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Corporal Punishment in Schools

Longitudinal Evidence from Ethiopia, India
Peru and Viet Nam

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CORPORAL PUNISHMENT IN SCHOOLS: LONGITUDINAL EVIDENCE FROM ETHIOPIA, INDIA, PERU AND VIET NAM

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EXECUTIVE SUMMARY

Globally the use of corporal punishment in schools is increasingly prohibited in law, yet in many contexts its use continues, even where outlawed. Proponents argue that it is an effective and non-harmful means of instilling discipline, respect and obedience into children, while others point to a series of detrimental effects, including poor academic performance, low class participation, school dropout and declining psychosocial well-being. Establishing whether corporal punishment has lasting effects on children's cognitive development and psychosocial well-being has been hampered by a lack of longitudinal data, especially from Low- and Middle-Income Countries.

This paper is a contribution to the UNICEF Multi-Country Study on the Drivers of Violence Affecting Children which is analysing how structural factors interact to affect everyday violence in children's homes and communities in order to better inform national strategies for violence prevention. The paper brings together a life course and structural determinants framework with Young Lives longitudinal data collected over four rounds on two cohorts of children in four countries: Ethiopia, India (the states of Andhra Pradesh and Telangana), Peru and Viet Nam. We focus on the Younger Cohort, which comprises approximately 2,000 children per country born in 2000/1. Children were selected using a two-stage sampling strategy. In each country 20 sites were selected, using semi-purposive methods to oversample poorer areas and then within the sites, households with children of the right age were randomly selected.

We draw on survey data collected from caregiver and child questionnaires to first examine the prevalence of corporal punishment at different ages and what this means for children in terms of what they most dislike about being at school. Second we use regression analysis to explore potential predictors of corporal punishment, as well as the associated effects of corporal punishment on concurrent and later cognitive development and psychosocial well-being outcomes.

Key findings

Corporal punishment is highly prevalent despite legal prohibition

- Among children aged 8: over half in Peru and Viet Nam, three quarters in Ethiopia and over nine in ten in India reported witnessing a teacher administering corporal punishment in the last week. Younger children are at greater risk of corporal punishment than adolescents, with the incidence of corporal punishment at age 8 more than double the rate reported by 15-year-olds, in all four countries.
- Violence in schools, including physical and verbal abuse by teachers and peers is the foremost reason children give for disliking school, ranging from over a quarter of children in India to over half in Viet Nam.

Boys and children from disadvantaged backgrounds are significantly more likely to experience corporal punishment at age 8

- Boys are significantly more likely to report experiencing corporal punishment than girls. However, girls are often at greater risk of forms of humiliating treatment and sexual violence, not addressed in this paper.

- Children from more disadvantaged households (measured using household expenditure or caregiver's level of education) are significantly more likely to be punished in India, Peru and Viet Nam compared to children from less disadvantaged households living in the same community. When comparing children in the same school, disadvantaged children in India and Viet Nam are significantly more likely to be punished than their peers.
- Differences according to location and school characteristics vary between countries: in Ethiopia and Viet Nam children in urban areas report experiencing more corporal punishment, with the reverse in India and Peru. In Ethiopia, India and Peru children in government (public) schools were most likely to experience corporal punishment, but results were only significant in Peru.

Corporal punishment is associated with poorer outcomes at age 8

- Corporal punishment is negatively associated with maths scores, after controlling for a range of child and household characteristics and comparing children living in the same communities. By comparing children living in the same community, we reduce the risk that something unobserved at the community level may be affecting children systematically. These results remain significant in Ethiopia, India and Viet Nam after controlling for previous performance in maths at age 5.

Corporal punishment at age 8 is associated with poorer outcomes at age 12

- Corporal punishment at age 8 is negatively associated with later maths scores at age 12 in India, Peru and Viet Nam. These results remain significant when comparing children living in the same community and after controlling for previous maths performance in Peru and Viet Nam. The associated average negative effect of corporal punishment on maths scores at age 12, when comparing children living in the same communities, is of similar size to the caregiver (usually mother) having about three to six years less education (size varies by country).

Corporal punishment not only violates fundamental rights to dignity and bodily integrity but by impacting upon children's engagement with schooling and capacity to learn can have long lasting implications for their life chances. Legislation, teacher training, addressing gender and social norms and greater international and national prioritisation of tackling violence affecting children should all play a part in building safe, supportive and enabling environments for all children to flourish.

INTRODUCTION

Twenty five years ago, Article 19 of the United Nations Convention on the Rights of the Child (CRC) laid the foundations for the protection of children from ‘all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse, while in the care of parent(s), legal guardian(s) or any other person who has the care of the child’. Despite near universal ratification of the CRC, only eight per cent of children worldwide live in countries that have fully prohibited physical or corporal punishment in all settings, leaving slightly more than 2 billion children without full legal protection (UNICEF, 2014: 110-111). In the case of corporal punishment in schools, positive progress has been made with 122 states outlawing such practices, yet 76 states have not, and often corporal punishment remains widespread even where prohibited (Covell and Becker, 2011: 14; Office of the SRSG on Violence against Children, 2012: 9).¹ Corporal punishment has been associated with a range of negative impacts on children, including physical injuries (and in the most severe cases, even death), psychological and emotional harm, poor performance at school, absence and dropout (ibid.). However, the use of corporal punishment and whether it has lasting impacts on children’s development remains highly contested, especially given the dearth of longitudinal data in this area.

This paper uses longitudinal data from the Young Lives study collected from two cohorts of children in four countries; Ethiopia, India (the states of Andhra Pradesh and Telangana), Peru and Viet Nam. We first examine the prevalence of corporal punishment at different ages and what this means for children in terms of what they most dislike about being at school. Second we use regression analysis to explore potential predictors of corporal punishment, as well as the associated effects of corporal punishment on concurrent and later cognitive development and psychosocial well-being outcomes. The paper is a contribution to the UNICEF Multi-Country Study on the Drivers of Violence Affecting Children which is analysing how structural factors interact to affect everyday violence in children’s homes and communities with the aim of informing better national strategies for violence prevention.

CORPORAL PUNISHMENT IN SCHOOLS: TAKING A STRUCTURAL DETERMINANTS APPROACH

Corporal punishment is ‘any punishment in which physical force is used and intended to cause some degree of pain or discomfort, however light. Most involves hitting (‘smacking’, ‘slapping’, ‘spanking’) children, with the hand or with an implement – whip, stick, belt, shoe, wooden spoon, etc. But it can also involve, for example, kicking, shaking or throwing children, scratching, pinching, burning, scalding or forced ingestion’ (UN Committee on the Rights of the Child, 2006: 4). If enshrined in law, the CRC not only prohibits the use of corporal punishment in any setting, but requires that States Parties ‘take all appropriate measures to ensure that school discipline is administered in a manner consistent with the child’s human dignity’ (Article 28).

The use of corporal punishment persists in many contexts, even if legally prohibited. Proponents argue that ‘mild’ or ‘moderate’ forms of physical punishment, such as

¹ Figures on legislation taken from the Global Initiative to End All Corporal Punishment of Children (GITEACPOC) <http://www.endcorporalpunishment.org/pages/frame.html> (correct as of December 2014)

spanking, are an effective and non-detrimental means of instilling discipline and obedience into children (Baumrind, Larzelere and Cowan, 2002) and the use of corporal punishment in schools is often believed by both adults and children to be an effective disciplinary means of generating respect and enabling children to develop into responsible adults (Dubanoski, Inaba and Gerkewicz, 1983; Burnett, 1998). Conversely, many studies point to the opposite, finding a series of detrimental effects such as poor academic performance and low class participation, children avoiding school or dropping out for fear of getting beaten, declining self-worth or self-esteem and fear of teachers and school (Dubanoski, Inaba and Gerkewicz, 1983; Youssef, Attia and Kamel, 1998; Dunne, Humphreys and Leach, 2006: 92; Morrow and Singh, 2014: 11).

Qualitative studies have found that teachers, parents and often children themselves suggest that corporal punishment in schools improves academic performance and corrects bad behaviour (Anderson and Payne, 1994; Parkes and Heslop, 2011; Rojas, 2011: 16-18; Nguyen and Tran, 2013; Marcus, 2014b: 11; Morrow and Singh, 2014: 14). However, research with children has also highlighted that many children do not feel that it helps them learn or behave; instead it leaves them scared, confused and sad and may lead to them becoming violent due to the normalisation of violence (Burnett, 1998; Clacherty, Donald and Clacherty, 2004; 2005a; 2005b; Beazley et al., 2006: 183; Rojas, 2011: 11; Morrow and Singh, 2014: 13).

Much of the existing research has focused on the impact of corporal punishment administered by parents and other caregivers on children (Donnelly and Straus, 2005; Ember and Ember, 2005; Ripoll-Núñez and Rohner, 2006; Durrant and Smith, 2011; Twum-Danso, 2013). Research on corporal punishment both in the home and in schools is also dominated by studies from high-income countries, principally the United States, that emanate from the field of psychology (Gershoff, 2002; Paolucci and Violato, 2004). Where studies from the Global South exist, comparing across contexts is difficult, due to the use of different definitions and measures of both corporal punishment and its potential effects (Ripoll-Núñez and Rohner, 2006: 231). Existing quantitative research is also based largely on cross-sectional data and thus cannot rule out the possibility of reverse causation (Gershoff, 2002: 540; Alyahri and Goodman 2008: 772).

For example, a study of urban primary school children in Jamaica found that children reporting corporal punishment from teachers performed significantly worse on maths, spelling and reading tests, yet without being able to determine the direction of the association (Baker-Henningham et al., 2009). A child may be beaten because of lower marks in exams or a child may perform less well in tests because of being beaten.

In response to these key evidence gaps, this paper focuses on corporal punishment in schools in four low- and middle-income countries (Ethiopia, the states of Andhra Pradesh and Telangana in India, Peru and Viet Nam). The paper is framed by a life course and structural determinants approach. A structural determinants approach seeks to understand the drivers of children's vulnerability and why some children do less well than others by exploring the contexts in which children are growing-up and the economic, political, social, environmental, and cultural conditions that shape their trajectories (Viner et al. 2012: 1641). We use a structural determinants framework to explore the intersections between wider economic and social inequalities, such as poverty and gender and children's everyday experiences of violence, specifically

corporal punishment. Violence occurs in all settings. However, in contexts of poverty and marginalization, children are more likely to be affected by violence, often experiencing multiple forms in different settings (Office of the SRSG on Violence against Children, 2012: 11). In the case of school, the relationship between poverty and violence is not necessarily linear (Parkes, 2015: 199) yet in resource-poor settings, especially in low- and middle-income countries where education systems have undergone rapid expansion and classroom overcrowding is common, it is suggested that teachers may feel disempowered and resort to physical punishment (Office of the SRSG on Violence against Children, 2013: 36; Tao, 2015). Schools in poorer areas in particular may be less resourced, be more overcrowded and have teachers with less training (Singh and Sarkar, 2012). Studies from South Africa have demonstrated how the historical, economic and social legacies of apartheid have been institutionalized within the education system, which reflects, reinforces and reproduces these inequalities through harsh disciplinary systems and the normalization of violence within schools (Baker, 1998; Burnett, 1998; Morrell, 2001).

Structural factors both shape the norms and practices which govern schooling (Baker, 1998) as well as the experiences of different groups of children within school. Cross-sectional studies have found that boys, children from ethnic minorities, or groups disadvantaged on account of their ethnicity and children with disabilities are more likely to experience corporal punishment than their peers (Dunne, Humphreys and Leach, 2006: 78; Alyahri and Goodman 2008: 770; Covell and Becker, 2011: 14). While there is limited data on children's experiences of corporal punishment by socioeconomic status (Marcus, 2014b: 67) qualitative interviews with children and families reveal how poor children may be at greater risk of being punished for not having school equipment or a uniform or for being absent to undertake paid or unpaid work to support their families (Morrow and Singh, 2014: 13). Social norms also shape the use of different disciplinary measures within school, so while boys are often subject to greater physical punishment, girls are often at greater risk of other forms of humiliating treatment and sexual violence (Dunne, 2007). Studies from Botswana, Ghana, Peru, Tanzania and South Africa have all highlighted how schools reproduce violent masculinities and submissive femininities through the differential use of corporal punishment (Morrell, 2001; Dunne, 2007; Rojas, 2011; Parkes, 2015; Tao, 2015).

A life course approach situates individual children's lives in these wider processes of social and historical change (Elder, 1999) in order to understand how children's development is shaped both by immediate factors at the individual, household and community level, and also by more distal social and economic factors (Dornan and Woodhead, 2015). A life course approach also highlights how children face different risks at different ages, with the typical types of violence and its possible effects changing as children grow and develop (UNICEF, 2014: 12-3). For instance, as children enter middle childhood (ages 5-9) they are increasingly exposed to interpersonal violence, particularly within school, given the amount of time children now spend there, even in low- and middle-income countries (Office of the SRSG, 2013: 34; UNICEF, 2014: 13). In 2009, over 97 per cent of children aged 8 in the Young Lives study were enrolled in primary school in India, Peru and Viet Nam. In Ethiopia, where children typically start primary school later, 77 per cent of eight-year-olds were enrolled (Pells and Woodhead, 2014: 42).

Bringing together life course and structural determinants approaches with Young Lives longitudinal data enables us to examine which children are at risk of corporal punishment, at what age and what this means for their developmental trajectories. Using data from two cohorts of children we examine the prevalence of corporal punishment at ages 8 and 15, before focusing on the Younger Cohort to investigate the risk factors for reporting having experienced corporal punishment at age 8 and its associated effects on cognitive achievement and well-being outcomes at age 8 and at age 12. In doing so we draw attention to another under-researched area, namely the risk factors for poorer outcomes among young adolescents (10-14 year olds). Young adolescents have received less attention in research and policy than younger children or older adolescents, yet the transition to early adolescence is a crucial phase for both cognitive and emotional development (among other factors), including both identity and gender role formation (Diers, 2013: 217; Igras et al., 2014). Understanding how children's early experiences in school, including being physically punished, affects this later transition is therefore critical in developing policy approaches for violence prevention.

CORPORAL PUNISHMENT IN ETHIOPIA, INDIA, PERU AND VIET NAM: LEGAL AND POLICY CONTEXTS

Positive progress has been made in all regions of the world, with legislation prohibiting corporal punishment in educational settings (Pinheiro, 2006). However, the exact provisions contained in law and whether they are accompanied by additional measures in policy and practice differ between countries. In this section, we examine the status of the legal framework governing the administration of corporal punishment in schools in the four Young Lives study countries.

In **Ethiopia**, Article 36 of the Ethiopian Constitution of 1994 stipulates the rights of children and specifies that '(1) every child has the right... (e) to be free of corporal punishment or cruel and inhumane treatment in schools and other institutions responsible for the care of the children'. In addition, the school administration regulations issued by the Ministry of Education in 1998 state that 'corporal punishment is not among permitted disciplinary measures' (GITEACPOC, 2014b: 2). However, corporal punishment remains prevalent, with 30 per cent of children aged 11-17 reporting having experienced corporal punishment (ACPF, 2014: 22).

In **India**, the Right of Children to Free and Compulsory Education Act (Right to Education Act) passed in 2009 prohibited the use of corporal punishment in schools and the Government of Andhra Pradesh banned corporal punishment in educational institutions in 2002 by amending rule 122 of the Andhra Pradesh Integrated Educational Rules of 1966 (GITEACPOC, 2014c: 3). Yet, studies have found consistently high levels of reporting by children of corporal punishment in schools with little difference between private, state government and central government schools (ibid.). A study by the National Commission for Protection of Child Rights (2012) across seven states found that three quarters of children had been beaten with a cane.

