From Nutrition to Aspirations and Self-Efficacy:

Gender Bias over Time among Children in Four Countries

Stefan Dercon[1], University of Oxford

Abhijeet Singh, University of Oxford

This version: November 2012

Forthcoming, *World Development*

Abstract

We use data on children at ages 8, 12 and 15 from Young Lives, a cohort study of 12,000 children across Ethiopia, India (Andhra Pradesh), Peru and Vietnam to document the presence of a gender gap across indicators of nutrition, education, aspirations, subjective well-being and psychosocial competencies. We find considerable heterogeneity across countries, ages and indicators in the existence and direction of gender gaps. Second, we find evidence of an 'institutionalized' gender bias against girls in education in India and, to an extent, Ethiopia. Poorer non-cognitive skills could be a channel for continuing gender bias through poorer labour market outcomes.

Keywords: Gender, Ethiopia, India, Peru, Vietnam, cohort study

[1] We are grateful for comments from various members of the Young Lives team, the World Bank World Development Report on Gender team, Liz Fajber at DFID and three anonymous referees. All errors are our own. Young Lives is core-funded by UK aid from the Department for International Development (DFID) and co-funded from 2010 to 2014 by the Netherlands Ministry of Foreign Affairs. www.younglives.org.uk

1. INTRODUCTION

Gender equality is central to much of the discourse on development. It is enshrined in the third Millennium Development Goal (MDG) and remains an important area of concern in many dimensions, including MDG targets covering employment opportunities and political representation, where women consistently have more negative outcomes. However in some other dimensions, especially school enrolment, which is one of the most important aspects of the MDGs relevant for children, gender gaps have declined considerably in the past two decades: the ratio of girls to boys enrolled in primary education rose from 87 per cent to 96 per cent, and in secondary education from 78 per cent to 96 per cent, between 1991 and 2008 (United Nations 2011)[2].

This paper focuses on gender-based inequalities as experienced by children across several dimensions. The discussion hitherto on gender inequalities in child well-being has been centred on a very restrictive set of indicators: from infancy until the age of five, child well-being is reduced to some measure of nutrition or the risk of dying, then it becomes a question of enrolment into school, and by about age 15 indicators are reduced to a focus on labour market participation and marriage. Much of this approach is necessitated by data availability since most data on children come from population census data (for indicators such as mortality), the Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Survey (MICS) data, as well as large household welfare monitoring surveys such as the Living Standard Measurement Surveys (LSMS). This makes up, however, a very narrow view of what matters for children and in this paper we aim to do better by analysing a much richer range of indicators. We will document, by comparing data from different settings, the

[2] In a recent review chapter Grant and Behrman (2010) comment that gender gaps in schooling in developing countries are "becoming more like developed countries, with gender gaps that increasingly favour, rather than discriminate against, females."

presence and extent of a gender bias across a broader set of indicators, collected from cohorts of children at the age of 8, 12 and 15 years in Ethiopia, Andhra Pradesh (India), Peru and Vietnam. The data were collected using almost exactly the same instruments and are very recent: in this paper, we use data collected in 2002, 2006 and 2009. The result is a multidimensional snapshot of the current gender bias across parts of the developing world with different cultural and socio-economic contexts.

The data presented here cover 13 indicators which include indicators on nutrition (height-for-age, weight-for-age and BMI-for-age z-scores[3]), on education and achievement (enrolment and also test scores in arithmetic and the Peabody Picture Vocabulary Test), on educational aspirations (reported by both children and by parents/caregivers), on subjective well-being (reported by children, using the 'ladder of life', a measure of life satisfaction), and on four psychosocial competencies (agency/self-efficacy, trust, pride/self-esteem, and inclusion). In so doing, we complement the existing analyses on gender bias in childhood by offering a more comprehensive picture of children's skill formation during childhood, which includes not only their cognitive skills as measured by conventional standardized test scores but also their psychosocial development, such as in terms of agency or self-esteem, as well as valuing children's own perception of their lives through measures of life satisfaction and their perceptions of inclusion.

The data come from the Young Lives cohort study, which aims to study the causes and consequences of child poverty across these four countries. The survey covers two cohorts, the first comprising about 4,000 children (1,000 per country) who were born in 1994–5 and the

[3] BMI-for-age z scores refer to the body mass index (BMI) of children normalized to account for difference in BMIs of boys and girls at different ages.

second comprising 8,000 children (2,000 per country) who were born in 2001–2[4]. Starting in 2002, the study has followed these children for three rounds of data collection, in 2002, 2006 and 2009. The data are highly clustered and cover 20 sites, spread across urban and rural areas in Ethiopia, Andhra Pradesh and Vietnam, and 80 sites in Peru. The cluster selection and a relative oversampling of poorer households mean that the data are not nationally representative, but rather miss typically the richest households in each country. Careful comparisons with DHS and other surveys in each country nevertheless suggest that the data are representative of the type of variation typically found in nationally representative surveys (Escobal and Flores 2008; Kumra 2008; Nguyen 2008; Outes-Leon and Sanchez 2008).

Three main results stand out from our analysis. First, we find considerable heterogeneity in gender bias. Gender biases are often specific to age groups, contexts and indicators, and the bias is not always simply against girls. Second, we find strong evidence of an 'institutionalized' gender bias against girls in education in India, and, to a lesser extent, in Ethiopia. This bias appears to emerge in the educational aspirations of parents for their children at age 8, and is transmitted to the aspirations of children at 12. It is then transformed into gender gaps in cognitive outcomes at age 15. We also observe lower self-efficacy (as measured by agency) for girls in Ethiopia and India. Similar 'institutionalized' patterns exist in Vietnam, but in the opposite direction – in favour of girls rather than boys. As these non-cognitive skills are correlated with success in labour markets (Cunha and Heckman 2008), they are likely to contribute to the perpetuation of bias in later life. Finally, we note that even where gender biases manifest themselves strongly, they are sometimes overshadowed by deprivations in other dimensions, such as caste or being in a rural area.

[4] The only exception in this regard is Peru where only 716 children of the older cohort (born in 1994-95) were covered due to resource constraints.

In the next section, we introduce first the data and the indicators used, as well as the method used to document gaps. In section 3 we offer the core findings. In section 4 we extend the analysis and ask whether the indicators are different when disaggregated by various classifications, such as among poorer families, in rural rather than urban areas and by different levels of education of the mother. Section 5 extends the analysis to look at transmission of biases across dimensions over time for the same children. Section 6 presents two further extensions: a within-family analysis of gender bias using household fixed effects; and an analysis of cohort effects by comparing 8-year old children in 2002 and 2009. Section 7 discusses our findings, and the final section concludes.

2. DATA AND METHOD

The Young Lives data are unique in their breadth and scope among developing country datasets: large cohorts of children and their caregivers are systematically interviewed on a wide variety of indicators. As previously noted, even though the data are relatively highly clustered, careful analysis of the samples suggests that they are broadly representative of all but the richest children in each of the countries studied. Attrition in the Young Lives survey is very low with, in all countries, still more than 95 per cent of the original sample represented in the data (Outes-Leon and Dercon 2008); children are tracked wherever they move to and about 1.5 percentage points of this attrition is accounted for by mortality.

The questionnaires were developed with inputs from researchers in a variety of disciplines, including experts in education, health, child psychology and anthropology. Instruments were chosen for their suitability to be used in a variety of cultural and social settings and were

designed to be appropriate for the age of the children at the time. In this paper, we use 13 indicators. Appendix A documents the indicators used in the analysis, and their definition or procedure of computation. Some – nutrition indicators, enrolment data and test scores[5] – are rather standard. The nutrition data use the z-score transformations proposed by the WHO 2005 conventions; in principle comparability across settings is possible. Together, these indicators offer a sense of the child's physical and cognitive development.

However, child well-being comprises more than this. Some of the indicators included aim to capture children's own perceived well-being as well as at least one aspect of their hopes for the future. In particular, child aspiration indicators refer to direct questions asked of children and parents about the desired levels of education if no constraints were to exist; almost all children will have gone to school at some point and thus the question has appeared meaningful to all. Subjective well-being is assessed here using the standard instrument - the ladder of life - familiar from, for example, the World Value Surveys. Its validity and implementation in research on children is discussed in Camfield et al. (2008) and the sources cited therein.

We also aimed to capture children's perception of themselves and the opportunities they perceive as being available to them from a psychosocial point of view. These indicators have intrinsic value; furthermore other work, summarized in Cunha and Heckman (2008), has shown that such indicators can have strong predictive power for future job attainment, earnings, and even crime and antisocial behaviour. These psychosocial indicators are based

[5] For test scores, extensive validation work has been conducted for cross-cultural comparisons for the 2006 round, and the general advice is to be cautious about using it across countries; as a result we only report raw scores and not standardized scores (as this would invite apparent comparisons). See Cueto et al. (2008). The use of test scores alongside enrolment patterns adds richness to the analysis of gender gaps in education since our concern is typically not only about gaps in enrolment but also in achievement once in school; this point is stressed by Grant and Behrman (2010) as well.

on existing scales, but had to be adjusted to be relevant for children. They refer to children's trust (similar to more common generalized trust measures), pride and self-esteem (building on Rosenberg 1965), agency or self-efficacy (building on the concept of locus of control, Rotter 1966; and Bandura 1993) and sense of inclusion or discrimination. In Dercon and Krishnan (2009) these measures were broadly validated, although the relatively small number of questions may well result in measurement error affecting precision.

For most of the analysis in this paper, we only use data from the 2006 and 2009 rounds of the study and analyse gender-based inequalities as experienced by the children in our sample at 8, 12 and 15 years of age approximately. We select these three ages, and ignore observations at younger ages, as most of the innovative indicators (subjective well-being, child aspirations and psychosocial competencies) could only be asked once children had reached about 8. As a result, we use data from the older cohort (born in 1994/95) collected in 2006 and 2009 (when they had reached age 12 and 15), and data from the Younger Cohort (born 2001/02) from 2009 (when they were aged 8). In the first round of data collection in 2002, the older cohort had only been offered a shorter questionnaire; while we use this data in Section 6 to compare gender gap over time for children aged 8 years in 2002 and 2009, we do not use data from the 2002 round in the rest of the paper.

We investigated the gender gap first in the simplest possible way: by comparing the difference in the means between boys and girls at various ages. A second set of results uses a multivariate regression approach and presents the gender gap in various indicators after controlling for a series of other possible covariates for the indicators used. In particular, we ran regressions in which the indicator was regressed on a dummy for gender (1=male) as well as the logarithm of total consumption expenditure, education of the mother, household size,

ethnicity/caste and urban/rural location of residence[6]. The advantage of this approach is to provide possibly greater precision in estimates as well as to account for the possibility that households with girls differ significantly along socio-economic dimensions from households with boys (for example due to sex-selective abortions or due to selective stopping rules for fertility) in which case estimates of gender gaps from a difference-in-means might be misleading.

More importantly for our purposes, this approach allows for simple extensions that allow for interaction effects with socio-economic variables like poverty or maternal education and will allow us to see the impact of relatively simple explanations on the persistence of gender effects, as well as suggesting some mediating factors. For example, if the gender effects are reduced once we control for an interaction of gender with the education of the caregiver, then this is at least suggestive evidence of how these effects are being perpetuated (even though this is at best suggestive, and not a framework for full causal analysis). To explore the possibility that gender inequality is specifically or differentially linked to particular groups, such as rural or poor or poorly educated households, we offer in section 4 some further analysis, using the same regression approach, but this time using also interaction effects with the gender dummy for these characteristics.[7]

In Section 5, we extend the regression analysis further by using the panel dimension of the data to assess whether gender gaps documented at the age of 12 reproduce themselves at the age of 15 years and whether they lead to the creation of gender gaps in other indicators (for example, from agency at age 12 to enrolment at age 15). In Section 6, for a subset of indicators, we restrict the regression analysis to comparing boys and girls in the same household (using household fixed effects) to document the robustness of our findings.

