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Predictors of school dropout across Ethiopia, India, Peru and Vietnam

Santiago Cueto
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DROPPING OUT, STUDENT DROP OUT, COMPARATIVE ANALYSIS, YOUNG LIVES, ETHIOPIA, INDIA, PERU, VIETNAM

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ABSTRACT

In this paper we use the five rounds of Young Lives household surveys across four countries (Ethiopia, India, Peru and Vietnam) to study the characteristics of children who had dropped out of school by 22 years of age. While most children in the longitudinal sample go to primary school, they tend to drop out more often and earlier in Ethiopia. In India most children complete the early grades of school but drop out later, particularly in grades 11 and 12. We find that in all countries, except Vietnam, there is a considerable number of children who drop out of school but at some point return to it, either to complete secondary or drop out again. The reasons provided by children for dropping out across the countries are oftentimes related to poverty: for example, the need to work, or care or provide for family. The multivariate analysis shows that indeed in many cases the wealth level of the family at an early age predicts later dropout, as does maternal education level, students' early skills and residence in certain regions of each country. There are also some variations across countries; for example, boys are more likely to drop out of school in Ethiopia and Vietnam, and children who have repeated a grade are more likely to drop out of school in Peru. However, having high educational aspirations at early ages seems to be a protective factor against dropping out. This suggests that the value that children place on education may be an important preventative factor against dropping out. Overall, these results suggest the need to act early through education and social

protection interventions to target young children who are at risk of dropping out, and then follow their trajectories, providing support as needed to specific groups and even individuals, so that all children may fulfill their right to complete at least secondary education.

RESUMEN

En el presente documento, aprovechamos las cinco rondas de las encuestas a hogares realizadas por Niños del Milenio (Young Lives en inglés) en cuatro países —Etiopía, la India, el Perú y Vietnam— para estudiar las características de los participantes que actualmente tienen 22 años de edad, y que en algún momento de sus trayectorias abandonaron la escuela.

Si bien la mayoría de los niños de la muestra longitudinal asisten a la escuela primaria, en Etiopía tienden a abandonarla con más frecuencia y antes. En la India, la mayoría de los niños completan los primeros grados de la escuela, pero la abandonan más tarde. Encontramos que, en todos los países —excepto en Vietnam—, hay un número considerable de niños que abandonan la escuela, pero que en algún momento retornan a esta; de ellos, algunos logran completar la secundaria, mientras que otros vuelven a abandonar sus estudios.

Las razones que dan los niños en todos los países para explicar por qué abandonaron la escuela suelen estar relacionadas con la pobreza; por ejemplo, con la necesidad de trabajar, cuidar o mantener a su familia. El análisis multivariado muestra que, en efecto, en muchos casos el nivel de riqueza de la familia a una edad temprana del niño predice si, más adelante, abandonará la escuela; lo mismo sucede con la educación materna, las aptitudes tempranas de los estudiantes y el hecho de vivir en ciertas regiones de cada país. También hay algunas variaciones entre los países; por ejemplo, en Etiopía y Vietnam los

varones tienen más probabilidades de abandonar la escuela, mientras que en el Perú quienes están en esa situación son los niños que han repetido un curso.

Por otro lado, el hecho de tener altas aspiraciones educativas a edades tempranas parece ser un factor protector contra el abandono escolar. Esto sugiere que el valor que los niños le atribuyen a la educación puede ser una importante variable preventiva. En general, estos resultados sugieren la necesidad de actuar a tiempo mediante intervenciones de educación y protección social dirigidas a los niños pequeños que corren el riesgo de abandonar los estudios, y luego seguir sus trayectorias, prestando el apoyo necesario a grupos específicos e incluso a individuos, de modo que todos los niños puedan cumplir su derecho a completar por lo menos la educación secundaria.

INTRODUCTION

Access to schools and the completion of basic education have been major interests in recent international instruments. For example, the Millennium Development Goals, set by United Nations for 2015, included Goal #2: Achieve Universal Primary Education[1]. Parallel to this, the Education for All Goals set by Unesco for the same period also emphasized primary education, with additional measurements of literacy, numeracy and life skills[2]. Even more recently, the Sustainable Development Goals for 2030 (SDG) include Goal #4: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"[3]. While this goal more clearly incorporates acquisition of skills than the previous instruments do, it is still concerned with all students going to school and completing basic education. Ensuring that all children complete basic education continues to be a policy challenge; the Global Education Monitoring Report estimates that by 2015, over 264 million primary and secondary age children worldwide were out of school (Unesco, 2017). In many countries this entails understanding when and why children drop out of school, as at some point or another most children attend at least some years of primary school. The literature on school dropout has favored

1 See http://www.un.org/millenniumgoals/education.shtml.
2 See http://portal.unesco.org/es/ev.php-URL_ID=22012&URL_DO=DO_TOPIC&URL_SECTION=201.html.
3 Retrieved from https://sustainabledevelopment.un.org/sdg4.

the use of longitudinal data sets, as understanding this phenomenon requires a long-term view. Often times dropping out is the result of the confluence of a variety of factors that take place at the individual, family, school and community levels over the years.

The purpose of this paper is to conduct a comparative analysis of the patterns that predict school dropout in the four Young Lives countries (i.e., Ethiopia, India[4], Peru and Vietnam). The data set includes information from when children were between eight and 22 years of age. The types of analyses performed and the variables selected were based on previous studies. Only a few studies have done a comparative analysis for developing countries (e.g. Singh and Mukherjee, 2018). Many of the studies or reviews that we have found for this issue come from industrialized countries, in particular the US (e.g. Rumberger and Ah Lim, 2008); thus this analysis contributes a unique perspective.

4 States of Andhra Pradesh and Telangana only.

1. LITERATURE REVIEW

In this section we briefly present some of the main studies that have been done regarding school dropout. Russell Rumberger, one of the researchers that has most studied this issue, and Ah Lim published a review of the research in this field (2008). These authors identified two types of factors predicting dropout: individual student characteristics and characteristics of their families, schools and communities. Among the individual factors, in most studies there was a significant association between dropping out and educational performance (measured with standardized tests), grade repetition (linked to above-average age-for-grade as well), and educational expectations (i.e., up to what level the student would like to be educated); having worked is another variable that predicts dropping out of school in some studies. As for individual social variables, males are more likely to drop out than girls; and dropout was also associated with the child's ethnic background and level of health. Among family variables, there are several associated in many studies with dropping out, including family resources and parental education. Regarding school characteristics, the composition of the school, the resources available, structural characteristics and educational processes have been found to be associated with dropping out of school. Finally, in regards to community variables, there have been only a few studies; these suggest the importance of the predominating occupation in the community, the quantity of community services available, and the amount of resources of the local

population. Even though this review covers only studies in the United States, it serves as a framework for the analysis of predictive variables internationally. In this study, given that it is based on a household survey, we will concentrate on individual and family variables.

In a more recent discussion of findings on this topic, Rumberger and Rotermund (2012) propose that dropping out of school is more of a process than an event. Following this idea, below we present some information on children who drop out of school and return—either that they finish their education or drop out again. The idea of dropping out as a process can be also linked with taking a longitudinal view of this result, identifying factors that predict it at different ages. Also, these authors suggest looking at both the reasons provided by students for dropping out as well as quantitative analyses of data; dropping out is, as stated above, most likely the result of a variety of individual, family and contextual factors, including school, but also what happens outside of it (e.g. students´ engaging in deviant behaviors). A few studies that expand on school dropout findings are mentioned below, with an emphasis on studies carried out in developing countries.

Roman (2013) reviewed studies on school dropout in Argentina, Chile, Mexico, Peru, Uruguay and Venezuela; in the region this is a phenomenon that takes place mostly during secondary school, although the tendency is for the rates to decrease. Roman divided the predictors into exogenous (individual and family) and endogenous variables (related to the educational system and schools). Socioeconomic status is a variable that was associated with the outcome of interest in all cases. For example, often times poor students, who need to work full time, drop out of school due to individual and family responsibilities. Some of the other variables she identified also corresponded with the findings mentioned above for the US, such as gender, previous achievement and educational trajectories (e.g. repeating

a grade or above-average age-for-grade). Roman challenges readers to think about how schools and educational systems could tackle these challenges and favors all children completing basic education.

As mentioned above, a few studies on school dropout have already been published using the Young Lives database, although this is the first to use all five available rounds of household surveys.

For Ethiopia, Woldehanna and Hagos (2015) analysed the impact of dropping out of school before completing primary education. They used the older cohort data in round 3, when participants were about 15 years old. The results suggest that a variety of shocks were associated with dropping out of school; these included illnesses of a household member, death of livestock, drought, crop failure, pest or diseases. Based on these results, the authors suggest developing or strengthening social protection programs targeting at-risk students. The results from this paper remind us of the importance of shocks in the context of Ethiopia, and thus the need to target children who had suffered them. Our study is different from this one in that it analyses students that had not completed their education (grade 10) by 22 years of age.

For India, Singh and Mukherjee (2018) analysed the reasons given by the older cohort of Young Lives for dropping out by the time they were 19 years of age. Based on previous research, they suggest that the variables predicting dropout may be classified into pushed out (by the educational system, for example due to poor attendance or behaviour, or distance from school), pulled out (due to family or other obligations, including marriage and work), and opted out (disengagement with schooling not related to the above, such as absence from school or truancy, ill health and general lack of interest for continuing school). These factors could also be related to individual or community levels. They used mixed methods in their analyses and found that

marriage (pull factor) was the most common reason provided by children for dropping out, followed by absence from school or truancy (opt-out factor) and domestic work (pull factor). Indeed, around 60% of the reasons provided by children were in the pull-out category. They report that most children drop out of school after completing upper primary education. In their results, there were differences by gender (e.g., associated with marriage for girls), by caste (particularly for the Backward Class children) and maternal education. While the classification into the three categories mentioned above is appealing, no clear cuts seem to be able to be made between them. For example, being absent from school could be related to the family obligations and to feeling disengaged from school.

For Peru, Valdivieso (2015) performed a survival analysis, similar to the one presented below but reaching only round 3 of Young Lives, when children were 15 years of age. Relevant to our analysis, the author found that dropout was associated with the family's level of wealth.

For Vietnam, Thuc Duc and Ngo Minh Tam (2013) performed an analysis using three rounds of the household surveys. They found that previous performance in school was a major determinant of dropping out, as were wealth of the home and parental education. They also performed analyses of the reasons given by children who dropped out; the main reason was lack of interest in continuing education.

Singh and Mukherjee (2018) recently published an analysis across the four Young Lives countries, but using data only up to round 4. For this they analysed the reasons provided by students for dropping out of school across the four YL countries, using the same three categories reported above for the study in India. Again, they report that pull factors were the reasons most frequently reported by students for dropping out of school. Within this category, the most common motives for

abandoning school by age 19 were marriage and having to work. Within the push factors, the two most common categories were that fees were too expensive and that students were banned from school because of failure to achieve as expected. Finally, in the opt-out factors, the two most common responses were truancy/child did not want to go/not interested and no need to continue given future job. The only variable that predicted dropping out in all countries was the wealth index; for most countries, maternal education and aspiration were also predictors of dropping out. Gender had mixed results across the countries.

The purpose of this paper is to present descriptive analyses of the characteristics of children who drop out of school and the grade by which this happens. The analyses include children who never dropped out of school, those who dropped out of school and never returned and children who dropped out of school temporarily. This type of analysis was not done in previous studies. We also present data on the skills of children who dropped out at different grades in school, to explore the association between these two variables: the hypothesis is that children who drop out of school will have lower skills. Then, we present the reasons provided by students for dropping out of school, similar to what Singh and Mukherjee (2018) did above, but divided by countries. Finally, we present the results of a regression analysis to identify which factors predict not having completed basic education by age 22. The analysis uses household surveys from five rounds of Young Lives; thus, the variables that we could use were mostly linked to individual and family characteristics rather than school or community characteristics. The variables included in these analyses are based on the studies presented above. Initially we aimed to do an analysis of children who had never been to school, but this was not possible given that, as shown below, almost all children in our sample had attended at one point.

2. PRIMARY AND SECONDARY EDUCATION IN THE FOUR COUNTRIES

Below we present brief descriptions of the education systems in the four countries according to Unesco[5] (2011). This study will analyse dropout at any point from the first grade of primary school through the last grade of secondary school that is either mandatory or preceding an entry exam to move on to a superior level. Thus there are variations across countries, as per the definitions below.

Ethiopia

The Ethiopian education system consists of 12 years of education, including 8 years of primary education, 2 years of secondary education and 2 years of upper secondary education. In primary school the expected age range of enrolment is 7 to 14 years old. The 8 primary grades are divided into 2 cycles. In the first cycle, students are expected to achieve literacy; and in the second, to acquire skills that will prepare them for the next levels. The secondary level is also divided into 2 cycles and lasts 4 years (Grades 9 to 12). General education is completed at the end of grade 10; after this grade it is necessary to pass an exam

5 For Ethiopia http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/Ethiopia.pdf
For India http://www.ibe.unesco.org/sites/default/files/India.pdf
For Peru http://www.ibe.unesco.org/sites/default/files/Peru.pdf
For Vietnam http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/Viet_Nam.pdf

to study upper secondary education (Grade 11 to 12). Given this, we decided to estimate dropout rates and do the analysis up to grade 10.

India

In India, the primary level is divided into 2 stages: primary and upper primary education. Children are expected to begin first grade at age 6. Primary education goes from grades 1 to 5, and upper primary from grades 6 to 8. Secondary school is divided into secondary (grades 9 to 10) and higher secondary (grades 11 to 12), which prepares students for studying at universities or an institution of higher education. In this study the analysis of dropout for India will be done up to the 12th grade.

Peru

Preschool, primary and secondary education are compulsory in Peru, although as in many countries this is not enforced. Children are expected to enrol in first grade by the age of six years; primary education includes six grades in total. Secondary schools offer five years of study, from grades 7 to 11. For Peru the analysis will be done up to the 11th grade.

Vietnam

Primary education is compulsory and lasts 5 years (Grades 1 to 5). Children are expected to enrol at age 6. Secondary education is divided into two cycles: lower secondary (Grades 6 to 9) and upper secondary education (Grades 10 to 12). Lower secondary education graduates have to go through a competitive examination for admission to upper secondary school. Based on the above, the analysis for Vietnam will be done for up to grade 9.

3. METHODS

Given that school dropout is a dynamic phenomenon with determinants that may have their origin during infancy, the best way to study it is to use a panel database. As mentioned above, Young Lives is a study that follows the lives of approximately 12,000 children in Ethiopia, India, Peru and Vietnam. It is divided into 2 cohorts, called Younger and Older. The Younger Cohort was born around 2001 and the Older Cohort around 1994.