Article 75 of the **Viet Name** Education Law 2005 states that teachers must not 'disrespect the honour, dignity of learners, hurt or abuse them physically' (GITEACPOC, 2014d). Prohibition of corporal punishment is also included in the following documents: Decision 16/2008 issued by the Ministry of Education and Training (MOET) which sets

out the code of ethics for teachers; Circular 41/2010 also issued by the MOET which provides a Charter for primary schools; and the professional standards for primary teachers. However, as with Ethiopia and India, corporal punishment remains prevalent. One study from Da Nang found that 26.7 per cent of pupils reported being beaten by their teacher by hand and one in four (26.4 per cent) pupils reported being beaten by their teacher with an object in the last semester (Martin et al., 2013).

The situation in **Peru** is different to the other three countries, with no explicit legal prohibition of corporal punishment, although Supreme Decree No 007-2001-ED: Approval of Norms for the Management and Development of Activities in Educational Centres and Programmes 2001 states that corporal punishment should not be used in schools. Other implicit provisions are contained within the Code of Children and Adolescents (2000) which includes the stipulation that children must be respected by their teachers (Article 16) and the General Education Law (2003) which states that children's dignity and physical well-being must be protected (Article 53)(GITEACPOC, 2014a). Recently, amendments to the Code of Children and Adolescents have been proposed under Bill 611/2011-CR with the objective of explicitly prohibiting the use of corporal punishment and humiliating acts as disciplinary practices in any educational setting. The Bill however, has been in Congress since 2011 and remains unapproved. Likewise there are further proposals before Congress to legally prohibit corporal punishment in all settings, but these remain unapproved.

Clearly the asymmetry between what happens in schools and the official legal and policy position on corporal punishment highlights that more needs to be done. A better understanding of how corporal punishment affects children's well-being is a first step in that direction. In this paper we set out to understand some of these associations to assist in building an evidence base for increased efforts by governments and other actors to protect children from harm.

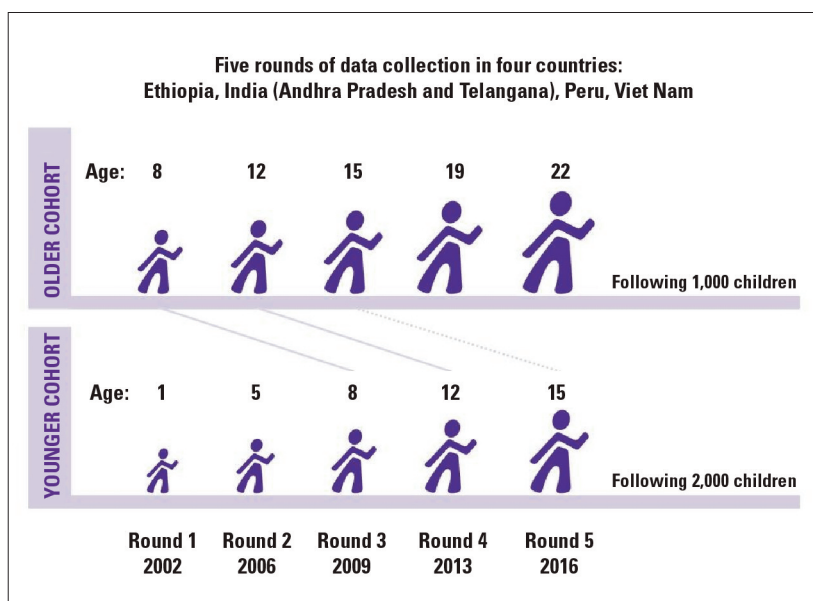
METHODS AND DATA

Sampling

The Young Lives study is following two cohorts of children in Ethiopia, India (the states of Andhra Pradesh and Telangana), Peru and Viet Nam over 15 years (see Figure 1 page 12). The first round of the household/caregiver and child surveys was conducted in 2002 with subsequent rounds in 2006, 2009 and 2013. A fifth round is planned for 2016. The Younger Cohort comprises approximately 2,000 children per country born in 2000/1 and the Older Cohort composes around 1,000 children per country born in 1994/95.

Both cohorts were sampled using a two-stage sampling strategy adapted from a 'sentinel site surveillance' method used widely in public health, but with more effort concentrated on retaining the same cohort children and their household in successive rounds of data collection (Wilson, Huttly and Fenn, 2006).

Sites were selected using semi-purposive methods to oversample poorer areas. In-country advisory committees discussed key factors to cover in the selection of sites, such as geographical location and population sub-groups, and then applied a poverty ranking. A detailed description of the procedure followed in each country can be found in Outes-Leon and Sanchez (2008), Kumra (2008), Escobal and Flores (2008) and Nguyen (2008).



**Figure 1 - Young Lives
Study Design**

Within the sites, households with children of the right age were then selected randomly. A total number of 100 children from the Younger Cohort and 50 from the Older Cohort and their households were sampled in each of the 20 geographical sites selected.² Equivalent methods to random sampling were applied adapted to local circumstances. For example, in Viet Nam a door-to-door screening was carried out in each site and simple random sampling was applied to the list. In contrast, in Ethiopia all households on the periphery of the site were interviewed until the 150 households were located (Young Lives, 2011).

Young Lives samples are not nationally representative but broadly capture the diversity of children within each country in terms of geographic, ethnic and livelihood characteristics. As the samples are not nationally representative they are less suitable for monitoring purposes or for comparing outcomes across the countries but are well suited to modelling child development and well-being and its longitudinal dynamics.

Data, measures and methods

Young Lives is not a dedicated violence survey and so does not have in-depth modules on violence affecting children and child protection. The survey comprises: a child questionnaire (administered to the child) which includes questions on schooling, work and health, as well as measures of psychosocial competencies and cognitive tests; an extensive household questionnaire (administered to the child's caregiver or the head of the household), which collects information on the child's household such as socioeconomic circumstances, access to services, livelihoods, etc. as well as additional information on the child; and a community questionnaire (administered to key informants in the community). The child-level questionnaire was administered to the Older Cohort from Round 1 onwards and to the Younger Cohort from Round 3 onwards. Collecting this wide range of longitudinal data enables the possibility of capturing the multiple (and interrelated) individual, household, community and structural factors, including violence, that shape children's outcomes at different ages.

² For further information on the sampling strategy see Wilson, Huttly and Fenn, 2006.

Young Lives has a collaborative approach to ethics whereby fieldworkers receive training and then report back on the ethical challenges after each survey round. A shared Memorandum of Understanding has been developed across the study (Morrow, 2009).³ Asking children about potentially distressing experiences of violence, especially in contexts where corporal punishment is illegal, raises particular ethical challenges. At the same time, if done sensitively, research on such issues is essential to document the effects of violence against children, strengthen policy responses and design more appropriate and effective interventions (Ennew and Pierre-Plateau, 2004: 17; Clacherty and Clacherty, 2005a: 4; Morrow and Singh, 2014: 6). Serious cases of abuse and exploitation uncovered by research teams are referred to relevant authorities and service providers, or, where these do not exist, local teams investigate informal support networks available to children and families.

In this paper we provide descriptive analysis on the prevalence of corporal punishment in schools among children who are enrolled in school at ages 8 and 15 (Round 3 of the survey, see Figure 1). The ages covered in this analysis allow for comparisons of the prevalence of corporal punishment across educational stages – mainly comparisons between primary and secondary school level or school cycles – and at different stages in the life course. The analysis uses two questions included in the child questionnaires, asked in the same way across the study countries, to children enrolled in school at the time of interview:

Think about the past week at school, or the last week you were in school.

- In that week, did you see a teacher use physical punishment on other students?
- In that week, did the teacher use physical punishment on you?

The term physical punishment was defined in the questionnaires as any action that includes ‘spanking, beating, punching, twisting child’s ears or any other hitting, by using hand or an implement’. We use this as the definition for corporal punishment throughout the paper. Children were then given the option to choose between three answers: ‘never’, ‘once or twice’ and ‘most/all of the time’. The binary variable of corporal punishment used in this paper was assigned the value of 1 if the child reported experiencing physical punishment ‘once or twice’ or ‘most/all of the time’ and 0, otherwise (if they reported ‘never’).

Using data from the child questionnaire administered to the 8 year olds (Younger Cohort) we then explore whether corporal punishment is a reason for children disliking school. We use responses to an open-ended question asking children to express what they most dislike about being at school.⁴ Many different reasons emerged across the study countries and these were mostly related to violence in school and poor physical infrastructure or noisy classrooms.

To examine whether child and socio-economic characteristics are risk factors affecting the chances of children experiencing physical punishment in schools, we first look descriptively at the prevalence of physical punishment among different groups of children by gender, ethnicity and other household and geographic characteristics, such as maternal education, wealth, where they live and what type of school they attend.

³Young Lives has ethics approval from the University of Oxford and from the Instituto de Investigación Nutricional in Peru (IIN).

⁴ Interviewers were allowed to probe for more specific answers when children’s responses were not clear. The answers were then coded to a reduced number of reasons.

These background characteristics are collected in the household questionnaire often administered to the caregiver of the child (in most cases, the mother) and/or the household head. The results of these descriptive statistics give a simple indication of the type of factors predicting whether children are at risk. To analyse whether these factors are associated with the experience of physical punishment in schools while controlling for other child and household characteristics, we also use multivariate regression analysis.

In addition, using multivariate regression analysis, we examine the associated effects of corporal punishment at age 8 on cognitive and psychosocial outcomes at age 8 and age 12. The outcomes we examine at age 8 are maths, vocabulary, using the Peabody Picture Vocabulary Test (PPVT), agency and shame and are summarised in Table 1.

TABLE 1 - Description of child outcome indicators at age 8

Indicator	Question/Definition
Education and cognitive achievement	
Maths scores	Raw score on the Mathematics Achievement Test, number of correct answers
PPVT scores	Raw score on the Peabody Picture Vocabulary Test, non-standardised
Psychosocial competencies	
In the computation of each index, all statements are recoded to positive outcomes for agency and negative outcomes for shame, normalized to z-scores within each country (subtract the mean and divide by the standard deviation), and averaged across the non-missing questions. [Response options for the following questions are: <i>strongly disagree; disagree; more or less; agree; strongly agree</i>]	
Agency Index	If I try hard, I can improve my situation in life I like to make plans for my future studies and work Other people in my family make all the decision about how I spend my time [recoded to positive] If I study hard at school I will be rewarded by a better job in the future I have no choice about the work I do, I must do this sort of work [recoded to positive]
Shame index	I am proud of my clothes [recoded to negative] I am proud of my shoes or of having shoes [recoded to negative] I feel my clothing is right for all occasions [recoded to negative] I am never embarrassed because I do not have the right books, pencils or other equipment [recoded to negative] I am proud that I have the correct uniform [recoded to negative] I am proud of the work I have to do [recoded to negative]

Education and cognitive achievement at age 8 was measured using a standard maths computing test of 29 questions. These questions were mostly taken from the Trends in International Mathematics and Science Study (TIMSS), widely used in comparative education research. The outcome variable is children's score on the maths test.

In addition, children were administered a test of receptive vocabulary – PPVT – in which they were asked to select a picture that best represented the meaning of a stimulus word

TABLE 2 - Description of child outcome indicators at age 12

Indicator	Question/Definition
Education and cognitive achievement	
Maths scores	Raw score on the Mathematics Achievement Test, percentage correct
PPVT scores	Raw score on the Peabody Picture Vocabulary Test, proportion correct
Psychosocial competencies	
In the computation of each index, all statements are normalized to z-scores within each country (subtract the mean and divide by the standard deviation), and averaged across the non-missing questions. [Response options for the following questions are: strongly disagree; disagree; agree; strongly agree]	
General self-efficacy	<p>I can always manage to solve difficult problems if I try hard enough</p> <p>If someone opposes me, I can find the means and ways to get what I want</p> <p>It is easy for me to stick to my aims and accomplish my goals</p> <p>I am confident that I could deal efficiently with unexpected events</p> <p>Thanks to my resourcefulness, I know how to handle unforeseen situations</p> <p>I can solve most problems if I invest the necessary effort</p> <p>I can remain calm when facing difficulties because I can rely on my coping abilities</p> <p>When I am confronted with a problem, I can usually find several solutions</p> <p>If I am in trouble, I can usually think of a solution</p> <p>I can usually handle whatever comes my way</p>
General self-esteem	<p>I do lots of important things</p> <p>In general, I like being the way I am</p> <p>Overall, I have a lot to be proud of</p> <p>I can do things as well as most people</p> <p>Other people think I am a good person</p> <p>A lot of things about me are good</p> <p>I'm as good as most other people</p> <p>When I do something, I do it well</p>

presented orally by the interviewer (for more information see Cueto and Leon, 2012). The outcome variable is a non-standardized PPVT raw score.⁵

Children's psychosocial competencies such as agency and shame have intrinsic value as indicators of children's well-being. In addition, psychosocial outcomes are strongly predictive of later performance in the labour market and also crime and antisocial behaviour (Cunha and Heckman, 2008). These traits were measured by asking respondents to indicate their degree of agreement or disagreement with a set of statements using a 5-point Likert response scale (from strongly disagree to strongly agree).

Agency is a measure of one's (in this case the child's) sense of mastery over one's own life. Shame is a measure of one's (child's) feelings about specific dimensions of one's circumstances. The items in the shame measure attempt to separate the perceptions of discrimination (i.e. 'how others treat me') often related to their poverty, from the

⁵ Both test were translated into and administered in local languages.

feelings of shame (i.e. 'how that makes me feel'). Items included in both measures and their method of computation are detailed in Table 1.

Table 2 describes the outcomes we examine at age 12 along their method of computation. These are maths, vocabulary (PPVT), general self-efficacy and self-esteem. The maths and PPVT tests administered at the age of 12 are comparable to the tests administered at age 8, but adapted for age.⁶ The general self-efficacy scale (Schwarzer and Jerusalem, 1995) and self-esteem (Self-Description Questionnaire I or SDQ I) at age 12 are designed to build upon the scales and items included at the age of 8, with widely validated scales relevant to children's lives. General self-efficacy measures one's belief in one's capability to face difficulties and recover from setbacks. Self-esteem measures an individual's evaluation of self-worth or self-value.

The means and standard deviations of the outcome and control variables used in our regressions are presented, by country, in Appendix 1.

Limitations

Our measure of corporal punishment has some limitations. First, indicators of the severity of the corporal punishment were not collected. Children were only asked how frequently they were punished by teachers during the span of a week (never, once or twice, and most/all of the time) and their answers were coded as 1 when children reported experiencing corporal punishment and 0 when children reported never experiencing corporal punishment. Depending on the severity of the punishment, the effects may vary. For instance, corporal punishment that results in serious physical injuries may drive children to drop out of school, while less severe punishment may not. We cannot account for such differential effects.

Relatedly, our measure of corporal punishment, described above, may reflect reporting biases which may be caused, for example, by the intensity of the punishment (the more severe the punishment potentially the more likely it is to be reported) or by perceived consequences of reporting (for example, if children think that reporting corporal punishment may result in greater and more severe disciplinary practices, they may refrain from doing so).