[6] In all regressions in this paper, standard errors are clustered by the community the household was first interviewed in 2002.

[7] Note that the regression-based results will allow us to avoid problems of comparison between the data from 2006 and 2009: in all countries, substantial growth has taken place, so that by controlling for socio-economic factors, we can ensure closer comparability of the results from these different years.

3. BASIC RESULTS: GENDER GAPS AND INTERPRETATION

Table 1 presents the means of the outcome variables used in our regressions, disaggregated by gender, for children aged 15 years, 12 years and 8 years respectively for the four study countries. Table 2 presents the coefficients on the male dummy variable after controlling for various covariates.[8]

There is a wealth of data on various indicators in Tables 1 and 2, not necessarily very surprising when considered individually but which, taken together, show the striking heterogeneity in the presence of bias and in its direction across countries, stages in a child's life cycle and indicators. Certainly there is no simplistic boy bias, even within particular countries, on all indicators. While some striking patterns emerge, they are frequently more nuanced than is often emphasized in the narrative on gender disparities in development[9].

[Table 1 near here]

Considering the first three variables presented in Table 2[10], which focus on educational outcomes, a key contrast can be observed between India and Ethiopia on the one hand and

[8] In practice, it is generated by running a regression of the indicator onto the gender dummy (male=1) and a constant, and the coefficient on the gender dummy is the effect.

[9] In this paper we will not be engaging in a systematic review of the academic and advocacy literature on gender gaps. However, in order to contrast our results (showing a large degree of heterogeneity in gender gaps in magnitude and direction) to a general narrative of anti-girl bias, consider the following passage from a recent report: "We are failing our girls. Although a precious asset for the present and future, girls in developing countries are in trouble. Girls and young women are generally less educated, less healthy, and less free than their male peers. They face systematic disadvantages over a wide range of welfare indicators, including health, education, nutrition, labor force participation, and the burden of household tasks." (Levine et. al., 2008)

[10] Throughout this paper, our test statistics do not correct for multiple comparisons. It is therefore likely that at least some significant results are due to chance. We do not think this is as much of a concern for most of the results in the paper which are based simply on mean differences and are consistent with regression results where controlling for covariates provides more precise estimates as well as (for a subset of comparable outcomes) results from within-household specifications. Moreover, for most indicators that we point out

Vietnam on the other. In terms of cognitive achievement, a clear pro-boy bias is present in Ethiopia and India, which is not necessarily apparent at an early age, but by the age of 12 and especially 15 years, is most pronounced. In contrast, in Vietnam we find a tendency for a pro-girl bias in achievement, strongly significant for mathematics. At an early age there is a clear bias in test scores in favour of boys in Peru, but this tends to disappear at a later age.

[Table 2 near here]

These findings for school achievement tend to mirror child and parental aspirations. We observe a striking association between parental and child aspirations, and between aspirations and outcomes, especially in the three countries where we find significant bias by the age of 15 in achievement. We collected parental aspirations when the children were aged 8 and 12 years. Parental aspirations at an early age are biased towards boys in India, while in Vietnam they are in favour of girls; by the age of 12 they are biased towards boys in Ethiopia and India. This pattern mirrors child aspirations: by the age of 12 and 15, they are significantly biased in the same direction as parents' aspirations at the age of 8 and 12, with clearly higher aspirations for boys in India and Ethiopia, and for girls in Vietnam. It is, however, also worth noting that the gap between the educational aspirations of boys and girls in Andhra Pradesh, where this gap is widest in our data, is only half as wide as the gap in parental aspirations for their education at the age of 12 years; clearly, even though there may be inter-generational transfer of low or biased aspirations to girls in this context, the bias is not reproduced

gender biases in the main analysis, gender gaps are significant even at the 1% level of significance indicating that the possibility of these being spurious findings is low: under the (extreme) limiting assumption of independence of outcomes, Bonferroni corrections would require that we divide the p-values by the number of comparisons; the key results of the paper are robust to this correction . However, this is potentially an issue for the results on heterogeneous effects (across urban/rural areas, maternal education and poverty terciles); in this case, we follow a conservative approach of interpreting only a few results where these seem to be either consistent across age groups for a particular indicator, or across indicators for a particular axis of heterogeneity, or if there are a large number of significant reported impacts in a particular table.

perfectly and girls' own aspirations exceed those of their parents for them. The correlation with actual achievement in these countries is striking, and consistent with a narrative of institutionalized gender bias which is nested in the norms and values of parents, and then transmitted to children (at least in part), contributing to lower achievement. The causality from aspirations to achievement is still a debated issue in educational psychology and sociology (Saha 1997), but these patterns are very suggestive.

It is important also to note here that even though the direction of bias in both achievement and aspirations seems to be very similar for children at 15 years of age in Ethiopia and India, the implied magnitudes are very different. Consistent with our other findings, the magnitude of bias in favour of boys is much larger in India than in Ethiopia. These differential findings across the four countries highlight not just the heterogeneity within developing countries in the existence and direction of gender-based inequalities, but also their size, across different contexts. Although we do not present coefficients of other variables here, it is also germane to note that gender is not always the key axis of disadvantage: for example, at the age of 15 years, the disadvantageous effect of living in a rural area in Ethiopia is twice as much on child educational aspirations, one-and-a-half times as much on maths scores, and five times as much on PPVT scores as the disadvantage from being a girl[11].

Turning to nutritional status, assessed here through three anthropometric indicators, the patterns are similarly striking and typically point to a pro-female bias in all four countries. This is apparent at the age of 8 years in Ethiopia and India for height-for-age and weight-for-age; in the 15 year old cohort, the BMI-for-age shows a marked pro-girl gap in all countries. Across our specifications and samples, we find only limited evidence of boys doing better

[11] For the purpose of demonstration of this point, we have presented the coefficients for covariates from regressions on a sub-set of outcomes from the 15-year old sample from Ethiopia in Appendix B.

than girls across nutritional indicators (height-for-age in India and Peru at the ages of 12 and 15 and BMI-for-age at the age of 8 years in Peru and Vietnam); where significant differences do exist between boys and girls, they are considerably more likely to be favouring girls than not.

Our results on nutritional indicators, indicating that where significant differences in nutrition indicators exist they are more likely to favour girls, corroborate the evidence from current and previous reviews of any gender gaps in nutrition indicators. Svedberg (1990) reviews more than 50 different datasets from sub-Saharan Africa and reports finding no evidence that girls are at an disadvantage to boys; many samples display no statistically significant gaps but in most populations, it seems there is a slight differential to the disadvantage of males. More recently, Marcoux (2002) reviews the summary statistics from 306 surveys of child nutrition and, consistent with the results in Svedberg (1990), and our own results, he reports that results from most surveys (227 out of 306) display no evidence of any sex differentials across stunting, wasting and underweight. Where statistically significant differences are found, they are much more likely to be favouring girls than boys; of 40 surveys that find evidence of statistically significant sex differentials in stunting, girls are more affected in only one case and boys in 39; of 30 such cases in the prevalence of underweight, girls are more affected in four cases, boys in 26 cases; and finally, for wasting, out of 35 cases with significant sex differentials, girls are affected in 9 cases and boys in 26. Anti-female biases noted in previous data from China, India, Jamaica and Sri Lanka are no longer found in more recent surveys at the national level (at least for preschool age children).

It is not clear what the source of this disadvantage for boys in nutritional indicators is. Marcoux (2002) comments on several possibilities. The first of these is sex-selective abortion but it seems unlikely that this would necessarily account for such a pattern outside South Asia

and China. The second possibility is that this pattern reflects some systematic differences in the reference populations for men and women in the WHO norms. However, this also seems unlikely: as Svedberg (1990) demonstrated, the results are actually robust to the application of different reference standards. It seems unlikely that boys get systematically poorer feeding (including in contexts that gender gaps in other measures of investments on children are strikingly male-biased) across these different contexts. One possible explanation forwarded by Marcoux (2002) might be that "boys exhibit less favourable nutritional outcomes in some places because, given a less adequate food supply, girls tend to cope with it better than boys from the standpoint of bodily development." We are not aware of any conclusive evidence in this regard.[12]

In terms of subjective well-being, the data suggest a move from no significant differential (or if anything, a pro-boy differential) in answers to the ladder of life question at the age of 8 to a pronounced and significant pro-girl differential equivalent to about a quarter of a step at the age of 15. In general, girls in this sample suggest a higher subjective well-being than boys. This effect is present in all countries, albeit with varying degrees of significance. This result needs to be interpreted cautiously since it is possible that girls are socialized into having lower expectations for themselves and to be more satisfied by less. As Sen (1992) argues eloquently, in the case of entrenched inequalities the extent of a person's deprivations may not show up at all in a metric of desire fulfilment owing to a downward adaptation of the best possible life that the individual visualizes for himself/herself.

[12] For the purposes of this paper, we merely seek to highlight that the patterns of gender bias are not always unidirectional against girls; as Marcoux (2002) comments, the widespread belief in an anti-female bias in intrahousehold food allocation seems to be unsupported by the evidence and relies on a limited number of small scale studies which are based on outdated data; this general conclusion resonates well with our own findings.

Finally, in terms of psychosocial competencies, the patterns may at first seem very heterogeneous, but on closer inspection, a few distinct patterns appear. Two strong effects are worth highlighting here. A first finding is that across three of the four countries, (Ethiopia, Peru and Vietnam) girls at the age of 15 have significantly lower trust in members of their immediate society than boys, possibly reflecting personal, parental and community values and fears related to girls reaching marriageable age.

A second finding, possibly more importantly, is that agency or self-efficacy (measuring the extent to which a person feels in charge of his/her life and destiny, and therefore sometimes referred to as a measure of empowerment), has a striking pro-male bias in India and Ethiopia (although not statistically significant in the latter) by the age of 15. As this psychosocial competence is essentially a forward-looking indicator (Bandura 1993) and has been shown to correlate with investment in the future (Bernard et al. 2011), the similarity with the aspirations and findings on education, both in terms of aspirations and achievement is striking. In social psychology, social cognitive theory posits that goals and aspirations come about from self-efficacy (Miller and Dollard 1941, themselves building on social learning theories): for example, self-efficacy regulates students' aspirations, motivation and, in the end, achievements (Bandura 1993). While our indicator of self-efficacy goes beyond education, it confirms a chain of evidence consistent with this view. As self-efficacy is shaped during earlier childhood, not least via norms and value transmission, and encouragement or discouragement by parents,[13] referring to the presence of an institutionalized bias would not be inappropriate in India, and possibly Ethiopia. Such a chain of transmission of gendered bias against girls is not present in the data from Peru and

[13] Bandura (1993) summarizes that self-efficacy stems from at least four sources: mastery experiences (learning from success and failure), vicarious experiences (learning from social models), social persuasion (responding to encouragement), and emotional strength (stamina or raising ability to respond to stress). Krishnan and Krutikova (2010) report on how efficacy among adolescents in slums of Bombay is both shaped by parents' views and possibly affected by positive encouragement by NGO intervention.

Vietnam; on the contrary, to some extent it is present in the Vietnamese data in the opposite direction, i.e. in favour of girls, going from parental aspirations for girls to higher aspirations on the part of girls for themselves in comparison to boys and finally into higher educational achievement for girls.[14]

4. EXTENSION: IS BIAS CONDITIONED BY POVERTY,MATERNAL EDUCATION OR LOCATION?

In this section, we explore whether the overall effects are heterogeneous within each country. In particular, are gaps larger or smaller when focusing on poorer, less educated, or rural settings. Our approach here is simple: we augment the basic regression specification from section 3 (including a gender dummy and various covariates as controls) by adding an interaction term between the gender dummy variable and the dimension regarding which we want to study any variation in gender bias, such as urban/rural location of residence or mother's education. We report the coefficients on the gender dummy variable and the interaction term for all regressions of this form to enable an examination of any heterogeneity within a country in the nature of gender bias in a dimension.