In this study, we analyse the Older cohort data only, as all of them should have finished school by the time data from Round 5 was collected. The analyses are limited to children who were present in all 5 rounds of the study. Furthermore, those who had never been to school were excluded; this is potentially an interesting group, but it was so small in our sample that we cannot say much about their characteristics. The number of participants in the Young Lives sample for each country is detailed in Table 1, and the characteristics of the sample that was analysed in the following sections of this paper are shown in Table 2.

For the Young Lives study, family and children's questionnaires were administered at home. For the analyses, we rely mainly on data coming from the Educational History of the Index Child section. In this section, the child was asked about his or her school attendance and educational level since birth.

The main variables used in the analysis, presented in Table 2, were obtained from the questionnaires mentioned above and from

Table 1
Original and analytical sample by country (number of children)

	Ethiopia	Vietnam	Peru	India
Total sample in round 1	1000	1000	714	1008
Attrition in five rounds	219	172	134	91
Incomplete educational history	0	9	20	8
Contradictory data in educational history	2	0	6	1
Never went to school	5	3	0	8
Sample used in the analyses	**774**	**816**	**554**	**900**

the educational achievement tests administered up to Round 4 of the surveys. Regarding the latter, in round 1, one math, one reading comprehension and one writing item each were administered to children, as well as the Raven's Progressive Matrices. For Round 2, we used the Peabody Picture Vocabulary Test (PPVT), which is a receptive vocabulary test; this test was administered in Spanish in Peru (or in Quechua, if preferred by children); in the other countries, an adaptation to the mother tongue was presented, using the PPVT III as input[6]. In addition, for the analysis, the z-scores of these tests were calculated. Given that most children were in school in Round 1, we included variables mostly from this and the second round of household surveys, so that they act as predictors or correlates of dropping out. All these questionnaires and cognitive tests were approved by the Oxford Ethics Committee, as well as the Committee of the Instituto de Investigación Nutricional (IIN) in Lima.

For the analysis, given that the dropout variable is censored because we do not know if children will later decide to return to the educational system or stop going to school altogether, we used the Kaplan Meier

6 For more details, see Cueto & others (2009).

Table 2
Sample characteristics (number of children and mean or % per country)

	Ethiopia		India		Peru		Vietnam	
Wealth index round 1*	773	0,21	900	0,40	549	0,49	815	0,44
Number of siblings in round 1	774	3,22	900	1,81	554	1,87	816	1,57
Height-for-age z-score round 1	749	-1,55	900	-1,56	550	-1,40	816	-1,48
Mother tongue of child round 2								
Other (India), Other (Ethiopia), Indigenous (Peru), Other (Vietnam)	153	19,77	133	14,78	53	9,57	94	11,52
Oromifa (India), Telugu (Ethiopia), Spanish (Peru), Vietnamese (Vietnam)	134	17,31	767	85,22	501	90,43	722	88,48
Tigrigna (Ethiopia)	159	20,54	-	-	-	-	-	-
Amarigna (Ethiopia)	328	42,38	-	-	-	-	-	-
Mother's education round 2 (%)								
Complete primary or less	590	76,23	671	74,56	235	42,42	298	36,52
Incomplete secondary or more	101	13.05	194	21,56	299	53,97	504	61,76
Paid work in round 1 (%)								
No	702	90,70	841	93,44	466	84,12	723	88,60
Yes	70	9,04	58	6,44	86	15,52	91	11,15
Paid work in round 2 (%)								
No	722	93,28	717	79,67	406	73,29	768	94,12
Yes	52	6,72	183	20,33	148	26,71	46	5,64
Educational aspirations round 2 (%)								
Incomplete higher education or less	196	25,32	191	21,22	49	8,84	166	20,34
Complete higher education or more	541	69,90	622	69,11	496	89,53	623	76,35

	Ethiopia		India		Peru		Vietnam	
Castes round 1 (%)								
Scheduled Castes	-	-	192	21,33	-	-	-	-
Scheduled Tribes	-	-	101	11,22	-	-	-	-
Backward Classes	-	-	420	46,67	-	-	-	-
Other Castes	-	-	187	20,78	-	-	-	-
Ravens z-score round 1	176	0,00	895	0,00	552	0,00	164	0,00
PPVT z-score round 2	754	0,00	882	0,00	544	0,00	779	0,00
Sample	**774**		**900**		**554**		**816**	

Note: * The wealth index in Round 1 is a composite score comprised of measures of housing quality, access to services, and consumer durables. For the mother's education and mother tongue of child variable, the values of round 3 and 4 have been included if round 2 was not answered. PPVT z-score was corrected by language. The missing values in this table are excluded, but are shown in the appendix.

estimator. This is a non-parametric method that has few restrictions for estimating the survival function and does not assume a distribution function for the survival analysis. Using this method, all survival times observed are ordered from shortest to longest, pointing out for each of them the number of occurrences of the event. Then, for each period of time, the probability of survival is calculated. Finally, explanatory variables may be included to observe if there is a positive or negative association with the time of occurrence of the event studied.

The Kaplan-Meier function S(t) of occurrence of an event is estimated using the following formula:

$$S(t) = \prod_{t_i<t} \frac{n_i - d_i}{n_i}$$

Where, n_i is the number of individuals at risk and d_i is the number of occurrences of the event studied. The main advantage of this method is that it facilitates estimation of the survival function for different groups and compares them, as shown below.

Then, to estimate the associated factors with the occurrence of the event under study, we used Cox's proportional risk model. In Cox's proportional risk model, the time to the occurrence of an event is modeled. This allows for an explanation of the time dimension of the phenomenon being studied, in terms of the risk of the event. In this case, the event would be "school dropout", and the endogenous variable is the time until this event occurs.

Considering that the children's characteristics are a set of variables called X , h(*t*) is referred to as an underlying hazard function and HR is the relative risk ratio that maintains a linear relationship with the independent variables used in the analysis, though not with the time of occurrence of the event (semi-parametric model):

$$h(t) = h_0(t)e^{\beta_0+\beta_1 X_{1i}+\cdots+\beta_k X_{ki}}$$

$$ln\left(\frac{h(t)}{h_0(t)}\right) = ln(HR) = \beta_0 + \beta_1 X_{1i} + \cdots + \beta_k X_{ki}$$

The analysis of the determinants will be carried out in terms of the risk of occurrence: the positive effects indicate an increase in the probability of occurrence of *school dropout* or an increase in the risk of dropping out; a negative effect signals a decrease in the risk of occurrence.

4. RESULTS

One thing we noticed looking at the different rounds of the surveys was that dropping out is not necessarily an irreversible situation. Thus, for the descriptive analyses, children were divided into four categories, presented in Table 3.

Table 3
Categories by country

	Ethiopia	**India**	**Peru**	**Vietnam**
Never left school	56.2%	52,0%	80,9%	86,5%
Left school, came back and finished	7,2%	6,2%	4,0%	0,1%
Left school, came back and dropped out again	11,0%	3,0%	2,5%	0,0%
Left school and did not return	25,6%	38,8%	12,6%	13,4%
Sample	774	900	554	816

As shown above, except for Vietnam, children often drop out of school but eventually return. Dropping out seems to be a definitive condition for more children in India, while returning to school, either to complete their education or drop out again, is more likely in Ethiopia. Doing a policy analysis of how these education systems deal with students who stop attending school would be an interesting continuation of this analysis. However, for the descriptive analyses below we worked with 3 categories, combining the latter two into one (see

Table 4)—except for Vietnam, where almost no children dropped out and returned to school.

In appendix C there are more descriptive characteristics of the sample, with information about family factors, child factors and school factors. Below is a brief summary of some of these. It is clear that there are differences in the levels of wealth of children in the three groups in the 4 countries: children who never left school have a higher wealth index in round 1 than the other groups. Similarly, those who have never left school have more educated mothers. Additionally, those who drop out have, on average, a greater number of siblings in round 1.

In terms of children's characteristics, paid work is an important variable in India since among those who deserted and did not return, 31% worked in round 2 (2006). In India, Ethiopia and Peru we found that among those children who left school, then returned and finished, the highest percentage are men.

The educational aspirations of the child in round 2 (2006) is correlated with not dropping out, especially when aspiring to complete higher education.

In Ethiopia, Peru, and Vietnam, grade repetition is greater among children who have dropped out, even temporarily, and occurs to a lesser extent in children who did not drop out.

For Peru, among the children who did not drop out, the highest percentage have Spanish as their mother tongue. A similar situation for the most widely spoken language in the country is found in Vietnam (Vietnamese language) and in Ethiopia (Telugu language). For India, castes are also considered because of their importance for predicting educational achievement in previous studies. However, in our analysis, similar percentages are observed in the 3 classifications.

With respect to educational performance, in all countries we found that children who have never dropped out have on average a

Table 4
Characteristics of children in three groups in Ethiopia

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Family characteristics								
Wealth index round 1 [bc]	435	0,26	55	0,22	283	0,13	773	0,21
Mother's education round 2 (%)								
Complete primary or less [b]	303	69,66	40	71,43	247	87,28	590	76,23
Incomplete secondary or more [b]	79	18,16	10	17,86	12	4,24	101	13,05
Number of Siblings in round 1	435	3,06	56	3,18	283	3,46	774	3,22
Children´s characteristics								
Male (%) [b]	201	46,21	33	58,93	177	62,54	411	53,10
Paid work in round 1 (%)	37	8,51	2	3,57	31	10,95	70	9,04
Paid work in round 2 (%)	15	3,45	2	3,57	35	12,37	52	6,72
Educational aspirations round 2 (%)								
Incomplete higher education or less	97	22,30	10	17,86	89	31,45	196	25,32
Complete higher education or more [b]	330	75,86	44	78,57	167	59,01	541	69,89
Repeated a grade (%) [ab]	227	52,18	43	76,79	197	69,61	467	60,34
Height-for-age z-score round 1 [b]	419	-1,43	54	-1,39	276	-1,76	749	-1,55
Mother tongue of child round 2 (%)								
Other	68	15,63	9	16,07	76	26,86	153	19,77

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Oromifa	57	13,10	9	16,07	68	24,03	134	17,31
Tigrigna	101	23,22	8	14,29	50	17,67	159	20,54
Amarigna	209	48,05	30	53,57	89	31,45	328	42,38
Skills								
Raven z-score round 1	139	0,04	10	0,37	27	-0,36	176	0,00
PPVT z-score round 2 [b]	423	0,20	55	-0,15	276	-0,28	754	0,00
Total	435	100,00	56	100,00	283	100.00	774	100,00

Note: The wealth index in Round 1 is a composite score comprised of measures of housing quality, access to services, and consumer durables. For the mother's education and mother tongue of child variables, the values of round 3 and 4 have been included if round 2 was not answered. PPVT z-score was corrected by language. The missing values in this table are excluded here, but are shown in the appendix. Superscripts are shown where the differences were statistically significant at the 1% level: a is the difference between categories 1 and 2, b the difference between 1 and 3 and c the difference between 2 and 3. The differences in paid work r1 - r2 and mother tongue were not calculated.

Table 5
Characteristics of children in three groups in India

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Family characteristics								
Wealth index round 1 [b]	468	0,46	56	0,39	376	0,34	900	0,40
Mother's education round 2 (%)								
Complete primary or less [b]	308	65,81	40	71,43	323	85,90	671	74,56
Incomplete secondary or more [b]	147	31,41	14	25,00	33	8,78	194	21,56
Number of Siblings in round 1	468	1,70	56	1,96	376	1,92	900	1,81
Children's characteristics								
Male (%)	244	52,14	32	57,14	167	44,41	443	49,22
Paid work in round 1 (%)	23	4,91	7	12,50	28	7,45	58	6,44
Paid work in round 2 (%) [b]	55	11,75	13	23,21	115	30,59	183	20,33
Educational aspirations round 2 (%)								
Incomplete higher education or less [b]	61	13,03	15	26,79	115	30,59	191	21,22
Complete higher education or more [bc]	406	86,75	38	67,86	178	47,34	622	69,11
Repeated a grade (%) [ac]	134	28,63	34	60,71	104	27,66	272	30,22
Height-for-age z-score round 1	468	-1,51	56	-1,63	376	-1,61	900	-1,56
Castes round 1 (%)								
Scheduled Castes	88	18,80	11	19,64	93	24,73	192	21,33

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Scheduled Tribes	51	10,90	15	26,79	35	9,31	101	11,22
Backward Classes	205	43,80	23	41,07	192	51,06	420	46,67
Other Castes	124	26,50	7	12,50	56	14,89	187	20,78
Mother tongue of child: Telugu (%)	404	86,36	45	80,36	318	84,57	767	85,22
Skills								
Raven round 1 [b]	465	0,12	56	-0,08	374	-0,14	895	0,00
PPVT z-score round 2 [bc]	464	0,30	56	0,32	362	-0,43	882	0,00
Total	468	100,00	56	100,00	376	100,00	900	100,00

Note: The wealth index in Round 1 is a composite score comprised of measures of housing quality, access to services, and consumer durables. For the mother's education and mother tongue of child variables, the values of round 3 and 4 have been included if round 2 was not answered. PPVT z-score was corrected by language. The missing values in this table are excluded here, but are shown in the appendix. Superscripts are shown where the differences were statistically significant at the 1% level: a is the difference between categories 1 and 2, b the difference between 1 and 3 and c the difference between 2 and 3. The differences in paid work r1 and castes were not calculated.

Table 6
Characteristics of children in three groups in Peru

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Family characteristics								
Wealth index round 1	443	0,52	22	0,38	84	0,35	549	0,49
Mother's education round 2 (%)								
Complete primary or less	167	37,28	13	59,09	55	65,48	235	42,42
Incomplete secondary or more	266	59,38	7	31,82	26	30,95	299	53,97
Number of Siblings in round 1	448	1,72	22	2,41	84	2,50	554	1,90
Children´s characteristics								
Male (%)	231	51,56	16	72,73	39	46,43	286	51,62
Paid work in round 1 (%)	59	13,17	3	13,64	24	28,57	86	15,52
Paid work in round 2 (%)	112	25,00	9	40,91	27	32,14	148	26,71
Educational aspirations round 2 (%)								
Incomplete higher education or less	28	6,25	2	9,09	19	22,62	49	8,84
Complete higher education or more	418	93,30	19	86,36	59	70,24	496	89,53
Repeated a grade (%)	139	31,03	14	63,64	63	75,00	216	38,99
Height-for-age z-score round 1	444	-1,34	22	-1,77	84	-1,60	550	-1,40
Mother tongue of child: Spanish (%)	413	92,19	19	86,36	69	82,14	501	90,43

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Skills								
Raven round 1	446	0,12	22	-0,34	84	-0,55	552	0,00
PPVT z-score round 2	441	0,13	22	-0,09	81	-0,70	544	0,00
Total	448	100,00	22	100,00	84	100,00	554	100,00

Note: The wealth index in Round 1 is a composite score comprised of measures of housing quality, access to services, and consumer durables. For the mother's education and mother tongue of child variables, the values of round 3 and 4 have been included if round 2 was not answered. PPVT z-score was corrected by language. The missing values in this table are excluded, but are shown in the appendix. Due to the small number of observations in the second category, the mean difference was not calculated in this table.