Other forms of humiliating punishment often accompany corporal punishment. For example verbal abuse, being forced to kneel or stay in other uncomfortable positions or undertaking physical labour (Clacherty and Clacherty, 2004; 2005a; 2005b). Children often describe finding humiliating punishment, especially if carried out in front of peers, as bad or worse as corporal punishment (Clacherty and Clacherty 2005a: 21; Rojas, 2011: 16-17). We touch on some other forms of humiliating treatment when we examine the reasons why children dislike school, but maintain a focus on corporal punishment. However, it is important to note that we are capturing only one aspect of violence in schools, which does not mean that other children are not at risk from other forms of violence and maltreatment. For example, older adolescents often report higher levels of humiliating treatment rather than physical punishment (Clacherty and Clacherty 2004; 2005a; 2005b).

⁶The maths test administered at the age of 12 consisted of 28 questions in Ethiopia, 29 questions in India and Peru, and 34 questions in Viet Nam.

The analytical methods employed in this research present two further challenges. Firstly, concerns of reverse causality. For example, children may be subjected to corporal punishment because they are already not performing well in school (and we observe some indication of this, see findings on the Cognitive Development Assessment (CDA) coefficient in Table 4); however, children may also (or instead) be performing badly at school because they are being subjected to corporal punishment and for instance avoid school for fear of being beaten. Reverse causation is particularly present in cross-sectional analysis such as when we examine in this paper the relationship between corporal punishment and children's outcomes at age 8. To overcome this problem, we exploit the longitudinal design of the Young Lives study and examine the effects of corporal punishment reported at age 8 on children's outcomes measured at age 12. By doing this we partially account for the problem of reverse causality as children's results on a maths test at age 12 cannot be the direct cause of children being punished at age of 8.

Secondly, there is potential bias due to unobserved variables which may affect the relationship between corporal punishment and children's outcomes. This is often referred to as omitted variable bias. For example, teachers with less training who are less equipped to use positive disciplinary practices may work in schools where poorer children attend and thus there may be fewer children performing well. The effects of poor quality teaching (on which we do not have direct data) on children's maths scores may then be attributed to the effects of corporal punishment. To account partially for this problem we first show the results of ordinary linear regression (OLS) and then control for cluster fixed effects (FE). When we control for cluster fixed effects we account for cluster characteristics by comparing only children living within the same geographical area but taught by different teachers or attending different schools within this area. This way we partially account for bias due to omitted variables at the cluster level; however, there may still be other characteristics at the child, family and school level that are not captured.

Young Lives surveys only capture reports of corporal punishment at one point in time: at age 8 for the Younger Cohort and age 15 for the Older Cohort. This prevents us from using child fixed effects, which would allow us to control for all child unobservable characteristics that are fixed over time, for example, if the child has a tendency to behave badly. Nevertheless, fixed effects methods also have important limitations in the context of corporal punishment. Corporal punishment might be a decision made by a teacher on the basis of what he or she observes and there might be things that are not captured in the survey that change over time. If something changes in the child's life between survey rounds that has consequences both on school performance and behaviour, for example parental divorce, the results would still be biased.

Finally, the sample of children used in this paper consists of children living in Young Lives communities at ages 8 and 12, who are enrolled in school at age 8 and are re-interviewed by age 12.

WHAT PREDICTS EXPERIENCING CORPORAL PUNISHMENT?

We start with descriptive statistics on who reports experiencing corporal punishment and at what age before analysing underlying associations of what predicts experiencing corporal punishment. We then analyse whether corporal punishment is associated with children having poorer concurrent and later outcomes. Figure 2 summarises children's self-reports of

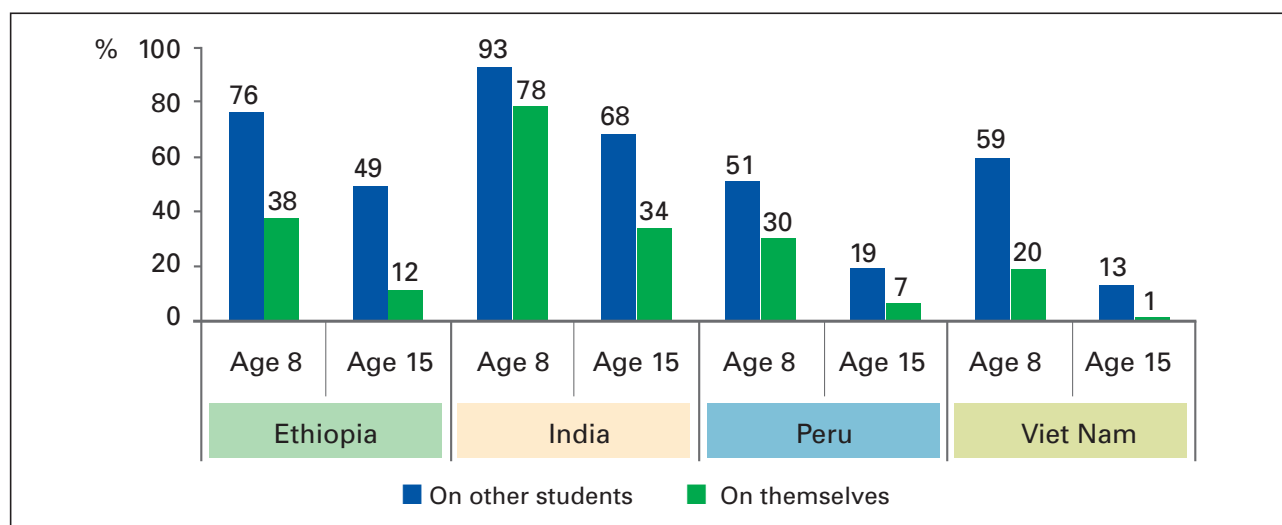
corporal punishment inflicted by their teachers in Round 3 of the survey, at ages 8 (Younger Cohort) and 15 (Older Cohort), either on themselves and/or on other students.

Corporal punishment is widespread in schools especially at younger ages

Figure 2 shows children’s reported experience of corporal punishment during the past week at school and demonstrates the widespread use of physical punishment in schools. It is an indication of the ongoing challenges in enforcing laws and regulations (Covell and Becker, 2011: 14; Office of the SRS on Violence against Children, 2012: 9).

In the Young Lives study country samples, India (the States of Andhra Pradesh and Telangana) has the highest reporting of physical punishment at both age points – about 8 in 10 children reported being punished at age 8 and about one third of children at age 15 (Figure 2). With entry age to primary education at age 6, most of the 8 year olds were enrolled in grades 1 to 4 of lower primary education when they were interviewed and attending government or private schools (55 per cent and 44 per cent respectively).⁷ At age 15, 87 per cent were enrolled in grades 9 to 12 of secondary education and the remaining 13 per cent in grades 6-8 of upper primary education. Two thirds of these children attended government schools and the remaining third were in private education.

FIGURE 2 - Children’s self-reports of teacher’s use of physical punishment in the past week, at ages 8 and 15 (2009)



Note: Reports combine the response categories ‘once or twice’ and ‘most/all of the time’. Among these responses, more than four fifths of 8 year olds in Ethiopia, Peru and Viet Nam reported experiencing corporal punishment ‘once or twice’ during the past week, while one third in India reported experiencing corporal punishment ‘most/all the time’.

The prevalence of corporal punishment is second highest in Ethiopia, where about 4 in 10 children enrolled in school experienced corporal punishment at age 8 and about 1 in 8 school children at age 15 (Figure 2). Since school enrolment starts at 7 years of age, most of the 8 year olds were enrolled in grades 1 to 3 of the first cycle of primary school, predominantly in government-funded schools (84 per cent) with fewer children attending private schools (9 per cent) or other types of school, such as religious institutions (7 per cent). At age 15, about a fifth of children continued to be enrolled in grades 1 to 4. Due to high rates of grade repetition and slow progression through school, about two thirds were enrolled in the second cycle of primary education (grades 5 to 8) and

⁷The private schools captured here are typically the low-fee private sector and also include religious and not-for profit schools.

16 per cent were in secondary education. Ninety-two per cent of these children attended government-funded schools.

In Peru and Viet Nam the prevalence of corporal punishment is lower, though reporting is still high for the 8 year olds (Figure 2). In Peru, 3 in 10 children enrolled in school at age 8 were subjected to corporal punishment. These children were enrolled in grades 1 to 3 (around two thirds in grade 2 since the entry age to primary in Peru is at age 6) in government (81 per cent) and private (16 per cent) schools. At age 15 in Peru, about 1 in 15 children experienced corporal punishment. Most of these children were enrolled in secondary education with only about 5 per cent in upper primary school, predominantly in government (83 per cent) and private (13 per cent) schools. In Viet Nam, 1 in 5 children reported being physically punished by teachers at school at age 8. These children were enrolled in grades 2 to 4 (two thirds in grade 3) in government schools. At age 15, very few boys or girls report being subjected to corporal punishment.

Corporal punishment in schools is more commonly inflicted at younger ages when children are enrolled in the first grades of elementary education, with the incidence of corporal punishment at age 8 more than double the rate reported by 15 year olds, in all four countries. As children progress through school, whether moving into upper primary or secondary education, children report less physical punishment. Similar findings on the greater risk of corporal punishment for younger children have been found in other studies (Youssef, et al., 1998; Office of the SRSG, 2013: 34; UNICEF, 2014: 13).

In addition, it is not surprising to see that reports on corporal punishment are higher when children are asked about corporal punishment inflicted on other students rather than on themselves (Figure 2).⁸ One child may witness many instances of corporal punishment directed against others and so estimates of prevalence are higher when gathered on the group, rather than individual, level. This may also reflect underreporting for fear of the consequences of reporting corporal punishment, especially given that children are being asked about an illegal act and also because of possible shame or stigma associated with being punished (Morrow and Singh, 2014: 6). Qualitative data have shown that children may not report corporal punishment as they fear they will not receive any positive attention from the teacher in the future (Morrow and Singh, 2014: 13) or that the teacher may leave and they would have no one to help them learn (Parkes and Heslop 2011).

Violence in school is a key reason why children dislike school

Children were asked to express what they most like and dislike about being at school. Reasons for liking school were mostly related to interests in studying, learning useful skills and knowledge, or having teachers who teach well, but also in seeing friends, having time for play or having a good playground. These reasons accounted for about 80 per cent of children's responses in all four countries (ranging from 73 per cent in India to 91 per cent in Peru).

Table 3 situates corporal punishment among the other factors given by 8 year-old children as reasons for disliking school. A large proportion of children do not mention a particular reason for disliking school. However, incidents of violence feature as

⁸ In all four countries, these differences are statistically significant at the 5 per cent level

an important issue for a high proportion of children in most of the four countries. Students fighting, teachers beating, teachers discriminating against pupils, pupils teasing or bullying, and/or teachers shouting are reported as key problems in schools for 53 per cent of the children in Viet Nam, 42 per cent in Ethiopia, 38 per cent in Peru and 26 per cent in India. Disaggregating these figures by gender, we find statistically significant differences in Ethiopia, where 45 per cent of boys as opposed to 39 per cent of girls report one of these actions as the most important reason for disliking school; and in India, where the percentages are 29 per cent for boys versus 23 per cent for girls.

Corporal punishment alone – considered as ‘teachers beating’ in Table 3 – is reported as the first cause for not liking being at school in India (15.7 per cent) (which is also the country with the highest prevalence rate of the four), the third cause in Ethiopia (5.6 per cent), and the sixth in Viet Nam (5.3 per cent) and Peru (3.3 per cent).⁹ We only find gender differences in India, where 17 per cent of boys compared to 13 per cent of girls report disliking school due to corporal punishment. In addition, however, we find gender differences in actions such as pupils teasing in Ethiopia (4 per cent of boys versus 2 per cent of girls) and Viet Nam (23 per cent of girls versus 18 per cent of boys), and students fighting in Viet Nam (20 per cent of boys versus 16 per cent of girls).¹⁰

TABLE 3 - Most important reason for children aged 8 disliking school (2009)

<i>Most important reason</i>	<i>Ethiopia (%)</i>	<i>India (%)</i>	<i>Peru (%)</i>	<i>Viet Nam (%)</i>
Nothing	40.3	38.0	32.3	28.6
Students fighting	32.7	8.0	15.0	18.3
School physical infrastructure/supplies*	8.0	9.8	5.1	2.7
Teachers beating	5.6	15.7	3.3	5.3
Teachers discriminating, shouting	0.6	0.6	2.3	8.3
Noisy classroom	4.2	14.6	6.2	6.8
Pupils teasing	3.1	1.5	17.4	20.9
Other teacher related**	2.8	3.4	0.3	0.5
Other	1.5	6.1	16.9	8.1
Other school related***	1.2	2.2	1.2	0.5
Total	100	100	100	100
Number of observations	1,272	1,581	1,748	1,515

* Includes poor infrastructure or physical environment, dirty conditions, no drinking water tap, lack of teaching materials and poor sanitation (e.g. lack of toilets or privacy). ** Includes absenteeism amongst teachers, shortage of teachers, poor teaching and teachers changing too often. *** Includes language of instruction, school considered being too far away and school considered to have too many students.

What children dislike about school also varies by age. Using data from the Older Cohort children interviewed at age 8 (2002) and later at age 12 (2006), more children reported disliking school due to teachers beating when they were aged 8, compared to when they were interviewed again at the age of 12 (14 per cent versus 4 per cent in Ethiopia,

⁹ We do not include ‘nothing’ for ranking the reasons in terms of importance.

¹⁰ Differences are significant at the 5 per cent level with the exception of students fighting in Viet Nam, which is significant at the 10 per cent level.

18 per cent versus 8 per cent in India, 6 per cent versus 2 per cent in Peru, and 4 per cent versus 1 per cent in Viet Nam). This may be because older children are less likely to experience corporal punishment, as illustrated by Figure 2, or because violence becomes normalized (Rojas, 2011; Morrow and Singh, 2014).

Given the nature of the question addressed in Table 3 which asks for the most important reason for disliking school, it is difficult to ascertain the exact role of corporal punishment in shaping children's attitudes towards school and feelings of worry or anxiety. Here, corporal punishment may be one among a range of unfavourable situations encountered at school. Equally, it is possible that some children perceive corporal punishment as the education 'norm', as found elsewhere, such as found by Anderson and Payne (1994) in a study documenting the perception of 10-11 years old pupils (n. 290) studying in Grade 5 in Barbados.

Who is at risk of corporal punishment? Differences by gender, poverty and location

Next we examine which children are more vulnerable to corporal punishment in school at age 8. Figure 3 presents simple descriptive statistics on the incidence of corporal punishment, disaggregated by child and household characteristics, with fuller information available in Appendix 2. Across the countries, boys are consistently more likely to report corporal punishment, being between 9 percentage points (Peru) and 17 percentage points (Viet Nam) more likely to report corporal punishment than girls. This adds to a growing global picture on the greater vulnerability of boys to physical punishment (Dunne, Humphreys and Leach, 2006: 78; Alyahri and Goodman 2008: 770; Baker-Henningham, et al. 2009: 300; Covell and Becker, 2011: 14).¹¹

Two separate patterns emerge by location (urban and rural) and by household wealth level (for the latter see Appendix 2). In India and Peru, children in rural areas, or in the poorest third of households (in Peru) are the most likely to report corporal punishment, with the difference between their urban or less poor counterparts most stark in Peru. In Ethiopia and Viet Nam, children in urban areas or in the least poor third of households (in Viet Nam) were the most likely to report corporal punishment. It is worth noting that location and wealth are themselves correlated, and so the correlation between lower wealth and lower reported corporal punishment in Ethiopia and Viet Nam may reflect the greater violence rates in urban areas which are also less poor.

