Gender Differences in Socioemotional Skills Among Adolescents and Young Adults in Ethiopia, India, Peru and Vietnam

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Young Lives

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Acknowledgements

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Summary

This report uses Young Lives longitudinal data to examine how gender differences in socioemotional skills emerge throughout adolescence, and the socioeconomic and cultural factors that may explain these gaps in Ethiopia, India, Peru and Vietnam. The findings show that the gender difference in self-efficacy emerges in late adolescence – around age 19 – with boys scoring more highly than girls in three countries (Ethiopia, India and Vietnam). Similar, but less consistent, patterns were found for self-esteem, peer relations and agency. Our analysis of the factors associated with gender differences in socioemotional skills focused on self-efficacy and agency, where the largest gender differences were found. Having a more equal attitude to gender roles is more strongly associated with the self-efficacy of girls, compared to boys, in Ethiopia, and agency in India, reducing the gender gaps in self-efficacy in these countries. Among participants aged 22 in Ethiopia and Vietnam, the gender gap in self-efficacy was greatest in the poorest tertile, compared to the two wealthier tertiles. Gender differences in socioemotional skills probably emerge as the result of cultural norms. These differences are likely to have implications for the roles that men and women choose to undertake in life.

1. Background

Socioemotional or non-cognitive skills are important for an individual's well-being, social adjustment and for a range of outcomes, including cognitive skills, learning achievements and labour market outcomes (Alan, Boneva, and Ertac 2019; Heckman, Pinto, and Savelyev 2013; Hsin and Xie 2017; Jones, Greenberg, and Crowley 2015; Kautz et al. 2014). Socioemotional skills are defined as the 'processes by which children and adults acquire and apply core competencies to recognise and manage emotions, set and achieve positive goals, appreciate the perspectives of others, establish and maintain supportive relationships, make responsible decisions, and handle personal and interpersonal situations constructively' (Osher et al. 2016, 645). Existing literature on inequality in socioemotional skills, including gender gaps, predominantly focuses on high-income countries, with a paucity of research in low- and middle-income countries (LMICs).

The development of socioemotional skills may be affected by cultural contexts. Most research on socioemotional competencies has been conducted in WEIRD (Western, educated, industrialised, rich and democratic; Henrich, Heine, and Norenzayan 2010) settings where autonomy, self-regulation, assertive social skills and social initiatives are important. In other cultures, particularly those associated with small-scale agricultural subsistence communities, social initiatives may not be equally valued because they do not help achieve group harmony and cohesion (Chen, French, and Schneider 2006; Triandis 1995). Similarly, in subsistence communities, peer interactions and socio-dramatic activities are not as encouraged (Edwards 2000), and adults and children show greater social responsibility and cooperative behaviours than in WEIRD settings (Miller, Bersoff, and Harwood 1990).

Considering these societal differences, this study addresses the development of socioemotional skills among adolescents and young adults in four LMICs – Ethiopia, India, Peru and Vietnam. We are primarily interested in gender differences in developing socioemotional skills in these countries. Understanding the role of gender is critical to understanding how culture shapes the development of socioemotional skills. Cultural contexts can influence how male and female children and adults exhibit and control their social behaviours (Hervé et al. 2022). For instance, societies with highly distinctive gender norms may envisage social initiatives, such as assertiveness, differently for male and female children. Moreover, gender differences in socioemotional skills may have implications for life outcomes in education and employment. Conversely, gender differences in labour market participation and attitudes towards girls' education and employment can shape boys' and girls' aspirations and the development of some socioemotional skills.

The following research questions address these issues: How do socioemotional skills develop during childhood and adolescence? How do differences between boys and girls in such skills emerge within the context of four LMICs?

We know little about the inequality in these skills over the life course, especially in the context of LMICs, and much of the previous research in LMICs has used the early rounds of the dataset that we exploit. For instance, analysing the four Young Lives study countries, Dercon and Singh (2013) found gender differences favouring boys in agency and educational achievement in India and Ethiopia. An analysis of 19 LMICs found consistent advantages for girls over boys in early grade reading skills, and a smaller advantage for boys in mathematics (Fonseca et al. 2023), while Mitchell et al. (2020) suggest that cognitive skills predict socioemotional skills over the life course in Peru. Alongside gender differences, some studies have also examined how factors such as early childhood education, time allocation and in-utero conditions are associated with improving

socioemotional skills, including self-efficacy and self-esteem (Arapa et al. 2021; Chang 2022; Chang, Favara, and Novella 2022).

Research in high-income contexts (Attanasio et al. 2020) found that inequality in socioemotional skills has increased across cohorts born 30 years apart in the UK, with boys and those from lower socioeconomic status, in particular, faring poorly. These skills measured at an early age significantly predict health and behavioural outcomes. There is clearly a need for more evidence on gender inequalities in socioemotional skills in LMICs, to broaden the set of skills included in research and to examine the development of inequalities throughout childhood and adolescence.

In this paper, we exploit the latest rich data from Young Lives and focus on several aspects of socioemotional skills, including self-efficacy, agency, peer relations, pride, parent–child relations, and gender gaps in grit. Self-efficacy and agency are critical for making choices and pursuing goals (Bandura 1986; Edmonds, Feigenberg, and Leight 2021). Sense of pride and relationships with peers and parents constitute a major source of emotional and cognitive resources (Bagwell and Schmidt 2013; Berhenke et al. 2011; Thompson 1993).

Our second research question therefore is: What factors are associated with gender differences in socioemotional skills in the context of four LMICs?

For this, we examine mechanisms which may be associated with gender gaps. Previous research has identified several factors that may be associated with gender differences in socioemotional skills. First, a distal predictor of gender differences is the socioeconomic status of the family and community in which boys and girls develop. Increasing wealth and urbanisation is associated with a shift from subsistence agricultural values to WEIRD values (Greenfield 2016; Jukes, Zuilkowski and Grigorenko 2018; Kagitcibasi and Ataca 2005). Research in Tanzania (Jukes et al. 2021) found that girls were rated more highly than boys in socioemotional skills associated with subsistence communities (being obedient, conscientious, prosocial and having better emotional regulation), but there were no gender differences in values associated with educated, urban families (e.g. curiosity).

A second, more proximal factor, is gender roles. This is related to the first factor because gender roles are less likely to be ascribed as a society becomes wealthier and more urbanised (Greenfield 2016). This change may be because the male competitive advantage in manual labour becomes less significant as modes of production move from agriculture and manufacturing to services (Jayachandran 2015). Other factors, such as the reduction in the labour-intensiveness of household chores and reduced fertility, also encourage women's participation in the workforce (Jayachandran 2015), with indirect effects on perceived gender roles. Gender roles are examined in two ways: how participants themselves perceive gender roles, and the gender roles that they perform (e.g. time dedicated to household tasks) because they are ascribed to these roles. The third factor is socioemotional skills related to self-perception (self-efficacy, self-esteem and agency) that may be influenced by an individual's achievements. Thus, gender differences in educational achievement resulting from external factors (different opportunities for boys and girls to attend school, discrimination in the classroom) may lead to subsequent gender differences in perceived self-efficacy, self-esteem or agency (Bandura et al. 1996).

2. Data and methods

We use Young Lives longitudinal data, which has followed 12,000 children in four LMICs – Ethiopia, India (the states of Andhra Pradesh and Telangana), Peru and Vietnam – since 2002. In each country, the study is divided into two age groups: 2,000 young people born in 2001 (the Younger Cohort) and 1,000 born in 1994 (the Older Cohort). Young Lives collects data using a sentinel-site sampling design, selecting 20 sites with a pro-poor bias. Participants were randomly selected. While the samples are not representative, they were designed to capture regional and urban/rural differences, as well as the diversity of children in each country. Studies show that Young Lives data closely approximate the wealth distribution and diversity of the population when compared with nationally representative surveys such as Demographic and Health Surveys (DHS) (Escobal and Flores 2008; Favara et al. 2021; Kumra 2008; Nguyen 2008; Outes-Leon and Sánchez 2008).

Much of our analysis focuses on Rounds 4 and 5 of the five survey rounds, carried out in 2013 and 2016, respectively. More than 91 percent of the original sample participated in the Round 5 in-person survey (Favara et al. 2021). This attrition level is low by international standards, partly because people who have moved are tracked within national borders (Sánchez and Escobal 2020). The focus on Rounds 4 and 5 means we follow the Younger Cohort at ages 12 and 15 and the Older Cohort at 19 and 22. This focus was motivated by the availability and reliability of socioemotional measures: some of the measures were administered only in Rounds 4 and 5 and the measures are consistently more reliable in these rounds, as measured by Cronbach's alpha. Despite restricting the analysis to two rounds of data, the combination of Younger and Older Cohorts helps us to map the emergence of these 'soft' skills throughout adolescence and young adulthood. In the first part of our analysis, we combine both the Younger and Older Cohorts to infer the developmental trajectories from age 12 until 22. In doing so, we recognise the limitation that the individuals are not the same in both cohorts. Life course research adopts this strategy when data are limited (Hughes, Tilling, and Lawlor 2021). In addition, robustness checks using separate models for both cohorts show similar results.

2.1. Dependent variables

We use nine different measures of socioemotional skills in this study: self-efficacy, agency, self-esteem, peer relations, pride, teamwork, emotional stability, conscientiousness and grit. Agency is available in Rounds 2 to 5 for the Older Cohort. The other variables are only available in Rounds 4 and/or 5 for the Older Cohort. Table 1 presents the measures used by each cohort's age and their corresponding survey round.

Table 1: Measures used in the study by age and survey round

	Younger Cohort average age (years)					Older Cohort average age (years)				
	1	5	8	12	15	8	12	15	19	22
Round	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Self-efficacy				●	●				●	●
Agency							●	●	●	●
Self-esteem				●	●				●	●
Peer relations				●	●				●	●
Pride				●	●				●	●
Teamwork										●
Emotional stability										●
Conscientiousness										●
Grit										●

The self-efficacy measure assesses one's perception of one's ability to cope with daily challenges and adapt to different daily stressful life events (Schwarzer and Jerusalem 1995). Table A1 in the Appendix gives the items used to construct each of the socioemotional skill areas, including self-efficacy (List 1).

