



Education Trajectories in Ethiopia, India, Peru and Vietnam: From Early Childhood to Early Adulthood

The Sustainable Development Goals approved in 2015 include provisions around education, such as SDG 4 (United Nations Organization 2015). These are related to lifelong learning, and include both access and outcomes (learning) for all children. Monitoring to what level children reach these goals and what factors are associated with their progress is therefore an important research and policy issue. In this policy brief, we describe the educational trajectories of 12,000 children in total, across two cohorts: the Younger Cohort born around 1994 and the Older Cohort born around 2001, in Ethiopia, India, Peru and Vietnam. The data come from Young Lives household and school surveys conducted over the last 15 years. Researchers from each of these countries have produced a report on the trajectories of these children since 2002, when we first started following them (Cueto et al. 2016; Duc and Hang 2016; Singh and Mukherjee 2016; Woldehanna and Araya 2016). Below we integrate and summarise some of the main results, highlighting key messages and policy implications for each.

Our approach, based on the SDGs and other international instruments such as the UN Convention for the Rights of the Child, is that quality education is a public good and should be accessible to all children (UNESCO 2008). In order to achieve fair and inclusive education, all students should have access to quality education, regardless of the circumstances and characteristics of children, such as ethnicity, gender, poverty, among others (UNESCO 2008).

Our analysis includes equity as a key element, but goes beyond describing access and outcomes to also include the quality of school environments. Educational performance should depend on students' effort and ability and not on their educational opportunities (Field, Kuczera and Pont 2007; Opheim 2004). Finally, we consider education as a key factor in the development of individuals, communities and nations, as it increases individual's skills, employment opportunities and social mobility, and improves economic growth (OECD 2010; Hanushek and Woessmann 2009).

To establish the context for the analysis, we turn first to a brief description of the educational systems in the four countries considered.

Education systems

Ethiopia

The current Ethiopian education system is based on the 1994 Education and Training Policy (ETP), which starts with preschool education provided by kindergarten for children from 4 to 6 years old; however this level is not compulsory for all. Primary education has an official starting age of 7 and lasts for eight years, divided into two cycles: the first cycle includes Grades 1 to 4, where basic literacy and numeracy are taught; the second cycle goes from Grades 5 to 8, which provide general education to prepare students for the next level. In order to move to secondary education, students are required to pass an exam, which can be taken only twice. Secondary education is divided in two years of general secondary (Grades 9 and 10) and two years of preparatory secondary (Grades 11 and 12). In order to pass from Grade 10 to 11 it is also necessary to take an exam; however, students can take this exam only once and their grades determine whether they are placed in technical and vocational education and training, teacher training colleges, or in preparatory secondary education.

India

The Indian education system is based on the country's Constitution, which offers free and compulsory education to all children from 6 to 14 years old. There are four stages of school education in India: primary, upper primary, secondary and higher secondary. The pre-primary stage is not part of the formal education structure. Children start primary school at age 6 and the primary (Grades 1 to 5) and upper primary (Grades 6 to 8) stages constitute the elementary stage of education; these are followed by two years of secondary and two years of higher secondary education. One of the major omissions of the Right to Education Act (2010) was that it did not address the critical foundation years of children below the age of 6.

Peru

The Peruvian Constitution of 1993 states that education has the goal of promoting the integral development of every person and it is the state's duty to make sure that everyone has an adequate education, regardless of their socio-economic status. According to the General Education Law N° 28044 (2003), education is a human right and a public service that should be available to all. Quality, equity and inclusion are three pillars of this law. The first mandatory level in the Peruvian education system is preschool, which should start at the age of 3. There are two types of preschools: PRONOEI (called "non-formal") where the teachers are mothers from the community with some training and support from a professional teacher, usually located in relatively isolated rural area; and Jardines (called "formal") run by professional teachers, usually located in more densely populated areas. The second level of education is primary (six grades); by the age of 6, children should be enrolled in Grade 1. Finally, secondary education (five years) is also mandatory and leads to a certificate that can be used for entry into higher education.