With respect to the type of schools (government or private) children attend, children in government schools in Ethiopia, India and Peru were more likely to report corporal punishment in school. While this may plausibly reflect greater pressure and lower resources (for example larger class sizes) compared with private schools, the results are only statistically significant in the case of Peru.¹²

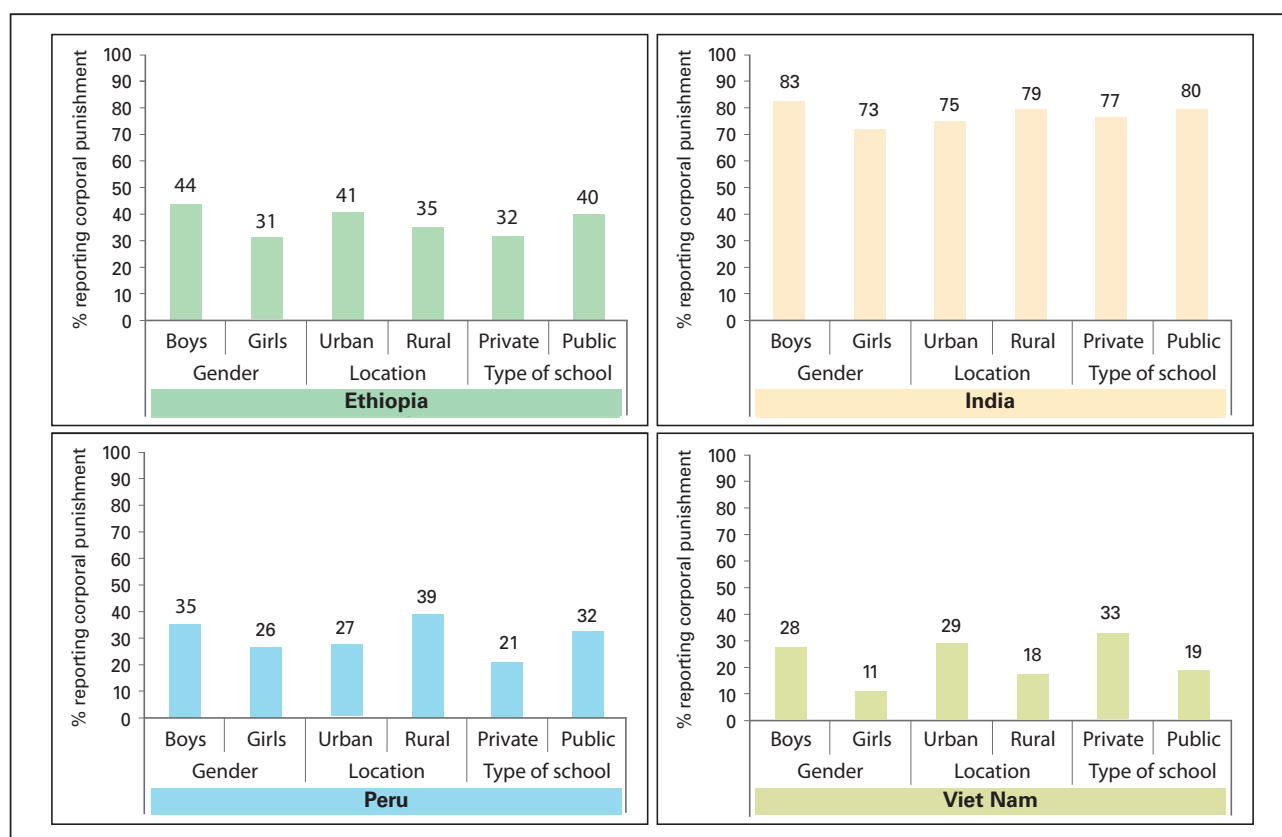
Appendix 2 provides further analysis on children reporting corporal punishment disaggregated by both regional and ethnic differences. The results by region or ethnicity broadly mirror the rural/urban results noted earlier; for example, the highest

¹¹ The incidence of corporal punishment is calculated within each group. In the case of Ethiopia, for example, 44 per cent of the sample of boys reports having experienced corporal punishment in school, in comparison with 31 per cent of the sample of girls. This allows comparing percentages between groups without these being affected by sample characteristics, such as the number of boys or girls enrolled in school.

¹² Almost all children in Viet Nam attend government schools. Therefore, the sample of children attending private schools is too small for meaningful analysis.

rates of corporal punishment in Ethiopia are reported in the capital city Addis Ababa, and the highest rates of violence in Peru were reported by those for whom Spanish was not their first language. Such children are also most likely to live in rural areas.

FIGURE 3 - Reported rates of corporal punishment of 8 year olds by gender, household wealth and location (2009)



The findings presented in Figure 3 indicate potential predictors of corporal punishment, but interpretation of these results is limited. It is possible that some of these findings are echoing the effect of another explanatory factor. With multivariate regression analysis we model the probability of children being physically punished by teachers controlling for child and household characteristics. This means that we are able to model whether children report the experience of corporal punishment or not. Controlling for a set of variables we observe, and therefore get closer to, the underlying associations between these variables and corporal punishment in schools.

Table 4 shows the results of regression analysis using two specifications: cluster fixed effects and school fixed effects.¹³ Cluster fixed effects regressions are more robust than OLS (ordinary least squares) regressions as they compare children living within the same sites and so take into account the fact that children living within the same communities are more homogenous and exposed to similar contexts than children living in different communities.¹⁴ In addition, this model accounts for clustering

¹³ OLS results are available on request from the authors.

¹⁴ A cluster fixed effect regression is equivalent to including site dummy variables for where the child was growing up at age 8. (The coefficients of the site dummies are not estimated nor reported).

TABLE 4 - Predictors of school corporal punishment at age 8 (2009)

Outcome variable: school corporal punishment at age 8	Ethiopia		India		Peru		Viet Nam	
	Cluster FE	School FE	Cluster FE	School FE	Cluster FE	School FE	Cluster FE	School FE
Age of child in months (2009)	-0.005 (0.004)	-0.004 (0.004)	-0.004 (0.004)	-0.002 (0.003)	0.004 (0.003)	0.007 (0.004)	0.002 (0.003)	0.001 (0.003)
Male	0.126*** (0.038)	0.112** (0.045)	0.110*** (0.025)	0.088*** (0.026)	0.087*** (0.020)	0.087*** (0.031)	0.158*** (0.028)	0.176*** (0.024)
Weight-for-age z-score (2009)	-0.014 (0.014)	-0.004 (0.019)	-0.032*** (0.008)	-0.024* (0.014)	0.015 (0.013)	0.014 (0.013)	0.001 (0.009)	0.003 (0.010)
Birth order	-0.002 (0.007)	-0.006 (0.009)	-0.008 (0.012)	-0.015 (0.010)	0.011* (0.006)	0.008 (0.009)	-0.002 (0.010)	-0.006 (0.009)
Raw score in CDA test (age 5, 2006)	-0.002 (0.005)	-0.004 (0.005)	-0.004 (0.004)	-0.008* (0.004)	-0.016** (0.007)	-0.014* (0.008)	-0.006 (0.005)	-0.006 (0.006)
Caregiver's education in years (2009)	0.000 (0.004)	0.005 (0.005)	-0.006** (0.002)	-0.008* (0.004)	-0.010** (0.004)	-0.006 (0.005)	-0.003 (0.004)	-0.003 (0.004)
Household expenditure in logarithm (2009)	-0.058 (0.037)	-0.055 (0.041)	0.010 (0.023)	0.020 (0.026)	-0.001 (0.027)	0.044 (0.033)	-0.044 (0.031)	-0.049* (0.029)
Household size (2009)	-0.003 (0.010)	-0.001 (0.011)	0.002 (0.004)	0.006 (0.004)	0.009 (0.007)	0.011 (0.008)	-0.020** (0.008)	-0.018* (0.010)
Ref. category: private school Government-funded school (2009)	0.121** (0.055)		0.010 (0.030)		0.016 (0.029)		-0.122 (0.143)	
Other type of school (2009)	0.089 (0.089)		0.112 (0.104)				0.114 (0.227)	
Ref. category: other ethnic/language group Ethnic/caste - Group 1			-0.008 (0.032)	-0.019 (0.041)	-0.035 (0.062)	0.026 (0.082)	0.040 (0.049)	0.048 (0.050)
Ethnic/caste - Group 2			-0.082*** (0.027)	-0.050 (0.039)				
Ethnic/caste - Group 3			0.005 (0.041)	0.096* (0.057)				
Constant	1.019** (0.401)	1.048** (0.402)	1.035** (0.453)	0.852** (0.354)	0.034 (0.366)	-0.496 (0.481)	0.483 (0.333)	0.468 (0.320)
Number of observations	1,030	1,030	1,552	1,501	1,367	1,367	1,515	1,516
R-squared	0.027	0.018	0.038	0.034	0.029	0.023	0.054	0.058
Number of clusters/schools	20	151	20	543	20	490	20	178

FE = fixed effects; CDA = Cognitive Development Assessment

Notes: India (Caste) reference group: Other; Group 1: Scheduled Castes; Group 2: Scheduled Tribes; Group 3: Backward Classes.

Peru (mother's mother tongue) reference group: Spanish language; Group 1: Indigenous language.

Viet Nam (Ethnic group) reference group: Other; Group 1: Kinh.

In Ethiopia, region does not vary at the cluster or school level; hence coefficients are not estimated.

We exclude children who are not enrolled in school and who live outside Young Lives original sites at age 8 (most have migrated to new communities and are attending schools where there are no other Young Lives children).

Robust standard errors, in parentheses, are clustered at the cluster/school level, respectively in the first and second column. Asterisks indicate *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

resulting from sampling (see Methods and Data section). Similarly, school fixed effects allows us to compare children within the same school, and so controls for unobserved characteristics experienced by all children attending the same school. Across both specifications and across countries (Table 4) we find consistent gender gaps, with boys being significantly more likely to experience corporal punishment.

Caregivers' education and household expenditure are used as a proxy for household disadvantage. These coefficients are fairly consistent, negative and significant in either one of these variables across all countries except Ethiopia. The effect sizes are small but the findings suggest a link between poorer household socioeconomic status and higher likelihood of children of being subject to corporal punishment in school. From these results, two alternative explanations can be hypothesised. First, disadvantaged children are more likely to attend schools where teachers use corporal punishment more often, for example because of overcrowding. Second, disadvantaged children are more likely to be physically punished than their peers within the same schools. School fixed effects allow us to test these hypotheses by comparing children within the same school. Results shown in the second column of Table 4 indicate that disadvantaged children within the same school are more likely to be subjected to corporal punishment in India and Viet Nam (although the effects are small).¹⁵ This echoes studies from South Africa, Swaziland and Zambia, which found that poorer children are more likely to experience corporal punishment, as well as other forms of humiliating treatment (Clacherty and Clacherty, 2004; 2005a; 2005b). Qualitative evidence gathered from children and caregivers in the former state of Andhra Pradesh illustrates a number of possible reasons why poor children experience more corporal punishment, including being punished for lacking of school materials and frequent absence in order to undertake work for the household (Morrow and Singh, 2014: 11-13).

Country-specific patterns emerge with respect to location, school characteristics and cognitive ability. In Ethiopia, children attending government-funded schools are considerably more likely to experience physical punishment in comparison with their peers in private schools. In addition, Ordinary Least Square (OLS) results (not shown here) show that children attending schools in Addis Ababa are considerably more likely to experience physical punishment compared to children attending schools in other regions. Similarly, in Viet Nam, children attending urban schools are more likely to be physically punished than children in rural schools. Studies on the use of corporal punishment in the home using MICS (Multiple Cluster Indicator Survey) data have not shown a consistent pattern across countries on the relationship between urban and rural location and corporal punishment (UNICEF, 2010; Marcus 2014b: 49). Instead, this depends on national and regional characteristics. Finally, in India and Peru, children who performed less well on a CDA test at age 5 were more likely to be punished at age 8. This suggests that poorer performance in earlier cognitive tests (which is likely to be predictive of concurrent performance) is associated with a greater likelihood of being punished.

DOES CORPORAL PUNISHMENT AFFECT CHILDREN'S OUTCOMES?

One contested argument relating to the administration of corporal punishment in schools is whether corporal punishment has detrimental effects on children. In this section

¹⁵ School codes used in analysis for Peru were created from names of schools collected. It is possible that a single school is known by different names. Therefore, results may vary after school codes are fully cleaned.

we examine this, first looking at the association between corporal punishment at age 8 and outcomes measured at the same age, and later looking at outcomes measured at age 12.

Corporal punishment is associated with poorer concurrent outcomes for children

At age 8, we use regression analysis to examine the association between corporal punishment and four outcomes – agency, shame, maths and PPVT– (see Methods and Data section for a description of these measures) controlling for a set of child and household characteristics. We run two types of specifications: OLS as a base model and cluster fixed effects, which is a more robust model that controls for all unobserved community characteristics experienced by children who live the same communities.

Table 5 summarises the associations between corporal punishment and two outcomes measuring children’s well-being: agency and feelings of shame, after controlling for various child and household characteristics. The full regression coefficients are presented by country in Appendix 3. In all countries, the sign of the coefficient of corporal punishment is negative for agency and positive for shame (with the exception of Ethiopia). The results, however, are only significant for agency in Ethiopia and Viet Nam, and shame in Peru.

TABLE 5 - Coefficients on corporal punishment and psychosocial outcomes at age 8 (2009)

	Agency		Shame	
	OLS	FE	OLS	FE
Ethiopia	-0.077** (0.033)	-0.077** (0.034)	-0.030 (0.036)	-0.009 (0.037)
India	-0.034 (0.030)	-0.044 (0.033)	0.018 (0.052)	0.021 (0.050)
Peru	-0.021 (0.019)	-0.017 (0.024)	0.093** (0.035)	0.087** (0.035)
Viet Nam	-0.103** (0.042)	-0.110** (0.041)	0.030 (0.040)	0.009 (0.041)

OLS = ordinary least squares, FE = cluster fixed effects.

Note: Full regression coefficients are shown by country in Appendix 3. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1.

Similarly, Table 6 summarizes the associated effects of school corporal punishment on maths and vocabulary outcomes at age 8, after controlling for various child and household characteristics.¹⁸ For each OLS and FE specification, we present two regressions which only differ in that the second column additionally controls for previous maths or PPVT scores, namely CDA for the maths outcome and PPVT for the PPVT outcome. This is in order to control for performance in earlier cognitive tests as these are strongly predictive of later outcomes and to examine the relationship between corporal punishment and cognitive performance before and after controlling for the child’s ability at the age of 5.

¹⁸The full regression coefficients are presented by country in Appendix 3.

The negative sign of the coefficients in Table 6 shows that corporal punishment is negatively associated with maths and PPVT outcomes.¹⁹ The effects on maths are significant in Ethiopia and Viet Nam across all four regressions and in India and Peru when comparing children living in the same community. The effects on PPVT are significant in India when we compare children living in the same community and after controlling for earlier PPVT; and in Peru only when we compare across all children in our sample and without accounting for previous PPVT score at age 5.²⁰

TABLE 6 - Coefficients on corporal punishment and cognitive outcomes at age 8 (2009)

	Maths				PPVT			
	OLS		FE		OLS		FE	
	Without previous maths score	With previous maths score	Without previous maths score	With previous maths score	Without previous PPVT score	With previous PPVT score	Without previous PPVT score	With previous PPVT score
Ethiopia	-0.514* (0.248)	-0.496* (0.247)	-0.550** (0.255)	-0.546** (0.252)	1.802 (2.986)	2.051 (2.993)	-0.565 (3.237)	-0.423 (3.202)
India	-0.521 (0.605)	-0.401 (0.575)	-0.966* (0.523)	-0.884* (0.490)	-4.340 (2.757)	-3.385 (2.666)	-4.985** (2.325)	-4.263* (2.171)
Peru	-0.660 (0.392)	-0.460 (0.404)	-0.726* (0.356)	-0.593 (0.363)	-2.165* (1.231)	-0.365 (1.180)	-1.408 (1.131)	-0.278 (1.111)
Viet Nam	-0.512* (0.268)	-0.510* (0.262)	-0.611** (0.269)	-0.541* (0.271)	0.760 (1.453)	0.215 (1.488)	0.306 (1.289)	-0.298 (1.423)

OLS = ordinary least squares, FE = cluster fixed effects.