The self-efficacy measure, as with all socioemotional measures in this paper, consisted of a series of statements to which respondents indicated agreement on a four-point Likert scale, where 1 indicates strongly disagree while 4 signifies strongly agree. All statements were defined such that a higher Likert value means a greater level of self-efficacy. Items coded as 'DK=don't know' and 'I don't want to answer (79)' were considered as missing values. Items were then standardised with a mean of close to 0 and a standard deviation of 1. The scale score for each round was the average of the z-scores for non-missing items. This approach allowed us to compare the position of individuals relative to others in the sample (Fischer and Milfont 2010). By combining several items in a scale, we obtain the overall and relative position of each individual. Summary statistics for the Older and Younger Cohorts at age 22 and 15, respectively, are presented in Table A2, along with other variables in the study. Table A3 presents the Cronbach's alpha values for the selected rounds by cohort and country. The alpha values are generally more than 0.7 for the self-efficacy measure.

Agency is an individual's ability to make purposeful choices (Samman and Santos 2009) and is different in that it means a locus of control, referring to one's perceptions about the linkage between their actions or behaviour and consequences (Rotter 1966). The measure was adjusted to make it relevant for children, such as in relation to their schooling, work and how they spend their time. The measure was constructed using three items (Table A1, List 2a). List 2b in Table A1 outlines the five items for the agency measure. We use three items here as the Cronbach's alpha value is quite low in some instances when considering the five-item measure. List 2b includes two more items that decrease the agency's alpha value. These items focus on whether a child has any say in their choice of work and whether other family members make all decisions about how they

spend their time. These items may not be appropriate for measuring agency in four countries with considerable rural populations. In many predominantly rural cultures, children exercise agency towards achieving communal goals such as those of their family. Thus, in such cultures, following the family wishes may be seen as a restriction of a child's agency. However, the alpha value is lower than 0.60 for some countries: it is 0.56 for Vietnam in the Older Cohort in Round 4 and lower than 0.60 for all countries in the Older Cohort in Round 5. We also see a lower alpha value for the Younger Cohort. Because of this, we ran analyses using both three-item and five-item measures to see if there are similar conclusions when the Cronbach's alpha value is even lower using a five-item measure.[1] The agency measure was constructed following the same strategy as self-efficacy. The only difference was that while a four-point Likert scale was used in Round 4, a five-point scale was employed in Round 5. This means a higher value indicates greater agency.

Third, self-esteem is defined as the level of regard that one has for one's self as a person (Kling et al. 1999). The measure was constructed using eight items (see List 3 in Table A1), based on the self-esteem scale developed by Rosenburg (1965). A higher score means more self-esteem. Fourth, the peer relations measure was constructed using eight items (List 4 in Table A1), where a higher value indicates someone has more friends and is more friendly with their peers. Fifth, the pride measure consists of four items (List 5 in Table A1). A higher score indicates a higher level of pride. Sixth, the measure of teamwork comprises three items (List 6 in Table A1), where a higher score indicates better or more cooperative in teamwork. Items in measures three through six use four-point Likert scales.

Emotional stability (a Big Five trait) is defined by the lack of anxiety, hostility, depression and personal insecurity (Barrick, Mount, and Judge 2001). The measure was constructed based on eight items with a five-point Likert scale (List 7 in Table A1). We reversed the final scale; hence, a higher value means someone is more emotionally stable. Eighth, similar to emotional stability, conscientiousness (another Big Five trait) was constructed using eight items with a five-point Likert scale (List 8 in Table A1). A higher value means someone is more careful or diligent in performing tasks. Ninth, we use the Grit index, which is defined as perseverance and passion to achieve long-term goals (Duckworth et al. 2007). Grit is measured in terms of consistency of interest (the higher the score the more consistency), and perseverance of effort (a higher score suggests more perseverance). The Cronbach's alpha value is higher than 0.60 in most cases for these measures, except for the two measures used to construct grit; hence, there is medium to high-level reliability in most measures.[2]

Of the nine measures of socioemotional skills, teamwork, emotional stability, conscientiousness and grit are available in Round 5. The other five measures are available at least in Rounds 4 and 5, which we use to show the trajectories in the emergence of socioemotional skills.

2.2. Independent variables

Gender is a binary measure suggesting whether an individual is male or female. Sex is the best proxy to gender we have in the study.

The Attitudes Toward Women Scale for Adolescents (AWSA) is a measure of attitudes towards gender roles among adolescents and young adults. AWSA is a 12-item scale, each measured on a four-point Likert scale, with questions ranging from strongly disagree to strongly agree

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1   We do not present the results for the five-item agency measure here, but these are available on request. The results from both measures are very similar.

2   More technical details in the construction of these measures can be found in Porter et al. (forthcoming) for Round 5, Yorke and Ogando Portela (2018) for Round 4, and Young Lives (2009) for Round 3.

(see List 9 in Table A1). Scores were constructed in a similar way to the measures of socioemotional skills. A higher score in AWSA indicates a more gender-equal attitude.

We use four indicators of time use and household chores as a proxy for ascribed roles. These are hours spent in: domestic tasks such as farming and family business; caring for household members; household chores; and paid activity. These variables are included as societal expectations for gender roles may also lead to socioemotional skill gaps (Hervé et al. 2022).

We use scores on a mathematics test as a proxy for educational achievement. Maths scores were estimated using item response theory (IRT), a statistical technique used to explain a latent construct of maths knowledge from a set of observed outcomes or maths items. The final scale is standardised with a mean close to 0 and standard deviation of 1. Maths scores are not available in Round 5 (age 15 for the Younger Cohort and 22 for Older Cohort), so we only include this variable from Round 4 (age 12 for the Younger Cohort and 19 for the Older Cohort).

Our control variable includes socioeconomic status (SES), which is originally coded as the 'wealth index', a composite index of household possessions. The SES measure was transformed into a categorical variable with three tertiles (Briones 2017). We also use mother's education level as a control, but not the father's. Adding the father's education led to more missing observations while the coefficients remain quite similar. Our control variable also includes a binary measure of whether individuals live in an urban or rural area.

The final independent variable is ethnicity/caste dummies. In Ethiopia this refers to the caregiver's region of origin (Amhara, Oromo, Tigrian and SNNP (Southern Nations, Nationalities, and People's Region)) and language (Gurage, Hadiva and Sidama); in India, the caregiver's caste: Scheduled Castes, Scheduled Tribes, Backward Classes, and Other Classes; in Peru, the caregiver's native tongue – as opposed to Quechua, Aymara and other dialects; and in Vietnam, whether the caregiver belongs to Kinh, the main ethnic group, or has other ethnic origins (Chinese, Tay, H'Mong, Nung, Ede, Thai, Dao and Giay). The descriptive statistics for all outcome and independent variables for the Older and Younger Cohorts from Round 5 are presented in Table A2. We incorporate these socioeconomic and demographic factors in the analysis for greater precision, and to consider the possibility that households with girls may significantly differ along these characteristics compared to households with boys (Dercon and Singh 2013).

2.3. Statistical models

Before examining gender differences in the trajectories of socioemotional skill development, we examine gender gaps at age 22 (Round 5) among the Older Cohort. This provides an overview of gender gaps as young adults prepare for employment and further education opportunities, and this is the only round in which data on all measures are available .

To estimate the gender differences in skills, we fit equation 1,

$$S_i = \alpha + \beta_1 G_i + \boldsymbol{\beta_2} C_i + \varepsilon_i \qquad\qquad [1]$$

where, S represents the nine outcome variables (self-efficacy, agency, self-esteem, peer relations, pride, teamwork, emotional stability, conscientiousness, and grit scale) of young adults i at age 22. We run the model on each country outcome variable separately. The main predictor is gender G where β_1 is the corresponding coefficient, while controls C include SES, mother's education, and urban/rural location for which $\boldsymbol{\beta_2}$ is the related coefficient vector. The results are presented in Table 2 with and without controls.

Second, we employ equation 2 to investigate the extent to which gender gaps, if any, emerge over time from adolescence to young adulthood. In this equation, we pool data from both the Younger and Older Cohorts to show the trajectories. This is because most of the socioemotional skill areas are not measured in all the rounds for both cohorts. By including data from both

cohorts, we capture these skills at ages 12 and 15 for the Younger Cohort and 19 and 22 for the Older Cohort (Rounds 4 and 5), equivalent to a decade of trajectories. However, since the agency measure was observed in Rounds 2 through to 5 for the Older Cohort, we do not pool the two cohorts for this measure. We can compare agency for the Older Cohort from ages 12 through to 22. This helps check the consistency of trajectories in other socioemotional skills as we are not comparing the agency skill of the two cohorts in the same model. Hence, this helps confirm the robustness of the results; whether the trajectories were completely driven by the cohorts.

We estimate equation 2on each country separately,

$$S_{it} = \alpha + \beta_1 G_{it} + \beta_2 Age + \beta_3(G_{it} \times Age) + \boldsymbol{\beta_4} C_{it} + \varepsilon_{it} \qquad [2]$$

Here, the variable Age refers to a round dummy: Rounds 4 and 5 for age groups 12 and 15 of the Younger Cohort and age groups 19 and 22 of the Older Cohort. The round dummy partially captures changes in age in years between Rounds 4 and 5 (since ages are recorded in months and there is slight variation within each age cohort). In equation 2, subscript t refers to the round or time measures come from. All measures of socioemotional skills in this part of the analysis come from Rounds 4 and 5 except agency, which comes from Rounds 2 through to 5. To capture the trajectories, we interact gender with the age of individuals where β_3 is the corresponding coefficient. We run this model separately on each country and on each of the socioemotional skill outcome variables. The outputs are presented in Figures 1 and 2 and in the Appendix, with and without controls. We also present results from robustness checks using the instance of self-efficacy to show that running regression on the two cohorts separately does not change the findings (Figure A1 in the Appendix).