[Tables 3A and 3B near the following para]

4.1 Urban versus rural location

[14] The gender differences in the self-efficacy indicator are mainly driven by the question: 'Other people in my family make all the decisions about how I spend my time'. It appears that in this question boys generally reflect greater agency than girls. Furthermore, the answers are not positively correlated as expected with other questions in the index. Interpreting this is not self-evident. On the one hand, being able to make one's own decisions about one's life is clearly an important dimension of agency; on the other hand, if girls allow this to happen consciously in order to open up opportunities in response to cultural or other local factors, then perhaps interpreting this as reflecting low agency is not straightforward.

Tables 3A and 3B report the results from considering whether living in an urban setting changes some of the sex differentials reported in the previous section. A few results are striking. First, the evidence suggests that the gap in favour of boys, from the educational aspirations of parents and children and test score results, is considerably stronger in rural areas in Andhra Pradesh, with a lower incidence or (statistically significant) absence of a gap in urban areas. In Peru, the pro-girl bias in parental aspirations at an early age, present in both rural and urban areas, appears to translate into pro-girl bias at the age of 12 for girls in urban areas only, but by this age, a pro-male parental educational bias exists in rural areas. These patterns persist in child educational aspirations at the age of 15. In short, there appear to be elements of divergence in attitudes towards gender and education between rural and urban Peru. Finally, in Vietnam, the parental pro-girl bias at age 8 is strikingly only present in rural areas. Looking at nutrition outcomes, the most striking pattern is that the pro-male biases at the age of 8 years in BMI-for-age and weight-for-age in both Peru and Vietnam are considerably higher in urban than in rural areas.

Turning to the psychosocial indicators, there are some differences in the extent of gender bias across rural and urban areas but not necessarily presenting a systematic pattern. The pro-male gender bias in agency in India at 15 years of age, for example, seems to be concentrated only in urban areas. On the other hand, in Peru it seems that there is a significant pro-girl bias in pride and self-esteem at the age of 15 years in urban but not in rural areas. Again, consistent with the educational aspirations data, rural and urban Peru are characterized by rather different gender differences in indicators relevant for forward-looking behaviour.

[Tables 4A and 4B near the following para]

4.2 Maternal education

Results from a similar analysis regarding mother's education are reported in Tables 4A and 4B. Maternal education emerges as a significant ameliorating factor in reducing gender inequalities across all our study countries in a range of outcomes. For example, for Ethiopian children aged 15, having an educated mother reduced inequalities substantially in the PPVT test scores, in children's own educational aspirations, and in their height-for-age (although the coefficient is not statistically significant). A similar pattern is observed in India for test scores at 15 years of age and educational aspirations (both by parents and children) at the age of 12 years, where many of the gaps essentially disappear for girls who have mothers educated for 12 years or more. In Vietnam as well, having an educated mother helps reduce disadvantages faced by boys in BMI-for-age and weight-for-age (at 8 years of age), and BMI-for-age and height-for-age (at 15 years of age).

[Tables 5A and 5B near the following para]

4.3 Poor versus non-poor households

The impact of interaction terms distinguishing the gender gap for the poorest tercile in the (consumption per capita) distribution and the other two terciles is relatively limited (Tables 5A and 5B). First, in terms of the education variables, there is no *differential* gender gap between richer and poorer households in aspirations on the part of caregivers and children in India – in other words, the male bias is present among richer and poorer households alike. However, unlike boys from richer households, poorer boys in India are no more likely than poorer girls in both these countries to be enrolled in school at 15 years of age; this may reflect a pattern where both boys and girls in poorer households are often expected or necessitated to contribute economically to the household by their teenage years, which requires them to leave school. In Ethiopia poorer boys are significantly less likely to be enrolled than poorer girls,

reflecting perhaps the higher opportunity costs of school attendance for adolescent boys. Perhaps as a reflection of this lower rate of enrolment for older boys in poorer households, in India, the male bias in the PPVT and the maths test appears to be less for boys from poor households at least at age 8 for the PPVT and age 12 for the maths test.

In terms of nutrition, more striking is that the pattern of pro-girl nutritional bias in height-for-age is, if anything, most pronounced among the poorest households, with significant evidence in Vietnam at the age of 8 years and again at 15 years, and in Peru at the age of 15 years as well.

Finally, relatively few new patterns emerge in terms of the psychosocial competencies.

5. EXPLORING THE TRANSMISSION OF GENDER GAPS IN ASPIRATIONS TO OUTCOMES

The data in sections 3 and 4 are suggestive of a link between parental aspirations, children's aspirations, educational achievement, and possibly even empowerment. The key contrast was in Andhra Pradesh (especially the rural areas), Ethiopia and to some extent rural Peru on the one hand, and Vietnam on the other. In terms of cognitive achievement and aspirations, a clear pro-boy bias is present in Ethiopia and India, which is not necessarily apparent at early age, but which, by the age of 12 and especially 15 years, is pronounced.[15] In contrast, in Vietnam, we find a tendency for a pro-girl bias in aspirations and achievement, strongly significant for mathematics. In rural Peru, there appears to be a pro-boy bias in the aspirations of parents for children at age 12 and in the aspirations of children at age 15 in rural areas. In Ethiopia and India finally, there also seems to be some pro-male bias effect on agency as well, in line with these aspirations and achievements.

[15] Note that the bias in Andhra Pradesh is striking also as it is a southern Indian state, while most discussion on pronounced gender bias tends to focus on the north of India.

The method used is not complete, not only in terms of the mechanisms of causality (which cannot convincingly be established within the confines of this paper), but also in terms of basic associations. It could be that while on average there are pro-male biases in a particular set of indicators, individuals experiencing the bias are different for different indicators, so that a link is hardly plausible. To explore this further, we looked in each country at the link between parental aspirations and child aspirations, and aspirations and educational outcomes, using a regression analysis with otherwise the same specification as above. We also investigate whether these aspirations are associated with agency at the age of 15 as well. Furthermore, we investigate whether there is persistence in the psychosocial outcomes between the age of 12 and 15 years; an analysis of this question is important for assessing whether gender gaps in these outcomes only affect other outcomes contemporaneously or whether they contribute to the persistence of inequality.

In practice, this means that earlier regressions exploring child aspirations and educational outcomes are augmented by parental and child aspirations respectively. Two issues are explored. First, is there a positive and significant association? Second, does augmenting this regression reduce the size of the gender gap? Both should be expected if there is a genuine transmission – as some of the gender bias would then be included in the parental, respectively, child aspiration variable (i.e. biased aspirations).

[Table 6 near the following para]

The results are consistent with the idea of a transmission from parents to children's aspirations. In all four countries (Table 6), we find a positive and strongly significant link between parental aspirations at age 12 and child aspirations at age 15, controlling for other

family characteristics. Furthermore, child aspirations at age 15 show a positive and strongly significant contemporaneous correlation in explaining enrolment at that age, controlling for the other child and family characteristics. They also reduce the size of the bias in line with the hypothesis, at least in India and in Vietnam (reducing the bias by about half)[16]. Similarly, children's own aspirations at the age of 12 are a strongly significant predictor of PPVT and maths test scores in all countries as well, and once they are controlled for, the gender bias observed tends to become smaller.

These children's aspirations at age 12 also feed through into the child's sense of self-efficacy (agency) in all countries by age 15; parental aspirations matter also for agency in India, as well as in Vietnam and Peru, again underlying how parents' hopes for children tend to translate into children's self-efficacy, their sense of being able to achieve what they hope for. Even if the causal role of aspirations in achievement is still debated, these results confirm the institutional basis of bias in attitudes to boys or girls in education, whereby biased parental aspirations translate into similarly biased child aspirations, consistent with observed educational achievement bias as well as the child's sense of agency. Existing gaps in aspirations by parents appear to be transmitted in important child outcomes.

Of course, this does not answer where these biased aspirations come from. They could come from norms or values, or the transmission of information on the economic returns to boys versus girls in local labour markets, or other factors. Full understanding of them is well beyond the scope of this paper.

6. EXTENSIONS – HOUSEHOLD FIXED EFFECTS AND COHORT EFFECTS

[16] To see the reduction in the bias, compare the coefficients on the male dummy in Table 6 to coefficients in Table 2.

In this section, we extend our results in two directions: estimating the gender gaps across different indicators based only on within-family comparisons, and explicitly discussing cohort effects by looking at gender gaps across outcomes for 8-year old children in 2002 and 2009.

Firstly, for a subset of indicators, we are able to estimate gender gaps through household fixed effects and identify gender differentials based on the comparison of siblings of different sexes in the same household. These results should bolster our confidence in the results being a reflection of genuine sex differentials as they preclude explanations of these gaps being related to any background characteristics of the households.

In 2009, the survey collected anthropometric data and PPVT test scores for one sibling of the younger cohort children (then aged 8). The next younger sibling of the Young Lives 'index child' was chosen; in case a younger sibling could not be found, the next older sibling was administered the PPVT and measured for anthropometry[17]. The PPVT was not administered to siblings in India. In all rounds of the survey (2002, 2006 and 2009), enrolment details were collected for all individuals between 5-17 years of age. Therefore, we have comparable data on siblings on five of the indicators from the previous sections: three anthropometric indicators (weight-for-age, height-for-age and BMI-for-age), enrolment and PPVT test scores (except in India); unfortunately, information on psychosocial outcomes or educational aspirations of parents and children are not available for the siblings in the data. We use this information to carry out within-family investigations by regressing each outcome on a male

[17] The procedures for collecting anthropometric and test data on siblings were not identical across countries which should be noted for the purpose of interpreting the results. In Peru, data was only collected for the next younger sibling of the index child; where there was no younger sibling, data were not collected. In India, the PPVT test was not administered to siblings. Finally, although anthropometric measurements were administered to one sibling of each YL child who had a sibling in the household, the month of birth was reported as 'Not Known' in nearly half (752) of the siblings in india (but not in the other countries) which precludes us from computing the anthropometric scores for these children. In India and Ethiopia, anthropometric data was also collected for the siblings of the older cohort children (aged 15 years in 2009) in the third round of data collection; this data has not been used in this paper.

dummy, a dummy variable for each value of age in completed years, and a set of household fixed effects; identification of the gender gap is achieved from those households which had siblings of different sexes in the same household. We have restricted the regressions on enrolment to children between 6-15 years of age (inclusive).

[Table 7 near following paragraph]

Results from the household fixed effects specifications are given in Table 7. Results on the different indicators corroborate patterns reported in previous tables although fewer are significant (as we would expect due to lower power in the household fixed effects specifications). Height-for-age z scores are pro-girl biased in Ethiopia by about 0.14 SD which is almost exactly the same coefficient as reported for 8 year old children in Table 2. Similarly, BMI-for-age coefficients in India and Peru are almost identical to coefficients that we found for 8 year olds in Table 2. Enrolment in school is pro-girl biased in Ethiopia and Vietnam (although not statistically significant in the latter) and pro-boy biased in India which also agrees with previous results. Finally, PPVT scores are pro-boy biased in Peru by a similar magnitude as in the baseline specification in Table 2. The close correspondence between the within-family estimates and the basic regression results in Table 2 is heartening because it indicates that our main results are not significantly biased by any household-specific unobervables; gender seems to be mostly randomly distributed across households, as we would expect.

