities for a long time and even though the state policy was meant to ensure free and compulsory education for everyone, both enrolment and participation rates show that this has not been lived up to. The gender gap is an important part of the inequalities that have persisted since India became independent and the school statistics of girls still shows signs that this gender gap is present and that it gets larger the older the children get. It is obvious that religious, demographic, socio-cultural and economic factors play an important role in the educational opportunities of children and that the importance that parents attach to their children's education is gender specific in disfavor of the girls (Azim Premji Foundation, 2004). This gender gap has also been discussed by Sperling (2005), who claims that parents who decide whether the girls should go to school or not, do not understand the scope of the benefits of schooling for both the girls themselves and their country. An article from 2010 written by Kajisa and Palanichamy, based on farming households in Tamil Nadu, India, has found that until the late 1990s, the level of education of

the adults in the household has a positive effect on children's education, but this relation has since then become weaker. However, a study of three Asian countries showed that the mother's education has a greater impact on the daughters than what the father's education has (Hill and King, 1995).

Gender is considered to be a significant predictor for enrolment. After surveying five villages in India, researchers found that 91 percent of boys and 86 percent of girls, between ages 10 and 13, have reported attending school while in the age group 14 to 17, the attending percentages are only 75 percent for boys and 38 percent for girls. As we can see, the educational improvements have mostly been at primary level and when girls make the transition to secondary school, the numbers drop. This can be explained by girls' domestic burden doing household chores and taking care of younger siblings, and also early marriages as a result of social norms and parents deciding about their life. This often does not allow girls to complete education higher than primary or allowing them to think about making a career (Kelly and Bhabha, 2014). Bose (2012) states that parents often do not educate their children unless it provides some financial return in the future. She demonstrates in her article that preference for sons over daughters leads to deep-rooted consequences. The article analyses why the crucial progress towards better education does not include daughters of the households. The paper has also shown that mothers are less likely to prevent daughters from attending school or to promote son preferences if they are educated themselves. Thus, mothers having son preferences is a significant factor affecting girls' education negatively compared to families where all children have equal rights and the same opportunities regardless of their gender.

Since education expenditures such as school fees, uniforms and textbooks are common even for publicly provided schooling, parents are put in a tough position when deciding which of the children to send to school. Parents in poor countries often decide to invest more in the sons' education to maximize the returns of the children's education. As result of cultural practices, such as the expectation of sons being financially supporting when the parents get old and the small advantages they would get from sending girls to school since they often get married and create their own family, the daughters education is valued less. The number of girls enrolled in school are less than boys at all levels of education and there are therefore much fewer literate adult women than men. Research from 1990 showed that girls between

the ages 6 and 11 were 12 percentage points less likely to be enrolled in school than boys at the same age, which is equal to an enrolment ratio of three-fourths. This ratio for girls between ages 12 and 17 was two-thirds and for girls between 18 and 23 years old it was less than one-half (Hill and King, 1995). Sons have a superior position because they are seen as more valuable economic assets while the daughters' time have a higher opportunity cost since they work more at home. Another crucial factor contributing to the low education of girls is the early marriages that often take place in India. Prior to marriage, the family wants to protect the girl's purity and often impose restrictions on her movements. When she is married, the possible returns of her education would go into the husband's family and therefore mean no financial contribution to her family (Azim Premji Foundation, 2004).

This paper focuses mainly on female education and how son preferences in India affects children's education opportunities and education outcomes. Today, India is considered to be the most fast growing economy in the world and it has been forecasted by the government that the country's economy will grow by 7.1 percent between the years 2016 and 2017 (India Brand equity Foundation, 2017). Despite this, there are major gaps between men and women and India is ranked 87 out of 144 countries on a gender equality list reported by The World Economic Forum's Global Gender Gap Report 2016. India has improved its ranking from 108 in 2015 which is believed to be partially due to improvement in primary and secondary education, but this has not removed women's barriers against their will to be included in the workforce (Nandita Mathur, 2016). Compared to previous research, this paper not only focuses on differences in enrolment rate but also on what effects education has on boys' and girls' future outcomes. We test the effects on both girls and boys separately to investigate how the effects differ between them.