Third, we examine how far learning achievement and different socioeconomic and cultural factors can explain the socioemotional skills of male and female young adults. We focus on individuals at age 22 and consider the self-efficacy and agency measures. This is so the analyses concentrates on a specific age group and skill areas. We choose self-efficacy and agency as these have some overlapping properties. We estimate equation 3 for each country separately. Here,

$$S_i = \alpha + \beta_1 G_i + \beta_2 M_i + \boldsymbol{\beta_3} E_i + \boldsymbol{\beta_4} L_i + \varepsilon_i \qquad [3]$$

we add maths achievement (M), socioeconomic (E) and cultural (L) variables separately, with β_2, $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ being the related coefficients, respectively. The socioeconomic variables include family SES, mother's education, urban/rural location, and children's ethnicity, caste, region and language. Cultural factors are attitudes towards gender roles and time spent in household tasks, unpaid care, household chores and paid activity by boys and girls. Figures 3 and 4 present the results, while the coefficients are in the Appendix.

We also check the interaction between gender and gender attitudes towards adolescent girls to show whether its association with socioemotional skills differs by gender.

3. Results

3.1. Gender differences in socioemotional skills: a broad overview

Analyses of Young Lives data using equation 1 suggest that there are considerable gender disparities in socioemotional skills at age 22 in the four countries. Table 2 presents gender differences in nine different socioemotional skill areas in Ethiopia, India, Peru and Vietnam. The coefficients represent the relationship between gender and skill areas based on regression models run on each country with and without controls. As Table 2 shows, girls have lower self-efficacy than boys in all four countries. The gaps range from 0.05 to 0.19 standard deviations across countries, and are statistically significant with and without any controls in all countries except for Peru. Coefficient sizes are similar after controlling for different characteristics such as SES, mother's education and urban/rural location. We also examine the interaction between socioemotional skills (self-efficacy and agency) and these three factors at age 22 (Section 3.3). We find these interactions largely non-significant, apart from the interaction between age and SES for self-efficacy in Ethiopia and Vietnam, where boys in the poorest SES quintile have more self-efficacy than girls.

We also observe gender gaps in agency. In Ethiopia and India, girls are significantly less likely to exhibit agency than boys. The gap appears statistically non-significant in Peru and Vietnam. Gender gaps in favour of boys are also noticeable in self-esteem and peer relations in Ethiopia, in teamwork in Ethiopia and India, in emotional stability in all countries, and in conscientiousness in Ethiopia and India, after controlling for socioeconomic characteristics. Pride was the only socioemotional measure for which there was an advantage for girls (in India) and no significant advantage for boys in any country.

Tables A4 and A5 in the Appendix explore whether inequalities in these skills are also present by other socioeconomic backgrounds (SES, mother's education and urban/rural location).

Table 2: Gender differences in socioemotional skills at age 22

Dependent variables	Coefficients are from independent variable gender or female, where male is the reference category							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ethiopia		India		Peru		Vietnam	
	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls
Self-efficacy	-0.19***	-0.17***	-0.074	-0.084*	-0.075	-0.054	-0.13***	-0.13***
	(0.041)	(0.040)	(0.039)	(0.039)	(0.059)	(0.060)	(0.036)	(0.036)
Agency	-0.23***	-0.22***	-0.16**	-0.19***	0.0090	0.033	-0.069	-0.056
	(0.053)	(0.052)	(0.050)	(0.048)	(0.075)	(0.074)	(0.050)	(0.049)
Self-esteem	-0.17***	-0.14***	0.058	0.046	0.045	0.070	0.0021	-0.0014
	(0.042)	(0.040)	(0.038)	(0.038)	(0.061)	(0.061)	(0.038)	(0.039)
Peer relations	-0.23***	-0.19***	0.020	0.0015	-0.078	-0.058	-0.026	-0.026
	(0.047)	(0.045)	(0.043)	(0.044)	(0.065)	(0.067)	(0.038)	(0.039)
Pride	-0.085	-0.064	0.13*	0.10*	-0.093	-0.098	-0.0046	-0.0081
	(0.059)	(0.059)	(0.051)	(0.050)	(0.067)	(0.068)	(0.050)	(0.049)
Teamwork	-0.21***	-0.20***	-0.26***	-0.29***	-0.011	-0.0040	-0.10	-0.099
	(0.059)	(0.058)	(0.053)	(0.053)	(0.082)	(0.083)	(0.058)	(0.058)
Emotional stability	-0.085*	-0.087*	-0.27***	-0.28***	-0.22***	-0.22***	-0.15***	-0.15***
	(0.040)	(0.040)	(0.038)	(0.038)	(0.053)	(0.054)	(0.036)	(0.036)
Conscientiousness	-0.097*	-0.10**	-0.058	-0.073*	0.023	0.029	-0.035	-0.033
	(0.038)	(0.037)	(0.037)	(0.037)	(0.051)	(0.052)	(0.038)	(0.038)
Grit	-0.19***	-0.19***	-0.14***	-0.16***	0.057	0.070	-0.055	-0.050
	(0.037)	(0.037)	(0.032)	(0.032)	(0.044)	(0.045)	(0.035)	(0.035)
Observations	670	670	816	816	420	420	781	781

Notes: (a) Each coefficient is derived from a separate model for independent variable gender or female. The models are run for each of the dependent variables on the furthest left column. (b) The coefficients can be interpreted in terms of standard deviation as the outcome variables are standardised in the analyses. (c) Controls include SES, mother's education, urban/rural location, and ethnicity/caste. Results for the control variables are omitted. Standard errors are in parentheses. * p<0.05 ** p<0.01 *** p<0.001.

3.2. Emergence of gender differences in socioemotional skills

To understand how these socioemotional skills develop through adolescence and young adulthood, we fit equation 2 to data from each country.

Figure 1 demonstrates that gender gaps in self-efficacy grow larger during late adolescence to early adulthood. The gaps continue to be smaller among children in the Younger Cohort from ages 12 to 15. Girls have lower self-efficacy than boys in the Younger Cohort except for Vietnam, but the gender differences are not statistically significant either with or without relevant controls, except for age 12 in Ethiopia.[3] The gaps become considerably larger in favour of young men from ages 19 to 22 in all countries, although the gap is not statistically significant in Peru at age 22. Boys have 0.18 standard deviations higher scores on self-efficacy than girls in Ethiopia at ages 19 and 22. Similarly, there are statistically significant differences in India and Vietnam at ages 19 and 22 compared to ages 12 and 15, in favour of young men.

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3   We present the results with controls to simplify the figures. However, the results are similar with and without controls.

Figure 1: Female self-efficacy scores compared to male young adults
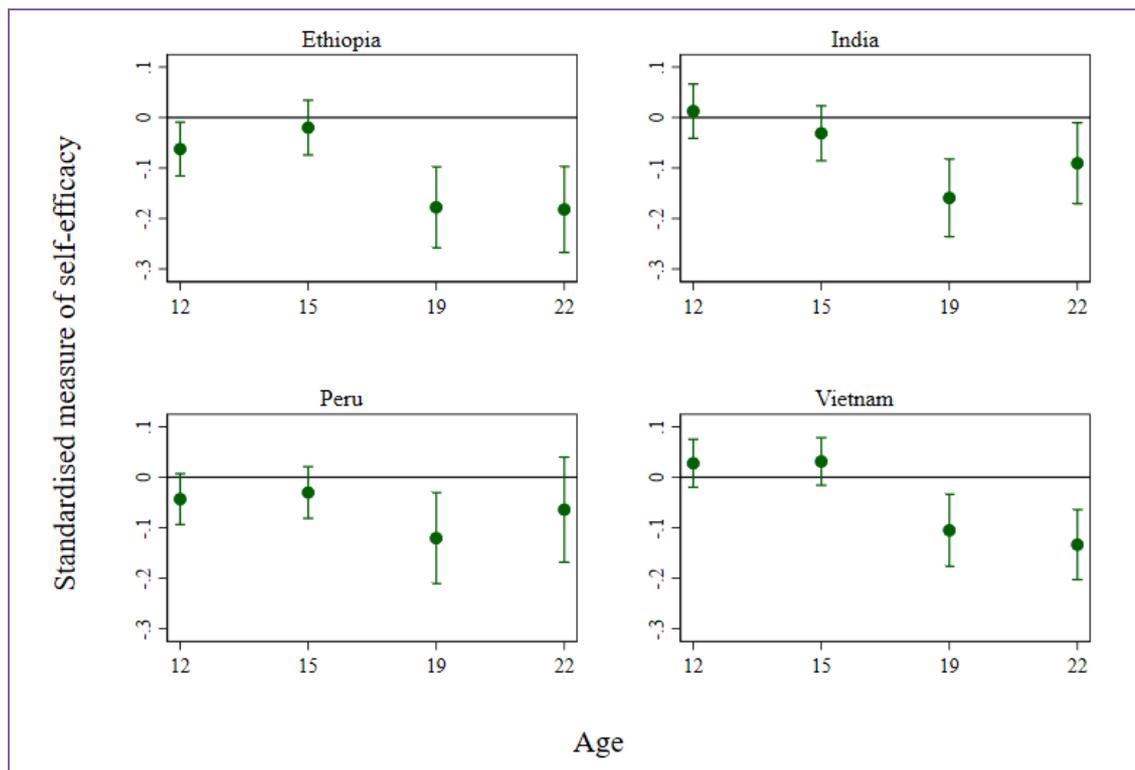
Notes: Ages 12 and 15 refer to the Younger Cohort and 19 and 22 to the Older Cohort from Rounds 4 and 5, respectively. The coefficients can be interpreted as predicted values for the socioemotional skill areas of girls compared to boys, conditional on socioeconomic background.