Table 7
Characteristics of children in two groups in Vietnam

	Never left school / Left school, came back and finished		Left school and did not return		Total	
	Freq.	Mean	Freq.	Mean	Freq.	Mean
Family characteristics						
Wealth index round 1 [a]	706	0,47	109	0,29	815	0,44
Mother's education round 2 (%)						
Complete primary or less [a]	218	30,83	80	73,39	298	36,52
Incomplete secondary or more [a]	476	67,33	28	25,69	504	61,76
Number of Siblings in round 1 [a]	707	1,46	109	2,30	816	1,57
Children´s characteristics						
Male (%)	330	46,68	57	52,29	387	47,43
Paid work in round 1 (%)	75	10,61	16	14,68	91	11,15
Paid work in round 2 (%) [a]	25	3,54	21	19,27	46	5,64
Educational aspirations round 2 (%)						
Incomplete higher education or less [a]	118	16,69	48	44,04	166	20,34
Complete higher education or more [a]	585	82,74	38	34,86	623	76,35
Repeated a grade (%)	51	7,21	18	16,51	69	8,46
Height-for-age z-score round 1 [a]	707	-1,43	109	-1,81	816	-1,48
Mother tongue of child: Vietnamese (%) [a]	647	91,51	75	68,81	722	88,48

	Never left school / Left school, came back and finished		Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Skills						
Raven round 1	152	0,02	12	-0,28	164	0,00
PPVT z-score round 2 [a]	678	0,14	101	-0,94	779	0,00
Total	707	100,00	109	100,00	816	100,00

Note: The wealth index in Round 1 is a composite score comprised of measures of housing quality, access to services, and consumer durables. For the mother's education and mother tongue of child variables, the values of round 3 and 4 have been included if round 2 was not answered. PPVT z-score was corrected by language. The missing values in this table are excluded here, but are shown in the appendix. Superscripts are shown where the differences were statistically significant at the 1% level: a is the difference between categories 1 and 2.

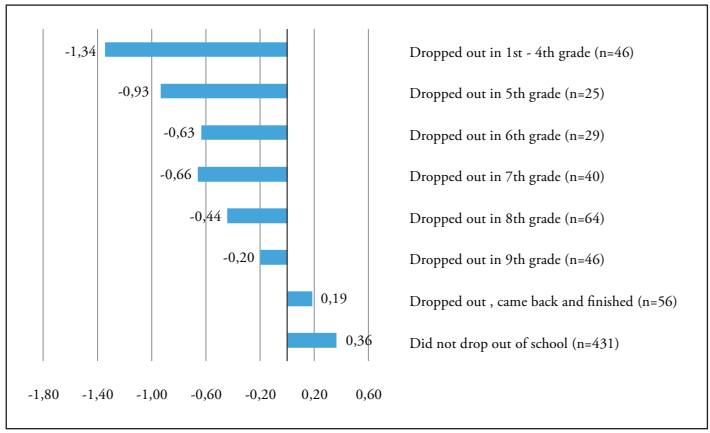
higher score than those who dropped out of school. The above and other characteristics, relevant for specific cultural contexts, could be used to create a composite index of children at risk of dropping out, so that schools or other agencies could act preventively.

4.1. Educational performance analysis

In this section we take a first approximation of how much the dropout may have impaired students' skills. To do this, below we present the children's performance on mathematics tests in Round 4 (2013) in the 4 countries by the grade in which children dropped out, with no controls. For comparative analysis, the scores are calculated in z-scores, which allow us to see the distance of a score from the average score in the country in standard deviations.

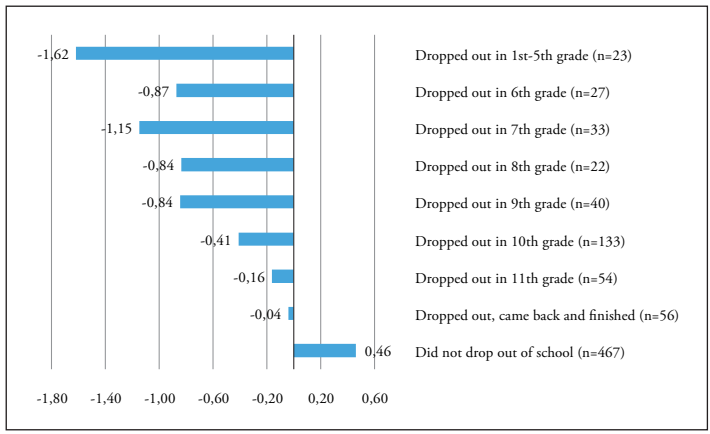
Figures 1 to 4 show that there is a clear gradient, with worse results for those who dropped out earlier. How much these results can be explained by not attending school versus how much by socioeconomic characteristics is difficult to say, given that these two are correlated, as shown in previous tables and the regressions below. However, they are still relevant figures for understanding the differing skill levels of these young adults.

Figure 1
Performance in Math Round 4 – Ethiopia



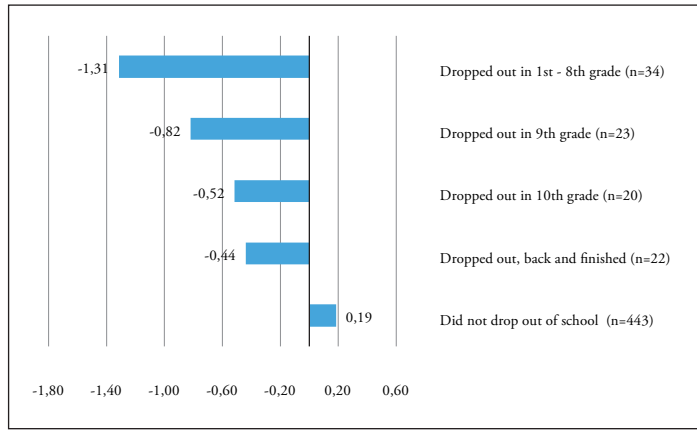
Note: 37 missing in the test

Figure 2
Performance in Math Round 4 – India



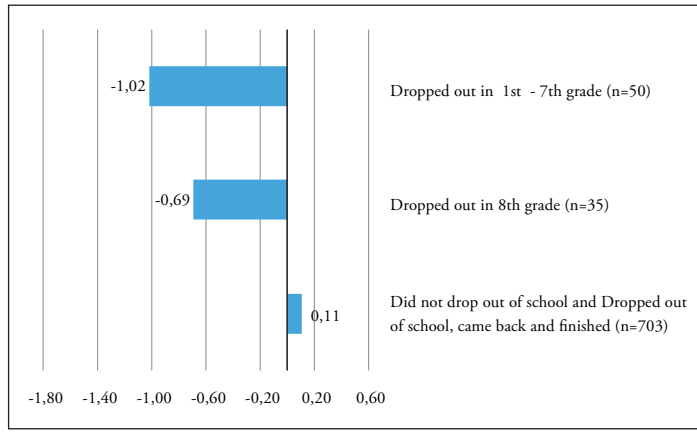
Note: 45 missing in the test

Figure 3
Performance in Math Round 4 – Peru



Note: 15 missing in the test

Figure 4
Performance in Math Round 4 – Vietnam



Note: 34 missing in the test

4.2. Child-reported reasons for dropping out

The questionnaire also included questions as to why children stopped attending school. A discussion of these reasons was presented in the study by Singh and Mukherjee (2018), described above. However, they only present a summary of responses for the four countries. The detailed responses by round of survey and country are presented in Appendix 1. Summarizing these responses, in Round 1, when children were about 8 years old, the most prominent reason in Ethiopia and India was that they had to help their family.

In round 2, for children in Peru and Ethiopia the reason was economic; the children said the pensions were too high and their families could not afford them. In India and Vietnam, they present the above reason as important, but they also point to a lack of interest in studying or not having reached the level required by the school. In India the most important reason in round 2 was that the child was needed for domestic or agricultural work or family business.

In round 4, when children were about 15 years old, the most frequently mentioned reasons were paid work and work for a family business. In addition, in India, Peru and Vietnam children mention that they were not interested in going to school.

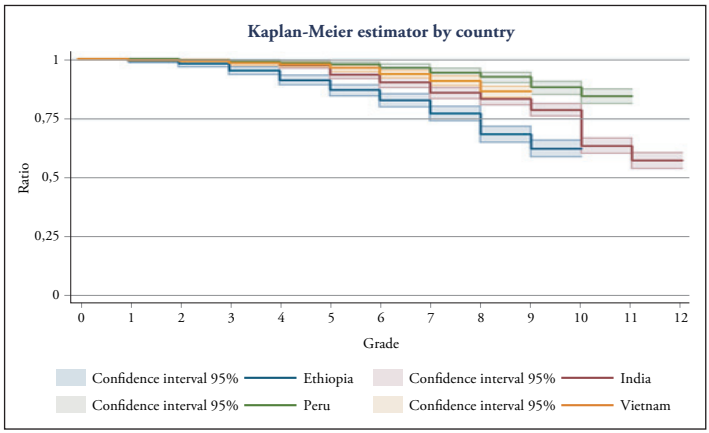
Overall, across the rounds, the most frequent responses seem to be that the family or child has the need to work or earn an extra income, and the child is either pulled from school or voluntarily drops out. This does not mean that the schools or education systems can do nothing to prevent or reverse this decision, but it would seem that an important part would be trying to somehow tackle poverty needs within families.

4.3. Survival analysis of school dropout

In this section we move to the patterns of school dropout by a given grade and related to certain characteristics. For this analysis the above categories were merged into 2: (i) Did not drop out/Left school, came back and finished and (ii) Left school, came back and dropped out again/ Left school and did not return.

First of all, in Figure 5 the patterns of dropping out of school for the different countries are presented, using non-parametric procedures. Among the four countries, school dropout rates are lower in Peru, followed by Vietnam, and higher in Ethiopia. Also, dropping out in Ethiopia takes places at earlier grades for more children in the sample. However, the highest dropout rate was observed in the sample in the last year of school in India; it seems that completing the last two grades is a particularly high challenge in this country.

Figure 5
Kaplan-Meier estimator of dropping out by country



To analyse the dynamics of school dropout, the Kaplan-Meier ratios have been estimated according to several individual and family characteristics. For example, in the case of sex, we found that in Peru

Figure 6
Kaplan-Meier estimator of dropping out by sex in Ethiopia

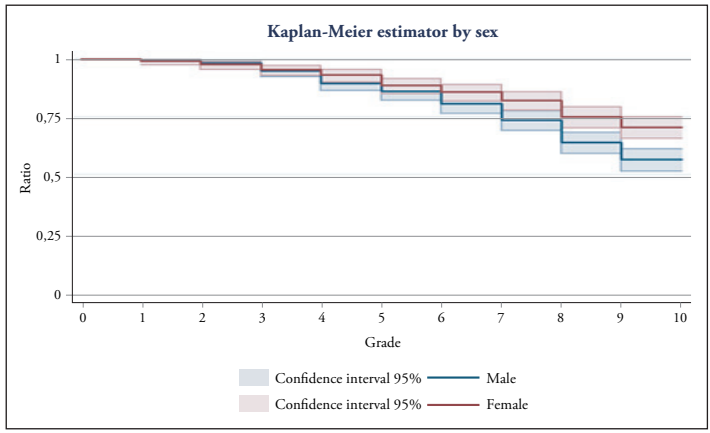
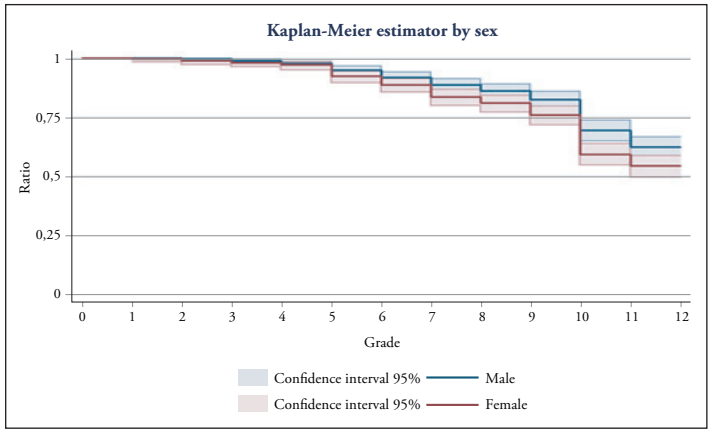


Figure 7
Kaplan-Meier estimator of dropping out by sex in India



and Vietnam there is no statistically significant difference in the survival functions. However, in Ethiopia, men drop out of school the most; while in India, women show a higher dropout rate.