4 DATA

4.1 DATA SOURCE

The data used for our research is retrieved from an international study of childhood poverty called Young Lives, which was conducted in four countries; India, Ethiopia, Peru and Vietnam. This study is organized by the research staff at the Department of International Development at the University of Oxford. The main purpose of these studies and analyses is to reduce poverty and inequality among children. The information has been collected over 15 years following two groups of children; 2,000 children born 2001-02 and 1,000 children born 1994-95, which gives a clear picture of how these households and children live and how their lives changes under different circumstances (Young Lives, n.d.). The surveys also include questions about the household and some of its members other than the index child. The two largest states in India, Andhra Pradesh and Telangana, are the areas where the surveys take place and the dataset is a pro-poor sample that provides a comprehensive picture of the poverty in India (Young Lives in India, n.d. Our work). The first round was conducted in 2002 and the second, third and fourth rounds of data were collected in 2006, 2009 and 2013, respectively. A fifth round was conducted in 2016, however this data is not yet available (Young Lives in India, n.d. Findings and data).

4.2 DATA DESCRIPTION

This paper uses data from the first four rounds of the international study Young Lives mentioned above. The data is panel data or cross-sectional time series data, where the same households have been observed at four different periods of time. For each household there is an index child with a specific child ID that characterizes that child and that household which is used to distinguish the child/household in each round. In the fourth round of the survey, some of the index children has started to become adults and so from this round we are able to get data on their daily income and health problems. In Table 1, see appendix, all variables used in this analysis are listed and described.

One of our key variables in the second stage of the analysis, “income”, that gives us the daily income of the index child, did not exist in the original dataset but is generated. By using two variables that describe the index child's income in cash and the income unit (per day, per

week, per month and per year), and by making the assumptions that there is five work days in a week, 22 work days in a month and 264 work days in a year, we generate our income variable of interest. The generated income is then divided by 1000 to get more suitable numbers. We also choose to remove the observations with a daily income higher than 30,000 rupees since they seem to be outliers because of the large gap between them and the rest of the observations. This results in a total of 10 observations being deleted. The number of observations and the number of missing values of each variables used are presented in Table 3 and Table 4. The income variable has 328 observations which can be explained since this variable existed only in round four and only the older children have answered these questions related to their income. Out of the 1,000 children in the older cohort, we can see from the data that many of them are not employed and do not have an official income since the majority of them are self-employed. This also explains the large number of missing values for “income”.

There are significantly more observations for the health variable, a total number of 947 observations, but as for the income variable, only the older children in round four have been questioned about this. The shock variable “drought” has 8,713 observations and 3,358 missing values, which is approximately $\frac{1}{4}$ of the total number of observations or 28 percent, since the shock only occurred in round 2-4 in the data. Table 3 also presents other descriptive statistics such as the means and standard deviations for all variables. A total of 88 percent of those who answered the surveys were reported to be enrolled in school. From Table 2 we can see that 87 percent of the girls and 90 percent of the boys in the surveys were enrolled. Only 26 percent of those who participated answered that they live in an urban area.

During the first period of the surveys, the younger children were barely one year old, which is a part of the explanation for the 2,366 missing values of the variable describing the enrolment rate. We also want to point out that five of the enrolment rate observations is deleted from the data due to misleading values (88 = “No Answer”). The dummy variable “girl” has a total number of 11,719 observations and it has a mean value of 0.48 which means that 48 percent of these observations are girls. Some other information from Table 3 worth mentioning is that only 15 percent answered that they were affected by the shock, 31 percent of the older children in round 4 that answered had some kind of long term health problem or illness and the average daily income for those children was approximately 1,744 rupees.

5 METHODOLOGY

The following section presents the research approach, the econometric models used, the regressions run in Stata and an explanation of how the experimental procedures were carried out.

5.1 INSTRUMENTAL VARIABLE REGRESSION: TWO-STAGE LEAST SQUARES (2SLS)

One of the assumptions of the OLS method is that the error term is uncorrelated with the regressors (the regressors are exogenous and not endogenous). When this is not fulfilled, the OLS method is no longer an applicable method to estimate the regression since it will provide biased and inconsistent results (Statistics Solutions, 2017; Dzemski, 2017). In this case, we can use the 2SLS method instead which can control for issues regarding the internal validity such as reverse causality, omitted variable bias, confounding variables etc. An instrument is used to find the true effect of the independent variable on the dependent variable and to account for the unknown correlation with other variables. To be able to use this form of instrumental variable regression there are two assumptions that must be fulfilled. The first one is the instrument exogeneity assumption which says that the instrument and the other independent variables are uncorrelated with the error term. The second one is the instrument relevance condition which states that the co-movement between the endogenous independent variable and the instrument cannot be 0, i.e. the instrument has to be correlated with this variable and have a relatively high explanatory power (Dzemski, 2017). These two assumptions need to be fulfilled for the instrument to be considered valid and for it to provide us with the information we are after (Statistics How To, 2016). As we explain in more detail below, in the second stage of our analysis, 2SLS was shown to be more appropriate than OLS.