As a final extension, we present the extent of the gender gap across a subset of comparable indicators for the older cohort (born in 1994/95) from 2002 and the younger cohort (born in 2001/02) in 2009; at the time of the surveys, the cohorts were aged around 8 years which

make them well-suited for comparison. This exercise is particularly useful from two perspectives: it helps us analyze changes in gender bias (if any) in the intervening period of seven years which is particularly relevant for our study countries which have undergone rapid economic growth in this period; and it helps us distinguish between cohort effects and maturation (or "age-stage") effects, a distinction that is otherwise lost in comparing 8-year olds in 2009 with 12 and 15 year olds in 2006 and 2009.

The survey in 2002 was shorter and did not administer comparable questions on psychosocial outcome or aspirations. The survey also did not administer the PPVT or a detailed math test.Therefore, we have only four outcomes - the three anthropometric measures and enrolment - which are comparable. In order to compare the two cohorts, we just present the mean and standard deviations of these variables across boys and girls in 2002 and 2009. Results are presented in Table 8.

[Table 8 near following paragraph]

As can be seen, there is remarkable consistency in the outcomes on which we detect any gender gaps for 8-year olds in 2002 and 2009 in the four study areas. Weight-for-age and enrolment seem to have improved for both boys and girls in Ethiopia but the (pro-girl) gender differential is significant in both rounds with a similar absolute gap for enrolment and a possibly smaller one for weight-for-age. Similarly in India, the (pro-girl) differential in weight-for-age and BMI-for-age remains statistically significant and of roughly the same magnitude in both rounds. In Peru, the (pro-boy) differential on BMI-for-age is significant in both rounds. Finally, in Vietnam, while (pro-girl) differentials on weight-for-age and height-for-age are significant at the 10% level in 2002, they are no longer so in 2009; however, a

pro-girl bias in enrolment seems to be significant in 2009 but quantitatively small in magnitude.

The results in Table 8 suggest that there is little change in the presence and magnitude of gender gaps across these outcomes in this 7-year period in our study countries, even where outcomes seem to have improved overall (such as in Ethiopia).

7. DISCUSSION

Our analysis in this paper has highlighted several possibly important patterns in gender-based inequalities in the four study countries. The most important of these is that there is no common thread that can be used to characterize gender inequalities across these different countries or indeed even across different dimensions of child well-being in the same country or across different ages. That such a narrow characterization of gender gaps across the developing world has sometimes been made is conceivably a product of a narrow approach to the different dimensions of child well-being, prompted perhaps by data limitations. Our results highlight the importance of considering context and the age of the children being spoken about while discussing gender bias.

While the analysis presented in this paper is relatively simple and has not engaged in the detailed exploration of the mechanisms of gender bias, understanding these mechanisms is central to being able to identify possible policy levers to ameliorate these inequalities. This is important especially in view of the fact that all of these four countries have seen relatively rapid economic growth and changes in social conditions which may well have led to changes in the mechanisms by which gender bias presents itself. Complementary work from the Young Lives study and elsewhere could help in identifying these dimensions of change.

In the case of India, for example, the rapid increases in enrolment across most states has reduced substantially the gender inequality in enrolment; however, as recent analysis from Young Lives shows (see Woodhead et. al., 2012; Pells, 2011; Streuli et al. 2011), this has been accompanied by a sharp increase in unequal access between boys and girls to English-language-medium and private schools, which are widely perceived to deliver better education and lead to better employment opportunities. Whereas Kingdon (2005) found, using data from 1994, that the important dimension of gender bias in parental investment in education was through parents deciding not to enrol girls, and not through differences between the educational expenditure on boys and girls once they were enrolled, that pattern seems to have since reversed itself almost entirely[18].

Furthermore, while our analysis above documents the gender-based differences that are detected in the data, it has not engaged in depth with the implications of these differences. Yet, apart from their intrinsic value, we care about emerging inequalities in these dimensions of child well-being also because they may be strongly predictive of future outcomes. Cunha and Heckman (2008) and Cunha et al. (2010) for example document the importance of non-cognitive skills (similar to what we call psychosocial skills in this paper) even in the production of cognitive skills. This pattern is confirmed using Young Lives data from Peru from Rounds 1 and 2 of the survey by Outes-Leon et al. (2010) who found that a child's

[18] Azam and Kingdon (2011) contrast their results using nationally representative data from 2005 with the results in Kingdon (2005): whereas Kingdon (2005) had found significantly lower enrolment for girls in the 5-9 age group in 9 out of 16 major states in 1994, this difference was found in only two states in 2005; while a greater number of states seemed to have lower enrolment for girls in older age groups (10-14 years and 15-19 years), even in these age groups both the incidence and the magnitude of the bias seemed to have declined very sharply. In contrast, Azam and Kingdon (2011) find significant evidence of a pro-male bias in education expenditure across several states using child-level data on education expenditure. This bias in education expenditure seems to be driven, at least in part, by a much greater propensity of parents to enrol boys in (fee-paying) private schools; Maitra et. al. (2011) document that in 2005 the extent of gender bias in rural private school enrolment seems double that of bias in enrolment.

feeling of being respected at the age of 8 years was strongly predictive of higher test scores at the age of 12. Helmers and Patnam (2011) build on the methodology in Cunha et. al. (2008) and apply a Linear Structural Relations model to Young Lives data from 2002 and 2007. For the older cohort of children, born in1994/95, they document that there is strong evidence of cognitive skills at the age of eight leading to a greater stock of both cognitive and non-cognitive skills at the age of 12.

Similarly, early differences in nutrition could further affect later outcomes in other dimensions. For example, again using Young Lives data on Peru from 2002 and 2006, Sanchez (2009) reports a strongly significant impact of early childhood nutrition on later cognitive outcomes; this is, of course, a well-established result in the academic literature from a variety of contexts (see, for example, Glewwe et al. 2001; Glewwe and King 2001; Alderman et al. 2001). Thus, perhaps the critical point to realize about these inequalities is that not only do they present us with important equity concerns at one point in time, but they could also have important effects in perpetuating inequality, not only in the same dimension but also across other dimensions of well-being that we may care about.

8. POLICY IMPLICATIONS AND CONCLUSION

In this paper, we have attempted only to characterize the patterns of gender-based inequalities as experienced by children across a range of dimensions, at different ages within childhood and adolescence, across our four study countries. We have not, as emphasized in the previous section and elsewhere in the paper, attempted a full-fledged causal analysis of the mechanisms that perpetuate these inequalities.

That being said, there are some distinct common threads that arise from our analysis that may have useful implications for policy. The first of these threads, emphasized throughout this paper, is that we find no evidence of a common narrative of gender bias that is valid across all four countries and all dimensions; recognition of this heterogeneity in the patterns of inequality is, in our opinion, of central importance to effective policy-making, i.e. policy-making that is targeted towards reducing the specific biases that do exist in different contexts.

The second thread, implicit in our analytical approach, is that in commenting on gender inequalities in child well-being there is a need to consider dimensions of child welfare beyond those commonly documented in large-scale data collection efforts, especially in developing countries. Ignoring these dimensions risks painting a very incomplete picture; moreover, as discussed in the previous section, these frequently unmeasured dimensions of child wellbeing may have detrimental impacts also on indicators that we do measure. This empirical pattern, of inequalities in one dimension perpetuating themselves in other dimensions of well-being, is in our view perhaps one of the most salient features around gender inequality. Finally, as we hope the discussion in the previous section has highlighted, it is an important exercise to monitor the mechanisms by which gender inequalities may be

presenting themselves. This is important both for understanding how inequalities in different dimensions interact and in formulating interventions targeted at breaking the cycle of perpetuation of these inequalities across dimensions. Child-focused longitudinal data such as those collected by Young Lives can be an important source of information both on commonly neglected dimensions of well-being and for being able to convincingly draw out causal chains of the perpetuation of gender-based inequalities.

REFERENCES

Alderman, H., Behrman,J.R., Lavy,V. and Menon,R. (2001) 'Child Health and school enrollment: A longitudinal analysis' *Journal of Human Resources* 36.1: 185–205

Azam, M., & Kingdon, G. (2011). *Are Girls the Fairer Sex in India? Revisiting Intra-Household Allocation of Education Expenditure* (No. 5706). Institute for the Study of Labor (IZA)

Bandura, A (1994) 'Self-Efficacy', in V.S. Ramachaudran (ed.) *Encyclopedia of Human Behavior*, New York: Academic Press (reprinted in H. Friedman (ed.) (1998) *Encyclopedia of Mental Health*, San Diego: Academic Press)

Bandura, A (1993) 'Perceived Self-Efficacy in Cognitive Development and Functioning', *Educational Psychologist* 28.2: 117–48

Bernard, T, Dercon,S. and Taffesse, A.S. (2011), "Beyond fatalism: an empirical exploration of self-efficacy and aspirations failure in Ethiopia", CSAE working paper series WPS 2011/03

Camfield, L., Streuli, N. and Woodhead, M. (2008) *Children's Well-being in Contexts of Poverty: Approaches to Research, Monitoring and Participation*, Technical Note 12, Oxford: Young Lives

Cueto, S., Leon, J., Guerrero, G. and Muñoz, I. (2009) *Psychometric Characteristics of Cognitive Development and Achievement Instruments in Round 2 of Young Lives*, Technical Note 15, Oxford: Young Lives

Cunha, F. and Heckman,J. (2008) 'Formulating, Identifying and Estimating the Technology of Cognitive and Non-cognitive Skill Formation', *Journal of Human Resources* 43.4: 738–82

Cunha, F., Heckman,J. and Schennach,S.M. (2010) 'Estimating the Technology of Cognitive and Non-cognitive Skill Formation', *Econometrica* 8.3: 883–931

Dercon, S. and Krishnan,P. (2009) 'Poverty and the Psychosocial Competencies of Children: Evidence from the Young Lives Sample in Four Developing Countries', *Children, Youth and Environments* 19.2: 138–63

Escobal, J. and Flores,E. (2008) *An Assessment of the Young Lives Sampling Approach in Peru*, Technical Note 3, Oxford: Young Lives

Glewwe, P., Jacoby,H.G. and King, E.M. (2001) 'Early Childhood Nutrition and Academic Achievement: A Longitudinal Analysis', *Journal of Public Economics* 81.3: 345–68

Glewwe, P. and King, E. (2001) 'The Impact of Early Childhood Nutritional Status on Cognitive Development: Does the Timing of Malnutrition Matter?', *World Bank Economic Review* 15.1: 81–113

Grant, M. J., & Behrman, J. R. (2010).' Gender gaps in educational attainment in less developed countries'. *Population and Development Review*, *36*(1), 71-89.

Helmers, C., & Patnam, M. (2011). The formation and evolution of childhood skill acquisition: Evidence from India. *Journal of Development Economics*,*95*(2), 252-266.

Kingdon, G. (2005) 'Where Has All the Bias Gone? Detecting Gender Bias in the Household Allocation of Educational Expenditure in India', *Economic Development and Cultural Change* 53.2: 409–52

Krishnan, P. and Krutikova,S. (2010) *Skill Formation in Bombay's Slums*, Cambridge Working Papers in Economics 1010, Cambridge: Faculty of Economics, University of Cambridge

Kumra, N. (2008) *An Assessment of the Young Lives Sampling Approach in Andhra Pradesh, India*, Technical Note 2, Oxford: Young Lives

Levine, R., Lloyd, C., Greene, M., & Grown, C. (2008). *Girls Count: A global investment & Action Agenda*. Center for Global Development.

Maitra, P., Pal, S., & Sharma, A. (2011). Reforms, Growth and Persistence of Gender Gap: Recent Evidence from Private School Enrolment in India. *IZA Discussion Papers*.

Marcoux, A. (2002). Sex differentials in undernutrition: A look at survey evidence. *Population and Development Review*, *28*(2), 275-284.