It remains unclear whether the differences in gender gaps between the Younger and Older Cohorts are due, at least in part, to a cohort effect. Because we derived data from two different cohorts (ages 12 and 15 for the Younger Cohort and 19 and 22 for the Older Cohort) to examine the trajectories in socioemotional skills, we cannot determine whether the gender gaps observed are the results of the transition from adolescence to adulthood or because the data come from different cohorts. Nevertheless, simply looking at the trends, we see a pattern for the gender gap between age groups. The gender gap is higher among older individuals at age 19 than children at age 12 in the same period, in 2013. Additionally, the robustness checks for self-efficacy (Figure A1 in the Appendix) suggest that running regression separately on the Younger Cohort (ages 12 and 15) and Older Cohort (ages 19 and 22) yields similar results. Our results correspond to those of Revollo and Portela (2019) when analysing Young Lives data.

Since we have data for the agency measure from four rounds for the Older Cohort, we were able to estimate gender gaps for this measure for just this cohort. Here we report whether gender differences were significant at each age, compared to the previous age, and whether the size of the gender difference changed over time. The emergence of gender differences in agency differed by country (Figure 2). In India, boys had higher agency than girls and the gap became statistically significant at age 22. In Ethiopia, boys also outperform girls on the agency measure. However, the gender gap was not significant at any age, although there is evidence that the gender gap at older ages is larger than at age 12. We found opposite effects in the other two countries. In Peru, we found a gender gap in favour of girls which became significant at age 22. In Vietnam there is a trend for girls to have higher agency scores than boys, particularly in the older

age groups, and the differences are statistically significant. These differences remain stable with and without control variables.[4]

Figure 2: Female agency scores compared to male young adults
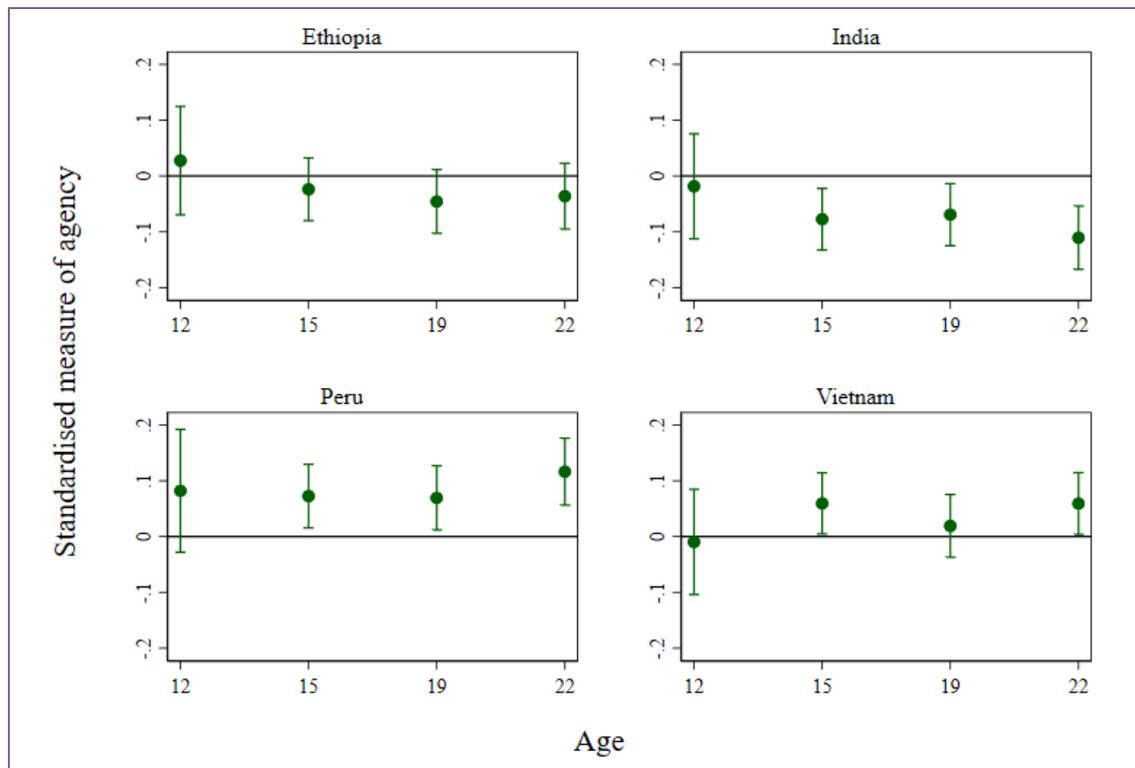
Notes: Ages 12 to 22 refer to Older Cohort Rounds 2 through 5. The coefficients can be interpreted as the predicted socioemotional skills of girls compared to boys, conditional on socioeconomic background.

Boys score more highly than girls in self-esteem and peer relations in Ethiopia at ages 19 and 22 (Figures A2 and A3). Results are less consistent for other countries in these skill areas.

3.3. Explaining gender differences in socioemotional skills

The findings so far suggest that gender differences in socioemotional skills become more profound in young adulthood around ages 19 and 22. This section examines the socioeconomic and cultural factors which might explain these gaps. To address this question, we fit equation 3, adding four different sets of covariates in a series of models. We examine this question for self-efficacy and agency where we find the largest gender differences. Coefficients are estimated separately for self-efficacy and agency. The coefficients are presented in Figures 3 and 4, with values presented in Tables A6 and A7.

Overall, in no case did the introduction of covariates, including maths achievement, time spent in different activities, and AWSA, lead to a significant reduction in the estimated gender gaps in self-efficacy. A small reduction was seen in a few cases. For self-efficacy, there were small reductions in the gender gaps when time use was added as a covariate. This covariate led to a reduction in the female disadvantage in self-efficacy from 18 to 15 standard deviations in Ethiopia, and from 13 to 11 in Vietnam. The introduction of the SES covariate reduced the gender gap in self-efficacy in Ethiopia from 19 to 12 standard deviations.

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4   Additionally, gender gaps in pride are less consistent than for self-efficacy and agency (Figure A4).

We found a similar pattern of results for agency. The introduction of covariates did not reduce the size of the unexplained gender gap except in Ethiopia, where there was a very slight reduction when controlling for socioeconomic characteristics. We note that, as previously mentioned, while there is variation in the socioeconomic characteristics of children in the Young Lives sample, the sample has a pro-poor bias.

Although none of the covariates were found to explain gender differences, the gender attitude variable (AWSA) had the largest positive association with both self-efficacy and agency in all models for Peru, Vietnam and Ethiopia, and in India when also controlling for SES. The findings mean that positive attitudes towards adolescent girls in these four LMICs are associated with higher levels of self-efficacy for both boys and girls.

Figure 3: Gender differences in self-efficacy, controlling for socioeconomic and cultural factors
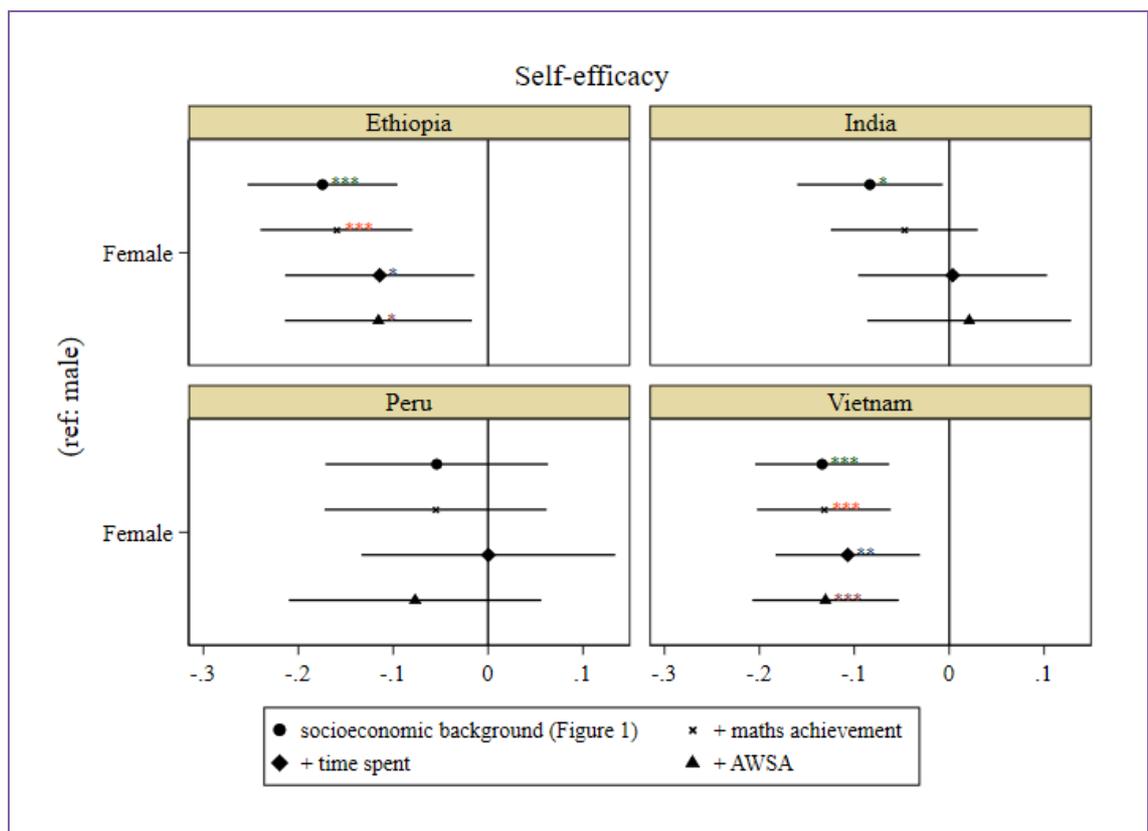
Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Figure 4: Gender differences in agency, controlling for socioeconomic and cultural factors
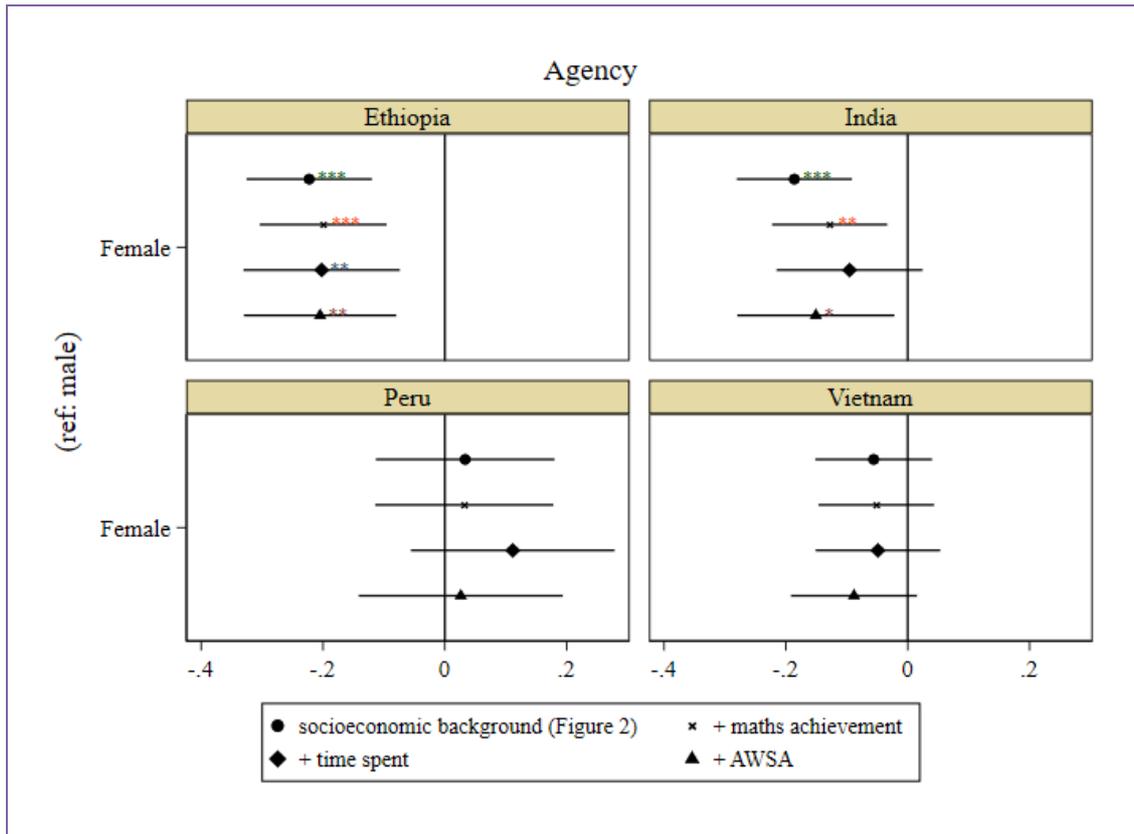
Notes: * *p* < 0.05 ** *p* < 0.01 *** *p* < 0.001.