5.2 METHODS

As explained in the literature review, India is the most fast growing developing country in the world but as we found out in our review of previous research, this economic growth has not meant that the problems with the gender gap in India has been solved. We want to investigate how income affects education and how the education affects future income and health and the

data from the Young Lives study provides us with the data that we need.

The main dataset includes variables and observations from all four rounds of the survey but it does not include the key variables from round 4 that we want to use in our analysis, the data on income and health. Therefore, we merge the two other datasets from round 4 that have the variables of interest and then merge the new dataset with the large master one. We clean the data with our two stages in mind and remove variables that are not relevant to our research and generate the variables that we want to include in our models.

In the first stage of our analysis we investigate how a negative income shock affects the enrolment rate for boys and girls and if this effect differs between genders. Once the appropriate variables of interest and the desired control variables are chosen, we use the following regressions.

$$Y = \alpha + \beta_1 X_1 + \beta C_{1-6} + \varepsilon$$

The dependent variable (Y) used in this first part of the analysis is the dummy variable describing enrolment rate. The independent variable of interest (X_1) is the dummy variable for the shock drought which tells us if the household experienced the shock or not. In the dataset there are many income shocks to choose from but drought is chosen because it has higher explanatory power. There are six different control variables included in the regressions when measuring the effect of a shock on enrolment for both girls and boys separately. The control variables are chosen in such way that they are believed to (1) not be affected by the shock and (2) presumably have an effect on enrolment. These control variables are the following: age of the household head, age of the index child in months, number of children between 5 and 17 years old in the household, number of adults between 18 and 60 years old in the household, a dummy variable for whether they live in an urban or rural area and another dummy variable for the household head's gender.

In the second stage of the analysis we investigate how education affects the children's future outcomes using the same dataset. In this part we more specifically want to analyse the effects of education on health and income for both girls and boys and see if the effects differ. Since we believe that the variable for enrolment rate is not exogenous but endogenous, we run both OLS and 2SLS regressions with our health and income variables as dependent variables and enrolment as a dependent variable or instrumented by the shock, drought. By doing this we

find that there are quite large differences in magnitudes of the coefficients and in some cases the effect even has opposite signs. These differences arise as a consequence from the fact that the IV regressions are unbiased in contrast to OLS and we decide to use 2SLS instead for this part of our analysis. The assumptions of IV regression mentioned in section 5.1 are deemed fulfilled when using the shock drought as the instrument for enrolment rate since drought is completely random and it is believed to have an effect on enrolment rates.

OLS regressions (used to show differences in magnitudes):

$$Y = \alpha + \beta_1 X_1 + \beta C_{1-6} + \varepsilon$$

2SLS regressions:

$$Y = \alpha + \beta_1 \hat{X}_1 + \beta C_{1-6} + \varepsilon$$

To estimate valid results, we use the shock drought as an instrumental variable which helps us find the true effect of the independent variable, enrolment rate. The independent variable in the OLS regression is therefore enrolment and in the 2SLS the independent variable is the estimation of enrolment using the instrument drought. The dependent variables that we use are the income and health variables. The control variables used are the same as in the first stage; age of the household head, age of the index child in months, number of children between 5 and 17 years old in the household, number of adults between 18 and 60 years old in the household, a dummy variable for whether they live in an urban or rural area and another dummy variable for the household head's gender.

6 RESULTS

6.1 REGRESSION OUTPUT STAGE 1

Table 5. First stage OLS regressions

	enrol Girls	enrol Boys
drought	-0.029 (0.015)*	-0.034 (0.013)**
headage	0.001 (0.001)***	0.000 (0.000)
agemon	-0.003 (0.000)***	-0.002 (0.000)***
urban	0.043 (0.011)***	0.018 (0.010)*
headmale	0.021 (0.020)	0.072 (0.019)***
numchild517	-0.007 (0.004)	-0.004 (0.004)
numadults1860	-0.018 (0.003)***	-0.003 (0.003)
_cons	1.175 (0.032)***	1.044 (0.031)***
R²	0.15	0.08
N	4,134	4,500

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

(The numbers in the parentheses are the robust standard errors)

6.2 PART 1: ENROLMENT

The results from the first stage of the analysis indicate that when something unforeseen happens that has a negative effect on households' income, both girls and boys' enrolment rates are affected approximately the same. Table 5 shows the OLS regression outputs obtained from the first stage of our analysis. This table summarizes the relationship between the enrolment rate and the dependent variables for both girls and boys in the study. The first column represents results for the girls and the second column shows coefficients from the regression for the boys.