Miller, N. E. and Dollard, John (1941) *Social Learning and Imitation*, New Haven, CT: Yale University Press

Nguyen, N. P. (2008) *An Assessment of the Young Lives Sampling Approach in Vietnam*, Technical Note 4, Oxford: Young Lives

Outes-Leon, I. and Sanchez,A. (2008) *An Assessment of the Young Lives Sampling Approach in Ethiopia*, Technical Note 1, Oxford: Young Lives

Outes-Leon, I., Sanchez, A. and Molinas, O. (2010) *Psychosocial Status and Cognitive Achievement in Peru*, Working Paper 65, Oxford: Young Lives

Outes-Leon, I. and Dercon, S. (2008) *Survey Attrition and Attrition Bias in Young Lives*, Technical Note 5, Oxford: Young Lives

Pells, K. (2011, in press) *Delivering for Poor Girls: Inequalities and Children's Life Chances*, Policy Paper 3, Oxford: Young Lives

Rosenberg, M. (1965) *Society and the Adolescent Self-Image*, Princeton, NJ: Princeton University Press

Rotter, J.B. (1966) 'Generalized Expectancies for Internal Versus External Control of Reinforcements', *Psychological Monographs* 80: 1–28

Saha, L. J. (1997) 'Aspirations and Expectations of Students', in L.J. Saha (ed.) *International Encyclopedia of the Sociology of Education*, Oxford: Pergamon

Sanchez, A. (2009) *Early Nutrition and Cognitive Achievement in Pre-school Children in Peru*, Working Paper 57, Oxford: Young Lives

Sen, A.K. (1992) *Inequality Reexamined*, Harvard: Harvard University Press

Streuli, N., Vennam,U. and Woodhead,M. (2011) *Increasing Choice or Inequality? Pathways through Early Education in Andhra Pradesh, India*, Working Papers in Early Child Development 58, The Hague: Bernard van Leer Foundation

Svedberg, P. (1990). 'Undernutrition in Sub-Saharan Africa: Is there a gender bias?'. *The Journal of Development Studies*, *26*(3), 469-486.

United Nations (2011) 'Millennium Development Goals Report 2011 Statistical Annex', http://mdgs.un.org/unsd/mdg/Resources/Static/Data/2011%20Stat%20Annex.pdf (accessed 17 October 2011)

Table 1. Mean of outcome variables, by gender and cohort

	Ethiopia		India		Peru		Vietnam	
	Female	Male	Female	Male	Female	Male	Female	Male
Younger Cohort (2009), 8-year old								
Caregiver aspirations	14.21	14.3	12.29	13.68***	7.77	7.4*	14.31	14.16*
Subjective Wellbeing	5.61	6.13	5.46	6.15**	7.96	8	6.65	7.25
Trust Index	0	0.02	-0.01	0.01	0.05	0.04	-0.02	0.02
Pride Index	-0.02	-0.03	-0.05	0.04***	0	-0.01	0.03	-0.03**
Agency Index	-0.03	0.01	-0.04	0.03***	0.01	-0.01	0.02	-0.03**
Height-for-age z score	-1.13	-1.28***	-1.36	-1.49**	-1.15	-1.18	-1.06	-1.13
BMI-for-age z score	-1.29	-1.27	-1.35	-1.48	0.39	0.65***	-0.75	-0.58**
Weight-for-age z score	-1.57	-1.68***	-1.77	-1.97***	-0.38	-0.29	-1.15	-1.12
PPVT score	79	80.2	55.01	61.6***	58.5	60.08*	92.55	93.63
Math score	2.09	2.31	5.6	5.64	7.47	7.91**	11.81	11.71
Enrolled in school	0.79	0.75*	0.99	0.99	0.99	0.99	0.99	0.98
Older Cohort (2006), 12-year old								
	Female	Male	Female	Male	Female	Male	Female	Male
Child aspirations	13.9	13.93	13.47	14.03***	15.41	15.42	14.22	13.92**
Caregiver aspirations	14.08	14.21	12.14	13.33***	15.42	15.52	13.99	13.85
Subjective Wellbeing	4.29	4.23	3.61	3.68	6.33	5.68***	4.82	4.77
Trust Index	-0.01	0.01	0	-0.01	-0.07	0.06***	-0.07	0.08***
Pride Index	0.04		-0.02	0.02	-0.03	0.02	0	-0.01
Agency Index	0.01	-0.02	-0.01	0	0.03	-0.03	0.02	-0.04
Inclusion index	0.04	-0.05**	0.06	-0.08*	0.05	-0.05**	-0.01	0.01
Height-for-age z score	-1.31	-1.47*	-1.77	-1.51**	-1.51	-1.55	-1.4	-1.53*
BMI-for-age z score	-1.66	-1.61	0.57	-0.01	0.25	0.31	-0.95	-1.08*
PPVT score	75.39	76.32	88.93	91.69*	71.02	73.54*	137.47	137.64
Math score	4.77	5.02	5.64	5.85	5.64	5.85	7.49	7.38
Enrolled in school	0.98	0.97	0.89	0.91	0.99	0.99	0.97	0.97
Older Cohort (2009), 15-year old								
	Female	Male	Female	Male	Female	Male	Female	Male
Child aspirations	13.76	14.04*	13.17	13.63**	15.59	15.7	14.14	13.58***
Subjective Wellbeing	4.78	4.78	4.91	4.62**	6.84	6.63	5.43	5.36
Trust Index	-0.1	0.09***	-0.02	0.02	-0.09	0.08***	-0.1	0.1***
Pride Index	-0.03	-0.01	0.06	-0.08	0	-0.01	-0.01	0.01
Agency Index	-0.03	0.03*	-0.05	0.06***	0.1	-0.08***	-0.01	0.01
Inclusion index	-0.03	0.02	0	-0.02	0.03	-0.01	0.04	-0.04
Height-for-age z score	-0.99	-1.74***	-1.7	-1.63	-1.59	-1.38***	-1.39	-1.47
BMI-for-age z score	-1.35	-2.07***	-0.92	-1.62***	0.42	0.12***	-0.69	-1.02***
PPVT score	149.45	154.11**	121.76	138.15***	95.38	97.99*	165.39	162.17
Math score	3.89	4.85***	5.77	7.28***	9.99	9.75	13.01	11.76***
Enrolled in school	0.92	0.88*	0.74	0.81**	0.95	0.91*	0.81	0.73***

Table 2. Coefficient on male dummy variable

	Educational and cognitive achievement			Educational Aspirations		Subjective wellbeing	Psychosocial competencies				Nutrition		
	PPVT	Maths score	Enrolment	Child	Caregiver	Ladder of life	Trust	Pride	Inclusion	Agency	Height-for-age	BMI-for-age	Weight-for-age
Ethiopia													
YC (2009) aged 8	-0.268	0.145	-0.0508*		0.0635	0.488	0.00906	-0.0206		0.0280	-0.170***	0.0219	-0.124**
OC (2006) aged 12	1.369	0.295	-0.0127	0.0590	0.140	-0.0746	0.0147	-0.0797	-0.0704	-0.0180	-0.143*	0.0654	
OC (2009) age 15	5.084**	1.051***	-0.0354	0.338		-0.0351	0.175***	0.0195	0.0430	0.0629	-0.769***	-0.704***	
India													
YC (2009) aged 8	6.248***	0.0385	0.00394		1.398***	0.702	0.0154	0.0843**		0.0650	-0.136**	-0.130***	-0.200***
OC (2006) aged 12	3.243***	0.254	0.0217	0.635***	1.184***	0.0898	0.0104	0.0439	-0.128***	0.0261	0.259*	-0.632	
OC (2009) age 15	16.02***	1.531***	0.0673**	0.506***		-0.245**	0.0332	-0.129***	-0.0180	0.105***	0.0748	-0.703***	
Peru													
YC (2009) aged 8	1.508*	0.390*	0.00221		-0.341	0.0253	-0.00777	-0.0116		-0.0186	-0.0437	0.260***	0.0781
OC (2006) aged 12	1.844	0.169	-0.00504	-0.0628	0.0466	-0.649***	0.145***	0.0357	-0.101***	-0.0811*	-0.0580	0.0640	
OC (2009) age 15	1.729	-0.363	-0.0332**	0.0652		-0.199	0.174***	-0.0231	-0.0429	-0.192***	0.191**	-0.289***	
Vietnam													
YC (2009) aged 8	1.004	-0.0842	-0.00716**		-0.157**	0.535	0.0304	-0.0605**		-0.0532**	-0.0679	0.147*	0.0249
OC (2006) aged 12	0.718	-0.0966	0.00356	-0.275**	-0.104	-0.00288	0.161***	-0.00508	0.0152	-0.0659**	-0.126**	-0.137*	
OC (2009) age 15	-2.791	-1.338***	-0.0781***	-0.527***		-0.0330	0.193***	0.0250	-0.0683	0.00986	-0.0852	-0.349***	

Note: 1) Standard errors were clustered at site level. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 3A. Coefficient on male dummy and interaction term with urban location, Ethiopia and India

		Educational and cognitive achievement			Educational Aspirations		Subjective wellbeing	Psychosocial competencies				Nutrition		
Country/Cohort	Variables	PPVT	Maths score	Enrolment	Child	Caregiver	Ladder of life	Trust	Pride	Inclusion	Agency	Height-for-age	BMI-for-age	Weight-for-age
Ethiopia														
YC(2009) aged 8	Male	-2.081	0.0756	-0.0520		0.0981	0.507	0.0147	-0.0440		0.0119	-0.146*	0.0365	-0.1000
		(-0.886)	(0.720)	(-1.322)		(0.991)	(0.808)	(0.357)	(-0.867)		(0.471)	(-1.955)	(0.808)	(-1.548)
	Male*Urban	4.615	0.178	0.00303		-0.0880	-0.0493	-0.0143	0.0594		0.0410	-0.0610	-0.0372	-0.0609
		(1.281)	(0.574)	(0.0638)		(-0.587)	(-0.0599)	(-0.226)	(0.973)		(0.952)	(-0.666)	(-0.411)	(-0.612)
OC(2006) aged 12	Male	1.946	0.263	-0.0158	0.0503	0.181	-0.0844	0.0194	-0.0665	-0.0148	-0.0466	-0.210**	0.101	
		(1.048)	(1.387)	(-1.163)	(0.296)	(1.358)	(-0.591)	(0.382)	(-1.561)	(-0.294)	(-1.115)	(-2.105)	(1.116)	
	Male*Urban	-1.452	0.0786	0.00765	0.0214	-0.102	0.0249	-0.0119	-0.0334	-0.141*	0.0721	0.169	-0.0889	
		(-0.493)	(0.264)	(0.358)	(0.0806)	(-0.483)	(0.110)	(-0.148)	(-0.493)	(-1.760)	(1.087)	(1.069)	(-0.621)	
OC(2009) aged 15	Male	6.596**	0.970***	-0.0404	0.482		-0.0729	0.121***	0.0725	0.0505	0.0506	-0.994***	-0.726***	
		(2.550)	(4.579)	(-1.181)	(1.526)		(-0.430)	(2.960)	(1.185)	(0.695)	(0.790)	(-7.785)	(-10.76)	
	Male*Urban	-3.704	0.199	0.0124	-0.351		0.0927	0.132*	-0.130	-0.0182	0.0301	0.553***	0.0536	
		(-0.820)	(0.404)	(0.334)	(-0.923)		(0.368)	(1.798)	(-1.302)	(-0.163)	(0.308)	(3.505)	(0.482)	
India														
YC(2009) aged 8	Male	5.871***	0.108	0.00389		1.557***	0.807	0.00851	0.0588		0.0596	-0.176***	-0.138**	-0.236***
		(2.979)	(0.497)	(0.686)		(5.689)	(1.563)	(0.202)	(1.434)		(1.169)	(-2.894)	(-2.813)	(-6.819)
	Male*Urban	1.504	-0.278	0.000205		-0.639	-0.422	0.0277	0.102		0.0215	0.161	0.0354	0.143
		(0.401)	(-0.594)	(0.0285)		(-1.599)	(-0.583)	(0.286)	(1.399)		(0.244)	(1.391)	(0.275)	(1.208)
OC(2006) aged 12	Male	3.801**	0.333**	0.0294	0.782***	1.440***	0.114	0.0269	0.0519	-0.142***	0.0541	0.328**	-0.598	
		(2.183)	(2.053)	(1.295)	(4.863)	(6.287)	(0.988)	(0.550)	(1.233)	(-3.079)	(1.265)	(2.572)	(-0.311)	
	Male*Urban	-2.190	-0.306	-0.0298	-0.534*	-0.997**	-0.0929	-0.0640	-0.0310	0.0544	-0.109	-0.270	-0.135	
		(-0.633)	(-0.957)	(-0.667)	(-1.739)	(-2.200)	(-0.408)	(-0.663)	(-0.372)	(0.598)	(-1.287)	(-1.064)	(-0.035)	
OC(2009) aged 15	Male	17.06***	1.833***	0.0821***	0.543**		-0.136	0.0497	-0.143***	-0.0276	0.0598	0.0220	-0.727***	
		(6.063)	(5.520)	(2.674)	(2.398)		(-1.015)	(0.886)	(-2.962)	(-0.502)	(1.458)	(0.291)	(-8.192)	
	Male*Urban	-3.998	-1.168*	-0.0573	-0.147		-0.422	-0.0637	0.0545	0.0373	0.175**	0.205	0.0945	
		(-0.719)	(-1.777)	(-0.944)	(-0.326)		(-1.593)	(-0.574)	(0.571)	(0.343)	(2.161)	(1.366)	(0.537)	