To further examine these surprising findings, we tested whether the association between the AWSA variable and self-efficacy and agency, respectively, differs significantly by gender. As illustrated in Figure 5, the interaction is significant for self-efficacy in Ethiopia and for agency in India. In both cases, having a higher ASWA score (i.e. a more equal attitude to gender roles) was more strongly associated with socioemotional skills for girls than for boys. The interaction for India is not statistically significance when we control for socioeconomic characteristics, suggesting that gender attitudes and gender differences in self-efficacy may both be influenced by socioeconomic characteristics in the country.[5] Apart from these two instances, the interaction term between gender and AWSA scores is not significant.

To explain why the ASWA score was predictive of gender differences in socioemotional skills only in India and Ethiopia, it is helpful to compare the mean AWSA scores in the four countries (Table A2). AWSA scores are lower in Ethiopia (-0.05 for boys and 0.06 for girls) and India (-0.18 for boys and 0.22 for girls) than in Vietnam (0.22 for boys and 0.21 for girls) and Peru (0.74 for both boys and girls). India is the only country with a substantial gender difference in the AWSA scores. A possible conclusion is that the AWSA explains gender differences in socioemotional skills only where AWSA scores are low (i.e. represent unequal attitudes to gender roles).

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[5] In additional analyses, not reported here, maternal education was the strongest predictor of AWSA scores, among socioeconomic variables.

Figure 5: The interaction between AWSA and gender to predict self-efficacy and agency
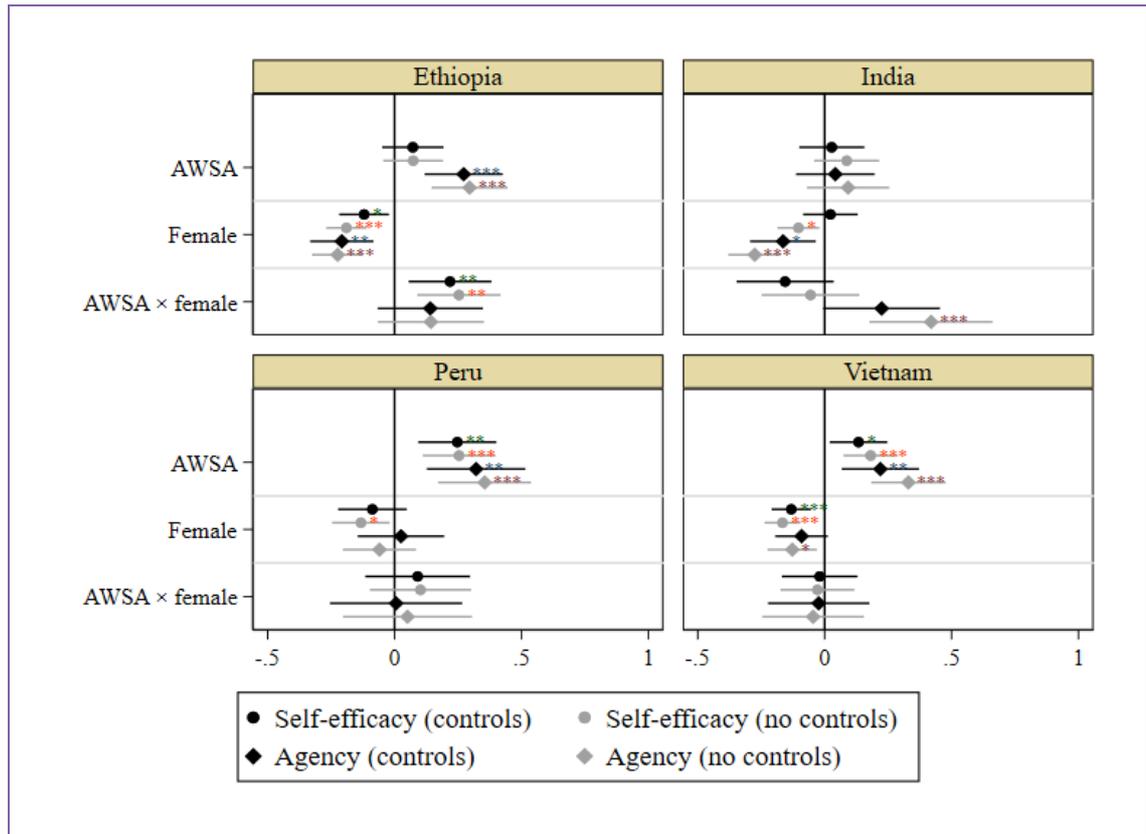
Notes: * *p* < 0.05 ** *p* < 0.01 *** *p* < 0.001.

We also explored whether gender differences in socioemotional skills might intersect with other socioeconomic disadvantages. We found that gender differences in self-efficacy at age 22 are wider in the poorest tertile, compared to the other two tertiles, in Ethiopia, Peru and Vietnam, but only statistically significant in Ethiopia and Vietnam. The interaction between gender and SES for self-efficacy is not significant in India, as suggested by the overlapping error bars in Figure A5. However, we did not find any statistically significant gender differences by SES in agency in any country, nor by mother's education, urban/rural location, or ethnicity/caste/region/language in either self-efficacy or agency. We present the results on the interaction between gender and SES for agency in Figure A6, and between gender and mother's education for self-efficacy in Figure A7.[6] In both cases, the interactions are not statistically significant in any country.

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[6] The other results are available on request.

4. Discussion

Our main finding is that gender differences in self-efficacy emerge in late adolescence, around the age of 19, in three of the four countries studied – India, Ethiopia and Vietnam. Similar, but less consistent, patterns are found for self-esteem, peer relations and agency. This developmental trend is consistent with previous findings that self-concept becomes more distinct in late childhood and adolescence (Goetz et al. 2010; Revollo and Portela 2019). Meta-analyses in largely high-income countries have found that gender differences in academic self-efficacy (Huang 2013) and self-esteem (Kling et al. 1999) also both emerge in late adolescence and favour boys. Our findings are also consistent with other analyses showing gender gaps in socioemotional skills in India and Ethiopia (Dercon and Singh 2013; Hervé et al. 2022; Revollo and Portela 2019) and extend previous Young Lives analyses with an additional round of data.

Our analysis of factors underlying gender differences in socioemotional skills found some associations with perceived gender roles. Having more egalitarian views about gender roles was more strongly related to socioemotional skills for girls, compared to boys, in Ethiopia and India, the two countries with lower AWSA scores. Our interpretation is that individuals' attitudes to gender roles may be an important determinant of gender differences in socioemotional skills in settings where attitudes to gender roles tend to be unequal.

Intuitively, one would expect that academic achievement is a major source of adolescents' sense of self-efficacy, and our analyses show a significant relation between mathematics achievement and self-efficacy. Despite this relationship, boys had a higher level of self-efficacy even in countries, such as Vietnam, where there is little or no gender gap in academic achievement.[7]

In Ethiopia and Vietnam, we found that gender differences in socioemotional skills were greatest in the poorest tertile. Otherwise, no other covariates explained gender gaps in socioemotional skills. It is likely that these gender gaps result from societal norms, rather than individual differences captured in the Young Lives data. Institutionalised gender bias in socioemotional skills, especially in India and Ethiopia, may arise, in part, because of gender disparities in the labour market. There is a larger gap in labour market participation in India and Ethiopia than in Peru and Vietnam (ILO 2018). Women also experience considerable discrimination in the formal sector in many LMICs (Baden 1993). This may negatively affect parents' aspirations regarding girls (Dercon and Singh 2013), which in turn negatively influences girls' aspirations and skill building. Since socioemotional or non-cognitive skills are correlated with future labour market and other long-term outcomes (Heckman, Pinto, and Savelyev 2013; Kautz et al. 2014), gender bias is likely to perpetuate in these countries without measures to address it.