There is a high number of observations for these first two OLS regressions, 4,134 and 4,500 for girls and boys, respectively. This also means that we will be more likely to identify plausible effects with a reasonable significance. As explained in the method section, the control variables have been chosen on the grounds that they are likely to have an effect on the enrolment rate but are not affected by the shock. For girls, the constant term, the household head's age, age of the index child, where the index child lives (in urban or rural area) and the number of adults in the household are highly statistically significant with a significance level of 1 percent. However, the coefficients' signs are varying where age of the index child has a negative sign and living in urban area has a positive sign, as expected. When the index child gets one month older, the enrolment rate decreases by 0.3 percent and if the index child lives in urban area, the enrolment rate increases by 4.3 percent. If the household head gets one year older, the enrolment rate increases by 0.1 percent and if the number of adults in the household increases by one person, the enrolment rate decreases by 1.8 percent.

The X-variable, drought, has a significance level of 10 percent and a coefficient of -0.029, which means that if households are affected by the shock, the likelihood of girls being enrolled in school decreases by 2.9 percentage points. The variation in the variables on the right hand side of the regression explains 15 percent of the variation in enrolment rate ($R^2 = 0.15$) for girls. The R^2 also tells us that our model is not a perfect fit for the observations and that it is not very accurate in predicting outcomes. In other words, there should be more or other variables included in the regressions to be able to determine the true effects of the shock on enrolment.

The drought-coefficient for boys is statistically significant at a 5 percent level with a value of -0.034, which means that when households are affected by the shock, the likelihood of being

enrolled decreases by 3.4 percent for the boys. “urban” is here significant at 10 percent and it means that if the index child is living in an urban area, the enrolment rate increases by 1.8 percent. The constant term, age of the index child and “headmale”, which takes on value 1 if the household head is male, are highly significant with a p-value of 0.01. If the head of the household is male, the enrolment rate for boys increases by 7.2 percent. The R-square for the boys is lower than for the girls, 0.08, which means only 8 percent of the data is fitted on the regression line.

6.3 REGRESSION OUTPUTS STAGE 2

Table 6.A. Second stage OLS regressions

	badhealth Girls	badhealth Boys	income Girls	income Boys
enrol	0.023 (0.049)	0.044 (0.038)	-1.507 (0.538)***	-0.683 (0.568)
headage	0.001 (0.002)	-0.000 (0.003)	0.020 (0.025)	-0.030 (0.027)
agemon	0.006 (0.006)	0.004 (0.004)	-0.081 (0.101)	-0.087 (0.056)
urban	-0.072 (0.048)	0.043 (0.043)	-0.628 (0.891)	-0.976 (0.551)*
headmale	0.029 (0.060)	0.058 (0.047)	-0.478 (1.167)	-0.455 (0.699)
numchild517	-0.001 (0.018)	0.030 (0.018)*	-0.178 (0.202)	-0.169 (0.169)
numadults1860	0.012 (0.011)	-0.021 (0.009)**	0.138 (0.133)	-0.075 (0.130)
_cons	-1.042 (1.257)	-0.776 (1.024)	19.639 (22.634)	24.052 (12.762)*
R²	0.01	0.02	0.04	0.03
N	475	461	122	205

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

(The numbers in the parentheses are the robust standard errors)

Table 6.B. Second stage 2SLS regressions

	badhealth	badhealth	income	income
	Girls	Boys	Girls	Boys
enrol	3.139 (4.695)	-0.340 (0.732)	52.747 (98.814)	-4.849 (13.831)
headage	-0.013 (0.022)	-0.000 (0.003)	0.023 (0.114)	-0.035 (0.036)
agemon	0.030 (0.039)	-0.001 (0.010)	-0.174 (0.415)	-0.181 (0.317)
urban	-0.504 (0.672)	0.062 (0.060)	-10.977 (19.784)	-1.197 (0.916)
headmale	-0.098 (0.276)	0.107 (0.104)	0.934 (4.852)	-0.242 (1.080)
numchild517	0.132 (0.207)	0.025 (0.023)	-0.548 (1.211)	-0.248 (0.334)
numadults1860	0.173 (0.245)	-0.031 (0.021)	1.836 (3.131)	-0.157 (0.304)
_cons	-7.848 (10.865)	0.568 (2.706)	25.937 (88.779)	46.855 (76.792)
R²
N	475	461	122	205