Note: Full regression coefficients are shown by country in Appendix 3. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1.

A strong and consistent story comes out in the regressions above, that corporal punishment is negatively associated with concurrent maths scores. Results remain significant in three out of the four countries when we control for cluster fixed effects and previous maths ability at the age of 5.

Yet, one of the main challenges in this analysis is being able to attribute causality, namely being able to claim that corporal punishment leads to children performing less well in maths (or to having less agency and more feeling of shame). In the limitations section we mentioned two main problems we encounter that prevent us from suggesting a causal link: reverse causality and omitted variable bias.

We have partly addressed the problem of omitted variable bias by comparing children living in the same communities (but attending different schools or being taught by different teachers) in the fixed effects specification. In other words, in these regressions we are able to account for all unobserved variables at the cluster level; however, we cannot rule out that there may be other characteristics at the child, family and school level that are not captured.

¹⁹ The few positive coefficients found in Table 6 are not significant and therefore, the 95% confidence interval includes a negative lower bound.

²⁰ In addition, we tested for gender difference but we did not find any significant differences with the exception of Viet Nam, where we found that the (negative) associated effects of corporal punishment on maths are weaker for boys compared to girls.

The problem of reverse causality is possible in our results. Children may be physically punished because they are not performing well at school, or may be performing badly because they are subjected to corporal punishment. With respect to our measure of shame, this includes items about how children feel about not having the correct uniform or the right books, pencils or other equipment. Similarly, children may be physically punished at school for various reasons, one being for lacking school materials. Or, children may be feeling shame for lacking uniforms and materials and also be physically punished because of this. In qualitative interviews children often report being punished for not having school uniforms or equipment and for not performing well at school (Morrow and Singh, 2014: 13).

In the following section we account for reverse causality by regressing children's outcomes at age 12 on the previous experience of corporal punishment at age 8, testing also if effects associated with corporal punishment persist.

Corporal punishment is negatively associated with children's later outcomes

In this section we look at children's outcomes measured at age 12, namely self-esteem, self-efficacy, maths and vocabulary (see Table 2 for a description of these measures). For each country, using both OLS and cluster fixed effects, we run several regressions where the dependent variable is one of these outcomes and the independent variable is the (lagged) experience of corporal punishment at age 8, plus a set of controls for child and household characteristics measured at the age of 12. In this case, the outcomes are measured at a later point in time (three years later after reporting the experience of corporal punishment).

In addition, for the maths and PPVT outcomes at age 12, we include the corresponding lagged test score measured at age 8 and show whether the coefficient of corporal punishment varies after accounting for previous performance (see column 'with previous score' in Table 8). Full regression coefficients can be found by country in Appendix 4.

TABLE 7 - Coefficients on corporal punishment at age 8 (2009) and psychosocial outcomes at age 12 (2013)

	Self-efficacy		Self-esteem	
	OLS	FE	OLS	FE
Ethiopia	-0.076** (0.033)	-0.048 (0.031)	-0.079* (0.040)	-0.054 (0.039)
India	-0.004 (0.033)	0.008 (0.032)	-0.020 (0.033)	0.001 (0.032)
Peru	-0.065*** (0.019)	-0.060** (0.021)	-0.014 (0.031)	-0.013 (0.031)
Viet Nam	-0.044 (0.036)	-0.044 (0.035)	-0.079** (0.031)	-0.068** (0.030)

OLS = ordinary least squares, FE = cluster fixed effects.

Note: Full regression coefficients are shown by country in Appendices 3 and 4.

Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1.

Table 7 summarises the associated effect of corporal punishment (at the age of 8) on psychosocial competencies measured at the age of 12. We find consistent negative coefficients across most of the 16 regressions (except in a few cases where the 95 per cent

confidence intervals include a negative lower bound). However, significant effects are only observed in a few countries, namely self-efficacy in Peru and self-esteem in Viet Nam (in both OLS and FE regressions). In Ethiopia, associated effects are found for self-esteem and self-efficacy, but these become non-significant in the fixed effects regressions.

Table 8 confirms the pattern already observed in the previous section, that corporal punishment at age 8 is negatively associated with children's cognitive outcomes at age 12. These results are significant for maths scores in three out of the four countries, across both specifications and after controlling for previous cognitive performance in Peru and Viet Nam. In the case of India, the effects reduce in size and are no longer statistically significant once we account for previous maths scores at age 8. However, maths scores at age 8 may be already accounting for the effects of corporal punishment, as we have shown in Table 6. With respect to PPVT, negative and significant associations across both specifications are found in Peru, even after accounting for performance in PPVT at the age of 8. In Ethiopia, the positive coefficient on PPVT is counterintuitive, although it becomes non-significant once we compare children living in the same communities.

TABLE 8 - Coefficients on corporal punishment at age 8 (2009) and cognitive outcomes at age 12 (2013)

OLS = ordinary least squares, FE = cluster fixed effects. Note: Full regression coefficients are shown by country in Appendix 4.

	Maths				PPVT			
	OLS		FE		OLS		FE	
	Without previous maths score	With previous maths score	Without previous maths score	With previous maths score	Without previous PPVT score	With previous PPVT score	Without previous PPVT score	With previous PPVT score
Ethiopia	-1.481 (1.035)	-0.145 (1.019)	-1.213 (1.057)	0.044 (1.041)	0.022** (0.008)	0.018* (0.009)	0.008 (0.006)	0.007 (0.006)
India	-2.579* (1.377)	-1.493 (1.360)	-4.233*** (1.445)	-2.485 (1.470)	-0.011 (0.010)	-0.009 (0.010)	-0.017 (0.010)	-0.016 (0.010)
Peru	-3.326** (1.196)	-2.480** (1.001)	-3.046*** (1.055)	-2.145** (0.888)	-2.859*** (0.787)	-1.908** (0.734)	-2.402*** (0.679)	-1.773** (0.735)
Viet Nam	-3.931*** (1.012)	-3.318*** (0.883)	-4.349*** (1.027)	-3.642*** (0.949)	0.000 (0.006)	0.002 (0.006)	-0.001 (0.005)	0.000 (0.005)

Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1.

DISCUSSION

Given the rapid expansion of education systems across the globe, with more children in school than ever before, schools have great potential to play a key role in breaking cycles of violence and disadvantage. Yet we have seen how through the daily and differential use of corporal punishment, schools instead often reproduce and reinforce structural inequalities. Among eight-year old children, over half in Peru and Viet Nam, three quarters in Ethiopia and over nine out of ten in India, report witnessing a teacher administer corporal punishment in the last week. Younger children and boys are at significantly greater risk of corporal punishment across the four countries. Differences according to location and ethnicity vary. In Ethiopia and Viet Nam, children in urban areas report more corporal punishment, with the reverse in India and Peru. Children

from more disadvantaged households are significantly more likely to be punished overall than other children in India, Peru and Viet Nam. In India and Viet Nam disadvantaged children are significantly more likely to be punished than their peers in the same school. The likelihood of children experiencing corporal punishment is therefore determined by a combination of more 'universal' structural factors and norms related to age, gender and poverty and more context-specific factors relating to conditions, pressures and norms in different settings. Additional research on national datasets is required to unpick these dynamics further.

The greater vulnerability of younger children and boys to corporal punishment raises fundamental concerns about the role of the school in socializing children into violent behaviours and reinforcing gender roles and identities during this formative stage in the life course. Research from Peru has documented that children report become accustomed to the violent beatings from teachers and reproduce this violent behaviour in interactions with peers, as physical aggression is viewed as a legitimate way of asserting authority and especially in establishing masculine identities (Rojas, 2011). Schools can therefore become sites for the reproduction of cycles of violence (Morrell, 2001; Morrow and Singh, 2014: 17). In addition, often corporal punishment in schools is just one of several or many forms of violence experienced by children in the home, community and school. Further research is required on the links between the causes and consequences of corporal punishment in schools and other forms of violence.

The quality of evidence on causal effects of corporal punishment on children has been hampered by the lack of longitudinal data. While effects have been observed using cross-sectional and qualitative data, these are subject to claims of reverse causation. Using longitudinal data we find that corporal punishment at age 8 is negatively associated with later maths scores at age 12 in India, Peru and Viet Nam. These results remain significant when comparing children living in the same community and after controlling for previous maths performance in Peru and Viet Nam. By doing this we partly account for the problem of reverse causality as children's results on maths test at age 12 cannot be the direct cause of children being punished at age 8.

Corporal punishment undermines the development of children's life chances and human capital formation as children fall behind in their learning. One consequence of this found in other studies from Lebanon, Nepal and Pakistan is that children's experiences of, or fear of, corporal punishment can lead to children leaving school (Marcus, 2014b: 39). Analysis of Young Lives qualitative data from across the four countries has found corporal punishment deters children from attending school and/or leads to dropping out (Rojas, 2011; Pells, Dornan and Ogando Portela, 2013: 18; Morrow and Singh, 2014; Ogando Portela and Pells, 2014: 77; Vu, 2014: 239). This has implications both for the individual and wider society. If children perform less well and leave school early they are likely to have lower earnings as adults, so reinforcing cycles of poverty (Perezniето et al., 2010) which in turn affects countries economic growth and progress towards achieving key development indicators.

CONCLUSION

Schools need to be safe, supportive and enabling environments for all children to flourish. This is undermined by the prevalence of corporal punishment, even in contexts where it is legally prohibited, with younger children, boys and children from disadvantaged households (in three countries) being at greater risk. At age 8, corporal punishment is negatively associated with maths scores, after controlling for a range of child and household characteristics and comparing children living in the same communities. These results remain significant in Ethiopia, India and Viet Nam after controlling for previous performance in maths at age 5. Corporal punishment at age 8 is also negatively associated with later maths scores at age 12 in India, Peru and Viet Nam. Again, these results remain significant when comparing children living in the same community and after controlling for previous maths performance in Peru and Viet Nam. In terms of size, the associated average negative effect of corporal punishment on maths scores at age 12, when comparing children living in the same communities, is of similar size to the caregiver (usually mother) having about three to six years less education (size varies by country). Corporal punishment thus not only violates fundamental rights to dignity and bodily integrity, but also by impacting upon children's engagement with schooling and capacity to learn, can have long lasting implications for their life chances.

POLICY IMPLICATIONS

Corporal punishment occurs in the context of other structural inequalities, including poverty and unequal gender norms. Tackling violence in schools requires addressing wider inequalities, while also recognizing how violence manifests in the context of the school and addressing the role of schools in reinforcing cycles of violence. Although schools can be sites where children experience violence, they have the potential to perform a key preventative function. In this final section we therefore expand our focus to reflect on the implications for policy more broadly.

Legislation is an important first step in eradicating the use of corporal punishment, but on its own is not sufficient. As the high prevalence estimates across the four countries have demonstrated, a large gap exists between the law and the daily reality experienced by many children. This requires greater attention to understanding the institutional norms that impede implementation, and for the legislation to be supported by a wider range of preventative measures in policies and programmes. Policies developed at the national level on creating safe and enabling school environments need to be adapted to the specific needs and challenges encountered at the local and school level (Pinheiro, 2006: 137-8).

School environments need to be enabling, supportive, inclusive and safe spaces in which children can learn and flourish. Corporal punishment is often part of a wider culture of violence in school, which includes other forms of humiliating punishment, peer bullying and gender-based violence. This requires addressing the structures, norms and practices within the school environment as a whole that promote violent behaviour (including, but not focusing exclusively on, the disciplinary system), reinforce gender norms and also discriminate against certain groups of children (Parkes, 2015: 201). Particular attention needs to be given to supporting the learning of children who are often left behind;

these include those with disabilities and those disadvantaged by being affected by violence, not learning in their first language, or being frequently absent in order to care for sick family members or to work to support the household.

Improving school governance is central, with guidelines and action plans on eliminating violence in schools, including corporal punishment developed and enforced with the support of teachers, parents and children. Children need safe and confidential means of reporting instances of violence with appropriate follow-up taken to provide support and address the needs of the child and to hold the perpetrator to account. Depending on the local context, possible tools range from confidential reporting boxes in schools, to reporting online or to free telephone helplines (Laurie, 2010: 22). One promising model is the Good School Toolkit developed by Raising Voices in Uganda (Devries et al. 2015). The intervention includes setting goals and developing action plans at the school level, training on positive discipline, behaviour-change techniques for teachers, children, administrators and parents, and the formation of child-led committees, all supported by visits from the Raising Voices team. Evidence from a randomised control trial found that after 18 months, children in the intervention schools were 42 per cent less likely to be at risk of physical violence from school during the previous week (ibid., e383).

School-level interventions need to be accompanied and supported by wider systemic change in the education system led by national governments, education departments and authorities. Measures including policy development, budgetary allocations and employment policies (e.g. use of corporal punishment constituting misconduct and liable to disciplinary action), in addition to teacher training (explored below), are required in order to provide the knowledge, human and financial resources necessary to enforce legislation and increase accountability (Office of the SRSO on Violence against Children, 2012: 17).

Teachers need to be trained and supported in the use of non-violent or positive methods of discipline. Positive discipline aims to foster children's development and learning by building their self-confidence and self-discipline, based on the principles of respect and dignity. It equips teachers with classroom management techniques which focus on finding constructive solutions to challenging situations, rather than resorting to violence (Durrant, 2010: 11-13). Save the Children has developed a comprehensive positive discipline methodology for training teachers as well as parents. Some countries, such as Mongolia and Thailand, have successfully incorporated this methodology into the teacher training curricula and national regulations on non-violent school environments (Covell and Becker, 2011:17). Collaborating with teachers' unions and education authorities has been found to be an effective means of enforcing legislation protecting children from violence (Laurie, 2010: 16).

Breaking cycles of violence requires greater attention to the gendered nature of corporal punishment. This is imperative, given that boys are significantly more likely to experience corporal punishment, which reinforces gender stereotypes and notions of violent masculinities at a young age. This is sometimes neglected in the discourses on violence affecting children. While not ignoring the significant risk of other forms of violence faced by girls, breaking cycles of violence requires a greater understanding of how norms are internalised and the role played by corporal punishment in instilling

gendered identities. Tackling gender-based violence requires both empowering women and girls and redefining ideas of masculinity (Bhatla, Achyut, Khan and Walia, 2014: 264). Therefore both teacher training materials and school curricula need to include content which encourages learners to question and challenge established norms.