Gender differences in socioemotional skills – particularly self-efficacy and agency – persist in the four LMICs studied, even when other outcomes, such as educational achievement, are more equal between the genders. The gender differences emerge in late adolescence, and are partly explained by attitudes to gender roles and socioeconomic status.

The implication of our findings is that girls in the contexts studied enter adulthood at a disadvantage compared to boys. They feel less able to deal with the challenges they face and feel less in control of their own lives. These disadvantages likely carry through into the workplace and adult life in general. One possible response to this challenge is to implement programmes that develop girls' self-efficacy and agency in adolescence (e.g. Edmonds et al. 2021). Future

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7   In Vietnam, maths achievement does not significantly differ between girls and boys among the Older Cohort at age 19. However, girls perform better at literacy than boys.

research could examine the effectiveness of such programmes in reducing the gender gap in socioemotional skills. Research is also needed to further understand the structural determinants of these gender gaps.

Appendix

Table A1: Items for each of the eight socioemotional skill areas and AWSA

1. Self-efficacy items: (4-pt scale) strongly disagree; disagree; agree; strongly agree

1.	I can always manage to solve difficult problems if I try hard enough.
2.	If someone opposes me, I can find the means and ways to get what I want.
3.	It is easy for me to stick to my aims and accomplish my goals.
4.	I am confident that I could deal efficiently with unexpected events.
5.	Thanks to my resourcefulness, I know how to handle unforeseen situations.
6.	I can solve most problems if I invest the necessary effort.
7.	I can remain calm when facing difficulties because I can rely on my coping ability.
8.	When I am confronted with a problem, I can usually find several solutions.
9.	If I am in trouble, I can usually think of a solution.
10.	I can usually handle whatever comes my way.

2a. Agency items (three items)

1.	If I try hard I can improve my situation in life.
2.	I like to make plans for my future studies and work.
3.	If I study hard I will be rewarded with a better job in the future.

2b. Agency items (five items): Round 4: (4-pt scale) strongly disagree; disagree; agree; strongly agree.
Round 5: (5-pt scale) strongly disagree; disagree; more or less; agree; strongly agree

1.	I can improve my situation in life.
2.	people in my family make all the decisions about how I spend my time.
3.	I like to make plans for my future studies and work.
4.	If I study hard I will be rewarded with a better job in the future.
5.	I have no choice about the work I do.

3. Self-esteem: (4-pt scale) strongly disagree; disagree; agree; strongly agree

1.	I do lots of important things.
2.	In general, I like being the way I am.
3.	Overall, I have a lot to be proud of.
4.	I can do things as well as most people.
5.	Other people think I am a good person.
6.	A lot of things about me are good.
7.	I'm as good as most other people.
8.	When I do something, I do it well.

4. Peer relations: (4-pt scale) strongly disagree; disagree; agree; strongly agree

1.	I have lots of friends.
2.	I make friends easily.
3.	Other kids want me to be their friend.
4.	I have more friends than most other kids.
5.	I get along with other kids easily.
6.	I am easy to like.
7.	I am popular with kids of my own age.
8.	Most other kids like me.

5. Pride: Round 4: (4-pt scale) strongly disagree; disagree; agree; strongly agree. Round 5: (5-pt scale) strongly disagree; disagree; more or less; agree; strongly agree

9.	I am proud of my clothes.
10.	I am ashamed of my shoes.
11.	I am proud of my shoes or of having shoes.
12.	I feel proud of the job done by the household head.

6. Teamwork: (4-pt scale) strongly disagree; disagree; agree; strongly agree

13.	I like cooperating in a team.
14.	I cooperate well when working in a team.
15.	I am good at cooperating with team members.

7. Emotional stability: (5-pt scale) strongly disagree; disagree; more or less; agree; strongly agree

16.	I am someone who is depressed, blue.
17.	I am someone who is relaxed, handles stress well.
18.	I am someone who can be tense.
19.	I am someone who worries a lot.
20.	I am someone who is emotionally stable, not easily upset.
21.	I am someone who can be moody.
22.	I am someone who remains calm in tense situations.
23.	I am someone who gets nervous easily.

8. Conscientiousness: (5-pt scale) strongly disagree; disagree; more or less; agree; strongly agree

24.	I am someone who does a thorough job.
25.	I am someone who can be somewhat careless.
26.	I am someone who is a reliable worker.
27.	I am someone who tends to be disorganized.
28.	I am someone who tends to be lazy.
29.	I am someone who perseveres until the task is finished.
30.	I am someone who does things efficiently.
31.	I am someone who makes plans and follows through with them.
32.	I am someone who is easily distracted.

9. Attitudes Toward Women Scale for Adolescents (AWSA): (4-pt scale) strongly disagree; disagree; agree; strongly agree

33.	Swearing is worse for a girl than for a boy.
34.	On a date, the boy should be expected to pay all expenses.
35.	On the average, girls are as smart as boys.
36.	More encouragement in a family should be given to sons than daughters to go to college.
37.	It is all right for a girl to want to play rough sports like football.
38.	In general, the father should have greater authority than the mother in making family decisions.
39.	It is all right for a girl to ask a boy out on a date.
40.	It is more important for boys than girls to do well in school.
41.	If both husband and wife have jobs, the husband should do a share of the housework such as washing dishes and doing the laundry.
42.	Boys are better leaders than girls.
43.	Girls should be more concerned with becoming good wives and mothers than desiring a professional or business career.
44.	Girls should have the same freedoms as boys.

Table A2: Part 1. Descriptive statistics, Older Cohort at age 22 (Round 5)

	Ethiopia				India			
	Male		Female		Male		Female	
	mean	SD	mean	SD	mean	SD	mean	SD
Self-efficacy	0.08	0.53	-0.09	0.55	0.05	0.51	-0.04	0.59
Agency (three items)	0.10	0.68	-0.10	0.70	0.10	0.67	-0.08	0.75
Self-esteem	0.07	0.54	-0.09	0.55	-0.02	0.50	0.02	0.57
Peer relations	0.10	0.59	-0.12	0.63	0.01	0.60	0.00	0.63
Pride	0.02	0.76	-0.05	0.75	-0.05	0.77	0.07	0.71
Teamwork	0.11	0.77	-0.11	0.73	0.13	0.68	-0.14	0.83
Emotional stability	0.05	0.50	-0.04	0.54	0.14	0.54	-0.14	0.55
Conscientiousness	0.06	0.49	-0.06	0.49	0.03	0.52	-0.02	0.52
AWSA	-0.02	0.44	0.02	0.52	-0.17	0.41	0.17	0.38
Standardised maths score	0.45	0.98	0.19	0.95	0.30	1.09	-0.06	1.04
Standardised reading score	-0.02	1.05	-0.01	0.98	0.16	0.99	-0.10	0.98
Urban (%)	0.42	0.49	0.53	0.50	0.30	0.46	0.35	0.48
SES (%)								
1st quintile	0.37		0.31		0.36		0.32	
2nd quintile	0.34		0.34		0.36		0.30	
3rd quintile	0.29		0.35		0.28		0.38	
Mother's education								
No education	0.16		0.09		0.36		0.32	
Less than secondary	0.43		0.41		0.34		0.28	
Secondary	0.15		0.22		0.20		0.27	
More than secondary	0.06		0.14		0.08		0.13	
Other education (e.g. religious)	0.20		0.15		0.02		0.01	
Observations	403		348		442		452	

	Peru				Vietnam			
	Male		Female		Male		Female	
	mean	SD	mean	SD	mean	SD	mean	SD
Self-efficacy	0.06	0.54	-0.04	0.68	0.08	0.45	-0.07	0.54
Agency (three items)	0.00	0.72	-0.02	0.80	0.05	0.70	-0.02	0.68
Self-esteem	0.01	0.58	0.03	0.64	0.01	0.54	0.00	0.53
Peer relations	0.07	0.62	-0.08	0.73	0.03	0.52	0.00	0.55
Pride	0.06	0.65	-0.06	0.74	0.02	0.68	0.00	0.70
Teamwork	-0.01	0.76	0.01	0.83	0.07	0.81	-0.03	0.80
Emotional stability	0.14	0.48	-0.12	0.62	0.08	0.48	-0.07	0.53
Conscientiousness	0.00	0.47	0.01	0.56	0.02	0.54	-0.01	0.52
AWSA	-0.07	0.50	0.10	0.57	-0.09	0.48	0.09	0.48
Standardised maths score	0.35	1.08	0.27	0.99	0.32	1.04	0.29	0.97
Standardised reading score	-0.01	1.03	0.08	0.90	-0.11	1.03	0.10	0.96
Urban (%)	0.87	0.34	0.88	0.33	0.41	0.49	0.40	0.49

	Peru				Vietnam			
	Male		Female		Male		Female	
	mean	SD	mean	SD	mean	SD	mean	SD
SES (%)								
1st quintile	0.32		0.34		0.37		0.33	
2nd quintile	0.36		0.33		0.31		0.35	
3rd quintile	0.33		0.33		0.33		0.33	
Mother's education								
No education					0.04		0.03	
Less than secondary	0.24		0.21		0.61		0.53	
Secondary	0.51		0.49		0.17		0.24	
More than secondary	0.25		0.30		0.17		0.21	
Other education (e.g. religious)					0.003		0.002	
Observations	289		261		382		426	

Table A2: Part 2. Descriptive statistics, Younger Cohort at age 15 (Round 5)