Vietnam

According to the Education Law (Vietnam National Assembly 1998), the state ensures access to education for everyone, giving priority to ethnic minorities and other disadvantaged groups. In 2005, the Education Law set out the goals that primary education and lower secondary education were universal education levels. Furthermore, in 2010 the law was amended, so that universal education would extend to 5-year-old children in pre-primary school. Therefore, the lowest level in the education system in Vietnam includes early childhood education, where children under 3 years old go to nurseries and children from 3 to 5 years old attend kindergarten; however, the latter is not compulsory. Education levels also include primary school (five grades), lower secondary (four grades), and upper secondary (three grades), so children are expected to complete basic education at age 15. Similar to Ethiopia, in order to pass from lower to upper secondary education, students need to pass an exam; if they fail, they may choose the informal path, which is through centres for continuing education. Students graduate from upper secondary education at age 18. Figure 1 depicts the main levels of compulsory education in the four countries.

Figure 1. Compulsory education levels in India, Ethiopia, Peru and Vietnam

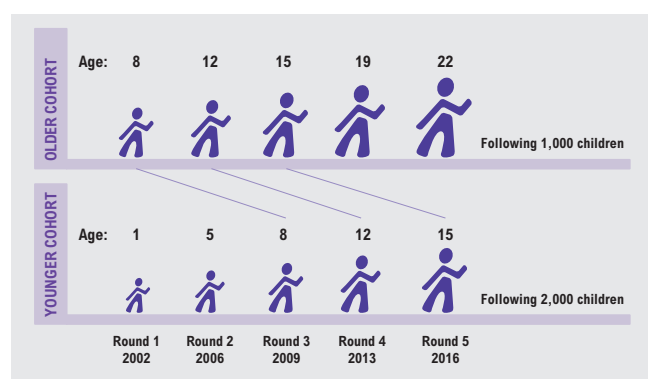
Age	Peru	India	Ethiopia	Vietnam
19				
18			Preparatory Secondary	
17		Higher Secondary Education		Upper Secondary
16	Secondary Education		Secondary	
15		Secondary Education		
14			Secondary Cycle Primary	Lower Secondary
13		Primary Education		
12			First Cycle Primary	
11	Primary Education			
10				
9		Primary Education	First Cycle Primary	Primary Education
8				
7				
6				
5	Preschool			Preschool
4				
3				
2				
1				

Methods

The four country reports analysed the education trajectories of the two cohorts of Young Lives children. Given that inequality is at the core of this analysis, we included differences in the trajectories and opportunities of boys and girls, children of different socio-economic status (or wealth levels) at 1 year old (i.e. the highest and lowest quintile), and of different levels of maternal education, and ethnicity, among other variables. The descriptions of the main variables used in the analysis are shown in the Appendix.

The data come mostly from four rounds of household surveys (administered in 2002, 2006, 2009 and 2013), as well as school surveys (administered in different years and using different designs in each country). The design of Young Lives allowed us to compare the indicators of children of the two cohorts when they were the same age, as shown in the following figure (the number of children is approximate for each cohort and country).

Figure 2. *Young Lives design*



Key messages

The main messages arising from the four country reports are presented below, along with the policy implications for each.

Key message 1. Enrolment has increased at all levels in all countries, but some groups drop out of school early

Enrolment coverage is increasing in all four countries, as it is in many developing regions. By age 8 for the Older Cohort (survey from 2002), 97.4 per cent of children were enrolled in schools in India, 65.6 per cent in Ethiopia, 98.5 per cent in Vietnam and 98.3 per cent in Peru. However, by 2009, children of the Younger Cohort showed similar or higher levels of enrolment at about the same age: 99 per cent attended school in India, 76.5 per cent in Ethiopia, 98.3 per cent in Vietnam and 98.3 per cent in Peru. However, finishing secondary education is a challenge for many children. As shown in Table 1, rural children from poor families, with poorly educated mothers, are more likely to drop out of school than their peers. In addition, while in India more girls drop out of school than boys, in Ethiopia and Vietnam the opposite occurs. Finally, for Peru there are no differences between boys and girls.