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

(The numbers in the parentheses are the robust standard errors)

6.4 PART 2: HEALTH PROBLEMS AND DAILY INCOME

Table 6.A presents the regression outputs obtained from the OLS regressions in the second stage. This gives us information about the effect of enrolment rate on health and income for the girls and boys in the study. However, as explained earlier, we believe that an IV regression using 2SLS is more feasible for the purpose of this paper.

Table 6.B illustrates the results from the 2SLS regressions and the effects of girls and boys enrolment on their future health and income respectively, instrumented by the same shock used in stage one, drought. The first two columns present the results for health problems for girls and boys, and the last two columns display the results for daily income, also for girls and boys respectively. This order is applied to both Table 6.A and Table 6.B. According to Table 6.B, none of the variables included in the model are statistically significant in explaining either the health problems or daily income, including the enrolment rate. This might be due to the low number of observations for both Y-variables, where the health variable has 475 observations for girls and 461 for boys and income has 122 and 205 observations for girls and boys, respectively. When a regression is based on too few observations, the results are less likely to show significant effects. The number of observations for health are not critically low unlike income, where the low number of observations might be a crucial explanation for the insignificant coefficients. Another thing that affects the significance of the results might be the use of IV regressions. In Table 6.A, which persists of OLS regressions, the results for enrolment is highly significant for daily income of the girls but this is not the case in the 2SLS regressions. As we have discussed earlier, IV regressions are more favorable to use in this paper due to its unbiasedness but unfortunately, 2SLS is not as efficient as OLS and has larger variance which might be a part of the explanation of why all the estimates are insignificant.

Despite insignificant coefficients in an IV regression, the coefficients can still be interpreted as averages and the signs and magnitudes of those can be compared to each other with great caution and limited generalizability. Results from the 2SLS regressions show that girls who have been enrolled in school are, on average, more likely to have at least one of the health problems included in the health variable. This coefficient for boys is -0.034 which means that the likelihood of having one of the long term health problems is, on average, approximately 34 percent lower for the boys who have been enrolled in school than for those who have not.

When it comes to income, the regression outputs show that girls who are enrolled in school, on average, have a daily income approximately 52,747 rupees higher than girls who have not been enrolled in school. According to the same results, boys who have been enrolled in school have, on average, a daily income that is 4,849 rupees less than boys who have not been enrolled in school. However, the results are not easy to interpret and to apply because of the extremely large standard errors. It is important to be careful when interpreting the coefficients, not only due to the insignificant coefficients but also because of the low number of observations.

7 DISCUSSION AND CONCLUSION

The goal of this paper was to investigate the education gender gap in India and determine whether a shock that affects households' income negatively disadvantages girls more than boys. We also wanted to examine the effects of education on girls' and boys' respective future outcomes. This analysis was based on data from the Young Lives study conducted in India by the University of Oxford. The analytic methods used to capture the effects of the shock on education and how the education in turn affects the children's future income and health was OLS and IV estimations.

Previous research has shown that a gender gap has been present in the Indian education system for a long time and that this gap grows larger the older the children get. In 2014, the difference in school attendance in the age group 14-17 was a shocking 37 percentage points. There are a large number of factors that play a role in the education decisions made in each family and the households' economy is believed to be one of many.

Considering previous research, our hypothesis was that the negative income shock should have negative effect on children's enrolment rate and that this effect should be more considerable for the girls than for the boys. However, the results from the first stage regressions show that the effect of the shock is approximately of the same magnitude for both genders in our dataset. We found that a negative income shock leads to families withdrawing their children from school and therefore affects their education opportunities. This confirms part of our hypothesis, although the magnitudes of the effect is relatively low. The results obtained from the analysis of the gathered data only reveal the effect on the dependent variable used, enrolment rate, and not the true effect on actual attendance rates of the children in school. As we mentioned in the literature review, other researchers have stated that girls often have a larger domestic burden taking care of other family members and doing household chores. We therefore believe that there is therefore a significant risk that many of the girls that are enrolled in school do not spend as much time attending school or doing homework as the boys do. If this is the case, the girls do not actually receive the same education as the boys even if they are both enrolled in school. By using enrolment rate as our dependent variable, the results we get might not be the true effect on school participation since these two measurements are not necessarily equivalent. There is therefore an uncertainty in interpreting the effect on enrolment rate since the effect on girls' actual school

attendance rates is probably larger than for the boys. This would then indicate that girls might actually be more negatively affected than the boys nonetheless as a result from having to stay home.