	Ethiopia				India			
	Male		Female		Male		Female	
	mean	SD	mean	SD	mean	SD	mean	SD
Self-efficacy	0.01	0.54	-0.01	0.61	0.01	0.55	-0.03	0.57
Agency (three items)	-0.01	0.73	0.01	0.74	0.02	0.73	-0.08	0.79
Self-esteem	0.01	0.56	-0.01	0.62	-0.02	0.54	0.01	0.54
Peer relations	0.05	0.58	-0.05	0.65	-0.04	0.60	0.04	0.58
Pride	-0.03	0.61	0.01	0.64	-0.06	0.66	0.06	0.66
AWSA	-0.05	0.42	0.06	0.46	-0.18	0.37	0.22	0.35
Standardised maths score	0.21	0.79	0.22	0.79	0.31	0.81	0.32	0.75
Standardised reading score	-0.26	0.95	-0.14	0.98	-0.19	0.98	-0.09	1.01
Urban (%)	0.36	0.48	0.37	0.48	0.31	0.46	0.28	0.45
SES (%)								
1st quintile	0.33		0.33		0.33		0.36	
2nd quintile	0.34		0.34		0.34		0.33	
3rd quintile	0.33		0.34		0.33		0.31	
Mother's education								
No education	0.17		0.20		0.30		0.30	
Less than secondary	0.41		0.43		0.35		0.33	
Secondary	0.11		0.08		0.25		0.26	
More than secondary	0.07		0.07		0.08		0.10	
Other education (e.g. religious)	0.23		0.22		0.02		0.02	
Observations	927		826		1007		862	

	Peru				Vietnam			
	Male		**Female**		**Male**		**Female**	
	mean	**SD**	**mean**	**SD**	**mean**	**SD**	**mean**	**SD**
Self-efficacy	0.02	0.54	0.00	0.61	-0.01	0.50	0.01	0.55
Agency (three items)	-0.07	0.70	0.08	0.76	-0.09	0.76	0.05	0.80
Self-esteem	-0.03	0.56	0.04	0.63	-0.01	0.53	0.02	0.55
Peer relations	0.03	0.60	-0.02	0.71	-0.01	0.55	0.02	0.58
Pride	0.00	0.58	0.00	0.68	-0.04	0.63	0.02	0.60
AWSA	0.74	0.44	0.74	0.44	0.22	0.42	0.21	0.41
Standardised maths score	0.02	0.54	0.00	0.61	-0.01	0.50	0.01	0.55
Standardised reading score	-0.07	0.70	0.08	0.76	-0.09	0.76	0.05	0.80
Urban (%)	-0.03	0.56	0.04	0.63	-0.01	0.53	0.02	0.55
SES (%)								
1st quintile	0.32		0.34		0.33		0.35	
2nd quintile	0.35		0.32		0.33		0.33	
3rd quintile	0.32		0.33		0.34		0.32	
mother's education								
No education					0.06		0.06	
Less than secondary	0.37		0.39		0.71		0.72	
Secondary	0.43		0.39		0.15		0.13	
More than secondary	0.20		0.21		0.07		0.08	
Other education (e.g. religious)					0.01		0.01	
Observations	871		841		961		914	

Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table A3: Cronbach's alpha coefficients for retained scales of the following measures

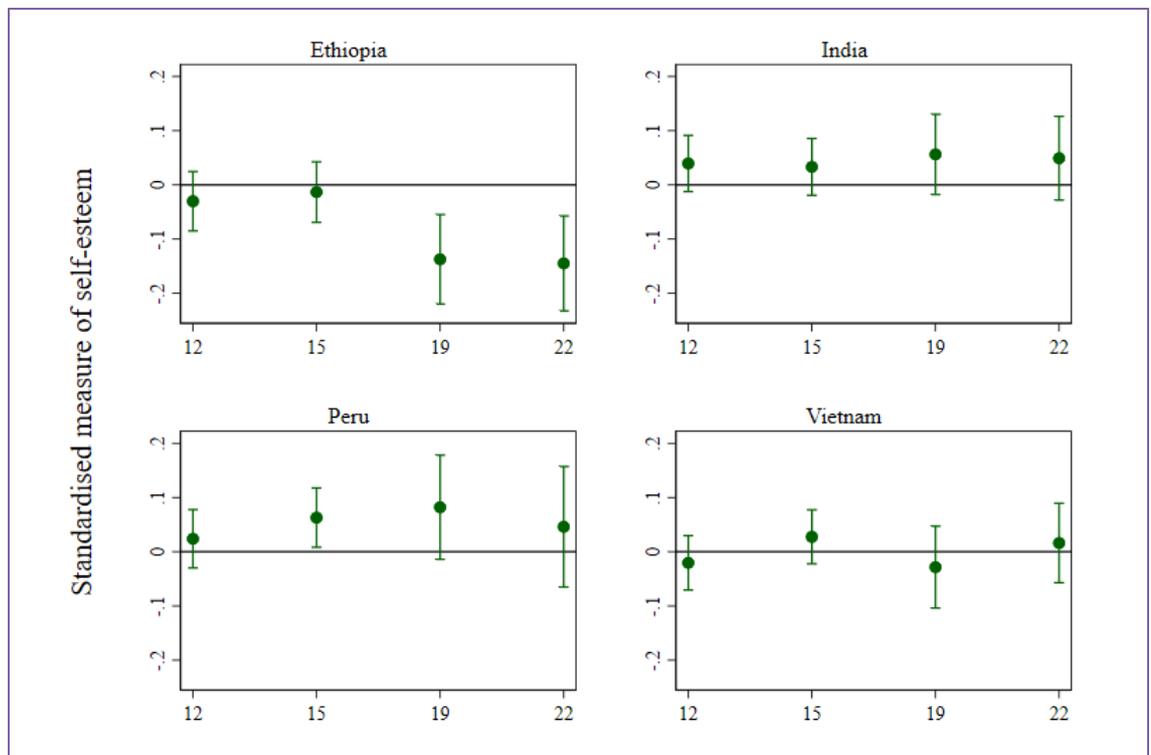|	Older Cohort				Younger Cohort			
	Ethiopia	**India**	**Peru**	**Vietnam**	**Ethiopia**	**India**	**Peru**	**Vietnam**
Self-efficacy								
Round 4	0.77	0.82	0.77	0.71	0.80	0.82	0.70	0.71
Round 5	0.74	0.75	0.82	0.68	0.78	0.75	0.77	0.72
Agency (five items)								
Round 2	0.29	0.29	0.27	0.40				
Round 3	0.33	0.39	0.28	0.32	0.31	0.22	0.24	0.31
Round 4	0.41	0.41	0.46	0.43	0.40	0.10	0.25	0.37
Round 5	0.47	0.36	0.45	0.43	0.50	0.31	0.39	0.54
Agency (three items)								
Round 2	0.47	0.51	0.28	0.55				
Round 3	0.56	0.61	0.55	0.58	0.58	0.57	0.53	0.55
Round 4	0.64	0.73	0.63	0.56	0.62	0.65	0.52	0.60
Round 5	0.49	0.54	0.56	0.50	0.55	0.54	0.58	0.64
Emotional stability								
Round 5	0.60	0.69	0.71	0.57				
Consistency of interest								
Round 5	0.56	0.60	0.56	0.46				
Perseverance of effort								
Round 5	0.55	0.37	0.49	0.65				
Conscientiousness								
Round 5	0.62	0.66	0.64	0.68				
Teamwork								
Round 5	0.71	0.81	0.73	0.80				
Pride								
Round 4	0.76	0.66	0.61	0.70	0.74	0.65	0.67	0.58
Round 5	0.72	0.72	0.64	0.63	0.66	0.68	0.68	0.62
Peer relations								
Round 4	0.78	0.79	0.81	0.74	0.79	0.82	0.74	0.72
Round 5	0.76	0.76	0.82	0.65	0.76	0.74	0.81	0.70
Self-esteem								
Round 4	0.74	0.68	0.72	0.70	0.77	0.75	0.71	0.67
Round 5	0.66	0.64	0.76	0.64	0.73	0.66	0.74	0.65

Figure A1: Female self-efficacy scores compared to male scores: Younger and Older Cohorts from separate models
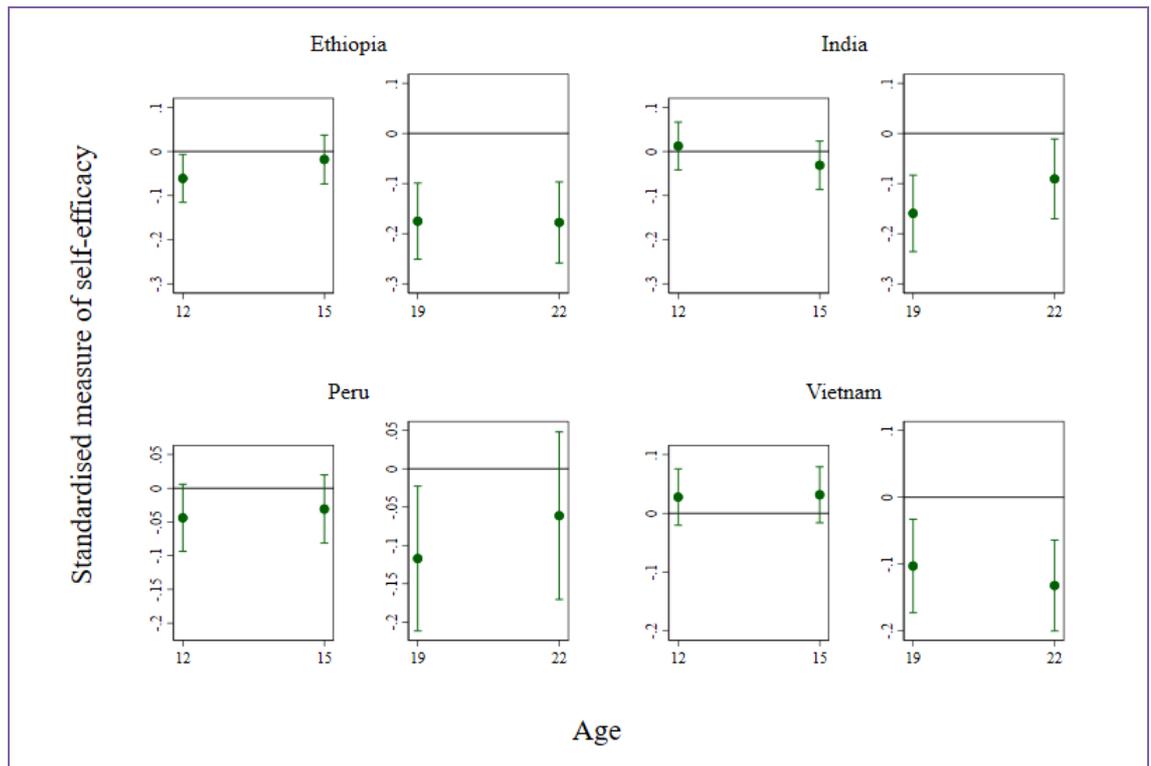
Notes: Ages 12 and 15 refer to the Younger Cohort, and 19 and 22 to the Older Cohort from Rounds 4 and 5, respectively. The models for Younger Cohort and Older Cohort were estimated separately using equation 2. The coefficients can be interpreted as the predicted socioemotional skills of girls compared to boys, conditional on socioeconomic background.Figure A2. Female self-esteem scores compared to male young adults

Figure A1: Female self-efficacy scores compared to male young adults.