Figure 8
Kaplan-Meier estimator of dropping out by sex in Peru

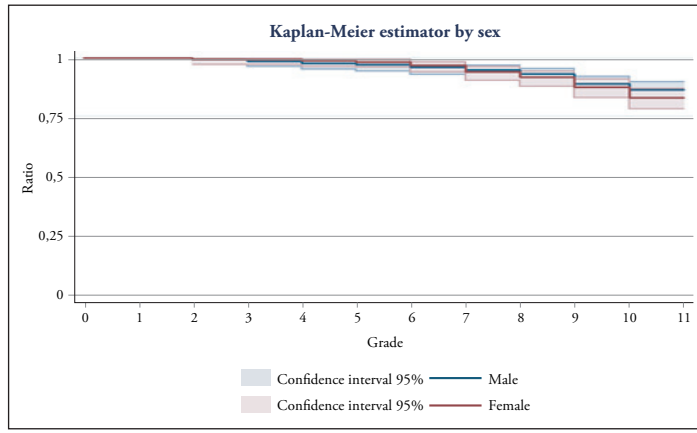
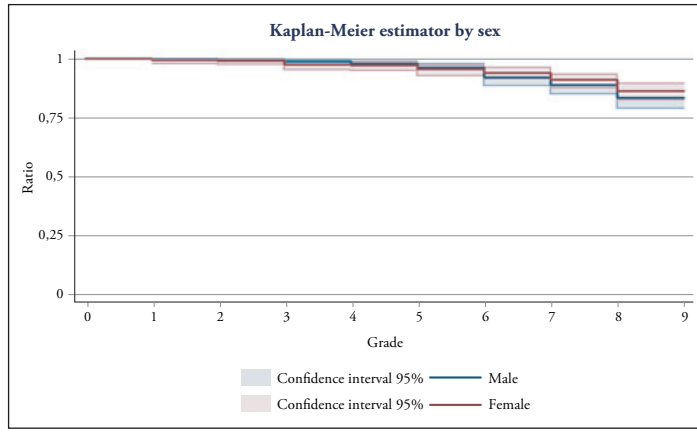


Figure 9
Kaplan-Meier estimator of dropping out by sex in Vietnam



Another interesting characteristic is school repetition, which can be associated with previous poor performance and also with being above-average age in a grade. As shown below, for Ethiopia and Peru,

Figure 10
Kaplan-Meier estimator of dropping out by repetition in Ethiopia

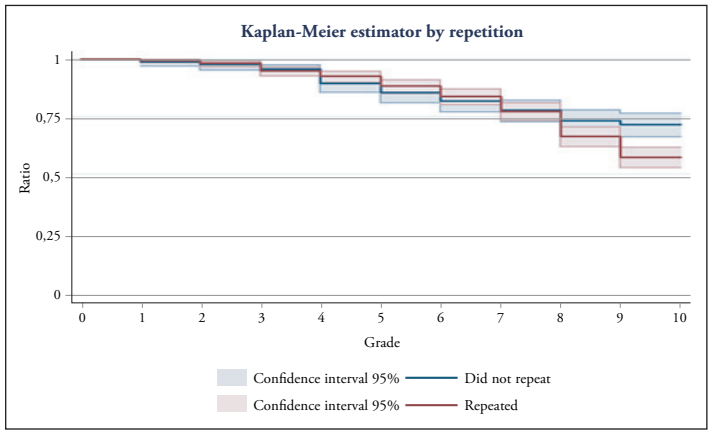
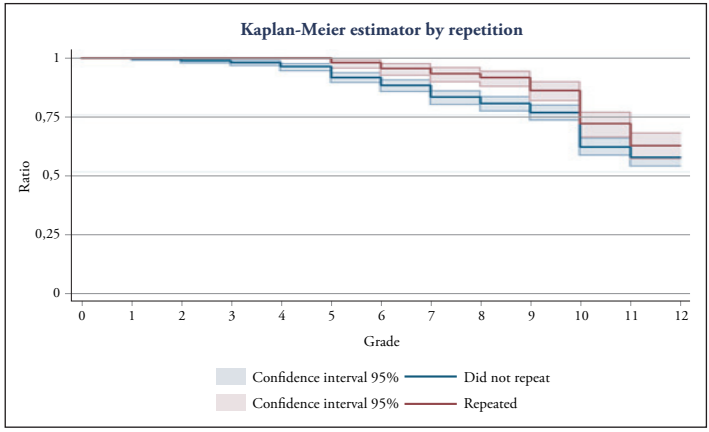


Figure 11
Kaplan-Meier estimator of dropping out by repetition in India



and in some grades in Vietnam, children who repeat a grade (primary or secondary) have a lower survival function; curiously, the opposite is found in India.

Figure 12
Kaplan-Meier estimator of dropping out by repetition in Peru

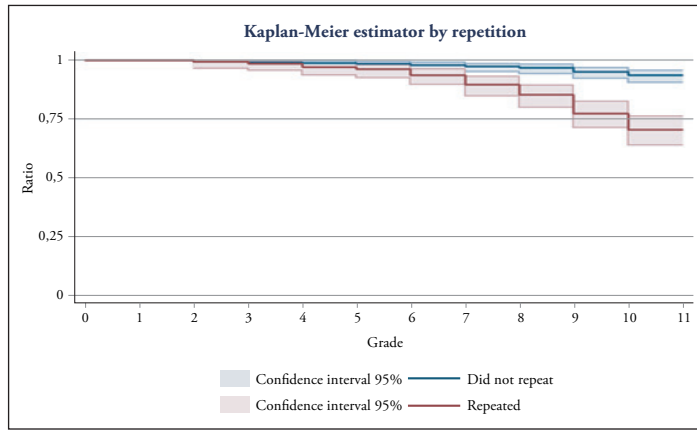
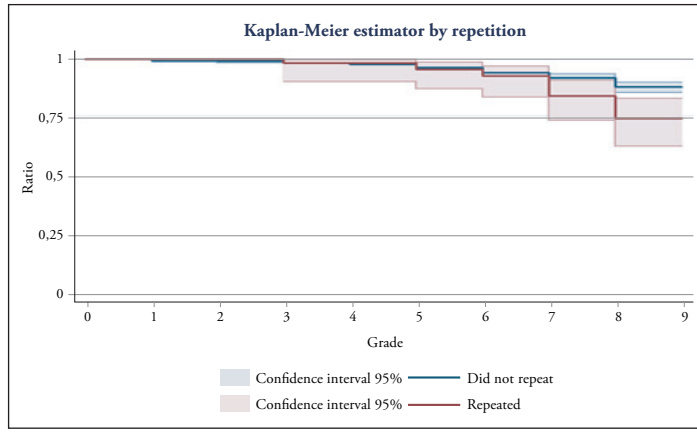


Figure 13
Kaplan-Meier estimator of dropping out by repetition in Vietnam



As shown above, one of the factors most often mentioned as the reason for deciding to leave school is paid work. As shown below, in Ethiopia, India and Vietnam, a lower survival function is found for

Figure 14
Kaplan-Meier estimator of dropping out by paid work in Ethiopia

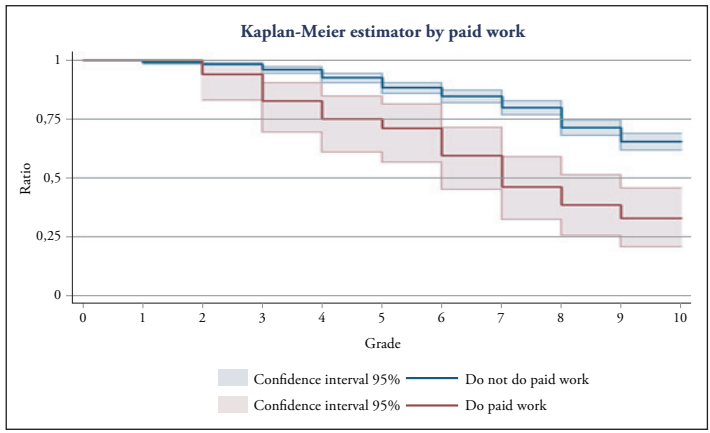
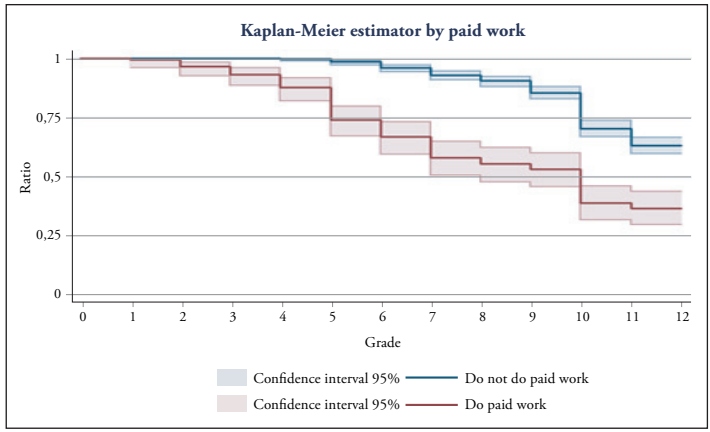


Figure 15
Kaplan-Meier estimator of dropping out by paid work in India



those who worked for pay in round 2, while the difference was not statistically significant for Peruvian children.

Figure 16
Kaplan-Meier estimator of dropping out by paid work in Peru

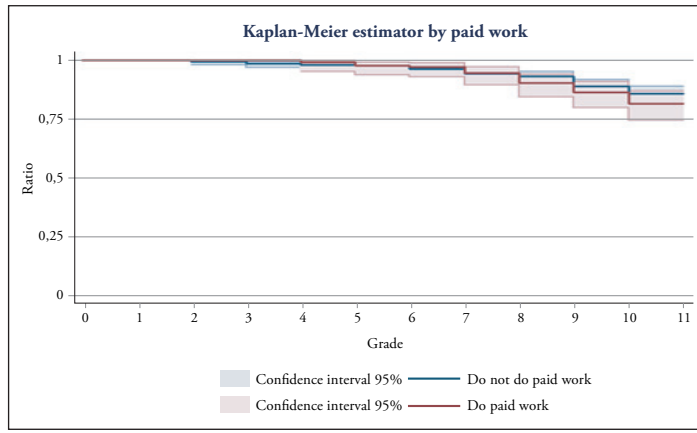
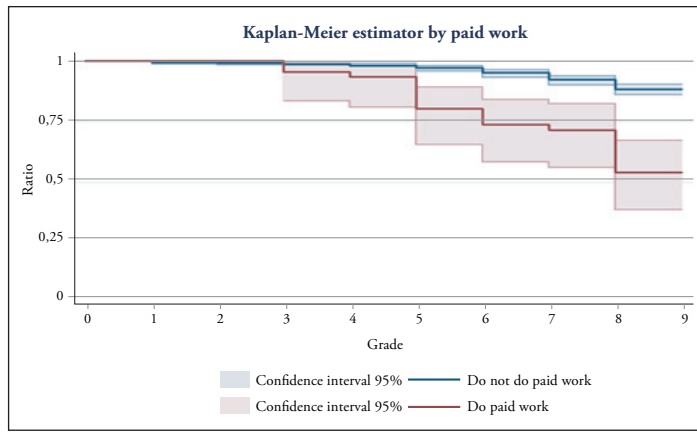


Figure 17
Kaplan-Meier estimator of dropping out by paid work in Vietnam



The next issue we analyse is differences across ethnic groups within countries. This is a relevant topic as many previous studies have shown that minority groups tend to have lower educational performance. Mother tongue is one way to approach this. As shown below, in Peru the dropout rate is higher among indigenous-speaking students. However, in the case of Vietnam, those who speak Vietnamese have a higher dropout rate. For Ethiopia, it is observed that if a child speaks Oromifa or other languages compared to Amarigna, the survival function is lower, which means that he or she is more likely to drop out. For India there are no differences.

Figure 18
Kaplan-Meier estimator of dropping out by mother tongue of child in Ethiopia

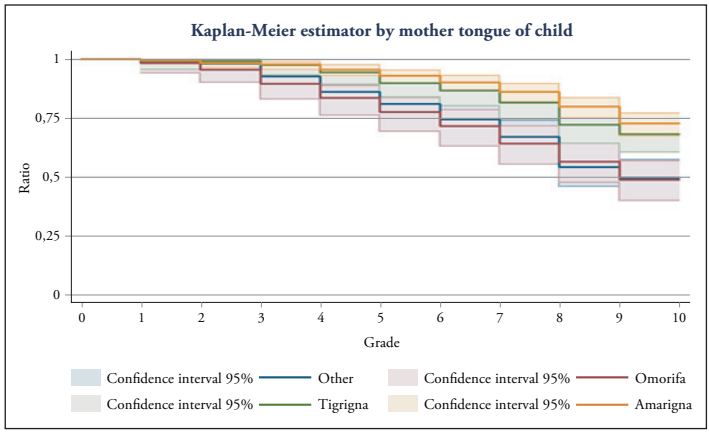


Figure 19
Kaplan-Meier estimator of dropping out by mother tongue of child in India

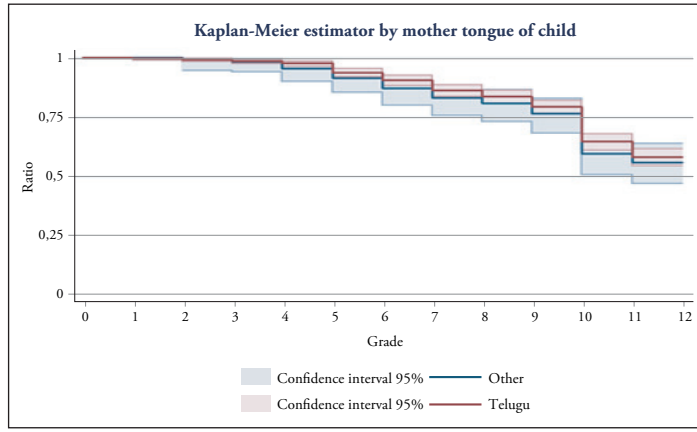


Figure 20
Kaplan-Meier estimator of dropping out by mother tongue of child in Peru

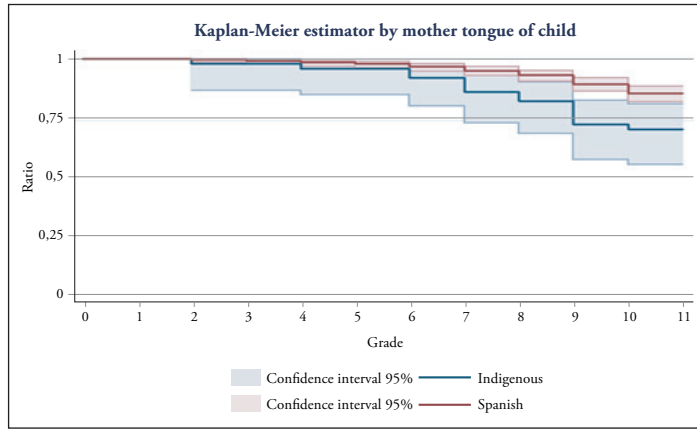
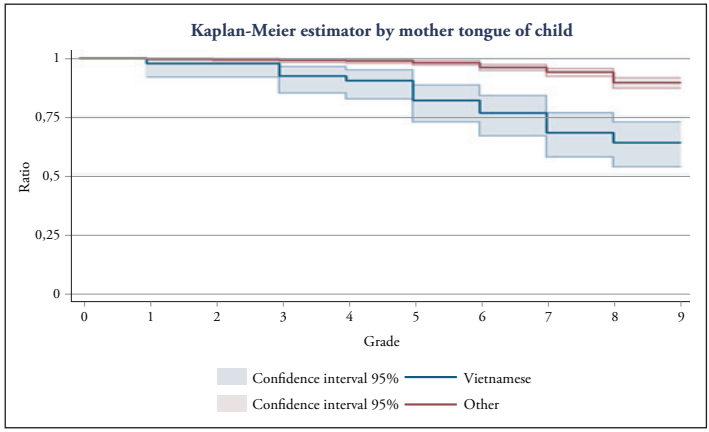


Figure 21
Kaplan-Meier estimator of dropping out by mother tongue of child in Vietnam



Finally, in regards to family characteristics, many studies suggest that the mother's education level is associated with educational performance. As shown below, in all countries, having a less educated mother decreases the survival function, and in none of the cases do the confidence intervals cross, so it can be said that this characteristic is an important predictor of dropout.