Another thing that could be misleading is that from our analysis it is impossible to see the differences in the effect of the shock on enrolment rate for different education levels. We cannot distinguish from what level of education the girls or boys are withdrawn from school and if there are any significant differences between them.

The fact that the drought variable has been collected by asking the participants if they perceive that they have experienced the shock at any time during the last four years could also be an explanation for the relatively small effects that were found. If the shock occurred too long ago or too close in time, the effect on enrolment now might already have faded out or not yet set in. The connection between the shock and enrolment rate could then appear weaker than it actually is. Since the shock is used as an instrument for enrolment in the second stage of our analysis, this could be an explanation for the insignificant results if in fact the instrument is too weak. As we can see in Table 3, only approximately 15 percent of the respondents stated that they experienced the shock which is another reason to believe that the shock might be too weak to be used as an instrument even though the other shocks in the dataset affected even less households.

As stated in the results and as table 6.B shows, none of the variables have a significant effect on health or income for both girls and boys. The main reason for this is probably as we mentioned in the results the few number of observations, and as discussed it is not appropriate in this case to consider the magnitudes of the results as the true effects since they are insignificant and because the standard errors are so large. The key explanatory variable used in these regressions is furthermore the enrolment variable instrumented by the shock. As discussed above, enrolment is probably not a good measurement of children's actual education which means that our regressions at this stage do not really capture the true effect of education on daily income and/or health problems, but the effect of a possibly unrepresentative official number.

The data on health and daily income that is used in the second stage of the analysis was only available for the children born in 1994-95 since they were the only ones old enough to be able to answer questions regarding these variables. As a consequence, the number of possible

observations are only 1,000 instead of approximately 12,000 in the first stage. These children, born in 1994-95, were about 19 years old when the fourth round of the study was conducted. Although probably different from country to country, they might have been too young to yet experience the real effects of their education on their income and health. The effects of lower or higher education most likely takes some time before it has a real impact on the individual's outcomes and before it is distinguishable. In most countries, education can most likely be believed to have an impact on future income but when it comes to health, the link is not as clear. We believe that there are so many factors that affects an individual's health, such as lifestyle, genetics, bad habits etc., and it is unlikely to find that education, and especially enrolment, plays a large significant role.

As we have already mentioned previously in our discussion, there are some flaws with our models, some small and some more significant, that will affect our results. Unfortunately because of the time frame for the analysis we were not able to change the models more and solve all of the existing problems. To achieve more valuable results, future researchers should try and analyse the children's education by using some other variable than enrolment rate since this can be misleading. They should also include other or more suitable control variables and make sure that their models are a better fit with higher explanatory power. To investigate the implications of children's education on their future outcomes, they should also make sure that the variables that they use have enough observations so that significant results are achievable.

Even though our results suggest that there is almost no difference among girls and boys when it comes to education opportunities and that education has no significant effect on future health or income, because of the issues with our model, we believe that these results probably do not represent the true situation in India. All the previous research that we have come across during the progress of this thesis have shown that there are in fact differences between boys and girls enrolment and participation in school. We therefore believe that it is still very important for organizations and governments to keep working and developing the programs and goals that promote equal education for all. Since education has been proven to play such an important role in economic growth, especially for developing countries, we believe that it is of crucial importance to continue researching the educational situation in the world and doing what we can to solve the problems that interfere with the rights to equal education.

8 SOURCES

Azam, M., & Kingdon, G. G. (2013). Are girls the fairer sex in India? Revisiting intra-household allocation of education expenditure. *World Development*, 42, p. 143-164.

Azim Premji Foundation (2004). *The Social Context of Elementary Education in Rural India*.

Björkman-Nyqvist, M. (2013). Income shocks and gender gaps in education: Evidence from Uganda. *Journal of Development Economics*, 105, p. 237-253.