Note: 1) Standard errors were clustered at site level. Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 3B. Coefficient on male dummy and interaction term with urban location, Peru and Vietnam

		Educational and cognitive achievement			Educational Aspirations		Subjective wellbeing	Psychosocial competencies				Nutrition		
Country/Cohort	Variables	PPVT	Maths score	Enrolment	Child	Caregiver	Ladder of life	Trust	Pride	Inclusion	Agency	Height-for-age	BMI-for-age	Weight-for-age
Peru														
YC(2009) aged 8	Male	1.446	0.219	0.000148	-0.563*		-0.0549	0.0338	-0.00973		0.0157	-0.0728	0.145*	-0.0541
		(0.76)	(0.388)	(0.0265)	(-1.890)		(-0.136)	(1.125)	(-0.161)		(0.513)	(-1.027)	(2.058)	(-0.69)
	Male*Urban	0.0855	0.238	0.00286	0.307		0.111	-0.0577	-0.00266		-0.0475	0.0404	0.161	0.184*
		(0.043)	(0.394)	(0.479)	(0.752)		(0.181)	(-1.221)	(-0.039)		(-1.155)	(0.489)	(1.486)	(1.828)
OC(2006) aged 12	Male	3.687**	0.228	-0.00721	0.207	0.318*	-0.537**	0.122*	0.103*	-0.100	-0.00135	-0.0359	0.0690	
		(2.134)	(1.181)	(-0.620)	(1.054)	(1.743)	(-2.208)	(1.674)	(1.776)	(-1.594)	(-0.0198)	(-0.281)	(0.580)	
	Male*Urban	-3.025	-0.0959	0.00356	-0.444*	-0.447*	-0.185	0.0367	-0.111	-0.00129	-0.131	-0.0363	-0.00828	
		(-1.364)	(-0.388)	(0.238)	(-1.757)	(-1.905)	(-0.593)	(0.392)	(-1.483)	(-0.0160)	(-1.493)	(-0.221)	(-0.054)	
OC(2009) aged 15	Male	1.914	-0.539	-0.0444	0.789		-0.199	0.193**	0.0877	0.00357	-0.170***	-0.00097	-0.315***	
		(0.729)	(-1.032)	(-1.372)	(1.347)		(-0.171)	(2.266)	(0.824)	(0.0570)	(-3.565)	(-0.0064)	(-2.887)	
	Male*Urban	-0.303	0.290	0.0184	-1.190*		-0.000203	-0.0314	-0.182	-0.0762	-0.0364	0.316*	0.0420	
		(-0.101)	(0.460)	(0.473)	(-2.070)		(-0.000174)	(-0.309)	(-1.609)	(-1.213)	(-0.514)	(1.798)	(0.318)	
Vietnam														
YC(2009) aged 8	Male	1.169	-0.0590	-0.00668*	-0.215**		0.516	0.0284	-0.067**		-0.064***	-0.081**	0.0630	-0.049
		(0.931)	(-0.383)	(-1.821)	(-2.711)		(1.497)	(1.062)	(-2.327)		(-3.380)	(-2.166)	(0.891)	(-0.87)
	Male*Urban	-0.803	-0.122	-0.00234	0.281**		0.0916	0.00936	0.0312		0.0533	0.0613	0.407***	0.36**
		(-0.363)	(-0.588)	(-0.415)	(2.662)		(0.104)	(0.129)	(0.655)		(0.711)	(0.406)	(3.496)	(2.435)
OC(2006) aged 12	Male	0.918	-0.122	0.00536	-0.299**	-0.0888	-0.0516	0.155***	0.0213	0.0395	-0.0810*	-0.141**	-0.0464	
		(0.633)	(-1.062)	(0.443)	(-2.522)	(-0.692)	(-0.466)	(3.460)	(0.526)	(0.931)	(-1.938)	(-1.987)	(-0.608)	
	Male*Urban	-0.944	0.120	-0.00866	0.112	-0.0723	0.235	0.0279	-0.127	-0.117	0.0724	0.0735	-0.435***	
		(-0.301)	(0.479)	(-0.327)	(0.439)	(-0.258)	(0.967)	(0.284)	(-1.432)	(-1.259)	(0.792)	(0.472)	(-2.606)	
OC(2009) aged 15	Male	-1.257	-1.22***	-0.0846***	-0.55***		-0.0403	0.193***	0.0354	-0.0630	0.00871	-0.145*	-0.336***	
		(-0.455)	(-3.800)	(-3.491)	(-3.227)		(-0.109)	(3.521)	(1.155)	(-0.980)	(0.210)	(-1.897)	(-3.640)	
	Male*Urban	-7.544*	-0.597	0.0315	0.0937		0.0354	-0.00011	-0.0505	-0.0261	0.00561	0.294*	-0.0653	
		(-1.761)	(-0.586)	(0.599)	(0.408)		(0.0991)	(-0.0016)	(-1.416)	(-0.340)	(0.0889)	(1.745)	(-0.334)	

Note: 1) Standard errors were clustered at site level. Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 4A. Coefficient on male dummy and interaction term with mother's education: Ethiopia and India

		Educational and cognitive achievement			Educational Aspirations		Subjective wellbeing	Psychosocial competencies				Nutrition		
Country/Cohort	Variables	PPVT	Maths score	Enrol-ment	Child	Care-giver	Ladder of life	Trust	Pride	Inclusion	Agency	Height-for-age	BMI-for-age	Weight-for-age
Ethiopia														
YC(2009) aged 8	Male	-2.157	0.0819	-0.0597		0.0763	0.402	0.0078	-0.0272		0.0412	-0.221***	0.0334	-0.154**
	Male*Mother's Education	0.611	0.0205	0.00287		-0.00413	0.0278	0.0004	0.00211		-0.0042	0.0169	-0.00376	0.00990
OC(2006) aged 12	Male	1.563	0.500***	-0.0226*	0.0163	0.0634	-0.105	0.0127	-0.091**	-0.0527	-0.0463	-0.233**	0.127	
	Male*Mother's Education	-0.0684	-0.0715*	0.00347	0.0148	0.0270	0.0109	0.0007	0.00402	-0.00631	0.0100	0.0323	-0.0221	
OC(2009) aged 15	Male	7.966***	1.315***	-0.038	0.529*		-0.135	0.18***	0.0157	0.0707	0.0781	-0.887***	-0.667***	
	Male*Mother's Education	-1.022**	-0.0936	0.00096	-0.067		0.0356	-0.001	0.00134	-0.00979	-0.00539	0.0419	-0.0134	
India														
YC(2009) aged 8	Male	5.95***	0.344	0.00661	1.65***	0.979	0.0400	0.0600	0.0682	-0.140**	-0.125*	-0.203***		
	Male*Mother's Education	0.0817	-0.0839*	-0.00073	-0.07**	-0.0761	-0.00674	-0.00667	-0.00089	0.00106	-0.0013	0.00077		
OC(2006) aged 12	Male	4.173**	0.297*	0.0388	0.8***	1.603***	0.103	0.0391	0.0901**	-0.107**	0.0861*	0.368***	-2.011	
	Male*Mother's Education	-0.329	-0.0152	-0.00602	-0.06*	-0.145***	-0.00475	-0.0102	-0.0164*	-0.0073	-0.021**	-0.0385	0.491	
OC(2009) aged 15	Male	19.6***	1.95***	0.0914***	0.50**		-0.179	-0.00235	-0.0756	-0.0646	0.0337	0.0790	-0.72***	
	Male*Mother's Education	-1.27**	-0.15**	-0.00851	0.0013		-0.0234	0.0126	-0.0188*	0.0165	0.0253***	-0.00149	0.0055	

Note: 1) Standard errors were clustered at site level. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 4B: Coefficient on male dummy and interaction term with mother's education: Peru and Vietnam

		Educational and cognitive achievement			Educational Aspirations		Subjective wellbeing			Psychosocial competencies		Nutrition		
Country/Cohort	Variables	PPVT	Maths score	Enrol-ment	Child	Caregiver	Ladder of life	Trust	Pride	Inclusion	Agency	Height-for-age	BMI-for-age	Weight-for-age
Peru														
YC(2009) aged 8	Male	2.995*	0.842**	0.0120		0.211	-0.412	-0.0642	0.0152		-0.00102	-0.0226	0.105	-0.0614
	Male*Mother's Education	-0.186	-0.0571	-0.00123		-0.0696	0.0552	0.00712	-0.00338		-0.00221	-0.00266	0.0196	0.0176
OC(2006) aged 12	Male	4.524**	0.551**	-0.00442	0.177	0.327	-0.538*	0.183**	0.0574	-0.0669	-0.0370	-0.0868	-0.00975	
	Male*Mother's Education	-0.358	-0.0505*	-.00008	-0.0318	-0.0374	-0.0149	-0.00508	-0.00289	-0.00457	-0.00588	0.00385	0.00984	
OC(2009) aged 15	Male	4.230	-0.259	-0.0177	0.904		0.603	0.107	0.118	0.00937	-0.195**	-0.106	-0.418**	
	Male*Mother's Education	-0.331	-0.0139	-0.00205	-0.111*		-0.107	0.00888	-0.0188	-0.00692	0.000433	0.0394**	0.0171	
Vietnam														
YC(2009) aged 8	Male	1.896	-0.288	-0.0179	-0.342**	-0.0491	-0.0142	-0.152***	-0.124**	-0.166*	-0.0970	-0.238**		
	Male*Mother's Education	-0.130	0.0297	0.00157	0.0269	0.0852	0.00650	0.0133*	0.0103	0.0142	0.0355**	0.0384**		
OC(2006) aged 12	Male	0.490	-0.226	0.00831	-0.320	-0.128	0.102	0.128	-0.0243	-0.0924	-0.0524	-0.317**	-0.341**	
	Male*Mother's Education	0.0329	0.0190	-0.0007	0.00644	0.00352	-0.0154	0.00486	0.00282	0.0158	-0.00198	0.0279*	0.0299*	
OC(2009) aged 15	Male	-2.020	-2.137***	-0.121**	-0.568	-0.0840	0.189	-0.0256	-0.232	-0.0288	-0.39***	-0.586***		
	Male*Mother's Education	-0.114	0.118*	0.00632	0.00600	0.00752	0.000610	0.00747	0.0242	0.00571	0.0451***	0.0350**		