Figure 22
Kaplan-Meier estimator of dropping out by mother's education in Ethiopia

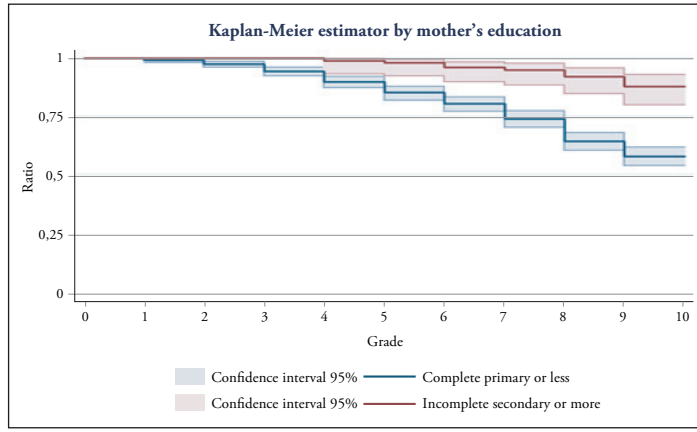


Figure 23
Kaplan-Meier estimator of dropping out by mother's education in India

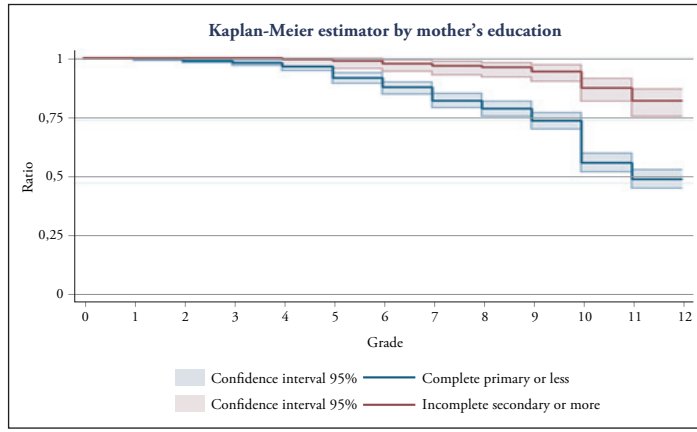


Figure 24
Kaplan-Meier estimator of dropping out by mother's education in Peru

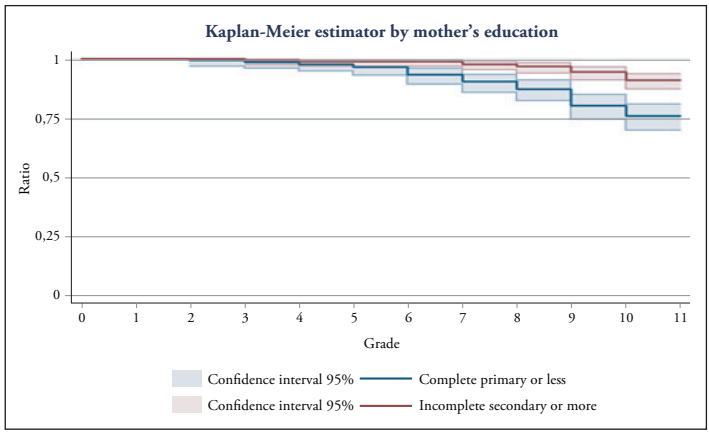
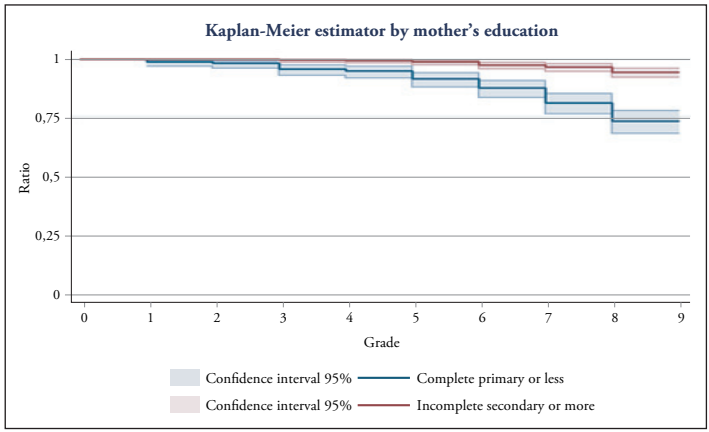


Figure 25
Kaplan-Meier estimator of dropping out by mother's education in Vietnam



The results by caste in India are presented in Appendix B; overall, we did not find significant differences in survival functions among castes.

4.4. Predictors of school dropout

The above analyses are descriptive in that they associate dropping out with specific variables at given points in time. Below we present the results of Cox regresion for survival analysis, where we show the significance of each one once it is included simultaneously with all the others. Table 8 indicates the hazard ratio, while the appendix F shows the coefficients and signs of the variables. Mother's education level in round 2 is significant and negative in Ethiopia, India and Vietnam. This indicates that having a mother with a higher education level reduces a child's risk of dropping out of school.

As expected, given previous studies, the wealth of the family in round 1 (when child is eight years old) is a significant predictor of the child's dropping out of school, although it is not statistically significant for Peru. At the same time, this does not mean that the wealth of the family is not significant in this country. A large portion of the variability of this variable in captured in the scores of children's abilities, which is captured in the tests we administered: Early skills, as measured by the PPVT in round 2 (at 12 years of age) is a significant predictor in all cases. Being a male increases the chance of dropping out, but only in Ethiopia and Vietnam. Having paid work in round 2 is associated with dropping out, but only in Ethiopia and Vietnam. The differences by mother tongue are only significant for Peru, where indigenous students show lower performance.

Another variable that is significant across the four countries is educational aspirations in round 2. The children who said that they

Table 8
Proportional hazards model (Cox) by country

	Ethiopia		India		Peru		Vietnam	
Mother's education (round 2): Incomplete secondary or higher	0,43	**	0,55	***	0,84		0,55	***
Wealth index round 1	0,05	***	0,36	**	0,45		0,03	***
Number of siblings round 1	0,98		1,05		1,08		1,02	
Male	1,96	***	0,86		0,72		1,50	*
Has paid work in round 2	2,24	***	1,04		0,99		1,87	**
Educational aspirations round 2: Higher education or more	0,72	***	0,54	***	0,35	***	0,50	**
Repeated a grade	1,31	*	0,97		3,63	***	1,47	
Mother tongue of child: Spanish (Peru), Telugu (India), Vietnamese (Vietnam)			0,97		0,38	**	1,42	
Mother tongue of child: Base Other (Ethiopia)								
Oromifa	1,94							
Tigrigna	0,70							
Amarigna	0,59	*						
Height-for-age z-score round 1	0,90		1,07		0,88		1,08	
PPVT z-score round 2	0,79	***	0,74	***	0,68	**	0,68	***
Castes round 1 (India): Base Scheduled Castes								
Scheduled Tribes			0,83					
Backward Classes			1,12					
Other Castes			0,99					

	Ethiopia	India		Peru		Vietnam	
Region of residence round 1: Base Region 1							
Region 2		1,64	**	0,27	***	1,23	
Region 3		1,22		0,66		3,38	***
Region 4						1,11	
Observations	620	770		506		738	

*** p<0.01, ** p<0.05, * p<0.1. In Ethiopia, region was not included because it was highly correlated with the mother tongue of the child. In India region 1 is Coastal Andhra, region 2 is Rayalaseema and region 3 is Telangana. In Peru region 1 is Coast, region 2 Mountain and region 3 Jungle. In Vietnam region 1 is Northern Uplands, region 2 is Red River Delta, region 3 is Central Coastal and region 4 is Mekong River Delta. Cluster-controlled regressions. PPVT z-score was corrected by language.

expected to continue studying until higher education had lower chances of dropping out, when all other variables are controlled. This may be interpreted as a motivation variable, where these children and their families place a high value on education. Also common across countries is that there are significant differences across regions. This would call for an intervention that targets these regions, the nature of which cannot be specified with the data we have.

5. DISCUSSION

This paper contributes to the literature an explanation of when school dropout occurs in developing countries, which reasons are reported for it and what the main predictors are. We performed a comparative analysis across Ethiopia, India, Peru and Vietnam.

Our analyses show that children in Ethiopia drop out of school more often than in the other countries and that they do so earlier; however, many students in India, who have to continue until grade 12, drop out of school during the last two years of secondary. Dropping out of school is less common in Peru and Vietnam.

Our results also show that children who drop out of school sometimes come back at some point; some of them remain in school until they finish secondary, but some drop out of school again. The reasons provided by children across the four countries for dropping out of school often seem to be related to poverty (a need to work, for example), though also to family chores. They are sometimes biased for gender reasons in India (Singh & Mukherjee, 2018). This is related to the "pull out" category reported by Singh and Mukherjee (2018) mentioned above. As they did, we also found reasons in the pushed-out category—for example, the need to perform at a certain level in school is also argued by some children as the reason for dropping out. Our contribution beyond the paper presented by these authors is the detailed information per round and country that we present in the appendix, which could be used for preparing policies for specific

age levels. However, dropping out is not only an individual or even a family issue, but it is also related to or likely influenced by the characteristics of the school; the role of other social support programs could also be important for keeping children in school, as suggested by Woldehanna and Hagos (2015). As such, as suggested before, the pull, push and opt-out categories are probably linked to each other.

Regarding the main drivers of dropping out, it seems that some variables are indeed relevant for policy considerations: the wealth level of the family, the mother's education level and the skills shown by children at early ages. More surprising, perhaps, is the fact that for all countries, the educational aspirations of the child seem to be a very relevant driver of performance. This may be explained by subjective family factors, linked to how much they see education as a road to progress for the students and their relatives. While many results of this study could be found in reviews done of industrialized countries (e.g. Rumberger and Ah Lim, 2008), the weight of this variable may be particularly important for developing countries. However, educational aspirations are also linked to the wealth of the family and parental education level, and thus this variable may be capturing a variety of processes. This seems to be a relevant topic for future qualitative studies.

As expected, children who drop out of school in earlier grades perform lower on a mathematics test at 19 years of age. While it is difficult to differentiate how much of this lower performance is due to not attending school and how much to the other socioeconomic characteristics listed above, the fact remains that these children lack an important credential at this age (a secondary school diploma) and show lower skills compared to their more fortunate peers—all of which can make their search for a well-paying job more difficult.

While describing each country's programs to prevent school dropout or to bring back children who drop out is beyond the purpose of

this paper, the above results suggest that this condition may be predicted several years in advance. Thus, targeting children that show one or more of these characteristics would seem to be a good way forward. These include living in a region with a high dropout rate, poor families, or students who show low performance at an early age, or do not seem to be motivated to continue their education. However, in certain countries or regions within countries there would be a need to target some specific groups, such as boys in Ethiopia and Vietnam, indigenous children in Peru, and children who have repeated a grade in Ethiopia and particularly in Peru. Interventions, it would seem, need to combine improving the quality of schooling by making them more flexible to attend to the needs of low performers, with developing programs in other areas that target specific needs of individual children and their families. The aim of all these efforts would be that all children complete at least secondary education, in line with current goals such as the SDGs previously mentioned.

The above results should be interpreted not as cause and effect, but rather as associations of a variety of predictors over time and the probability of dropping out. Still, as mentioned above, the analyses presented are relevant for identifying populations at risk. Regarding the limitations of the study, the inclusion of characteristics of schools and communities in the analyses, as well as the participation of children in social programs, would likely capture more of the variance of the dependent variable. Also, going more in-depth to understand the reasons why children drop out of school and the consequences this has in their lives would be a relevant topic for further research, to contribute both to an understanding in this area and to the development of policies and programs. This would mean interviewing children who have dropped out of school, to learn about their reasons, experiences and aspirations.

There are international programs that seek to prevent dropout or reintegrate students who have left school. Regarding prevention programs in developing countries, school vouchers have been tested in Colombia and Chile. These consisted of subsidizing students from vulnerable contexts, including poor children. Evaluations of these programs found that they increased secondary completion rates in both countries (Bravo, Mukhopadhyay and Todd, 2008; Angrist, Bettinger, & Kremer, 2006). In addition, conditional monetary transfers have been implemented. For example, countries such as Mexico and Peru have created the Oportunidades (formerly Progresa) and Juntos programs, respectively. In both cases, membership in the program has been found to reduce school dropout rates (Ministerio de Economía y Finanzas, 2017; Behrman, Sengupta & Todd, 2005). This would be related to the fact that a condition of such transfers is educational enrolment and school attendance.

There are more programs that seek to prevent school dropouts such as the "Beca de Apoyo a la Retención Escolar" or the "Subvención Pro Retención" in Chile, the "Beca Salario" program in a state of Mexico, among others. For these initiatives in Chile, project design evaluations and reports have been carried out, but they do not have impact evaluations to estimate the causal effect on school dropout (Salas, Ormanzábal, & Crespo, 2015; Frías, Díaz, Maripangui, & Ramaciotti, 2018). For Mexico, in the state of Morelos, it was found that this scholarship had positive effects on school retention for students in the most critical conditions (Cabrera & others, 2018). Another program that has been successful in increasing school attendance rates and thereby reducing dropout is school meals. In Peru and India, this program has had a positive and significant effect on reducing school dropout in rural areas (Cueto & Chinen, 2001; Afridi, 2011).

Regarding programs that have the purpose of reintegrating a student who previously dropped out of the educational system, there are

examples such as the "Programa de Apoyo a Estudiantes" created in 2014 in Argentina, "Siempre es momento para Aprender" in Ecuador, and "Uruguay estudia" in Uruguay, among others. However, most of these initiatives have not been rigorously evaluated, so their impact is unknown (Sucre, 2016).

As shown above, there are multiple programs that seek to prevent dropouts or to reintegrate students who have left school. However, many of these programs do not have an impact evaluation that would allow us to know the effect of such programs and to be able to make decisions based on evidence. The educational system has a fundamental role in the prevention of dropouts, and links between school and home seem necessary in all cases. However, as our study and the literature in general suggests, such programs would require taking into consideration individual, family and community characteristics, including poverty, as well as the characteristics of the school. In this way they can strengthen their role as caring environments for children, particularly those who are at risk of dropping out.