Bose, S. (2012). A Contextual Analysis of Gender Disparity in Education in India: The Relative Effects of Son Preference, Women's Status, and Community. *Sociological Perspectives*, 55(1), p. 67-91

Boyden, J., *Young Lives: an International Study of Childhood Poverty: Rounds 1-4 Constructed Files, 2002-2014* [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], June 2016. SN: 7483, <http://dx.doi.org/10.5255/UKDA-SN-7483-2>

Boyden, J. et al., *Young Lives: an International Study of Childhood Poverty: Round 4, 2013-2014* [computer file]. Colchester, Essex: UK Data Archive [distributor], April 2016. SN: 7931, <http://dx.doi.org/10.5255/UKDA-SN-7931-1>

Education and Literacy, Ministry of Human Resource Development, Government of India, MHRD (2016) *Planning and Appraisal of RMSA*. (2016-03-09) http://mhrd.gov.in/rmsa_planning
[Last accessed 2017-04-22]

Department of School Education and Literacy, Ministry of Human Resource Development, Government of India, MHRD (2016) *Right to Education*. (2016-03-04) <http://mhrd.gov.in/rte>
[Last accessed 2017-04-22]

Department of School Education and Literacy, Ministry of Human Resource Development,
Government of India, MHRD (2017) *Sarva Shiksha Abhiyan*. (2017-03-06)

<http://mhrd.gov.in/sarva-shiksha-abhiyan>

[Last accessed 2017-04-22]

Drèze, J., & Murthi, M. (2001). Fertility, education, and development: evidence from India.
Population and development Review, 27(1), p. 33-63.

Dzemeski, A (2017) *Basic econometrics - lecture notes* (2017-01-14)

Hill, M. A., & King, E. (1995). Women's education and economic well-being. *Feminist
Economics*, 1(2), p. 21-46.

IIASA Policy Brief. (2008). Economic Growth in Developing Countries: Education Proves
Key. *International Institute for Applied System Analysis*, (3), p. 1-4.

India Brand equity Foundation, IBEF (2017) *About Indian Economy Growth Rate &
Statistics*. <https://www.ibef.org/economy/indian-economy-overview>

[Last accessed 2017-05-02]

Kajisa, K., & Palanichamy, N. V. (2010). Schooling investments over three decades in rural
Tamil Nadu, India: Changing effects of income, gender, and adult family members'
education. *World Development*, 38(3), p. 298-314.

Kelly, O., & Bhabha, J. (2014). Beyond the education silo? Tackling adolescent secondary
education in rural India. *British Journal of Sociology of Education*, 35(5), p. 731-752.

KGBV Society (2015) *Welcome to Andhra Pradesh Kasturba Gandhi Balika Vidyalaya*.

<http://apkgbvs.in/>

[Last accessed 2017-04-27]

Kingdon, G. G. (2007). The progress of school education in India. *Oxford Review of
Economic Policy*, 23(2), p. 168-195.

Mathur, N. (2016) *India ranks 87 in WEF gender gap report*. Livemint.
<http://www.livemint.com/Politics/6hWxgogtoolxJh5SYBBELN/India-ranks-87-in-WEF-gender-gap-report.html>

[Last accessed 2017-05-02]

Sarva Shiksha Abhiyan Karnataka, Department of Public Instruction (n.d.) *Kasturba Gandhi Balika Vidyalaya (KGBV)*. http://ssakarnataka.gov.in/html/int_kgbv.html

[Last accessed 2017-04-27]

Sperling, G. B. (2005). The case for universal basic education for the world's poorest boys and girls. *Phi Delta Kappan*, 87(3), p. 213-216.

Statistics How To (2016) *Instrumental Variable: Definition & Overview*. (2016-12-27)

<http://www.statisticshowto.com/instrumental-variable/>

[Last accessed 2017-05-04]

Statistics Solutions (2017) *Two-Stage Least Squares (2SLS) Regression Analysis*.

<http://www.statisticssolutions.com/two-stage-least-squares-2sls-regression-analysis/>

[Last accessed 2017-05-04]

The National Archives (n.d.) *Indian Independence*.

<http://www.nationalarchives.gov.uk/cabinetpapers/themes/indian-independence.htm>

[Last accessed 2017-05-31]

The Office of the United Nations High Commissioner for Human Rights, OHCHR (n.d.)

Women's Human Rights and Gender Equality.