Table 1. *Percentage of children who had dropped out of school by age 19, without completing high school – Older Cohort*

	India	Ethiopia	Vietnam	Peru
Average	28.0	29.4	13.1	18.1
Sex				
Boys	23.2	32.4	14.4	18.0
Girls	32.6	25.9	12.0	18.1
Gap (%)	-9.3	6.6	2.4	-0.1
Area				
Urban	18.2	21.8	7.5	-
Rural	31.0	36.3	20.2	-
Gap (%)	-12.8	-14.5	-12.7	-
Baseline wealth index				
Top quintile	11.6	13.3	3.8	1.7
Bottom quintile	43.5	37.9	35.2	23.2
Gap (%)	-31.9	-24.6	-31.4	-21.5
Maternal education				
More educated	5.1	23.9	3.2	7.0
Poorly educated	34.9	31.6	31.8	20.9
Gap (%)	-29.8	-7.7	-28.6	-13.9
Caste				
Scheduled Caste	32.8	-	-	-
Scheduled Tribe	30.8	-	-	-
Backward Class	29.4	-	-	-
Other Caste	18.7	-	-	-
Gap (%)	-14.1			
Extreme groups				
Least vulnerable	-	12.2	2.6	0.0
Most vulnerable	-	40.1	32.1	20.7
Gap (%)		-27.9	-29.5	-20.7

Note: For Ethiopia dropout is before completing Grade 10.

Policy implication: Countries need to increase coverage where rates are low (e.g. some groups in Ethiopia) and focus on preventing dropout as children move into higher grades, by providing selected groups of children with support that is specific to their context and needs.

Key message 2. Gaps in achievement already exist by the age of 5

International testing programmes usually show large gaps in achievement associated with socio-economic status. How early these appear is a relevant question for policy interventions. As shown in Table 2, by the age of 5 there are already significant differences in a test of receptive vocabulary (Peabody Picture Vocabulary Test, PPVT). Overall, differences between boys and girls are relatively small. The largest gaps were observed between children from the top quintile and the bottom quintile of wealth index at age 1 year, especially for Peru. These results suggest that within the education system it would seem that interventions targeting poor and other low-performing groups of children

and their families would have a high potential for reducing poverty. Inequality has several intertwined explanations, however, and low levels of inequality can be due to poor performance across the board (to some extent the likely explanation of relatively low inequality in Ethiopia). In this case wholesale improvement may be required, while in Peru it is more obvious that targeting of less advantaged groups is key.

Table 2. Gaps in percentage points (% of correct answers) in PPVT at age 5

	India	Ethiopia	Peru	Vietnam
Boys–Girls	0.5%	1.0%	0.8%	0.8%
Top quintile–bottom quintile of wealth index in Round 1	8.8%	7.8%	23.0%	12.2%
Maternal education	8.5%	5.8%	14.3%	7.6%
Urban–Rural	5.7%	6.3%	–	9.9%
Caste (OC–SC)*	1.7%	–	–	–

Note: The definition of the groups appears in the appendix. Data are shown only for children responding in the more frequent language per country. * OC = Other Caste, SC = Scheduled Caste

Policy implication: Invest in early childhood education, targeting children living in poverty or otherwise showing low levels of early performance.

Key message 3. Achievement at age 5 predicts later achievement

While there are many international programmes to test students' achievement, they usually provide cross-sectional data. Young Lives allows us to correlate early skills with later school achievement. As shown in Figure 3 for India and Figure 4 for Peru, vocabulary skills at age 5 are positively correlated with skills in reading and mathematics seven years later. In the literature, this is known as the Mathew Effect, the main idea being that children with higher skills will tend to learn at higher levels than children with lower skills.