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Table A.1
Reasons why the child does not go to school - Ethiopia

	n	%
Main reasons in round 1		
Needed to help family	84	30,4
School too far	68	24,6
Fees too expensive	36	13,0
Uniform/books too expensive	16	5,8
Child banned from school	7	2,5
Child plays truant/refuses	7	2,5
Fear of teachers/bullies	5	1,8
Disability	5	1,8
Transport too expensive	3	1,1
Quality of school bad	2	0,7
Other	43	15,6
Total	276	100,0
Main reasons in round 2		
Fees will be too expensive	13	37,1
May be banned for failure to achieve necessary grades	4	11,4
Truancy, lack of interest	3	8,6
Marriage	3	8,6
Shoes/clothes for school will be too expensive	3	8,6
Disability/illness	2	5,7
Will become unsafe to travel to school	1	2,9
Books and other supplies will be too expensive	1	2,9
Transport will be too expensive	1	2,9
Will need to do paid work to earn money	1	2,9
Will need to stay home for domestic/agricultural work	1	2,9
Family member may be ill	1	2,9
Other	1	2,9
Total	35	100,0

	n	%
Main reasons in round 3		
Needed for domestic or agricultural work or family business	19	24,1
Had to work to earn money	11	13,9
Illness, injury	7	8,9
Truancy, child did not want to go	5	6,3
Can't understand the content of lessons	4	5,1
Family issues	4	5,1
Family member ill/disabled/elderly	4	5,1
Books or other supplies too expensive	4	5,1
Shoes/clothes/uniform for school too expensive	4	5,1
Schooling is not useful for getting a job later in life	2	2,5
Pregnancy/fatherhood	2	2,5
Not safe to travel to school	1	1,3
Poor treatment/abuse from teachers/principal	1	1,3
Banned from school for behaviour reasons	1	1,3
Banned from school due to extensive absence	1	1,3
Fees too expensive	1	1,3
Other	8	10,1
Total	79	100,0

Table A.2
Reasons why the child does not go to school - India

	n	%
Main reasons in round 1		
Needed to help family	5	38,5
Fees too expensive	5	38,5
Uniform/books too expensive	3	23,1
Total	13	100,0
Main reasons in round 2		
Will need to stay home for domestic/agricultural work	18	26,1
Truancy, lack of interest	12	17,4
Will need to work to earn money	8	11,6
Will need to stay home to look after siblings	4	5,8
Fees will be too expensive	4	5,8
Marriage	3	4,3
Disability/illness	3	4,3
Lack of transport	2	2,9
No need for schooling for future job	2	2,9
May move further from school	2	2,9

	n	%
Books and other supplies will be too expensive	2	2,9
May be banned for failure to achieve necessary grades	1	1,4
Bullying from peers	1	1,4
May be banned for behaviour reasons	1	1,4
Family member may be ill	1	1,4
Other	5	7,2
Total	69	100,0
Main reasons in round 3		
Truancy, child did not want to go, not interested	30	16,0
Had to work to earn money	28	14,9
Needed for domestic and/or agricultural work at home	23	12,2
Banned from school for failure to achieve necessary grade/level	10	5,3
Illness, injury	8	4,3
Migration with parents	8	4,3
Family member ill/disabled/elderly	7	3,7
Fees too expensive	6	3,2
Lack of transport	5	2,7
Family issues	5	2,7
Not safe to travel to school	4	2,1
Bullying/abuse from peers	3	1,6
Banned from school due to extensive absence	2	1,1
Festivals	2	1,1
Books or other supplies too expensive	2	1,1
Poor treatment/abuse from teachers/principal	1	0,5
Needed to stay home to look after younger children	1	0,5
Shoes/clothes/uniform for school too expensive	1	0,5
Transport too expensive	1	0,5
Other	41	21,8
Total	188	100,0

Table A.3
Reasons why the child does not go to school - Peru

	n	%
Main reasons in round 1		
School too far	1	25,0
Other	3	75,0
Total	4	100,0
Main reasons in round 2		
School fees are high	11	47,8
Could not afford school (household had no money)	8	34,8

	n	%
School materials too expensive	2	8,7
Bullying from schoolmates	1	4,3
Marriage	1	4,3
Total	23	100,0
Main reasons in round 3		
Truancy/child did not want to go/not interested/prefer to play	10	26,3
Had to work to earn money	7	18,4
Fees too expensive	5	13,2
Pregnancy/fatherhood	3	7,9
Schooling is of low quality	2	5,3
Illness/injury	2	5,3
Banned from school for behaviour reasons	2	5,3
Bullying/abuse from peers	1	2,6
Can't understand the content of lessons/can't learn well	1	2,6
Banned from school due to extensive absence	1	2,6
Books and/or other supplies too expensive	1	2,6
Transport too expensive/lack of transport	1	2,6
Family issues	1	2,6
Needed to stay home to look after younger children	1	2,6
Total	38	100,0

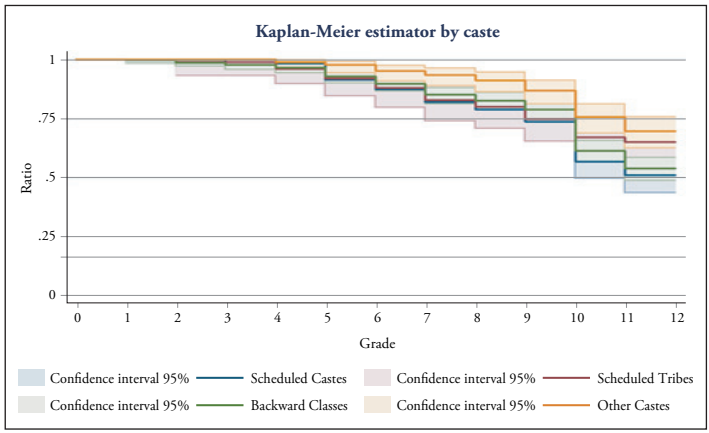
Table A.4
Reasons why the child does not go to school - Vietnam

	n	%
Main reasons in round 1		
Fear of teachers/bullies	2	25
School too far	1	12,5
Needed to help family	1	12,5
Uniform/books too expensive	1	12,5
Other	3	37,5
Total	8	100,0
Main reasons in round 2		
May be banned for failure to achieve necessary grades	74	40,7
Fees will be too expensive	17	9,3
Will need to work to earn money	10	5,5
Truancy, lack of interest	9	4,9
May be banned for behaviour reasons	6	3,3
May move further from school	5	2,7
Disability/illness	3	1,6
May be banned due to extensive absence	2	1,1

	n	%
Books and other supplies will be too expensive	2	1,1
Transport will be too expensive	2	1,1
Will become unsafe to travel to school	1	0,5
Lack of transport	1	0,5
Quality of education may be poor	1	0,5
Quality of care may be poor	1	0,5
Bullying from peers	1	0,5
Family member may be ill	1	0,5
Shoes/clothes for school will be too expensive	1	0,5
Other	45	24,7
Total	182	100,0
Main reasons in round 3		
Truancy/child did not want to do/not interested/prefer to play	51	30,4
Fees too expensive	22	13,1
Needed for domestic and/or agricultural work or family business at home	14	8,3
Had to work to earn money	14	8,3
Can't understand the content of lessons/can't learn well	5	3,0
Illness, injury	5	3,0
Bullying/abuse from peers	4	2,4
Banned from school for failure to achieve necessary grade/level at school	4	2,4
Not safe to travel to school	3	1,8
Transport too expensive/lack of transport	3	1,8
Family issues	2	1,2
Books and/or other supplies too expensive	2	1,2
Banned from school for behaviour reasons	1	0,6
Family member ill/disabled/elderly	1	0,6
Needed to stay home to look after younger children	1	0,6
Other	36	21,4
Total	168	100,0

Appendix B

Figure B.1
Kaplan Meier estimator by caste - India



Appendix C

Table C.1
Family characteristics - Ethiopia

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean
Wealth index round 1	435	0,26	55	0,22	283	0,13	773	0,21
Wealth index round 2	434	0,34	56	0,30	283	0,23	773	0,30
Housing quality index round 1	435	0,29	56	0,24	283	0,17	774	0,24
Housing quality index round 2	434	0,35	56	0,34	283	0,23	773	0,31
Consumer durables index round 1	435	0,13	55	0,12	283	0,06	773	0,11
Consumer durables index round 2	435	0,26	56	0,22	283	0,16	774	0,22
Access to services index round 1	435	0,34	56	0,29	283	0,18	774	0,28
Access to services index round 2	435	0,40	56	0,33	283	0,30	774	0,36
Mother's education round 2 (%)								
Complete primary or less	303	69,66	40	71,43	247	87,28	590	76,23
Incomplete secondary or more	79	18,16	10	17,86	12	4,24	101	13,05
Missing	53	12,18	6	10,71	24	8,48	83	10,72

	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean
Father's education round 2 (%)								
Complete primary or less	214	49,20	34	60,71	174	61,48	422	54,52
Incomplete secondary or more	91	20,92	10	17,86	29	10,25	130	16,80
Missing	130	29,89	12	21,43	80	28,27	222	28,68
Number of siblings in round 1	435	3,06	56	3,18	283	3,46	774	3,22
Number of siblings in round 2	435	3,30	56	3,48	283	3,76	774	3,48
Total	435	100,00	56	100,00	283	100,00	774	100,00

Table C.2
Child characteristics – Ethiopia

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Gender (%)								
Male	201	46,2	33	58,9	177	62,5	411	53,1
Female	234	53,8	23	41,1	106	37,5	363	46,9
Paid work in round 1 (%)								
No	398	91,5	54	96,4	250	88,3	702	90,7
Yes	37	8,5	2	3,6	31	11	70	9,0
Missing	0	0	0	0	2	0,7	2	0,3
Paid work in round 2 (%)								
No	420	96,6	54	96,4	248	87,6	722	93,3
Yes	15	3,4	2	3,6	35	12,4	52	6,7
Educational aspirations in round 2 (%)								
Incomplete higher education or less	97	22,3	10	17,9	89	31,4	196	25,3
Complete higher education or more	330	75,9	44	78,6	167	59	541	69,9
Missing	8	1,8	2	3,6	27	9,5	37	4,8
Repeated a grade (%)								
No	208	47,8	13	23,2	86	30,4	307	39,7
Yes	227	52,2	43	76,8	197	69,6	467	60,3

	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean
Region of residence round 1 (%)								
Addis Ababa	78	17,9	4	7,1	19	6,7	101	13,0
Amhara	89	20,5	19	33,9	56	19,8	164	21,2
Oromia	72	16,6	10	17,9	81	28,6	163	21,1
SNNP	97	22,3	15	26,8	77	27,2	189	24,4
Tigray	99	22,8	8	14,3	50	17,7	157	20,3
Height-for-age z-score round 1	419	-1,43	54	-1,39	276	-1,76	749	-1,5
Mother tongue of child round 2 (%)								
Other	68	15,6	9	16,1	76	26,9	153	19,8
Oromifa	57	13,1	9	16,1	68	24	134	17,3
Tigrigna	101	23,2	8	14,3	50	17,7	159	20,5
Amarigna	209	48	30	53,6	89	31,4	328	42,4
Total	435	100	56	100	283	100	774	100

Table C.3
Performance in tests – Ethiopia

	Never left school			Left school, came back and finished			Left school, came back and dropped out again / Left school and did not return			Total		
	Mean	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**
Ravens round 1	0,04	-0,17	139	0,37	0,43	10	-0,36	-0,48	27	0,00	-0,17	176
PPVT z-score round 2	0,20	0,22	423	-0,15	-0,46	55	-0,28	-0,33	276	0,00	-0,05	754
Math z-score round 2	0,33	0,47	429	0,06	0,06	55	-0,53	-0,75	271	0,00	0,06	755
PPVT z-score round 3	0,22	0,55	222	-0,17	0,07	31	-0,44	-0,39	97	0,00	0,37	350
Cloze z-score round 3	0,33	0,05	385	-0,03	-0,38	47	-0,56	-0,80	228	0,00	-0,38	660
Math z-score round 3	0,38	0,18	435	-0,14	-0,46	56	-0,56	-0,67	282	0,00	-0,24	773
Math z-score round 4	0,36	0,44	431	0,19	0,19	56	-0,67	-0,73	250	0,00	0,11	737

Note: PPVT in round 2 and round 3 were corrected by language

Table C.4
Family characteristics – India

	Never left school		Left school, came back and finished		Left school, came back and dropped-out again / Left school and did not return		Total	
	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean
Wealth index round 1	468	0,46	56	0,39	376	0,34	900	0,40
Wealth index round 2	468	0,52	56	0,42	376	0,40	900	0,47
Housing quality index round 1	468	0,55	56	0,45	376	0,42	900	0,49
Housing quality index round 2	468	0,61	56	0,49	376	0,50	900	0,55
Consumer durables index round 1	468	0,22	56	0,16	376	0,13	900	0,18
Consumer durables index round 2	468	0,30	56	0,21	376	0,16	900	0,23
Access to services index round 1	468	0,60	56	0,56	376	0,47	900	0,55
Access to services index round 2	468	0,67	56	0,57	376	0,54	900	0,61
Mother's education round 2 (%)								
Complete primary or less	308	65,81	40	71,43	323	85,90	671	74,56
Incomplete secondary or more	147	31,41	14	25,00	33	8,78	194	21,56
Missing	13	2,78	2	3,57	20	5,32	35	3,89
Father's education round 2 (%)								
Complete primary or less	208	44,44	34	60,71	247	65,69	489	54,33
Incomplete secondary or more	227	48,50	15	26,79	81	21,54	323	35,89
Missing	33	7,05	7	12,50	48	12,77	88	9,78
Number of siblings in round 1	468	1,70	56	1,96	376	1,92	900	1,81
Number of siblings in round 2	468	1,69	56	2,07	376	2,00	900	1,84
Total	468	100,00	56	100,00	376	100,00	900	100,00

Table C.5
Child characteristics – India

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Gender (%)								
Male	244	52,1	32	57,1	167	44,4	443	49,2
Female	224	47,9	24	42,9	209	55,6	457	50,8
Paid work in round 1 (%)								
No	444	94,9	49	87,5	348	92,6	841	93,4
Yes	23	4,9	7	12,5	28	7,4	58	6,4
Missing	1	0,2	0	0	0	0	1	0,1
Paid work in round 2 (%)								
No	413	88,2	43	76,8	261	69,4	717	79,7
Yes	55	11,8	13	23,2	115	30,6	183	20,3
Educational aspirations in round 2 (%)								
Incomplete higher education or less	61	13	15	26,8	115	30,6	191	21,2
Complete higher education or more	406	86,8	38	67,9	178	47,3	622	69,1
Missing	1	0,2	3	5,4	83	22,1	87	9,7
Repeated a grade (%)								
No	334	71,4	22	39,3	272	72,3	628	69,8
Yes	134	28,6	34	60,7	104	27,7	272	30,2