Greater awareness of the negative effects of corporal punishment on children is required in order to challenge the normalization of violence. Corporal punishment is part of a wider problem where the use of physical violence to discipline children is considered acceptable and believed to support children's learning and development. Often parents expect and demand teachers use 'mild' forms of corporal punishment, as it is believed to be an important part of teaching children discipline (Morrow and Singh, 2014: 14-15). Challenging the normalization of violence requires greater awareness at all levels (families, schools, communities and nationally) of the negative impacts of corporal punishment on education and better understanding of more effective alternatives. Community dialogue and working with local norms and understandings to bring about change from within, is more effective and respectful than imposing from the outside and avoids stigmatizing different groups of people (Morrow and Pells, 2012; Parkes, 2015: 202). Children themselves often highlight alternative approaches to discipline, for example emphasizing the importance of talking (Clacherty and Clacherty 2004; 2005a; 2005b Beazley et al. 2006: 183; Parkes and Heslop, 2011:38). Involving children in the establishment of school rules and standards, such as through school clubs and student councils is a promising approach to reducing violence and improving student behaviour (Office of the SRSG on Violence against Children, 2012: 20-21).

National action plans to implement the Global Goals on Sustainable Development need to retain the focus on protecting children from violence, abuse and exploitation. Violence against children is receiving greater international attention than ever before with the inclusion of goals and targets in the new Global Goals. Specifically in relation to corporal punishment, Goal 4 on education access and quality includes a target to: 'Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all'. The formulation of national action plans to implement the Global Goals offers a crucial opportunity to stimulate greater attention to violence affecting children, including better data collection and increased resource allocation for violence prevention.

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APPENDIX 1 - Means and standard deviations for variables used in analysis

	Ethiopia		India		Peru		Viet Nam	
	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
Age of child in months (2009)	97.632	4.057	95.458	3.794	94.922	3.610	96.678	3.749
Age of child in months (2013)	146.002	3.902	144.308	3.794	143.548	3.817	146.800	3.627
Boy	0.515	0.500	0.544	0.498	0.505	0.500	0.514	0.500
Height-for-age z-score (2009)	-1.040	1.054	-1.454	1.006	-1.137	1.023	-1.125	1.039
Height-for-age z-score (2013)	-1.326	0.955	-1.453	1.101	-0.958	2.402	-1.076	1.100
Birth order	3.351	2.232	2.006	1.124	2.567	1.890	1.869	1.094
Caregiver's education level (2006)	2.944	3.721	3.628	4.419	7.654	4.268	6.639	3.681
Household expenditure, logarithm (2009)	4.859	0.564	6.705	0.527	5.159	0.600	5.981	0.556
Household expenditure, logarithm (2013)	4.923	0.585	6.770	0.577	5.492	0.649	6.930	0.619
Household size (2009)	6.111	1.981	5.509	2.362	5.447	1.908	4.574	1.285
Household size (2013)	5.799	1.894	4.913	1.820	5.246	1.799	4.560	1.383
Urban locality (2009)	0.433	0.496	0.258	0.438	0.721	0.449	0.164	0.371
Urban locality (2013)	0.427	0.495	0.253	0.435	0.736	0.441	0.164	0.370
Cognitive Development Assessment (CDA) (2006)	8.404	3.040	9.418	2.584	8.414	2.127	9.842	2.448
Maths score, number of correct answers (2009)	7.308	5.348	12.159	6.393	14.378	5.708	18.317	5.606
Maths score, percentage correct (2013)	36.557	22.447	43.620	22.871	55.907	18.807	48.490	17.758
PPVT score, non-standardised (2006)	21.625	12.060	27.881	21.286	29.315	17.659	36.493	17.429
PPVT score, non-standardised (2009)	85.109	44.414	58.236	30.120	59.516	17.250	93.090	27.079
PPVT score, proportion correct (2013)	0.651	0.249	0.759	0.130	86.085	17.101	0.764	0.106
Agency index (2009)	0.019	0.522	0.004	0.533	0.001	0.522	-0.010	0.546
Self-efficacy index (2013)	0.016	0.601	0.004	0.621	0.003	0.517	0.006	0.517
Shame index (2009)	-0.019	0.668	-0.006	0.580	0.003	0.612	0.002	0.644
Self-esteem index (2013)	0.022	0.640	0.008	0.605	0.001	0.568	0.008	0.563
Number of observations		1,283		1,594		1,762		1,564

Note: The PPVT administered in 2013 is not comparable to the PPVT administered in 2006 and 2009 due to changes in administration. The earlier versions were based on adapted testing, but the test in 2013 was modified to administer a common subset of items to all children.

APPENDIX 2 - Percentage of 8 year olds reporting corporal punishment, by child and household characteristics (2009)

Child and household characteristics		Ethiopia	India	Peru	Viet Nam
Child gender	Male	44.2	83.0	34.9	27.5
	Female	30.9***	72.6***	26***	11.3***
Ethnic or language group or region ¹	Group 1	44.2	76.3	34.4	14.3
	Group 2	29.1	72.7	28.9**	20.5**
	Group 3	47.7	76.7	–	–
	Group 4	32.1	81.9***	–	–
	Group 5	37.7***	–	–	–
Caregiver's education	No education	37.3	80.7	35.8	14.6
	Lower primary (Ethiopia, India), Up to primary (Peru), Primary (1-5) (Viet Nam)	37.3	77.8	37.6	20.6
	Upper primary (Ethiopia, India), Primary up to secondary (Peru), Junior High (6-9) (Viet Nam)	37.5	81.3	27.1	20.3
	Above grade 8 (Ethiopia, India), Higher education (Peru), Secondary plus (>=10) (Viet Nam)	40.9	71.5***	20.9***	19.4
Wealth tercile ²	Top	39.0	75.4	21.6	21.8
	Bottom	33.8	78.0	37.5***	17.2*
Location	Urban	40.9	75.0	27.3	28.5
	Rural	35.3**	79.4*	38.6***	17.8***
Type of school	Private school	32.3	76.7	21	33.3 ³
	Public school	40	79.6	32.2***	19.4
Number of observations		1,283	1,594	1,762	1,535

Note: Two-group T-tests were used to compare differences in means by child gender, tercile of wealth index, location and type of school. One-way analysis of variance (ANOVA) was used to determine statistically significant differences between ethnic or language group or region, and between levels of caregiver's education. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1.

¹ Ethiopia (Region) Group 1: Addis Ababa; Group 2: Amhara region; Group 3: Oromia region; Group 4: SNNP region; Group 5: Tigray region. India (Caste) Group 1: Other; Group 2: Scheduled Castes; Group 3: Scheduled Tribes; Group 4: Backward Classes. Peru (mother's mother tongue): Group 1: Indigenous language; Group 2: Spanish language. Viet Nam (Ethnic group); Group 1: Other; Group 2: Kinh

²The wealth index is a composite measure based on housing quality, consumer durables and basic services.

³There are very few cases of private schools in Viet Nam, so these results are not appropriate for interpretation.

APPENDIX 3.1 - Regressions on cognitive achievement outcomes and psychological competencies at age 8 (Ethiopia)

	Agency		Shame		Maths				PPVT			
	OLS (1)	FE (1)	OLS (1)	FE (1)	OLS (1)	OLS (2)	FE (1)	FE (2)	OLS (1)	OLS (2)	FE (1)	FE (2)
Age of child in months (2009)	0.006 (0.005)	0.007 (0.005)	-0.002 (0.005)	0.003 (0.005)	0.169*** (0.030)	0.150*** (0.030)	0.148*** (0.031)	0.128*** (0.032)	2.292*** (0.191)	1.982*** (0.195)	2.138*** (0.178)	1.808*** (0.169)
Boy	0.055* (0.027)	0.049* (0.028)	0.027 (0.032)	0.030 (0.031)	0.379 (0.285)	0.379 (0.279)	0.245 (0.267)	0.246 (0.259)	-0.105 (2.246)	-1.029 (2.214)	-0.173 (1.747)	-1.186 (1.675)
Weight-for-age z-score (2009)	0.018 (0.013)	0.030** (0.014)	-0.057* (0.028)	-0.026 (0.021)	0.583*** (0.181)	0.550*** (0.176)	0.399*** (0.128)	0.372** (0.133)	5.454** (2.040)	5.240** (2.087)	2.057* (1.059)	1.847 (1.072)
Birth order	-0.003 (0.005)	-0.004 (0.005)	0.024*** (0.008)	0.023*** (0.008)	-0.114 (0.080)	-0.120 (0.078)	-0.129 (0.080)	-0.135 (0.079)	0.543 (0.461)	0.492 (0.440)	0.501 (0.412)	0.447 (0.395)
Caregiver's education in years (2006)	0.002 (0.005)	0.003 (0.006)	-0.007 (0.006)	-0.007* (0.004)	0.195*** (0.035)	0.175*** (0.032)	0.155*** (0.029)	0.138*** (0.027)	1.053** (0.417)	0.747* (0.378)	0.887** (0.372)	0.576 (0.342)
Household expenditure, logarithm (2009)	0.046 (0.032)	0.079** (0.031)	-0.181*** (0.043)	-0.171*** (0.037)	0.906** (0.339)	0.900** (0.339)	0.699** (0.265)	0.683** (0.267)	14.872*** (2.764)	14.430*** (2.749)	9.255*** (2.623)	8.701*** (2.637)
Household size (2009)	0.020** (0.009)	0.020* (0.010)	-0.006 (0.007)	-0.010 (0.008)	0.175** (0.067)	0.185** (0.067)	0.203*** (0.054)	0.218*** (0.055)	0.165 (0.552)	0.020 (0.567)	0.220 (0.494)	0.083 (0.511)
Child experienced corporal punishment (2009)	-0.077** (0.033)	-0.077** (0.034)	-0.030 (0.036)	-0.009 (0.037)	-0.514* (0.248)	-0.496* (0.247)	-0.550** (0.255)	-0.546** (0.252)	1.802 (2.986)	2.051 (2.993)	-0.565 (3.237)	-0.423 (3.202)
Urban locality (2009)	0.197*** (0.043)		-0.153 (0.100)		3.941*** (0.692)	3.811*** (0.701)			20.453** (8.079)	18.315** (8.219)		
Reference category (2009): Addis Ababa Amhara region	0.146 (0.089)		0.024 (0.111)		-1.552 (0.903)	-1.132 (0.893)			-25.516*** (7.159)	-20.085** (7.058)		
Oromia region	0.061 (0.088)		-0.063 (0.115)		-3.380*** (1.079)	-3.181*** (1.074)			-39.478*** (6.040)	-35.942*** (5.664)		
SNNP region	-0.014 (0.092)		0.177 (0.172)		-1.919 (1.341)	-1.716 (1.346)			-15.113 (12.335)	-12.430 (12.384)		
Tigray region	0.206** (0.094)		-0.352*** (0.108)		-0.195 (1.032)	0.051 (1.007)			-14.052 (10.225)	-10.213 (10.151)		
Previous score at age 5 (2006)						0.171*** (0.052)		0.169*** (0.053)		0.561*** (0.123)		0.581*** (0.138)
Constant	-1.073** (0.422)	-1.126** (0.471)	1.069 (0.619)	0.515 (0.547)	-14.364*** (4.056)	-14.084*** (4.193)	-11.119** (4.087)	-10.600** (4.232)	-199.210*** (21.488)	-179.040*** (21.065)	-171.090*** (20.559)	-146.201*** (19.571)
Observations	1,236	1,236	1,236	1,236	1,224	1,224	1,224	1,224	1,217	1,197	1,217	1,197
R-squared	0.054	0.022	0.125	0.032	0.386	0.393	0.065	0.077	0.385	0.399	0.095	0.123
Number of clusters		20		20			20	20			20	20

OLS = Ordinary least squares, FE = cluster fixed effects. *Note:* In column (2), as opposed to column (1), we additionally control for previous (math or PPVT) performance – measured at age 5 – of the outcome variable. Previous maths performance is the raw score on the CDA (Cognitive Development Assessment), a test of 15 questions. We exclude children who live outside Young Lives original sites at age 8 and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1

APPENDIX 3.2 - Regressions on cognitive achievement outcomes and psychological competencies at age 8 (India)

	Agency		Shame		Maths				PPVT			
	OLS (1)	FE (1)	OLS (1)	FE (1)	OLS (1)	OLS (2)	FE (1)	FE (2)	OLS (1)	OLS (2)	FE (1)	FE (2)
Age of child in months (2009)	0.008** (0.003)	0.006 (0.004)	-0.003 (0.005)	0.001 (0.004)	0.307*** (0.053)	0.243*** (0.057)	0.269*** (0.036)	0.200*** (0.033)	0.917*** (0.302)	0.681* (0.330)	0.949*** (0.198)	0.743*** (0.220)
Boy	0.062 (0.046)	0.068 (0.044)	0.011 (0.026)	0.014 (0.027)	0.418 (0.268)	0.389 (0.249)	0.586** (0.256)	0.570** (0.222)	7.644*** (1.809)	7.445*** (1.759)	8.287*** (1.745)	8.103*** (1.670)
Weight-for-age z-score (2009)	0.019 (0.013)	0.006 (0.012)	-0.008 (0.015)	-0.018 (0.014)	1.202*** (0.178)	1.069*** (0.171)	0.962*** (0.151)	0.801*** (0.145)	5.017*** (0.786)	4.608*** (0.844)	3.945*** (0.717)	3.600*** (0.811)
Birth order	-0.028 (0.022)	-0.022 (0.019)	0.020 (0.014)	0.031** (0.013)	-0.359*** (0.112)	-0.313*** (0.109)	-0.245* (0.122)	-0.179 (0.124)	-1.496** (0.675)	-1.349* (0.683)	-0.977 (0.691)	-0.823 (0.729)
Caregiver's education in years (2006)	0.009* (0.005)	0.004 (0.005)	-0.017*** (0.004)	-0.017*** (0.005)	0.418*** (0.040)	0.362*** (0.039)	0.328*** (0.032)	0.274** (0.028)	0.939*** (0.246)	0.562** (0.246)	0.613*** (0.198)	0.368* (0.197)
Household expenditure, logarithm (2009)	-0.013 (0.037)	0.028 (0.035)	-0.114*** (0.030)	-0.096*** (0.029)	0.027 (0.374)	-0.270 (0.374)	1.050*** (0.306)	0.770** (0.307)	1.781 (1.993)	1.424 (1.969)	6.269*** (1.700)	5.036*** (1.664)
Household size (2009)	-0.006 (0.005)	-0.000 (0.005)	-0.018*** (0.005)	-0.014*** (0.004)	0.102 (0.083)	0.091 (0.078)	0.133* (0.073)	0.121* (0.067)	-0.081 (0.370)	0.046 (0.362)	0.163 (0.350)	0.170 (0.361)
Child experienced corporal punishment (2009)	-0.034 (0.030)	-0.044 (0.033)	0.018 (0.052)	0.021 (0.050)	-0.521 (0.605)	-0.401 (0.575)	-0.966* (0.523)	-0.884* (0.490)	-4.340 (2.757)	-3.385 (2.666)	-4.985** (2.325)	-4.263* (2.171)
<i>Reference category: Other caste group</i>												
Scheduled Castes	-0.157*** (0.046)	-0.128** (0.047)	0.148*** (0.051)	0.158*** (0.055)	-0.500 (0.634)	-0.354 (0.618)	-0.237 (0.592)	-0.047 (0.565)	-0.405 (3.628)	-0.397 (3.677)	-1.023 (2.179)	-1.173 (2.435)
Scheduled Tribes	0.015 (0.077)	0.014 (0.073)	0.099* (0.056)	0.164** (0.065)	-3.286*** (0.753)	-3.467*** (0.800)	-1.328** (0.608)	-1.351** (0.605)	-7.277 (4.329)	-10.324** (4.232)	-5.328** (2.296)	-4.808* (2.674)
Backward Classes	-0.090** (0.040)	-0.075* (0.037)	0.016 (0.041)	0.028 (0.048)	-0.345 (0.528)	-0.238 (0.547)	-0.133 (0.430)	-0.038 (0.443)	-4.640* (2.543)	-4.792* (2.618)	-3.065 (2.012)	-3.127 (2.065)
Urban locality (2009)	0.051 (0.048)		-0.056 (0.101)		-2.472** (1.159)	-2.530** (1.154)			1.595 (6.180)	0.016 (6.247)		
Previous score at age 5 (2006)					(0.076)	0.516***	(0.050)	0.552***	(0.046)	0.263***	(0.051)	0.252***
Constant	-0.491 (0.333)	-0.680* (0.381)	1.144** (0.514)	0.514 (0.501)	-14.937** (6.005)	-11.798* (6.174)	-19.492*** (4.490)	-16.437*** (4.198)	-29.711 (35.282)	-12.092 (36.612)	-66.420** (27.188)	-45.931 (28.449)
Observations	1,555	1,555	1,555	1,555	1,553	1,553	1,553	1,553	1,541	1,480	1,541	1,480
R-squared	0.045	0.020	0.079	0.059	0.218	0.256	0.169	0.221	0.139	0.166	0.107	0.132
Number of clusters		20		20			20	20			20	20