Note: 1) Standard errors were clustered at site level. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 5A: Coefficient on male dummy and interaction term with poorest tercile of consumption expenditure: Ethiopia and India

		Educational and cognitive achievement			Educational Aspirations		Subjective wellbeing	Psychosocial competencies				Nutrition		
Country/Cohort	Variables	PPVT	Maths score	Enrol-ment	Child	Care-giver	Ladder of life	Trust	Pride	Inclusion	Agency	Height-for-age	BMI-for-age	Weight-for-age
Ethiopia														
YC(2009) aged 8	Male	-1.201	0.183	-0.062**		0.0161	0.483	0.0219	-0.0169		0.0170	-0.18***	0.0856	-0.0799
		(-0.477)	(0.981)	(-2.282)		(0.185)	(0.978)	(0.638)	(-0.483)		(0.623)	(-3.008)	(1.358)	(-1.276)
	Male*Poorest Tercile	2.317	-0.119	0.0314		0.127	0.0584	-0.0395	-0.0113		0.0396	0.0218	-0.188	-0.134
		(0.604)	(-0.675)	(0.874)		(0.723)	(0.103)	(-0.729)	(-0.204)		(1.338)	(0.206)	(-1.584)	(-1.214)
OC(2006) aged 12	Male	0.231	0.288	-0.0189	0.128	0.104	0.00636	0.0479	-0.0991*	-0.0527	0.0376	-0.117	0.0332	
		(0.106)	(1.400)	(-1.135)	(0.805)	(0.569)	(0.0414)	(0.893)	(-1.916)	(-1.259)	(0.908)	(-0.99)	(0.500)	
	Male*Poorest Tercile	3.231	0.00374	0.0191	-0.214	0.113	-0.233	-0.0893	0.0604	-0.0428	-0.164**	-0.0847	0.0945	
		(1.367)	(0.0122)	(0.786)	(-0.697)	(0.590)	(-0.879)	(-0.914)	(0.959)	(-0.567)	(-2.125)	(-0.476)	(0.541)	
OC(2009) aged 15	Male	5.582**	1.053**	0.00191	0.228		-0.0850	0.189***	-0.00921	0.0431	0.0814	-0.69***	-0.76***	
		(2.677)	(2.743)	(0.0869)	(1.524)		(-0.611)	(4.154)	(-0.153)	(0.697)	(1.554)	(-5.70)	(-11.28)	
	Male*Poorest Tercile	-2.450	-0.0844	-0.12***	0.294		0.0879	-0.0440	0.0671	-0.0039	-0.0559	-0.241	0.140	
		(-0.546)	(-0.170)	(-3.536)	(0.824)		(0.412)	(-0.757)	(0.611)	(-0.045)	(-0.845)	(-1.296)	(1.096)	
India														
YC(2009) aged 8	Male	8.085***	0.217	0.00759		1.381***	0.737	0.0389	0.131***		0.0654	-0.128	-0.136**	-0.194***
		(3.615)	(0.756)	(1.392)		(6.047)	(1.486)	(0.881)	(4.018)		(1.431)	(-1.576)	(-2.629)	(-3.448)
	Male*Poorest Tercile	-5.482	-0.518	-0.0107		0.0548	-0.128	-0.0698	-0.142**		0.00060	-0.0228	0.0178	-0.0200
		(-1.470)	(-0.877)	(-1.079)		(0.151)	(-0.246)	(-0.760)	(-2.496)		(0.0093)	(-0.159)	(0.198)	(-0.203)
OC(2006) aged 12	Male	3.208*	0.509***	0.0593**	0.640***	1.351***	0.169	0.00405	0.109**	-0.118**	0.0433	0.337**	-2.124	
		(1.737)	(2.990)	(2.490)	(3.865)	(5.585)	(1.385)	(0.0785)	(2.462)	(-2.420)	(0.959)	(2.499)	(-1.049)	
	Male*Poorest Tercile	-0.0346	-0.789***	-0.117***	-0.0607	-0.600	-0.278	0.0246	-0.198***	-0.0297	-0.0527	-0.232	4.254	
		(-0.0109)	(-2.672)	(-2.825)	(-0.205)	(-1.422)	(-1.321)	(0.276)	(-2.583)	(-0.352)	(-0.674)	(-0.994)	(1.210)	
OC(2009) aged 15	Male	16.93***	1.580***	0.110***	0.563**		-0.216	0.0485	-0.0793	-0.0226	0.111**	0.0947	-0.737***	
		(5.730)	(4.519)	(3.421)	(2.365)		(-1.532)	(0.822)	(-1.572)	(-0.391)	(2.576)	(1.188)	(-7.907)	
	Male*Poorest Tercile	-2.610	-0.217	-0.126**	-0.173		-0.139	-0.0367	-0.160*	0.0205	-0.0210	-0.0979	0.103	
		(-0.509)	(-0.357)	(-2.253)	(-0.418)		(-0.567)	(-0.359)	(-1.825)	(0.204)	(-0.281)	(-0.708)	(0.636)	

Note: 1) Standard errors were clustered at site level. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 5B: Coefficient on male dummy and interaction term with poorest tercile of consumption expenditure: Peru and Vietnam

		Educational and cognitive achievement			Educational Aspirations		Subjective wellbeing	Psychosocial competencies				Nutrition		
Country/Cohort	Variables	PPVT	Maths score	Enrol-ment	Child	Care-giver	Ladder of life	Trust	Pride	Inclusion	Agency	Height-for-age	BMI-for-age	Weight-for-age
Peru														
YC(2009) aged 8	Male	1.100	0.161	-0.000760		-0.335	-0.133	0.0247	-0.0160		-0.0289	-0.0778	0.295***	0.0865
		(1.23)	(0.583)	(-0.226)		(-1.322)	(-0.365)	(0.779)	(-0.572)		(-1.167)	(-1.516)	(3.850)	(1.207)
	Male*Poorest Tercile	1.408	0.769**	0.00896		-0.0503	0.393	-0.107	0.0199		0.0353	0.119	-0.0787	0.00718
		(1.06)	(2.125)	(0.924)		(-0.10)	(0.524)	(-1.671)	(0.526)		(0.871)	(1.379)	(-0.638)	(0.0608)
OC(2006) aged 12	Male	1.411	0.310**	0.00852	0.0363	0.112	-0.689***	0.153***	0.0453	-0.0705	-0.101**	-0.109	0.0328	
		(1.13)	(2.764)	(1.423)	(0.248)	(1.188)	(-3.822)	(3.354)	(0.858)	(-1.593)	(-2.310)	(-1.149)	(0.402)	
	Male*Poorest Tercile	1.433	-0.439	-0.0406**	-0.298	-0.181	0.156	-0.0270	-0.0257	-0.0906	0.0610	0.167	0.105	
		(0.56)	(-1.490)	(-2.800)	(-1.237)	(-0.563)	(0.473)	(-0.342)	(-0.349)	(-1.161)	(0.838)	(0.914)	(0.635)	
OC(2009) aged 15	Male	2.299*	-0.317	-0.0450**	-0.130		0.0718	0.18***	-0.0670	-0.0528	-0.193***	0.338***	-0.220**	
		(1.97)	(-0.93)	(-2.799)	(-0.423)		(0.163)	(3.095)	(-1.061)	(-1.124)	(-3.296)	(4.787)	(-2.311)	
	Male*Poorest Tercile	-1.022	-0.133	0.0363	0.414		-0.777	-0.0181	0.127	0.0190	0.0176	-0.45***	-0.228	
		(-0.53)	(-0.149)	(0.762)	(0.647)		(-0.693)	(-0.158)	(0.912)	(0.193)	(0.179)	(-3.105)	(-1.189)	
Vietnam														
YC(2009) aged 8	Male	1.180	-0.297*	-0.00304		-0.131	0.384	0.0260	-0.0557*		-0.074**	0.0219	0.204**	0.136
		(0.78)	(-1.95)	(-0.825)		(-1.64)	(1.111)	(0.606)	(-1.980)		(-2.503)	(0.462)	(2.094)	(1.688)
	Male*Poorest Tercile	-0.396	0.631*	-0.0123		-0.0626	0.517	0.0121	-0.0027		0.0674	-0.260***	-0.152	-0.31***
		(-0.13)	(1.960)	(-1.497)		(-0.36)	(0.468)	(0.149)	(-0.037)		(1.057)	(-3.385)	(-1.302)	(-3.131)
OC(2006) aged 12	Male	-0.282	-0.132	-0.00568	-0.189	-0.0684	0.00456	0.233***	-0.0469	0.0360	-0.0742*	-0.0605	-0.120	
		(-0.20)	(-1.13)	(-1.216)	(-1.444)	(-0.53)	(0.0476)	(3.813)	(-1.144)	(0.644)	(-1.901)	(-0.911)	(-1.062)	
	Male*Poorest Tercile	2.378	0.0610	0.0250	-0.347	-0.214	-0.101	-0.211*	0.0985	-0.0657	0.00312	-0.228*	-0.0706	
		(0.79)	(0.320)	(0.932)	(-1.178)	(-0.809)	(-0.414)	(-1.997)	(1.282)	(-0.826)	(0.0406)	(-1.923)	(-0.421)	
OC(2009) aged 15	Male	-2.328	-1.53***	-0.120***	-0.789***		-0.0728	0.169***	0.0211	-0.0543	0.0154	0.0163	-0.277**	
		(-0.8)	(-4.06)	(-4.187)	(-5.377)		(-0.194)	(3.616)	(0.717)	(-1.455)	(0.536)	(0.218)	(-2.532)	
	Male*Poorest Tercile	-1.576	0.550	0.128**	0.804**		0.0610	0.0722	0.0143	-0.0428	-0.0174	-0.310**	-0.229*	
		(-0.47)	(0.762)	(2.790)	(2.544)		(0.198)	(0.896)	(0.182)	(-0.319)	(-0.228)	(-2.269)	(-1.733)	

Note: 1) Standard errors were clustered at site level. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 6: Transmission of gender bias over time: Persistence coefficients from regression of outcomes at 15 years on variables at 12 years of age

Dependent variable	Regressors	Ethiopia	India	Peru	Vietnam
Child Aspirations (2009)	Male	0.330*	0.104	0.0672	-0.487***
	Caregiver aspirations (2006)	0.0838	0.355***	0.396***	0.366***
Subjective well-being (2009)	Male	-0.0149	-0.265*	0.0424	-0.0325
	Subjective wellbeing (2006)	0.141***	0.133***	-0.0564	0.105***
Trust Index (2009)	Male	0.173***	0.0297	0.151***	0.185***
	Trust index (2006)	0.107***	0.0824**	0.176***	0.0357
Pride index (2009)	Male	0.0277	-0.130	-0.0266	0.0227
	Pride index (2006)	0.0929**	0.0242	0.139***	-0.0289
Inclusion index (2009)	Male	0.0458	-0.00354	-0.0491	-0.0668
	Inclusion index (2006)	0.0317	0.0607	-0.0979	-0.0124
Agency index (2009)	Male	0.0627	0.103	-0.183***	0.000258
	Agency index (2006)	-0.0237	0.0130	0.0528	-0.0118
PPVT raw score (2009)	Male	4.874**	12.64***	2.207*	-1.793
	Child aspirations (2006)	1.947***	2.785***	1.810***	4.017***
Math score (2009)	Male	1.044***	1.289***	-0.330	-1.145***
	Child aspirations (2006)	0.284***	0.381***	0.376***	0.842***
Agency index (2009)	Male	-0.0422	-0.0180	-0.0422	-0.0615*
	Child aspirations (2006)	0.0382***	0.0624***	0.0488**	0.0696***
Agency index (2009)	Male	0.0735	0.0520	-0.191***	0.00504
	Caregiver aspirations (2006)	-0.00062	0.0352***	0.0286*	-0.0314**
Enrolment(2009)	Male	-0.04*	0.04	-0.0144	-0.04*
	Child aspirations (2009)	0.04***	0.074***	0.0712***	0.077***