	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean
Region of residence round 1 (%)								
Coastal Andhra	194	41,5	26	46,4	101	26,9	321	35,7
Rayalaseema	121	25,9	9	16,1	129	34,3	259	28,8
Telangana	153	32,7	21	37,5	146	38,8	320	35,6
Height-for-age z-score round 1 (mean)	468	-1,5	56	-1,6	376	-1,6	900	-1,6
Mother tongue of child round 2 (%)								
Other	64	13,7	11	19,6	58	15,4	133	14,8
Telugu	404	86,3	45	80,4	318	84,6	767	85,2
Castes round 1 (%)								
Scheduled Castes	88	18,8	11	19,6	93	24,7	192	21,3
Scheduled Tribes	51	10,9	15	26,8	35	9,3	101	11,2
Backward Classes	205	43,8	23	41,1	192	51,1	420	46,7
Other Castes	124	26,5	7	12,5	56	14,9	187	20,8
Total	468	100	56	100	376	100	900	100

Table C.6
Performance in tests – India

	Never left school			Left school, came back and finished			Left school, came back and dropped out again / Left school and did not return			Total		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Ravens round 1	0,12	0,20	465	-0,09	0,01	56	-0,14	-0,18	374	0,00	0,01	895
PPVT z-score round 2	0,30	0,51	464	0,32	0,64	56	-0,43	-0,27	362	0,00	0,21	882
Math z-score round 2	0,36	0,54	466	0,28	0,54	56	-0,49	-0,37	371	0,00	0,09	893
PPVT z-score round 3	0,40	0,58	403	0,03	0,04	51	-0,46	-0,46	354	0,00	0,12	808
Cloze z-score round 3	0,47	0,60	399	0,24	0,20	50	-0,56	-0,84	354	0,00	-0,04	803
Math z-score round 3	0,43	0,48	468	0,00	0,02	56	-0,54	-0,76	376	0,00	-0,14	900
Math z-score round 4	0,46	0,54	467	-0,04	-0,09	56	-0,64	-0,72	332	0,00	0,12	855

Note: PPVT in round 2 and round 3 were corrected by language

Table C.7
Family characteristics – Peru

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean
Wealth index round 1	443	0,52	22	0,38	84	0,35	549	0,49
Wealth index round 2	448	0,54	22	0,42	84	0,38	554	0,51
Housing quality index round 1	445	0,48	22	0,37	84	0,31	551	0,45
Housing quality index round 2	448	0,44	22	0,35	84	0,28	554	0,41
Consumer durables index round 1	447	0,35	22	0,24	84	0,22	553	0,33
Consumer durables index round 2	448	0,43	22	0,30	84	0,27	554	0,40
Access to services index round 1	447	0,72	22	0,55	84	0,52	553	0,68
Access to services index round 2	448	0,76	22	0,60	84	0,60	554	0,73
Mother's education round 2 (%)								
Complete primary or less	167	37,28	13	59,09	55	65,48	235	42,42
Incomplete secondary or more	266	59,38	7	31,82	26	30,95	299	53,97
Missing	15	3,35	2	9,09	3	3,57	20	3,61
Father's education round 2 (%)								
Complete primary or less	117	26,12	9	40,91	36	42,86	162	29,24
Incomplete secondary or more	228	50,89	8	36,36	26	30,95	262	47,29
Missing	103	22,99	5	22,73	22	26,19	130	23,47
Number of siblings in round 1	448	1,72	22	2,4	84	2,5	554	1,9
Number of siblings in round 2	448	1,96	22	3,0	84	3,0	554	2,2
Total	448	100,00	22	100,0	84	100,0	554	100,0

Table C.8
Child characteristics – Peru

	Never left school		Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Gender (%)								
Male	231	51,6	16	72,7	39	46,4	286	51,6
Female	217	48,4	6	27,3	45	53,6	268	48,4
Paid work in round 1 (%)								
No	387	86,4	19	86,4	60	71,4	466	84,1
Yes	59	13,2	3	13,6	24	28,6	86	15,5
Missing	2.0	0,4	0	0,0	0.0	0,0	2.0	0,4
Paid work in round 2 (%)								
No	336	75,0	13	59,1	57	67,9	406	73,3
Yes	112	25,0	9	40,9	27	32,1	148	26,7
Educational aspirations round 2 (%)								
Incomplete higher education or less	28	6,3	2	9,1	19	22,6	49	8,8
Complete higher education or more	418	93,3	19	86,4	59	70,2	496	89,5
Missing	2	0,4	1	4,5	6	7,1	9	1,6
Repeated a grade (%)								
No	309	69,0	8	36,4	21	25,0	338	61,0
Yes	139	31,0	14	63,6	63	75,0	216	39,0

	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean
Region of residence round 1 (%)								
Coast	184	41,1	8	36,4	38	45,2	230	41,5
Mountain	195	43,5	11	50,0	32	38,1	238	43,0
Jungle	69	15,4	3	13,6	14	16,7	86	15,5
Height-for-age z-score round 1	444	-1,3	22	-1,8	84	-1,6	550	-1,4
Mother tongue of child round 2 (%)								
Indigenous	35	7,8	3	13,6	15	17,9	53	9,6
Spanish	413	92,2	19	86,4	69	82,1	501	90,4
Total	448	100,0	22	100,0	84	100,0	554	100,0

Table C.9
Performance in tests – Peru

	Never left school			Left school, came back and finished			Left school, came back and dropped out again / Left school and did not return			Total		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Ravens round 1	0,12	0,07	446	-0,34	-0,37	22	-0,55	-0,69	84	0,00	-0,12	552
PPVT z-score round 2	0,13	0,13	441	-0,09	-0,36	22	-0,70	-0,62	81	0,00	-0,05	544
Math z-score round 2	0,14	0,09	446	-0,14	0,09	22	-0,71	-0,48	82	0,00	0,09	550
PPVT z-score round 3	0,16	0,26	429	-0,32	-0,21	21	-0,79	-0,80	76	0,00	0,15	526
Cloze z-score round 3	0,16	0,37	441	-0,30	-0,08	22	-0,80	-0,71	79	0,00	0,19	542
Math z-score round 3	0,17	0,10	444	-0,26	-0,25	22	-0,83	-0,95	83	0,00	0,10	549
Math z-score round 4	0,19	0,34	441	-0,44	-0,56	22	-0,96	-0,74	76	0,00	0,16	539

Note: PPVT in round 2 and round 3 were corrected by language

Table C.10
Family characteristics – Vietnam

	Never left / Left school, came back and finished		Left school and did not return		Total	
	Freq.	Mean	Freq.	Mean	Freq.	Mean
Wealth index round 1	706	0,47	109	0,29	815	0,44
Wealth index round 2	697	0,53	109	0,38	806	0,51
Housing quality index round 1	706	0,56	109	0,36	815	0,54
Housing quality index round 2	705	0,64	109	0,49	814	0,62
Consumer durables index round 1	707	0,39	109	0,24	816	0,37
Consumer durables index round 2	700	0,50	109	0,31	809	0,47
Access to services index round 1	707	0,45	109	0,27	816	0,42
Access to services index round 2	706	0,47	109	0,34	815	0,45
Mother's education round 2 (%)						
Complete primary or less	218	30,83	80	73,39	298	36,52
Incomplete secondary or more	476	67,33	28	25,69	504	61,76
Missing	13	1,84	1	0,92	14	1,72
Father's education round 2 (%)						
Complete primary or less	163	23,06	68	62,39	231	28,31
Incomplete secondary or more	511	72,28	33	30,28	544	66,67
Missing	33	4,67	8	7,34	41	5,02
Number of siblings in round 1	707	1,46	109	2,30	816	1,57
Number of siblings in round 2	707	1,60	109	2,48	816	1,72
Total	707	100,00	109	100,00	816	100,00

Table C.11
Child characteristics – Vietnam

	Never left school / Left school, came back and finished		Left school and did not return		Total	
	Freq.	**Mean**	**Freq.**	**Mean**	**Freq.**	**Mean**
Gender (%)						
Male	330	46,7	57	52,3	387	47,4
Female	377	53,3	52	47,7	429	52,6
Paid work in round 1 (%)						
No	631	89,3	92	84,4	723	88,6
Yes	75	10,6	16	14,7	91	11,2
Missing	1	0,1	1	0,9	2	0,2
Paid work in round 2 (%)						
No	680	96,2	88	80,7	768	94,1
Yes	25	3,5	21	19,3	46	5,6
Missing	2	0,3	0	0	2	0,2
Educational aspirations round 2 (%)						
Incomplete higher education or less	118	16,7	48	44	166	20,3
Complete higher education or more	585	82,7	38	34,9	623	76,3
Missing	4	0,6	23	21,1	27	3,3
Repeated a grade (%)						
No	656	92,8	91	83,5	747	91,5
Yes	51	7,2	18	16,5	69	8,5

	Freq.	Mean	Freq.	Mean	Freq.	Mean
Region of residence round 1 (%)						
Northern Uplands	142	20,1	23	21,1	165	20,2
Red River Delta	159	22,5	7	6,4	166	20,3
Central Coastal	259	36,6	51	46,8	310	38
Mekong River Delta	147	20,8	28	25,7	175	21,4
Height-for-age z-score round 1 (mean)	707	-1,4	109	-1,8	816	-1,5
Mother tongue of child round 2 (%)						
Other	60	8,5	34	31,2	94	11,5
Vietnamese	647	91,5	75	68,8	722	88,5
Total	707	100	109	100	816	100

Table C.12
Performance in tests – Vietnam

	Never left school / Left school, came back and finished			Left school and did not return			Total		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
Ravens round 1	0,02	-0,18	152	-0,28	-0,18	12	0,00	-0,18	164
PPVT z-score round 2	0,14	0,44	678	-0,95	-0,53	101	0,00	0,40	779
Math z-score round 2	0,19	0,29	703	-1,22	-1,05	108	0,00	0,29	811
PPVT z-score round 3	0,13	0,45	693	-0,90	-0,93	98	0,00	0,37	791
Cloze z-score round 3	0,14	0,40	699	-1,03	-1,22	97	0,00	0,40	796
Math z-score round 3	0,17	0,28	705	-1,10	-1,03	108	0,00	0,15	813
Math z-score round 4	0,11	0,04	698	-0,88	-1,05	85	0,00	-0,14	783

Note: PPVT in round 2 and round 3 were corrected by language

Appendix D

Table D.1
Sample used in survival analysis Ethiopia

	Never left school / Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return	
	Freq.	**Mean**	**Freq.**	**Mean**
Mother's education round 2: Incomplete secondary or more	349	0,21	46	0,22
Wealth index round 1	349	0,26	46	0,22
Number of siblings round 1	349	3,27	46	3,41
Male	349	0,49	46	0,59
Paid work in round 2	349	0,03	46	0,02
Educational aspiration round 2: Complete higher education or more	349	0,78	46	0,80
Repeated a grade	349	0,49	46	0,78
Height-for-age z-score round 1	349	-1,42	46	-1,34
PPVT z-score round 2	349	0,24	46	-0,13
Mother tongue of child round 2 (%)				
Other	66	16,71	64	28,44
Oromifa	55	13,92	56	24,89
Tigrigna	93	23,54	38	16,89
Amarigna	181	45,82	67	29,78
Total	395	100	225	100

Table D.2
Sample used in survival analysis India

	Never left school / Left school, came back and finished		Left school, came back and dropped-out again / Left school and did not return	
	Freq.	**Mean**	**Freq.**	**Mean**
Mother's education round 2: Incomplete secondary or more	501	0,32	269	0,10
Wealth index round 1	501	0,45	269	0,36
Number of siblings round 1	501	1,71	269	1,94
Male	501	0,53	269	0,46
Paid work in round 2	501	0,13	269	0,19
Educational aspiration round 2: Complete higher education or more	501	0,85	269	0,61
Repeated a grade	501	0,32	269	0,32
Height-for-age z-score r1	501	-1,52	269	-1,65
PPVT z-score r2	501	0,29	269	-0,31
Mother tongue of child round 2: Telugu	501	0,86	269	0,85
Region (%)				
Coastal Andhra	209	41,72	69	25,65
Rayalaseema	125	24,95	97	36,06
Telangana	167	33,33	103	38,29
Castes round 1 (%)				
Scheduled Castes	95	18,96	61	22,68
Scheduled Tribes	62	12,38	21	7,81
Backward Classes	217	43,31	140	52,04
Other Castes	127	25,35	47	17,47
Total	501	100	269	100

Table D.3
Sample used in survival analysis Peru

	Never left school / Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return	
	Freq.	**Mean**	**Freq.**	**Mean**
Mother's education round 2: Incomplete secondary or more	434	0,60	72	0,35
Wealth index round 1	434	0,51	72	0,36
Number of siblings round 1	434	1,77	72	2,54
Male	434	0,52	72	0,44
Paid work in round 2	434	0,25	72	0,32
Educational aspiration round 2: Complete higher education or more	434	0,94	72	0,74
Repeated a grade	434	0,32	72	0,74
Height-for-age z-score round 1	434	-1,34	72	-1,60
PPVT z-score round 2	434	0,11	72	-0,54
Mother tongue of child: Spanish	434	0,92	72	0,79
Region round 1 (%)				
Coast	174	40,09	32	44,44
Mountain	195	44,93	26	36,11
Jungle	65	14,98	14	19,44
Total	434	100	72	100

Table D.4
Sample used in survival analysis Vietnam

	Never left school / Left school, came back and finished		Left school, came back and dropped out again / Left school and did not return	
	Freq.	**Mean**	**Freq.**	**Mean**
Mother's education round 2: Incomplete secondary or more	660	0,69	78	0,27
Wealth index round 1	660	0,47	78	0,31
Number of siblings round 1	660	1,46	78	2,24
Male	660	0,45	78	0,56
Paid work in round 2	660	0,03	78	0,13
Educational aspiration round 2: Complete higher education or more	660	0,84	78	0,45
Repeated a grade	660	0,07	78	0,19
Height-for-age z-score round 1	660	-1,42	78	-1,85
PPVT z-score round 2	660	0,16	78	-0,91
Mother tongue of child: Vietnamese	660	0,92	78	0,72
Region round 1 (%)				
Northern Uplands	129	19,55	17	21,79
Red River Delta	149	22,58	4	5,13
Central Coastal	248	37,58	39	50
Mekong River Delta	134	20,3	18	23,08
Total	660	100	78	100