OLS = Ordinary least squares, FE = cluster fixed effects. *Note:* In column (2), as opposed to column (1), we additionally control for previous (maths or PPVT) performance – measured at age 5 – of the outcome variable. Previous maths performance is the raw score on the CDA (Cognitive Development Assessment), test of 15 questions. We exclude children who live outside Young Lives original sites at age 8 and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1

APPENDIX 3.3 - Regressions on cognitive achievement outcomes and psychological competencies at age 8 (Peru)

	Agency		Shame		Maths				PPVT			
	OLS (1)	FE (1)	OLS (1)	FE (1)	OLS (1)	OLS (2)	FE (1)	FE (2)	OLS (1)	OLS (2)	FE (1)	FE (2)
Age of child in months (2009)	0.004 (0.003)	0.005* (0.003)	0.003 (0.004)	0.002 (0.004)	0.350*** (0.041)	0.306*** (0.046)	0.351*** (0.038)	0.300*** (0.042)	0.790*** (0.130)	0.420*** (0.115)	0.824*** (0.124)	0.409*** (0.118)
Boy	-0.026 (0.028)	-0.018 (0.027)	-0.002 (0.028)	-0.012 (0.030)	0.571 (0.339)	0.591* (0.328)	0.698* (0.347)	0.733** (0.330)	1.183 (0.903)	0.888 (0.733)	1.305 (0.773)	1.133 (0.684)
Weight-for-age z-score (2009)	0.040*** (0.012)	0.035*** (0.011)	-0.004 (0.014)	0.002 (0.014)	0.661*** (0.120)	0.593*** (0.113)	0.602*** (0.134)	0.571*** (0.129)	1.639*** (0.454)	0.639 (0.375)	1.298*** (0.449)	0.774* (0.407)
Birth order	0.004 (0.008)	0.005 (0.009)	0.000 (0.011)	-0.004 (0.012)	-0.108 (0.099)	-0.112 (0.099)	-0.101 (0.085)	-0.117 (0.085)	-0.420* (0.242)	-0.418 (0.282)	-0.319 (0.244)	-0.479 (0.285)
Caregiver's education in years (2006)	0.007 (0.004)	0.007 (0.005)	-0.021*** (0.005)	-0.021*** (0.005)	0.318*** (0.060)	0.279*** (0.060)	0.323*** (0.046)	0.274*** (0.044)	0.976*** (0.074)	0.539*** (0.084)	1.019*** (0.115)	0.599*** (0.118)
Household expenditure, logarithm (2009)	0.009 (0.033)	-0.014 (0.034)	-0.064 (0.044)	-0.026 (0.039)	1.389*** (0.233)	1.175*** (0.258)	1.165*** (0.246)	1.033*** (0.254)	5.932*** (1.101)	3.383*** (0.861)	3.371*** (0.603)	2.394*** (0.718)
Household size (2009)	-0.011 (0.009)	-0.014 (0.009)	0.030** (0.011)	0.035*** (0.010)	-0.027 (0.071)	-0.023 (0.064)	-0.056 (0.078)	-0.035 (0.068)	0.364** (0.167)	0.215 (0.180)	0.036 (0.199)	0.133 (0.169)
Child experienced corporal punishment (2009)	-0.021 (0.019)	-0.017 (0.024)	0.093** (0.035)	0.087** (0.035)	-0.660 (0.392)	-0.460 (0.404)	-0.726* (0.356)	-0.593 (0.363)	-2.165* (1.231)	-0.365 (1.180)	-1.408 (1.131)	-0.278 (1.111)
<i>Reference category: indigenous language</i>												
Spanish mother's tongue	-0.011 (0.046)	-0.018 (0.063)	-0.010 (0.053)	-0.051 (0.064)	-0.164 (0.547)	-0.033 (0.498)	-0.126 (0.541)	-0.126 (0.467)	-0.341 (1.768)	0.168 (1.209)	0.586 (1.895)	0.201 (1.710)
Urban locality (2009)	0.198*** (0.044)		-0.161*** (0.045)		2.014** (0.722)	1.757** (0.681)			10.348*** (1.980)	6.808*** (1.722)		
Previous score at age 5 (2006)						0.445*** (0.064)		0.505*** (0.067)		0.407*** (0.034)		0.415*** (0.040)
Constant	-0.557 (0.333)	-0.361 (0.333)	0.149 (0.497)	-0.059 (0.493)	-29.248*** (4.101)	-27.411*** (4.335)	-26.679*** (4.069)	-25.191*** (4.179)	-61.536*** (14.618)	-19.371 (13.293)	-43.927*** (12.938)	-8.579 (12.786)
Observations	1,366	1,366	1,366	1,366	1,340	1,340	1,340	1,340	1,305	1,283	1,305	1,283
R-squared	0.072	0.012	0.112	0.042	0.346	0.368	0.200	0.234	0.431	0.528	0.180	0.298
Number of clusters	20		20		20		20		20			

OLS = Ordinary least squares, FE = cluster fixed effects. *Note:* In column (2), as opposed to column (1), we additionally control for previous (maths or PPVT) performance – measured at age 5 – of the outcome variable. Previous maths performance is the raw score on the CDA (Cognitive Development Assessment), a test of 15 questions. We exclude children who live outside Young Lives original sites at age 8 and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

APPENDIX 3.4 - Regressions on cognitive achievement outcomes and psychological competencies at age 8 (Viet Nam)

	Agency		Shame		Maths				PPVT			
	OLS (1)	FE (1)	OLS (1)	FE (1)	OLS (1)	OLS (2)	FE (1)	FE (2)	OLS (1)	OLS (2)	FE (1)	FE (2)
Age of child in months (2009)	-0.000 (0.004)	0.003 (0.003)	0.014*** (0.005)	0.003 (0.002)	0.481*** (0.051)	0.449*** (0.051)	0.404*** (0.041)	0.363*** (0.041)	1.512*** (0.206)	1.048*** (0.219)	1.271*** (0.174)	0.869*** (0.188)
Boy	-0.020 (0.026)	-0.026 (0.024)	0.050 (0.033)	0.048 (0.031)	-0.073 (0.243)	-0.093 (0.230)	-0.120 (0.233)	-0.139 (0.214)	1.266 (1.273)	1.017 (1.252)	0.928 (1.209)	0.778 (1.149)
Weight-for-age z-score (2009)	0.009 (0.015)	0.013 (0.014)	-0.019 (0.013)	-0.013 (0.011)	0.292** (0.114)	0.310** (0.114)	0.269** (0.115)	0.260** (0.114)	1.589** (0.755)	1.210** (0.561)	1.399** (0.494)	1.063** (0.419)
Birth order	-0.036*** (0.009)	-0.023** (0.010)	0.046** (0.021)	0.025 (0.022)	-0.048 (0.120)	-0.022 (0.121)	-0.056 (0.093)	-0.007 (0.094)	-0.880 (0.631)	-0.263 (0.623)	-0.340 (0.512)	-0.017 (0.498)
Caregiver's education in years (2006)	0.009 (0.006)	0.010* (0.005)	0.001 (0.006)	-0.005 (0.005)	0.298*** (0.062)	0.275*** (0.065)	0.235*** (0.030)	0.194*** (0.031)	2.119*** (0.262)	1.709*** (0.286)	1.398*** (0.250)	1.093*** (0.217)
Household expenditure, logarithm (2009)	0.109** (0.038)	0.072 (0.044)	-0.221*** (0.056)	-0.163** (0.057)	1.229*** (0.292)	1.067*** (0.298)	1.092*** (0.224)	0.890*** (0.235)	2.166 (1.714)	-0.176 (1.428)	2.630* (1.373)	1.279 (1.460)
Household size (2009)	0.019* (0.009)	0.013 (0.010)	-0.028** (0.012)	-0.028** (0.013)	0.172 (0.126)	0.162 (0.128)	0.084 (0.131)	0.072 (0.135)	-0.304 (0.385)	-0.427 (0.340)	-0.771* (0.390)	-0.734* (0.394)
Child experienced corporal punishment (2009)	-0.103** (0.042)	-0.110** (0.041)	0.030 (0.040)	0.009 (0.041)	-0.512* (0.268)	-0.510* (0.262)	-0.611** (0.269)	-0.541* (0.271)	0.760 (1.453)	0.215 (1.488)	0.306 (1.289)	-0.298 (1.423)
<i>Reference category: other ethnic group</i>												
Kinh	0.086 (0.079)	0.093 (0.083)	-0.181 (0.132)	-0.207* (0.102)	2.854*** (0.642)	2.451*** (0.714)	3.249*** (0.820)	2.843*** (0.749)	7.810** (3.644)	7.840** (3.549)	12.593*** (2.572)	11.849*** (2.858)
Urban locality (2009)	-0.059 (0.071)		0.146 (0.085)		0.953 (0.691)	0.787 (0.666)			1.902 (5.804)	-3.758 (4.520)		
Previous score at age 5 (2006)						0.270*** (0.089)		0.445*** (0.065)		0.437*** (0.051)		0.395*** (0.059)
Constant	-0.744* (0.415)	-0.850** (0.373)	0.084 (0.477)	0.897** (0.406)	-40.281*** (4.257)	-38.317*** (4.234)	-31.352*** (3.128)	-30.039*** (3.104)	-82.755*** (25.761)	-37.178 (23.722)	-60.215*** (19.357)	-25.998 (19.238)
Observations	1,518	1,518	1,524	1,524	1,519	1,519	1,519	1,519	1,447	1,317	1,447	1,317
R-squared	0.044	0.027	0.068	0.034	0.323	0.334	0.188	0.218	0.244	0.300	0.132	0.186
Number of clusters		20		20			20	20			20	20

OLS = Ordinary least squares, FE = cluster fixed effects. Note: In column (2), as opposed to column (1), we additionally control for previous (maths or PPVT) performance – measured at age 5 – of the outcome variable. Previous maths performance is the raw score on the CDA (Cognitive Development Assessment), a test of 15 questions. We exclude children who live outside Young Lives original sites at age 8 and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1

APPENDIX 4.1 - Regressions on cognitive achievement outcomes and psychological competencies at age 12 (Ethiopia)

	Self-efficacy		Self-esteem		Maths				PPVT			
	OLS (1)	FE (1)	OLS (1)	FE (1)	OLS (1)	OLS (2)	FE (1)	FE (2)	OLS (1)	OLS (2)	FE (1)	FE (2)
Age of child in months (2013)	0.003 (0.006)	0.003 (0.005)	-0.004 (0.006)	-0.002 (0.007)	0.258* (0.143)	-0.132 (0.111)	0.331* (0.163)	-0.071 (0.129)	0.002 (0.002)	-0.001 (0.002)	0.001 (0.001)	-0.001 (0.001)
Boy	0.086 (0.061)	0.084 (0.059)	0.010 (0.055)	0.022 (0.056)	1.090 (1.307)	0.356 (1.224)	0.879 (1.241)	0.477 (1.182)	0.005 (0.010)	0.007 (0.009)	0.007 (0.007)	0.008 (0.007)
Height-for-age z-score (2013)	0.005 (0.019)	0.021 (0.017)	0.010 (0.016)	0.011 (0.015)	1.886*** (0.493)	0.174 (0.508)	1.677*** (0.508)	0.180 (0.549)	0.031*** (0.006)	0.020*** (0.004)	0.015*** (0.004)	0.011*** (0.003)
Birth order	-0.004 (0.008)	-0.004 (0.006)	-0.001 (0.010)	-0.002 (0.010)	-0.068 (0.302)	0.095 (0.255)	-0.063 (0.318)	0.098 (0.260)	-0.003 (0.002)	-0.004 (0.002)	-0.000 (0.002)	-0.001 (0.002)
Caregiver's education level (2006)	0.016** (0.006)	0.016*** (0.005)	0.010 (0.007)	0.006 (0.007)	0.916*** (0.223)	0.251 (0.206)	0.729*** (0.201)	0.252 (0.195)	0.006** (0.003)	0.003 (0.002)	0.004* (0.002)	0.003 (0.002)
Household expenditure, logarithm (2013)	0.033 (0.044)	0.041 (0.044)	0.041 (0.027)	0.073*** (0.020)	2.503 (1.664)	1.130 (1.093)	1.852 (1.284)	0.729 (0.977)	0.029 (0.019)	0.012 (0.015)	0.031*** (0.010)	0.025** (0.009)
Household size (2013)	0.024** (0.010)	0.020** (0.009)	0.030*** (0.010)	0.032*** (0.011)	0.104 (0.331)	-0.050 (0.237)	0.311 (0.311)	0.074 (0.242)	-0.004 (0.003)	-0.003 (0.002)	-0.001 (0.002)	-0.001 (0.001)
Child experienced corporal punishment at age 8 (2009)	-0.076** (0.033)	-0.048 (0.031)	-0.079* (0.040)	-0.054 (0.039)	-1.481 (1.035)	-0.145 (1.019)	-1.213 (1.057)	0.044 (1.041)	0.022** (0.008)	0.018* (0.009)	0.008 (0.006)	0.007 (0.006)
Urban locality (2013)	0.096 (0.099)		-0.021 (0.091)		13.932*** (2.114)	3.760** (1.708)			0.219** (0.084)	0.184** (0.068)		
<i>Reference category (2013): Addis Ababa</i>												
Amhara region	0.333** (0.137)		0.148 (0.129)		-5.472 (4.301)	-2.218 (3.275)			0.024 (0.070)	0.062 (0.066)		
Oromia region	-0.113 (0.161)		-0.136 (0.149)		-8.914* (4.358)	-1.490 (3.353)			0.088 (0.090)	0.148 (0.086)		
SNNP region	0.115 (0.142)		0.026 (0.149)		-15.809*** (4.944)	-11.805*** (3.330)			-0.308** (0.134)	-0.287** (0.112)		
Tigray region	0.054 (0.141)		0.044 (0.119)		-7.070 (4.538)	-7.058** (2.767)			0.066 (0.097)	0.082 (0.081)		
Previous score at age 8 (2009)					(0.228)	2.547*** (0.254)		2.533*** (0.254)	(0.000)	0.002*** (0.000)	(0.000)	0.001*** (0.000)
Constant	-0.835 (0.889)	-0.771 (0.731)	0.197 (0.834)	-0.208 (0.924)	-12.486 (19.179)	34.261* (17.082)	-22.363 (23.224)	23.590 (18.309)	0.145 (0.342)	0.597** (0.284)	0.325** (0.148)	0.590*** (0.125)
Observations	1,283	1,283	1,283	1,283	1,283	1,271	1,283	1,271	1,283	1,264	1,283	1,264
R-squared	0.086	0.024	0.034	0.015	0.294	0.522	0.033	0.332	0.538	0.599	0.052	0.114
Number of clusters		20		20			20	20			20	20