Figure 3. Mathematics score at age 8 and 12 by tertiles of PPVT score at age 5 for India

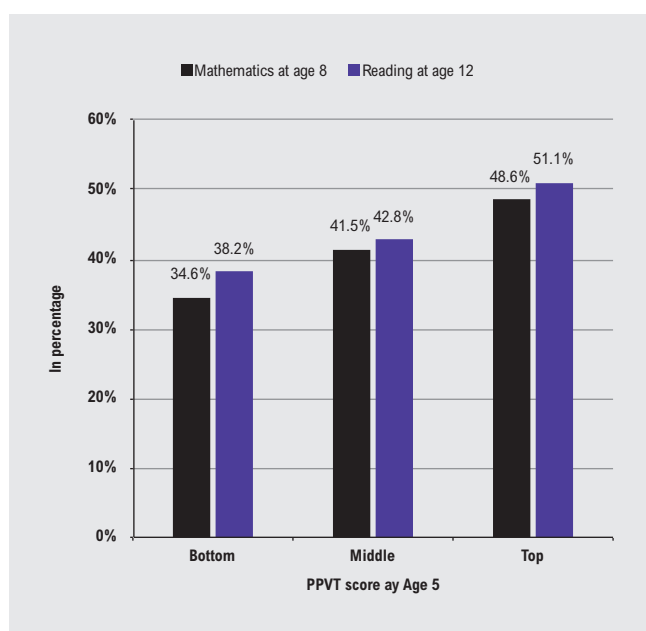
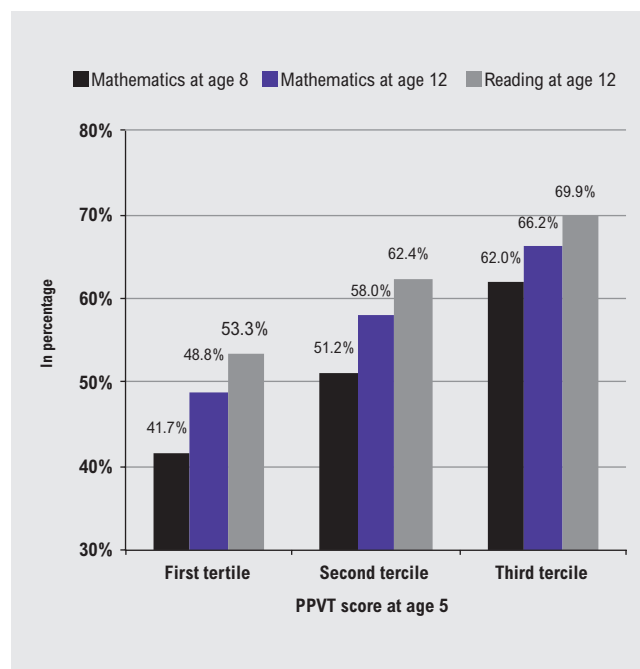


Figure 4. Mathematics score at age 8 and 12 by tertiles of PPVT score at age 5 for Peru



Policy implication: Children who enter primary school with low levels of skills need to be given special attention so that they do not continue to lag behind their peers.

Key message 4. Educational opportunities are unequal

Why children achieve at different levels is also a key question for research and policy. While there are many factors, including poverty and related variables as mentioned above, in Young Lives we have explored whether or not children from different groups also vary with respect to their educational opportunities at school. Along these lines, we analysed the quality of schools for students with different backgrounds, according to their specific national context. Results show that, on average, in Ethiopia, India and Peru, private (fee-charging) schools are more likely to provide basic services, such as piped water and electricity, than public schools. This gap is larger when private schools are compared with public rural schools. In the case of Vietnam, where there are only a few private schools, public urban schools have more resources than schools located in the delta, coastal and uplands areas, which are poorer areas compared to the cities. In regards to teachers, in all countries, those from public urban or private schools are more likely to have attended university, and miss classes less often than those from public rural schools. In a system that promotes equity, public and especially rural schools, or in general schools targeting the poorer students, should have higher resources; this is certainly not what we find. On the contrary, schooling in these countries would seem to at least reinforce patterns of inequality observed in other social domains. In Vietnam however, while there are some differences in the provision of school infrastructure, there seem to be smaller differences in the quality of teachers. Some of the main findings reported in the country reports are summarised in Table 3.