Appendix E

Table E.1
Correlations between independent and dependent variables – Ethiopia

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Dropout	1,00													
(2) Mother's education	-0,22***	1,00												
(3) Wealth index r1	-0,36***	0,46***	1,00											
(4) Number of siblings r1	0,08**	-0,24***	-0,22***	1,00										
(5) Male	0,17***	0,01	-0,03	0,02	1,00									
(6) Paid work in r2	0,17***	-0,07*	-0,08*	0,15***	0,06	1,00								
(7) Educational aspiration	-0,15***	0,12***	0,21***	-0,00	0,06	-0,11***	1,00							
(8) Repeated a grade	0,16***	-0,02	-0,12***	-0,01	0,01	0,06	-0,02	1,00						
(9) Mother tongue of child: Other	0,14***	-0,03	-0,22***	0,14***	0,09**	0,01	0,11**	0,11**	1,00					
(10) Mother tongue of child: Oromifa	0,14***	-0,09**	-0,19***	0,04	0,01	0,22***	-0,12***	0,02	-0,24***	1,00				
(11) Mother tongue of child: Tigrigna	-0,08*	-0,11**	0,01	0,07*	-0,06	-0,10**	-0,12***	-0,20***	-0,27***	-0,24***	1,00			
(12) Mother tongue of child: Amarigna	-0,16***	0,19***	0,32***	-0,21***	-0,03	-0,09**	0,10**	0,05	-0,42***	-0,38***	-0,42***	1,00		
(13) Height-for-age z-score r1	-0,12***	0,09**	0,19***	0,02	-0,03	0,06	0,11***	-0,06	0,00	0,03	-0,05	0,02	1,00	
(14) PPVT z-score r2	-0,22***	0,20***	0,41***	-0,06	0,06	-0,06	0,25***	-0,14***	-0,02	0,01	-0,02	0,03	0,17***	1,00

Table E.2
Correlations between independent and dependent variables – India

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Dropout	1,00								
(2) Mother's education	-0,24***	1,00							
(3) Wealth index r1	-0,22***	0,48***	1,00						
(4) Number of siblings r1	0,10**	-0,15***	-0,12***	1,00					
(5) Male	-0,07*	-0,03	-0,00	0,02	1,00				
(6) Paid work in r2	0,08**	-0,13***	-0,22***	0,16***	0,08**	1,00			
(7) Educational aspiration	-0,27***	0,19***	0,16***	-0,11***	0,12***	-0,15***	1,00		
(8) Repeated a grade	0,00	-0,04	-0,06*	0,00	-0,02	0,01	0,01	1,00	
(9) Mother tongue of child: Other	-0,02	-0,02	-0,01	-0,14***	-0,03	-0,02	0,02	0,04	1,.00
(10) Height-for-age z-score r1	-0,06	0,21***	0,19***	-0,08**	0,03	0,01	0,10***	-0,07*	-0,01
(11) PPVT z-score r2	-0,30***	0,27***	0,25***	-0,14***	0,06*	-0,16***	0,21***	0,02	0,06
(12) Region: Coastal Andhra	-0,16***	0,10**	0,01	-0,18***	-0,01	-0,16***	0,04	0,07*	0,04
(13) Region: Rayalaseema	0,12***	-0,06	0,06	-0,02	0,00	-0,22***	0,00	-0,06*	-0,07*
(14) Region: Telangana	0,05	-0,05	-0,07*	0,20***	0,02	0,36***	-0,05	-0,01	0,02
(15) Caste: Scheduled Castes	0,04	-0,16***	-0,21***	0,05	0,01	0,01	-0,01	0,06*	0,12***
(16) Caste: Scheduled Tribes	-0,07*	-0,07*	-0,16***	0,04	-0,04	0,09**	0,03	0,13***	-0,19***
(17) Caste: Backward Classes	0,08**	-0,05	0,01	-0,00	0,06	0,04	-0,09**	-0,05	0,17***
(18) Caste: Other Castes	-0,09**	0,27***	0,30***	-0,08**	-0,05	-0,13***	0,10**	-0,10***	-0,21***

	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Dropout									
(2) Mother's education									
(3) Wealth index r1									
(4) Number of siblings r1									
(5) Male									
(6) Paid work in r2									
(7) Educational aspiration									
(8) Repeated a grade									
(9) Mother tongue of child: Other									
(10) Height-for-age z-score r1	1,00								
(11) PPVT z-score r2	0,16***	1,00							
(12) Region: Coastal Andhra	0,14***	0,33***	1,00						
(13) Region: Rayalaseema	-0,14***	-0,10***	-0,48***	1,00					
(14) Region: Telangana	-0,01	-0,23***	-0,55***	-0,47***	1,00				
(15) Caste: Scheduled Castes	-0,07**	-0,13***	-0,14***	0,04	0,104***	1,00			
(16) Caste: Scheduled Tribes	-0,01	0,14***	0,26***	-0,17***	-0,11***	-0,18***	1,00		
(17) Caste: Backward Classes	0,00	-0,05	0,01	-0,06	0,04	-0,47***	-0,32***	1,00	
(18) Caste: Other Castes	0,08**	0,08**	-0,07*	0,15***	-0,07**	-0,27***	-0,19***	-0,50***	1,00

Table E.3
Correlations between independent and dependent variables – Peru

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Dropout	1.00													
(2) Mother's education	-0,18***	1,00												
(3) Wealth index r1	-0,23***	0,49***	1,00											
(4) Number of siblings r1	0,18***	-0,41***	-0,37***	1,00										
(5) Male	-0,05	0,05	0,05	0,05	1,00									
(6) Paid work in r2	0,05	-0,10**	-0,13***	0,09**	0,07	1,00								
(7) Educational aspiration	-0,26***	0,15***	0,24***	-0,17***	-0,04	-0,02	1,00							
(8) Repeated a grade	0,30***	-0,16***	-0,23***	0,17***	0,00	0,06	-0,15***	1,00						
(9) Mother tongue of child: Indigenous	-0,15***	0,36***	0,38***	-0,29***	0,04	-0,10**	0,01	-0,09**	1,00					
(10) Height-for-age z-score r1	-0,09**	0,23***	0,39***	-0,33***	-0,06	-0,04	0,11**	-0,07	0,26***	1,00				
(11) PPVT z-score r2	-0,24***	0,37***	0,53***	-0,35***	0,07	-0,04	0,28***	-0,1986	0,2345	0,3033	1,00			
(12) Region: Coast	0,03	0,25***	0,35***	-0,18***	0,02	-0,04	0,04	-0,02	0,25***	0,26***	0,24***	1,00		
(13) Region: Mountain	-0,06	-0,20***	-0,21***	0,14***	0,00	0,00	-0,05	0,07	-0,29***	-0,23***	-0,11**	-0,73***	1,00	
(14) Region: Jungle	0,04	-0,05	-0,18***	0,06	-0,03	0,05	0,02	-0,07	0,05	-0,04	-0,17***	-0,36***	-0,38***	1,00

Table E.4
Correlations between independent and dependent variables - Vietnam

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Dropout	1.00							
(2) Mother's education	-0,27***	1,00						
(3) Wealth index r1	-0,27***	0,40***	1,00					
(4) Number of siblings r1	0,21***	-0,28***	-0,18***	1,00				
(5) Male	0,07*	-0,03	0,00	-0,10**	1,00			
(6) Paid work in r2	0,15***	-0,09**	-0,11***	0,07*	-0,04	1,00		
(7) Educational aspiration	-0,30***	0,37***	0,32***	-0,20***	-0,07**	-0,07*	1,00	
(8) Repeated a grade	0,13***	-0,05	-0,09**	-0,03	-0,02	0,08**	-0,08**	1,00
(9) Mother tongue of child: Others	-0,20***	0,41***	0,44***	-0,29***	-0,03	-0,02	0,29***	-0,07*
(10) Height-for-age z-score r1	-0,14***	0,21***	0,26***	-0,24***	-0,06	-0,00	0,24***	-0,00
(11) PPVT z-score r2	-0,35***	0,38***	0,39***	-0,32***	0,02	-0,06*	0,42***	-0,12***
(12) Region: Northern Uplands	0,01	-0,13***	-0,38***	0,1***	0,00	-0,09**	-0,14***	-0,08**
(13) Region: Red River Delta	-0,13***	0,31***	0,12***	-0,09**	-0,11***	-0,04	0,16***	-0,05
(14) Region: Central Coastal	0,07**	-0,04	0,45***	0,17***	0,06*	0,08**	0,02	0,05
(15) Region: Mekong River Delta	0,02	-0,12***	-0,30***	-0,24***	0,03	0,01	-0,04	0,07**

	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Dropout							
(2) Mother's education							
(3) Wealth index r1							
(4) Number of siblings r1							
(5) Male							
(6) Paid work in r2							
(7) Educational aspiration							
(8) Repeated a grade							
(9) Mother tongue of child: Others	1,00						
(10) Height-for-age z-score r1	0,35***	1,00					
(11) PPVT z-score r2	0,42***	0,33***	1,00				
(12) Region: Northern Uplands	-0,51***	-0,24***	-0,15***	1,00			
(13) Region: Red River Delta	0,17***	0,03	0,16***	-0,25***	1,00		
(14) Region: Central Coastal	0,13***	-0,00	0,01	-0,40***	-0,41***	1,00	
(15) Region: Mekong River Delta	0,17***	0,21***	-0,03	-0,25***	-0,26***	-0,41***	1,00

Appendix F.

Table F.1
Proportional hazards model (Cox) coefficients and signs by country

	Ethiopia		India		Peru		Vietnam	
Mother's education (round 2): Incomplete secondary or higher	-0,84	**	-0,59	***	-0,17		-0,60	***
Wealth index round 1	-2,93	***	-1,02	**	-0,80		-3,59	***
Number of siblings round 1	-0,02		0,05		0,08		0,02	
Male	0,67	***	-0,15		-0,33		0,41	*
Has paid work in round 2	0,81	***	0,04		-0,01		0,63	**
Educational aspirations round 2: Higher education or more	-0,33	***	-0,62	***	-1,06	***	-0,69	**
Repeated a grade	0,27	*	-0,03		1,29	***	0,39	
Mother tongue of child: Spanish (Peru), Telugu (India), Vietnamese (Vietnam)			-0,03		-0,97	**	0,35	
Mother tongue of child: Base Other (Ethiopia)								
Oromifa	0,04							
Tigrigna	-0,36							
Amarigna	-0,52	*						
Height-for-age z-score round 1	-0,10		0,07		-0,13		0,07	
PPVT z-score round 2	-0,24	***	-0,30	***	-0,39	**	-0,38	***
Ravens z-score round 1								
Castes round 1 (India): Base Scheduled Castes								
Scheduled Tribes			-0,18					
Backward Classes			0,12					
Other Castes			-0,01					

	Ethiopia	India	Peru	Vietnam
Region of residence round 1: Base Region 1				
Region 2		0,49 **	-1,29 ***	0,21
Region 3		0,20	-0,42	1,22 ***
Region 4				0,10
Region 5				
Sample	620	770	506	738

Note: *** p<0.01, ** p<0.05, * p<0.1. In Ethiopia, region was not included because it was highly correlated with the mother tongue of child. In India region 1 is Coastal Andhra, region 2 is Rayalaseema and region 3 is Telangana. In Peru region 1 is Coast, region 2 Mountain and region 3 Jungle. In Vietnam region 1 is Northern Uplands, region 2 is Red River Delta, region 3 is Central Coastal and region 4 is Mekong River Delta. PPVT z-score was corrected by language. Cluster-controlled regressions.

Appendix G.

Variables used in the analyses

- **Mother's education (Caregiver's response in round 2):**
  1= Secondary incomplete or more
  0=Primary incomplete or less
- **Wealth index (Caregiver's response in round 1):**
  The wealth index in Round 1 is a composite score comprised of measures of housing quality, access to services, and consumer durables. Values from 0 to 1.
- **Number of siblings (Caregiver's response in round 1)**
- **Male:**
  1=Male
  0=Female
- **Paid work (Child's response in round 2)**
  1= Yes
  0=No
- **Educational aspiration (Child's response in round 2):**
  0=Incomplete higher education or less
  1=Higher education or more
- **Repeated a grade (Child's response in rounds 3, 4 and 5):**
  In primary or secondary
  1=Yes
  0=No
- **Height-for-age z-score (Anthropometry in round 1):**
  Measures stunting. The z-scores were calculated to estimate how many standard deviations the child is from the average. If it is positive, it is better than average; if it is negative, it is worse than the sample average.

- **PPVT z-score round 2:**
  Measures the child's receptive vocabulary. The z-scores were calculated to estimate how many standard deviations the child is from the average. If it is positive, it is better than average; if it is negative, it is worse than the sample average.
- **Mother tongue of child (Caregiver's response in round 1):**
  In Ethiopia: 0=Other, 1=Oromifa, 2=Tigrigna, 3=Amarigna
  In India: 1=Telugu, 0=other
  In Peru: 1=Spanish, 0=Indigenous
  In Vietnam: 1=Vietnamese, 0=other
- **Castes (Only India; Caregiver's response in round 1):**
  0= Base Scheduled Castes
  1= Scheduled Tribes
  2= Backward Classes
  3= Other Castes
- **Region of residence in round 1**

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Predictors of school dropout across Ethiopia, India, Peru and Vietnam

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In this paper we utilize the five rounds of Young Lives household surveys across four countries (Ethiopia, India, Peru and Vietnam) to study the characteristics of children who had dropped out of school by 22 years of age. While most children in the longitudinal sample go to primary school, they tend to drop out more often and earlier in Ethiopia. In India most children complete the early grades of school but drop out later, particularly in grades 11 and 12. We find that in all countries, except Vietnam, there is a considerable number of children who drop out of school but at some point return to it, either to complete secondary or drop out again. The reasons provided by children for dropping out across the countries are oftentimes related to poverty: for example, the need to work, or care or provide for family. The multivariate analysis shows that indeed in many cases the wealth level of the family at an early age predicts later dropout, as does maternal education level, students' early skills and residence in certain regions of each country. There are also some variations across countries; for example, boys are more likely to drop out of school in Ethiopia and Vietnam, and children who have repeated a grade are more likely to drop out of school in Peru. However, having high educational aspirations at early ages seems to be a protective factor against dropping out. This suggests that the value that children place on education may be an important preventative factor against dropping out. Overall, these results suggest the need to act early through education and social protection interventions to target young children who are at risk of dropping out, and then follow their trajectories, providing support as needed to specific groups and even individuals, so that all children may fulfill their right to complete at least secondary education.

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