OLS= Ordinary least squares, FE = cluster fixed effects. Note: In column (2), as opposed to column (1), we additionally control for previous (maths or PPVT) performance – measured at age 8 – of the outcome variable. We exclude children who live outside Young Lives original sites at age 8 and 12, and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1

APPENDIX 4.2 - Regressions on cognitive achievement outcomes and psychological competencies at age 12 (India)

	Self-efficacy		Self-esteem		Maths				PPVT			
	OLS (1)	FE (1)	OLS (1)	FE (1)	OLS (1)	OLS (2)	FE (1)	FE (2)	OLS (1)	OLS (2)	FE (1)	FE (2)
Age of child in months (2013)	0.013* (0.007)	0.005 (0.005)	0.005 (0.006)	-0.002 (0.004)	0.338* (0.194)	-0.279 (0.165)	0.214 (0.140)	-0.297** (0.135)	0.003** (0.001)	0.002* (0.001)	0.002*** (0.001)	0.002** (0.001)
Boy	-0.009 (0.051)	-0.029 (0.045)	-0.040 (0.039)	-0.060 (0.036)	-0.296 (0.880)	-0.606 (0.985)	0.343 (1.035)	-0.224 (1.089)	0.014* (0.007)	0.009 (0.008)	0.016** (0.007)	0.012 (0.008)
Height-for-age z-score (2013)	-0.003 (0.010)	0.008 (0.011)	-0.019 (0.013)	-0.005 (0.013)	3.170*** (0.545)	1.504*** (0.359)	2.534*** (0.512)	1.036** (0.366)	0.014*** (0.004)	0.010** (0.004)	0.012*** (0.003)	0.009** (0.003)
Birth order	0.023 (0.017)	0.015 (0.016)	0.028 (0.019)	0.016 (0.016)	-2.512*** (0.599)	-1.788*** (0.530)	-1.909*** (0.491)	-1.373*** (0.476)	-0.017*** (0.004)	-0.015*** (0.004)	-0.013*** (0.004)	-0.012*** (0.004)
Caregiver's education level (2006)	0.005 (0.006)	0.007 (0.005)	-0.004 (0.007)	-0.001 (0.005)	1.708*** (0.186)	0.956*** (0.151)	1.428*** (0.173)	0.813*** (0.164)	0.008*** (0.001)	0.007*** (0.001)	0.006*** (0.001)	0.005*** (0.001)
Household expenditure, logarithm (2013)	0.074* (0.037)	0.058 (0.035)	0.073** (0.033)	0.039 (0.030)	2.629** (1.030)	1.791* (0.915)	4.693*** (1.393)	2.898** (1.192)	0.015** (0.006)	0.013** (0.006)	0.031*** (0.010)	0.028** (0.010)
Household size (2013)	0.017* (0.010)	0.010 (0.009)	0.007 (0.011)	-0.003 (0.010)	0.403 (0.276)	0.231 (0.226)	0.856*** (0.287)	0.581** (0.249)	-0.006 (0.004)	-0.005 (0.004)	-0.002 (0.003)	-0.002 (0.003)
Child experienced corporal punishment at age 8 (2009)	-0.004 (0.033)	0.008 (0.032)	-0.020 (0.033)	0.001 (0.032)	-2.579* (1.377)	-1.493 (1.360)	-4.233*** (1.445)	-2.485 (1.470)	-0.011 (0.010)	-0.009 (0.010)	-0.017 (0.010)	-0.016 (0.010)
<i>Reference category: other ethnic group</i>												
Scheduled Caste	-0.082 (0.075)	-0.138** (0.055)	-0.041 (0.076)	-0.085 (0.057)	-3.216 (2.431)	-2.349 (2.038)	-2.389 (2.589)	-2.007 (1.987)	0.024 (0.023)	0.022 (0.023)	0.024 (0.024)	0.023 (0.024)
Scheduled Tribes	-0.016 (0.069)	-0.077 (0.052)	0.049 (0.079)	-0.007 (0.071)	-3.471 (2.146)	1.617 (1.828)	-1.872 (2.547)	0.252 (2.224)	-0.011 (0.023)	-0.003 (0.022)	0.002 (0.024)	0.005 (0.025)
Backward Classes	-0.057 (0.045)	-0.057 (0.036)	0.020 (0.055)	0.001 (0.042)	-0.760 (2.186)	-0.080 (1.564)	-0.060 (1.938)	-0.005 (1.552)	0.007 (0.023)	0.011 (0.022)	0.015 (0.023)	0.017 (0.023)
Urban locality (2013)	0.148** (0.069)		0.149 (0.089)		-5.697* (3.165)	-1.659 (2.105)			-0.023 (0.029)	-0.026 (0.027)		
Previous score at age 8 (2009)						1.767*** (0.114)		1.772*** (0.072)		0.001*** (0.000)		0.001*** (0.000)
Constant	-2.483** (1.032)	-1.126 (0.729)	-1.302 (1.008)	0.096 (0.763)	-16.378 (28.539)	53.603** (24.930)	-17.052 (24.217)	46.209* (22.566)	0.322* (0.158)	0.387** (0.161)	0.232 (0.137)	0.299** (0.137)
Observations	1,641	1,641	1,641	1,641	1,607	1,604	1,607	1,604	1,642	1,626	1,642	1,626
R-squared	0.038	0.015	0.023	0.008	0.205	0.395	0.161	0.345	0.160	0.197	0.124	0.145
Number of clusters		20		20			20	20			20	20

OLS= Ordinary least squares, FE = cluster fixed effects. Note: In column (2), as opposed to column (1), we additionally control for previous (maths or PPVT) performance – measured at age 8 – of the outcome variable. We exclude children who live outside Young Lives original sites at age 8 and 12, and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1

APPENDIX 4.3 - Regressions on cognitive achievement outcomes and psychological competencies at age 12 (Peru)

	Self-efficacy		Self-esteem		Maths				PPVT			
	OLS (1)	FE (1)	OLS (1)	FE (1)	OLS (1)	OLS (2)	FE (1)	FE (2)	OLS (1)	OLS (2)	FE (1)	FE (2)
Age of child in months (2013)	-0.001 (0.004)	-0.000 (0.004)	-0.004 (0.004)	-0.003 (0.004)	0.263** (0.107)	-0.322*** (0.082)	0.289*** (0.083)	-0.304*** (0.062)	0.283*** (0.070)	-0.062 (0.056)	0.346*** (0.068)	-0.023 (0.059)
Boy	0.044* (0.022)	0.046* (0.023)	-0.031 (0.039)	-0.039 (0.038)	1.822** (0.843)	0.553 (0.689)	1.970** (0.779)	0.538 (0.632)	3.365*** (0.824)	2.521*** (0.668)	3.405*** (0.814)	2.546*** (0.674)
Height-for-age z-score (2013)	0.011*** (0.003)	0.009*** (0.002)	0.012*** (0.002)	0.010*** (0.002)	0.056 (0.183)	-0.126 (0.090)	0.055 (0.168)	-0.101 (0.089)	0.203 (0.219)	0.121 (0.120)	0.172 (0.192)	0.120 (0.117)
Birth order	0.009 (0.007)	0.007 (0.008)	0.010 (0.011)	0.011 (0.012)	0.432 (0.314)	0.621** (0.262)	0.413 (0.303)	0.592** (0.252)	-0.180 (0.287)	0.081 (0.209)	-0.193 (0.261)	0.018 (0.201)
Caregiver's education level (2006)	0.010*** (0.003)	0.006* (0.004)	0.000 (0.006)	-0.001 (0.007)	1.533*** (0.209)	0.798*** (0.180)	1.502*** (0.164)	0.838*** (0.134)	1.482*** (0.142)	0.781*** (0.118)	1.328*** (0.172)	0.707*** (0.123)
Household expenditure, logarithm (2013)	0.051* (0.026)	0.063** (0.025)	0.057* (0.030)	0.067** (0.032)	2.777** (1.106)	1.042 (0.955)	2.663* (1.273)	0.920 (0.890)	3.938*** (0.664)	1.766*** (0.568)	3.090*** (0.622)	1.694*** (0.565)
Household size (2013)	0.010 (0.009)	0.011 (0.009)	-0.005 (0.011)	-0.004 (0.011)	-0.286 (0.355)	-0.133 (0.313)	-0.256 (0.359)	-0.070 (0.307)	-0.341 (0.221)	-0.203 (0.208)	-0.536** (0.192)	-0.255 (0.188)
Child experienced corporal punishment at age 8 (2009)	-0.065*** (0.019)	-0.060** (0.021)	-0.014 (0.031)	-0.013 (0.031)	-3.326** (1.196)	-2.480** (1.001)	-3.046*** (1.055)	-2.145** (0.888)	-2.859*** (0.787)	-1.908** (0.734)	-2.402*** (0.679)	-1.773** (0.735)
<i>Reference category: indigenous language</i>												
Spanish mother's mother tongue	0.028 (0.042)	0.065 (0.065)	0.054 (0.037)	0.081 (0.081)	0.342 (2.475)	0.341 (2.188)	-2.566 (2.169)	-2.936 (1.889)	1.168 (1.322)	1.481 (0.910)	0.655 (1.939)	1.097 (1.403)
Urban locality (2013)	0.077* (0.042)		-0.043 (0.044)		6.134*** (2.060)	1.871 (1.529)			8.417*** (1.775)	2.883** (1.115)		
Previous score at age 8 (2009)						1.800*** (0.094)		1.794*** (0.108)		0.524*** (0.040)		0.502*** (0.040)
Constant	-0.360 (0.587)	-0.506 (0.565)	0.277 (0.601)	0.088 (0.564)	-13.380 (17.857)	62.141*** (15.281)	-9.709 (16.230)	63.567*** (13.387)	6.446 (10.603)	44.645*** (8.571)	10.942 (10.296)	44.186*** (8.601)
Observations	1,261	1,261	1,261	1,261	1,261	1,237	1,261	1,237	1,257	1,202	1,257	1,202
R-squared	0.043	0.019	0.012	0.012	0.254	0.449	0.125	0.355	0.423	0.583	0.201	0.397
Number of clusters		20		20			20	20			20	20

OLS= Ordinary least squares, FE = cluster fixed effects. Note: In column (2), as opposed to column (1), we additionally control for previous (maths or PPVT) performance – measured at age 8 – of the outcome variable. We exclude children who live outside Young Lives original sites at age 8 and 12, and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1

APPENDIX 4.4 - Regressions on cognitive achievement outcomes and psychological competencies at age 12 (Viet Nam)

	Self-efficacy		Self-esteem		Maths				PPVT			
	OLS Without	FE Without	OLS Without	FE Without	OLS Without	OLS With	FE Without	FE With	OLS Without	OLS With	FE Without	FE With
Age of child in months (2013)	-0.003 (0.005)	-0.003 (0.005)	-0.000 (0.004)	0.000 (0.004)	0.506*** (0.140)	0.020 (0.160)	0.250** (0.115)	-0.175 (0.138)	0.002** (0.001)	0.000 (0.001)	0.002** (0.001)	0.001 (0.001)
Boy	-0.045 (0.034)	-0.045 (0.035)	0.010 (0.024)	0.010 (0.024)	-0.684 (0.656)	-0.625 (0.655)	-1.004 (0.702)	-0.842 (0.662)	0.006 (0.006)	0.004 (0.006)	0.005 (0.006)	0.004 (0.006)
Height-for-age z-score (2013)	-0.011 (0.013)	-0.007 (0.014)	-0.001 (0.014)	-0.000 (0.014)	1.259** (0.512)	0.794 (0.493)	1.457*** (0.471)	1.074** (0.402)	0.012*** (0.004)	0.010*** (0.003)	0.011** (0.004)	0.009** (0.003)
Birth order	-0.000 (0.011)	0.004 (0.011)	-0.002 (0.016)	0.003 (0.014)	-0.432 (0.468)	-0.351 (0.366)	0.011 (0.409)	0.070 (0.356)	-0.011*** (0.003)	-0.010*** (0.003)	-0.007** (0.003)	-0.006** (0.003)
Caregiver's education level (2006)	0.001 (0.005)	0.003 (0.005)	-0.002 (0.006)	-0.004 (0.006)	1.230*** (0.211)	0.877*** (0.209)	0.897*** (0.186)	0.643*** (0.192)	0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
Household expenditure, logarithm (2013)	0.066** (0.025)	0.061** (0.027)	0.049** (0.022)	0.070** (0.025)	4.425*** (0.992)	3.798*** (1.038)	2.487*** (0.736)	1.677** (0.690)	0.030*** (0.007)	0.026*** (0.008)	0.019*** (0.006)	0.016** (0.006)
Household size (2013)	0.004 (0.009)	0.006 (0.009)	0.012 (0.008)	0.014 (0.009)	0.642 (0.415)	0.423 (0.367)	0.009 (0.263)	-0.085 (0.244)	-0.001 (0.002)	-0.001 (0.002)	-0.002 (0.002)	-0.002 (0.002)
Child experienced corporal punishment at age 8 (2009)	-0.044 (0.036)	-0.044 (0.035)	-0.079** (0.031)	-0.068** (0.030)	-3.931*** (1.012)	-3.318*** (0.883)	-4.349*** (1.027)	-3.642*** (0.949)	0.000 (0.006)	0.002 (0.006)	-0.001 (0.005)	0.000 (0.005)
<i>Reference category: other ethnic group</i>												
Kinh	0.009 (0.076)	0.039 (0.081)	-0.209*** (0.062)	-0.090* (0.046)	5.466* (2.951)	2.374 (2.764)	3.038** (1.420)	-0.347 (1.088)	0.037 (0.025)	0.032 (0.024)	0.032* (0.017)	0.022 (0.015)
Urban locality (2013)	0.008 (0.036)		-0.091 (0.055)		-3.009 (3.752)	-4.128 (3.124)			-0.031 (0.022)	-0.034 (0.020)		
Previous score at age 8 (2009)						1.049*** (0.147)		0.998*** (0.093)		0.001*** (0.000)		0.001*** (0.000)
Constant	0.016 (0.781)	-0.083 (0.728)	-0.168 (0.543)	-0.510 (0.620)	-68.249*** (22.124)	-6.423 (24.890)	-10.886 (16.728)	43.055** (19.270)	0.298* (0.145)	0.452*** (0.139)	0.345** (0.121)	0.470*** (0.108)
Observations	1,621	1,621	1,621	1,621	1,591	1,583	1,591	1,583	1,623	1,536	1,623	1,536
R-squared	0.010	0.009	0.026	0.008	0.212	0.283	0.094	0.174	0.211	0.243	0.100	0.141
Number of clusters		20		20			20	20			20	20

OLS= Ordinary least squares, FE = cluster fixed effects. Note: In column (2), as opposed to column (1), we additionally control for previous (maths or PPVT) performance – measured at age 8 – of the outcome variable. We exclude children who live outside Young Lives original sites at age 8 and 12, and who are not enrolled in school. Robust standard errors, in parentheses, are clustered at the cluster level. Asterisks indicate *** p<0.01, ** p<0.05, * p<0.1