Table 3. Results of school and teacher characteristics by country

	School characteristics	Teacher characteristics
Ethiopia	Larger gaps in school quality between private schools and public rural schools. Private schools are more likely to have access to running water (94% vs 53.9%) and electricity (100% vs 62%).	More teachers from private schools studied in a university (14.3% vs 1%) and less missed school (17.8% vs 26.7%), compared to teachers from public rural schools.
India	Private schools have more access to basic services than public schools. The largest gap is found for whether or not the school has a library (39% vs 3%).	About 57.2% teachers from private schools have a Bachelor's degree in education, while 82.3% from public schools do. There was a small difference in regards to having attended a university, in favour of private school teachers (83.6% vs 79.7%)
Peru	Large gaps between private schools and public rural schools. The former are more likely to have running water (100% vs 38.7%), a laboratory (35% vs 6.5%), a psychologist (60% vs 3.2%), and sports court (40% vs 29%).	While 72.4% of teachers from private schools attended university, only 31.9% from public rural schools did. Also, teachers from private schools have higher levels of pedagogical content knowledge and miss school less than teachers from public rural schools.
Vietnam	Urban schools have better resources than delta, coastal and uplands schools. While all teachers from urban schools have university degrees, only 45.5% from coastal schools do. Also, urban schools are more likely to have libraries (97.9% vs 59%) than uplands schools.	While teachers from urban schools reported having more teachers with university education than the other schools, when we compare the indicator of teacher performance in mathematics and Vietnamese tests, there are only small differences across the types of schools.

Policy implication: Develop systems to assess equity in educational opportunities, ensuring minimum school resources for all and assigning teachers in a fair way.

Key message 5. Children from the Younger Cohorts usually perform better than children from the Older Cohort at the same age

Table 4 shows that for the PPVT test, in all countries the Younger Cohort had higher scores than the Older Cohort at age 12. For mathematics, the results are mixed: while in Ethiopia and India the Older Cohort had higher scores than the Younger Cohort, suggesting test scores had fallen, in Peru and Vietnam it is the Younger Cohort that performed higher. In Peru, similar patterns of improvement have been observed in national and international evaluations recently.

In Vietnam, there are no national evaluations, but the country scored higher, actually much higher, than countries of similar GDP in the most recent PISA (2015) evaluation. In India, there is the Annual Status of Education Report (ASER), by a civil society organisation that collects information about learning levels at primary levels, but as a country, there has been no participation in international evaluations since 2009. Finally, Ethiopia does not participate in international evaluation programmes, but it has a national assessment programme.

Table 4. Comparison between Younger Cohort (YC, 2013) and Older Cohort (OC, 2006) at age 12

	Vocabulary (PPVT)	Mathematics
Ethiopia	YC > OC	YC < OC
India	YC > OC	YC < OC
Peru	YC > OC	YC > OC
Vietnam	YC > OC	YC > OC

Note: The PPVT compares only children responding in the same language. For mathematics, for Ethiopia, India and Vietnam the maths score is based on three common items, while for Peru, it is based on six common items (thus the results should be interpreted with caution). The differences presented are patterns of achievement and not necessarily statistically significant.

Policy implication: Countries need to develop or strengthen their monitoring systems to evaluate learning among students, with procedures on how to use the scores in order to improve quality and reduce inequality.