<http://www.ohchr.org/EN/Issues/Women/WRGS/Pages/WRGSIndex.aspx>

[Last accessed 2017-04-24]

The World Bank (2011) *Education in India*. (2011-09-20)

<http://www.worldbank.org/en/news/feature/2011/09/20/education-in-india>

[Last accessed 2017-05-05]

United Nations, UN (n.d.) *Background*. <http://www.un.org/millenniumgoals/bkgd.shtml>
[Last accessed 2017-04-28]

United Nations, UN (n.d.) *Founding Member States*.
<http://www.un.org/depts/dhl/unms/founders.shtml>
[Last accessed 2017-04-28]

United Nations, UN (n.d.) *Goal 4: Ensure inclusive and quality education for all and promote lifelong learning*. <http://www.un.org/sustainabledevelopment/education/>
[Last accessed 2017-04-29]

United Nations, UN (n.d.) *Goal 5: Achieve gender equality and empower all women and girls*. <http://www.un.org/sustainabledevelopment/gender-equality/>
[Last accessed 2017-04-29]

United Nations, UN (n.d.) *Sustainable Development Goals*.
<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>
[Last accessed 2017-04-29]

United Nations, UN (n.d.) *The Sustainable Development Agenda*.
<http://www.un.org/sustainabledevelopment/development-agenda/>
[Last accessed 2017-04-29]

United Nations Educational, Scientific, and Cultural Organization, UNESCO (2015)
Education For All 2000-2015: Achievements and Challenges. Second edition.
UNESCO. EFA Global Monitoring Report. p. 328.

Ward, M. (2007). Rural education. *3iNetwork (2007), India Infrastructure Report*.

Young Lives, Department of International Development University of Oxford (n.d.) *Young Lives An International Study of Childhood Poverty*.

<http://www.younglives-india.org/files/publicity-and-pr-files/young-lives-leaflet>

[Last accessed 2017-04-26]

Young Lives, Department of International Development University of Oxford (2014)

Findings and Data. (2014-09-18) <http://www.younglives-india.org/findings-and-data>

[Last accessed 2017-04-25]

Young Lives, Department of International Development University of Oxford (2014) *Our*

work. (2014-06-02) <http://www.younglives-india.org/our-work>

[Last accessed 2017-04-25]

9 APPENDICES

Table 1. List of variables

<i>badhealth</i>	Dummy variable = 1 if the index child has any of the following long term illnesses or health problems, = 0 otherwise. (Only asked in round 4) <ul style="list-style-type: none"> o Poor vision o Eyeglasses o Hearing problems o Frequent headaches o Chronic respiratory problems
<i>income</i>	The daily income of the index child in 1000 rupees. (Only asked in round 4)
<i>enrol</i>	Dummy variable = 1 if the index child is enrolled in school, 0 = not enrolled in school.
<i>drought</i>	Dummy variable = 1 if the household experienced the shock at any time in the last 4 years, = 0 otherwise.
<i>headage</i>	Age of the household head in years.
<i>agemon</i>	Age of the index child in months.
<i>urban</i>	Dummy variable = 1 if they live in an urban area, 0 = rural area.
<i>headmale</i>	Dummy variable = 1 if the household head is male, 0 = female.
<i>numchild517</i>	Number of children between 5 and 17 years old in the household.
<i>numadults1860</i>	Number of adults between 18 and 60 years old in the household.
<i>girl</i>	Dummy variable = 1 if index child is female, 0 = male.

Table 2. Summary statistics of enrol for girls and boys

	Obs	Mean	Std. Dev.
enrol (girls)	4,677	0.8685055	0.3379766
enrol (boys)	5,017	0.9011361	0.2985089

Table 3. Summary statistics of all variables

	Obs	Mean	Std. Dev.
enrol	9,705	0.8846986	0.3194018
drought	8,713	0.1531046	0.3601089
headage	11,722	40.76813	11.07664
agemon	11,718	106.2252	62.12274
urban	11,690	0.2597092	0.4384937
headmale	11,726	0.9108818	0.2849264
numchild517	11,761	1.519514	1.255253
numadults1860	11,761	3.30006	1.855313
girl	11,719	0.4790511	0.4995823
badhealth	947	0.3072862	0.4616128
income (in 1000 rupees)	328	1.744037	3.937761

Table 4. Missing values statistics

	Missing	Total	Percent Missing
enrol	2,366	12,071	19.60
drought	3,358	12,071	27.82
headage	349	12,071	2.89
agemon	353	12,071	2.92
urban	381	12,071	3.16
headmale	345	12,071	2.86
numchild517	310	12,071	2.57
numadults1860	310	12,071	2.57
girl	352	12,071	2.92
badhealth	11,124	12,071	92.15
income (in 1000 rupees)	11,745	12,071	97.28