Note: 1) Standard errors were clustered at site level. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on mother's education, log of monthly per capita expenditure, household size and dummy variables for ethnic/caste groups and urban areas are not reported owing to space constraints

Table 7: Household fixed effects regressions – Younger cohort (2009)

	(1)	(2)	(3)	(4)
Weight-for-age z score	Ethiopia	India	Peru	Vietnam
Male	0.00779	-0.0772	0.147*	0.0105
	(0.166)	(-1.157)	(2.022)	(0.117)
Observations	2,934	2,515	2,649	2,401
Number of households	1,883	1,928	1,911	1,936
Height-for-age z score	Ethiopia	India	Peru	Vietnam
Male	-0.142**	0.0231	-0.0089	-0.0187
	(-2.405)	(0.344)	(-0.108)	(-0.363)
Observations	3,371	2,728	2,638	2,796
Number of households	1,883	1,929	1,911	1,939
BMI-for-age z score	Ethiopia	India	Peru	Vietnam
Male	0.0434	-0.128**	0.286***	0.132
	(1.072)	(-2.137)	(4.966)	(1.668)
Observations	3,368	2,725	2,635	2,785
Number of households	1,883	1,929	1,911	1,933
Enrolment	Ethiopia	India	Peru	Vietnam
Male	-0.0469**	0.0230**	0.197	-0.0290
	(-2.386)	(2.338)	(0.708)	(-1.608)
Observations	2,258	3,687	3,430	3,102
Number of households	1,262	1,927	1,914	1,948
PPVT	Ethiopia	India	Peru	Vietnam
Male	-1.178		1.690**	0.0132
	(-1.268)		(2.397)	(0.0129)
Observations	3,335		2,340	2,747
Number of households	1,877		1,833	1,901

Note: 1) Standard errors were clustered at site level. *** p<0.01, ** p<0.05, * p<0.1

2) Coefficients on dummy variables for completed years of age are not reported owing to space constraints

Table 8: Comparing gender bias in 8-year olds in 2002 and 2009

		2002		2009	
		Girls	**Boys**	**Girls**	**Boys**
Ethiopia					
Weight-for-age z-score	Mean	-1.87	-2.11***	-1.57	-1.68**
	S.D.	1.21	1.32	0.91	0.96
Height-for-age z-score	Mean	-1.41	-1.55	-1.14	-1.28***
	S.D.	1.25	1.31	1.03	1.06
BMI-for-age z-score	Mean	-1.2	-1.24	-1.29	-1.26
	S.D.	1.08	1.15	0.91	0.99
Enrolment	Mean	0.68	0.63*	0.79	0.75*
	S.D.	0.47	0.48	0.41	0.43
India					
Weight-for-age z-score	Mean	-1.86	-2.05***	-1.77	-1.97***
	S.D.	0.96	1.11	1.03	1.08
Height-for-age z-score	Mean	-1.58	-1.55	-1.4	-1.49*
	S.D.	1.01	1.07	1.04	1.03
BMI-for-age z-score	Mean	-1.27	-1.53***	-1.3	-1.45***
	S.D.	0.91	1.06	1.04	1.08
Enrolment	Mean	0.97	0.98	0.99	0.99
	S.D.	0.17	0.15	0.11	0.09
Peru					
Weight-for-age z-score	Mean	-0.49	-0.51	-0.38	-0.3
	S.D.	0.94	0.98	1.14	1.24
Height-for-age z-score	Mean	-1.37	-1.45	-1.14	-1.18
	S.D.	0.96	1.05	1.04	1.06
BMI-for-age z-score	Mean	0.42	0.57**	0.39	0.64***
	S.D.	0.86	0.95	1.01	1.09
Enrolment	Mean	0.99	0.99	0.99	0.99
	S.D.	0.08	0.11	0.09	0.09
Vietnam					
Weight-for-age z-score	Mean	-1.66	-1.76*	-1.16	-1.12
	S.D.	0.95	1.05	1.14	1.41
Height-for-age z-score	Mean	-1.41	-1.52*	-1.06	-1.13
	S.D.	0.97	0.98	1.02	1.11
BMI-for-age z-score	Mean	-1.13	-1.12	-0.77	-0.58
	S.D.	0.9	1.03	1.14	1.4
Enrolment	Mean	0.98	0.99	0.99	0.98
	S.D.	0.13	0.12	0.11	0.14

Appendix A. Indicators and definitions used

Indicator	Question/Definition
Aspirations	
Child's desired education	Q. Imagine you had no constraints and could study for as long as you liked, or go back to school if you have already left. What level of formal education would you like to complete? [CODED AS YEARS OF EDUCATION; UNIVERSITY=15, ADULT LITERACY=5]
Parent's desired education	Q. Ideally what level of education would you like [NAME] to complete? [CODED AS YEARS OF EDUCATION; UNIVERSITY=15, ADULT LITERACY=5] (asked of the main caregiver)
Subjective well-being	
Ladder of life	Q. There are nine steps on this ladder. Suppose we say that the ninth step, at the very top, represents the best possible life for you and the bottom represents the worst possible life for you. Where on the ladder do you feel you personally stand at the present time?
Psychosocial competencies All psychosocial indices are produced through an identical procedure: (i) all relevant questions are recoded to be positive outcomes, (ii) relevant questions are all normalized to z-scores within each country (subtract mean and divide by SD) and then (iii) an average of the relevant z-scores is taken across the non-missing values of the questions. The questions differed in coverage a little across rounds and cohorts and thus the indices are calculated a little differently. All the questions are on Likert-type scales going from 1 to 4 in Round 2 (R2) and from 1 to 5 in Round 3 (R3). The exact questions used per index are given below. YC=Younger Cohort; OC=Older Cohort.	
Trust index	YC R3 (8 years): Most people in my neighbourhood can be trusted. I feel safe when I go out of the house on my own. I believe the government does what is right for people like me. OC R2 (12 years): Most people in my neighbourhood are basically honest. Most people in my neighbourhood can be trusted. I believe the government does what is right for people like me. I feel safe when I go out of the house on my own. OC R3 (15 years): Most people in my neighbourhood can be trusted. I feel safe when I go out of the house on my own. I believe the government does what is right for people like me.
Agency index [Self-efficacy scale]	YC R3 (8 years): If I try hard, I can improve my situation in life. Other people in my family make all the decisions about how I spend my time [recoded to positive]. I like to make plans for my future studies and work.

	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]. OC R2 (12 years): If I try hard, I can improve my situation in life Other people in my family make all the decisions about how I spend my time [recoded to positive]. I like to make plans for my future studies and work. 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]. OC R3 (15 years): If I try hard, I can improve my situation in life. Other people in my family make all the decisions about how I spend my time [recoded to positive]. I like to make plans for my future studies and work. If I study hard at school, I will be rewarded by a better job in the future. I have choice about the work I do – I must do this sort of work.
Pride index [self-esteem scale]	YC R3 (8 years): I am proud of my shoes or of having shoes. I am proud of my clothes. I am never embarrassed because I do not have the right books, pencils or other equipment. I am proud that I have the correct uniform. I am proud of the work I have to do. OC R2 (12 years): I feel proud to show my friends or other visitors where I live. I am ashamed of my clothes [recoded to positive]. I am ashamed of my shoes [88=no shoes] [recoded to positive]. I feel proud of the job my [INSERT RELATIONSHIP OF HOUSEHOLD HEAD TO THE CHILD] does. I am often embarrassed because I do not have the right books, pencils and other equipment for school [recoded to positive]. I am worried that I don't have the correct uniform [recoded to positive]. I am proud of my achievements at school. I am embarrassed by/ashamed of the work I have to do [recoded to positive]. The job I do makes me feel proud . OC R3 (15 years): I am proud of my shoes or of having shoes. I am proud of my clothes. I am never embarrassed because I do not have the right books,

	pencils or other equipment. I am proud that I have the correct uniform. I am proud of the work I have to do.
Inclusion [discrimination] index	OC R2 (12 years): When I am at the shops/market I am usually treated by others with fairness and with respect. Adults in my [STREET/VILLAGE] treat me worse than other children my age [recoded to positive]. The other children in my class treat me with respect. Other pupils in my class tease me at school [recoded to positive]. My teachers treat me worse than other children [recoded to positive]. OC R3 (15 years) The other children in my class treat me with respect Pupils in my class never tease me at school. Adults in my community treat me as well as they treat other children at my age.
Nutrition	
Height-for-age z-scores	Computed using WHO 2005 standards
Weight-for-age z-scores	Computed using WHO 2005 standards
BMI-for-age z-scores	Computed using WHO 2005 standards
Education and cognitive achievement	
PPVT raw score	Non-standardized raw score on the Peabody Picture Vocabulary Test
Maths score	Score on standard maths computing questions (maximum score is 20)
Enrolment	Dummy variable equal to 1 if enrolled in formal schooling

Appendix B: Regressions on education and aspirations variables in Ethiopia for 15-year old children

VARIABLES	(1) PPVT	(2) Math	(3) Enrolment	(4) Child Aspirations
male	5.084**	1.051***	-0.0354	0.338
	(2.814)	(4.184)	(-1.521)	(1.683)
urban	24.46***	1.783***	0.103***	0.776***
	(4.439)	(3.821)	(3.382)	(3.129)
Ethnicity dummies				
mixed	-17.80	-0.569	0.0192	1.845
	(-1.167)	(-0.246)	(0.566)	(1.393)
other	-19.49	-0.0498	-0.168	1.353
	(-1.173)	(-0.0229)	(-1.203)	(1.002)
agew	-12.87	1.043		
	(-0.937)	(0.342)		
amhara	-19.54	0.271	-0.000932	1.522
	(-1.250)	(0.125)	(-0.0294)	(1.200)
gurage	-21.45	1.497	0.0164	1.586
	(-1.214)	(0.649)	(0.581)	(1.221)
hadia	-26.58	-1.519	-0.0165	2.385*
	(-1.701)	(-0.694)	(-0.409)	(1.844)
oromo	-16.59	-0.494	0.0101	1.128
	(-1.085)	(-0.225)	(0.361)	(0.865)
sidama	-11.13	-1.203	0.0475	-0.140
	(-0.712)	(-0.555)	(1.173)	(-0.108)
tigrian	-3.331	1.743	0.00346	1.889
	(-0.184)	(0.778)	(0.0611)	(1.443)
wolayta	-10.52	-0.443	-0.0380	1.858
	(-0.740)	(-0.196)	(-1.132)	(1.500)
kambata			0.0493	1.837
			(1.018)	(1.347)
mother's education level	0.877**	0.167***	0.00285	0.0223
	(2.569)	(4.543)	(0.956)	(1.635)
household size	-0.421	0.0357	0.00917*	0.0809**
	(-0.839)	(0.500)	(1.765)	(2.469)
Ln of household expenditure	9.845***	1.182***	0.0336	0.525***
	(3.767)	(3.754)	(1.696)	(3.121)
Constant	100.9***	-4.244	0.622***	8.470***
	(4.635)	(-1.562)	(4.812)	(4.541)
Observations	954	955	953	945
R-squared	0.269	0.195	0.049	0.098

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1