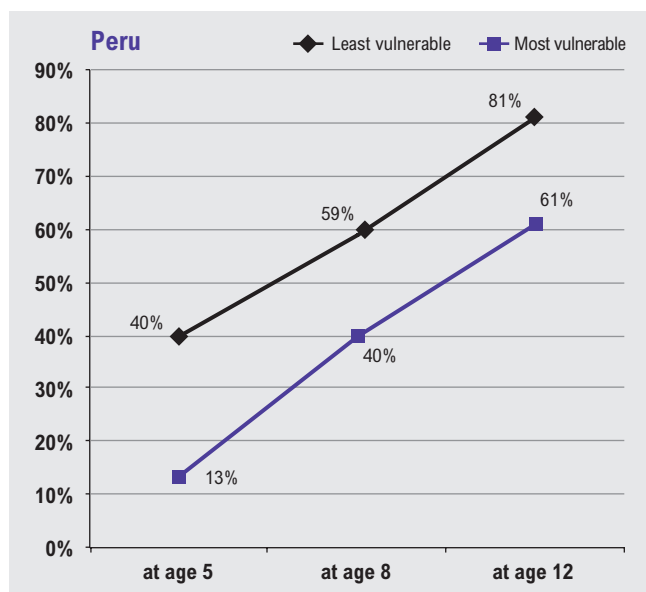
Key message 6. In all countries, there are groups of educationally vulnerable children

The analysis above has presented the differences between children one variable at a time. In reality, however, children often present several characteristics that we have found are associated with their educational opportunities and achievement.

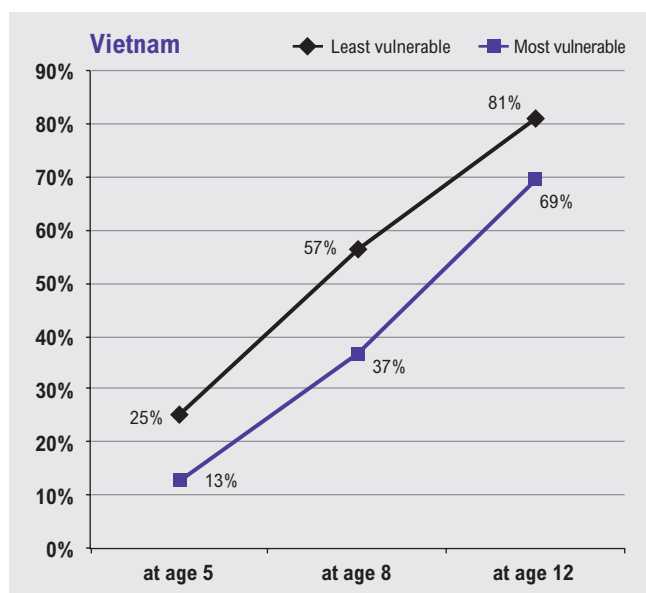
Below we present a comparison across three countries, of children who are more vulnerable (i.e. come from an indigenous or rural home, have mothers with lower levels of education and come from a poorer home, all combined) and compare them to less vulnerable children (i.e. present the three characteristics at the opposite end of the scale, compared to vulnerable children).

Figure 5 shows the PPVT scores (receptive vocabulary) at different ages of the Younger Cohort, comparing least and most vulnerable children, for Peru, Vietnam and Ethiopia. In Peru, for example, the least vulnerable children had reached a vocabulary level by age 5 that the most vulnerable would reach three years later at age 8. For children at later ages in Peru, this difference is reduced by age 8 and then re-established by age 12.

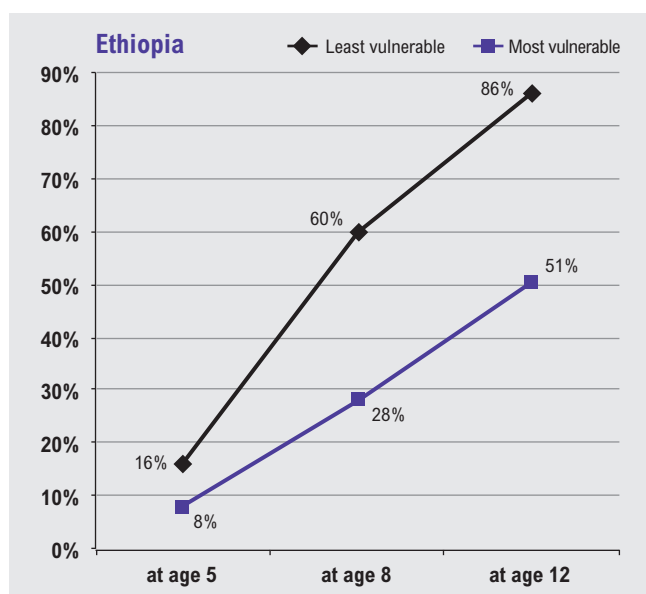
In the case of Vietnam, it increases at age 8 but the gap reduces at age 12. This shows that the gaps observed by age 5 tend to be maintained at about the same levels by later ages. However for Ethiopia, the gap expands over time.

Figure 5. PPVT score by age for the Younger Cohort

Note: Scores are presented as a percentage of correct answers over total possible score.

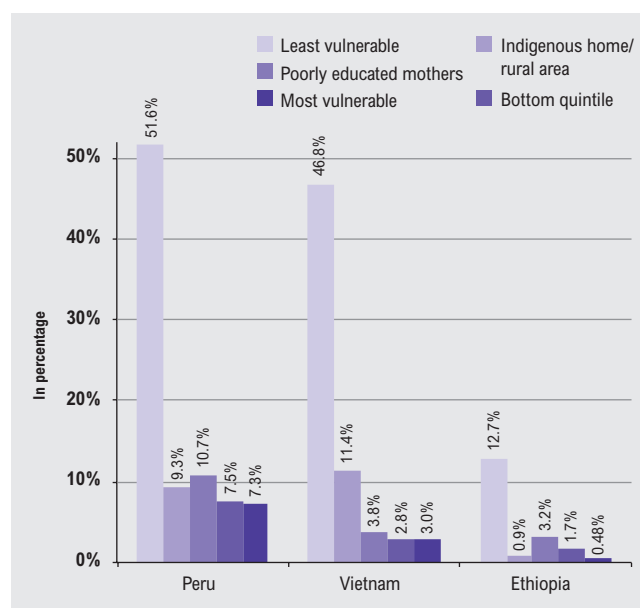


Note: Scores are presented as a percentage of correct answers over total possible score.



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The analysis of vulnerability is also relevant for other outcomes, such as access to university education. As shown in Figure 6, we observe high levels of segregation. As expected, children who are more vulnerable are less likely to attend university. While all three variables are associated with attending a university, in Peru and Vietnam socio-economic status is the best predictor, while in Ethiopia it is living in a rural versus an urban area. In the case of India, a similar analysis was conducted but comparing only chronically poor children (i.e. lower tercile of wealth index through the four rounds) against those consistently least poor (i.e. higher tercile of wealth index through the four rounds); only 17.9 per cent are enrolled in the former group and 53 per cent in the latter. In other words, a similar pattern of vulnerability of children is observed across the four countries.

Figure 6. Attendance at university at age 19, by background

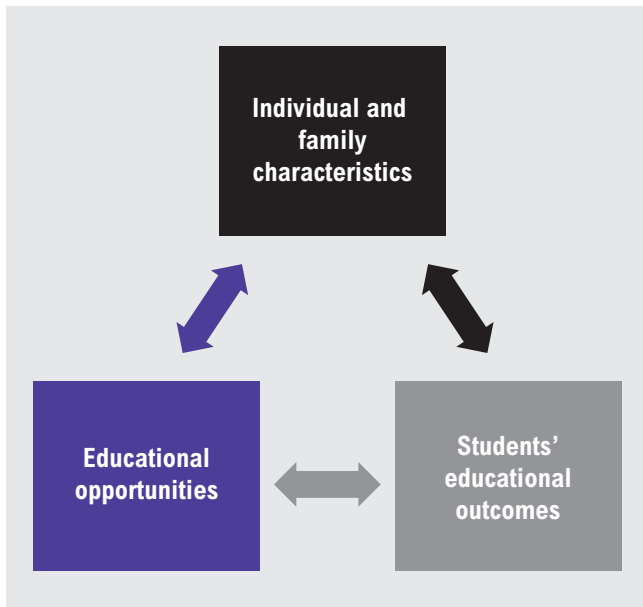
Note: For Peru, we used indigenous home and for Vietnam and Ethiopia we used rural area.

Policy implication: Children showing several indicators of 'vulnerability' (which needs to be defined for specific contexts) require special attention and investment in order to provide them with fair educational opportunities.

Key message 7. Individual family background, educational opportunities, and achievements tend to reinforce each other

Overall, our results show that, for all countries, children from rural areas, low wealth, with poorly educated mothers, and members of a caste (such as Backward or Other Caste) or indigenous group, show lower levels of learning than their peers. Furthermore, in many cases they attend schools with poorer infrastructure and learn from teachers with lower skills. The situation is worse for children who present more than one of these characteristics; these are what we called above vulnerable children. Educational opportunities matter for students' outcomes. For example, in Peru we have found that teachers' pedagogical content knowledge has an effect on children's achievement (Cueto et al. 2016; Cueto et al. 2014). The link between the above-mentioned three groups of variables is depicted in Figure 7.

Figure 7. Links between background, educational opportunities and educational outcomes



Policy implication: The negative cycle between individual and family background, educational opportunities and outcomes needs to be broken, so that a fair educational system of high quality is established.

Looking forward: predicting educational opportunities from 1 year old

Our data suggest that *the educational trajectories of children in many cases can be predicted by the time the child is 1 year old*. Poorer children, as measured by our wealth index, tend to have lower skills by age 5, and also lower educational opportunities at school, which in turn are associated with their educational outcomes. While predicting educational outcomes is a complex endeavour, we would like to finish by stating that, while many achievements have been attained in education over the past few years, in regards mainly to accessing schooling and even learning for some groups, there are still daunting challenges for educational policymakers everywhere to make their educational systems fair and to provide high levels of educational quality for all children. At the same time, *there are some children who, in spite of growing up in a poor environment, reach very high levels of achievement*. Our data show that schools play a big role in explaining these differences. This will be the subject of a future Young Lives report which will summarise our findings from the schools surveys carried out in the four countries.

Appendix 1. Definition of variables used for analysis of inequality

	Ethiopia	India	Peru	Vietnam
Top quintile of wealth index	The last quintile (top) or the fifth quintile (bottom) of the wealth index from Round 1. This index is a composite score based on assets at home, access to public services and quality of the house infrastructure.			
Maternal education	This was divided into two groups: those who completed primary or above, and those who only have incomplete primary or below.	This was divided into two groups: mothers with no formal education, and those with completed secondary or above levels of education.	This was divided into two groups: those who had completed secondary or above, and those who only have incomplete secondary or less.	This was divided into two groups: those who had completed lower secondary or above, and less than primary education.
Urban – Rural	Place of residence in Round 4 of the survey, defined by national criteria.	Place of residence divided by rural and urban areas according to national criteria.	–	The variable is divided in three groups: urban, delta, and “uplands and coastal areas”, the latter group being the most rural.
Caste	–	Divided in: Scheduled Caste, Scheduled Tribes, Backward Class, and Other Castes. Gaps are calculated using Scheduled Caste and Other Castes.	–	–
Indigenous home	–	–	An indigenous home is defined as one where at least one parent and the child had an indigenous mother tongue.	–
Vulnerable children	The composite score of vulnerability is formed by combining three variables: Maternal education, quintiles of wealth index in Round 1, and family composition (0 for a child who lost both parents due to death; 1 for a child whose mother is alive, but without father; 2 for a child whose father is alive, but without mother; and 3 if both parents are alive). In the paper, we present the highest and lowest quintiles of children (i.e. more and less vulnerable).	–	The composite score of vulnerability is based on three ordinal variables: Maternal education, wealth index in round 1 in quintiles, and the indigenous variable. In the paper, we present the highest and lowest quintiles of children (i.e. more and less vulnerable).	The composite score of vulnerability is based on three variables: First, the geographical area of residence defined above (urban-rural). Second, maternal education, with values ranging from 0 to 3 depending on the level of schooling of the mother. Third, the wealth index quintiles in Round 1. In the paper, we present the highest and lowest quintiles of children (i.e. more and less vulnerable).

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