Notes: Ages 12 and 15 refer to the Younger Cohort and 19 and 22 to the Older Cohort from Rounds 4 and 5, respectively. The coefficients can be interpreted as the predicted socioemotional skills of girls compared to boys, conditional on socioeconomic background.

Figure A3: Female peer relations scores compared to male young adults

Notes: Ages 12 and 15 refer to the Younger Cohort and 19 and 22 to the Older Cohort from Rounds 4 and 5, respectively. The coefficients can be interpreted as the predicted socioemotional skills of girls compared to boys, conditional on socioeconomic background.

Figure A4: Female pride scores compared to male young adults
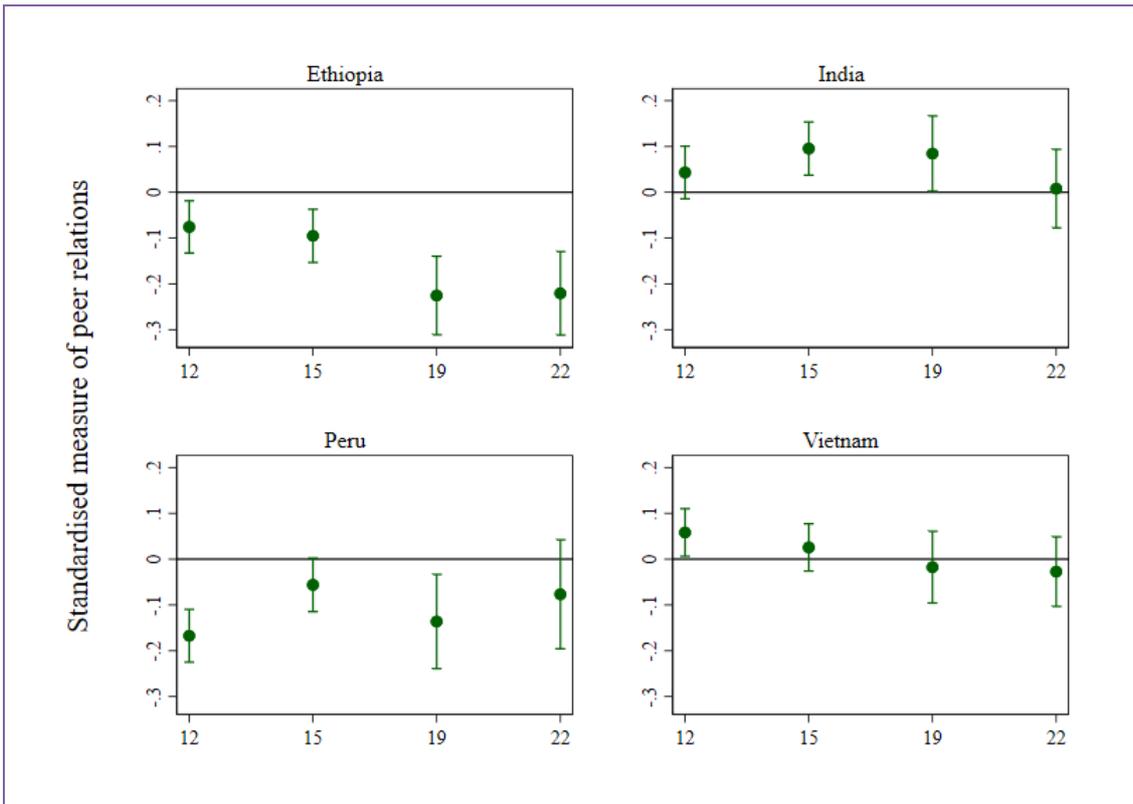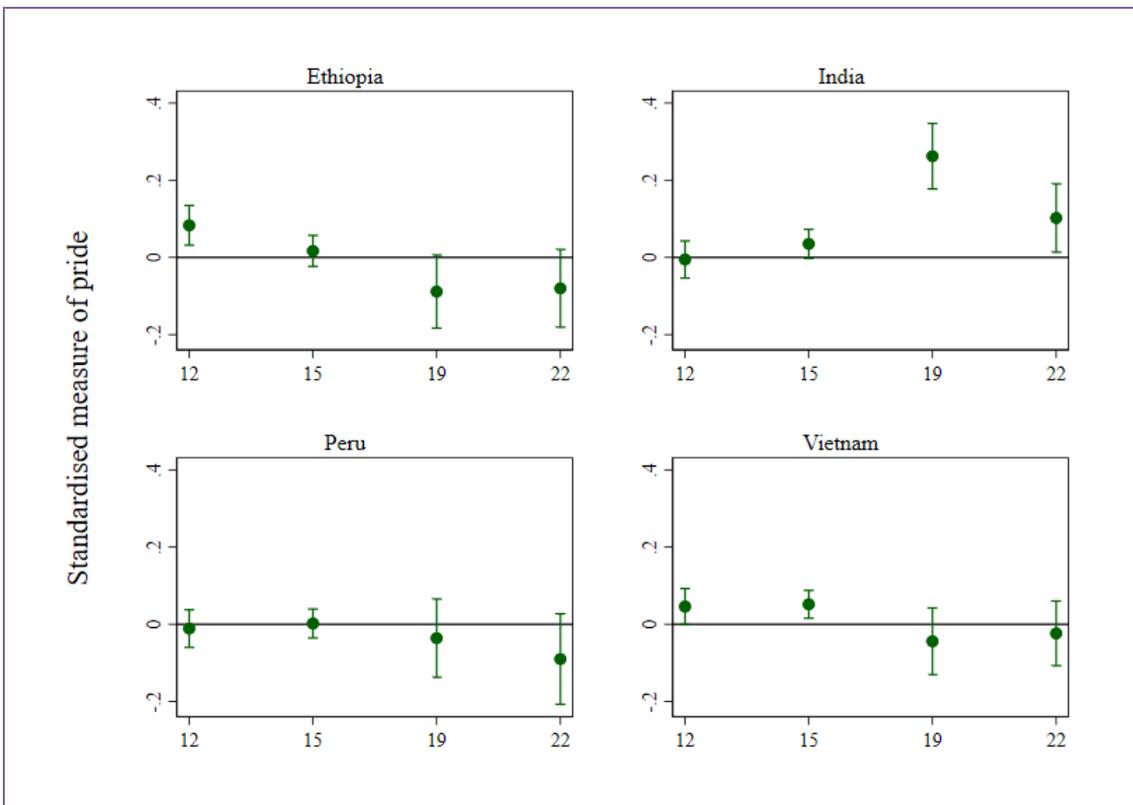

Notes: Ages 12 and 15 refer to the Younger Cohort and 19 and 22 to the Older Cohort from Rounds 4 and 5, respectively. The coefficients can be interpreted as the predicted socioemotional skills of girls compared to boys, conditional on socioeconomic background.

Table A4: The association between different socioeconomic factors and self-efficacy, Older Cohort at age 22 (Round 5)

	Dependent variable: self-efficacy at age 22							
	Ethiopia		India		Peru		Vietnam	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female (ref. male)	-0.15***	-0.15***	-0.10**	-0.12***	-0.11*	-0.10*	-0.13***	-0.15***
	(0.039)	(0.040)	(0.037)	(0.037)	(0.052)	(0.051)	(0.034)	(0.034)
Urban (ref. rural)		-0.097*		-0.040		0.11		-0.053
		(0.049)		(0.045)		(0.086)		(0.040)
SES (ref. bottom tertile)								
Middle		0.057		0.080		0.17*		0.038
		(0.050)		(0.046)		(0.068)		(0.042)
Top		0.14*		0.15**		0.22**		0.12**
		(0.061)		(0.051)		(0.069)		(0.043)
Mother's education (ref. no education)								
Less than secondary (ref. for Peru*)		0.023		0.11*				0.076
		(0.064)		(0.046)				(0.086)
Secondary		0.0039		0.11*		0.0016		0.16
		(0.074)		(0.052)		(0.067)		(0.093)
More than secondary		0.010		0.14*		0.0083		0.23*
		(0.088)		(0.069)		(0.075)		(0.095)
Other education (e.g. religious)		-0.041		-0.30*				-0.22
		(0.072)		(0.15)				(0.37)
Constant	0.073**	0.051	0.053*	-0.067	0.054	-0.18*	0.068**	-0.070
	(0.027)	(0.060)	(0.026)	(0.042)	(0.036)	(0.081)	(0.024)	(0.083)
Observations	777	777	910	910	567	567	906	906

Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table A5: The association between different socioeconomic factors and agency, Older Cohort at age 22 (Round 5)

	Dependent variable: agency at age 22							
	Ethiopia		India		Peru		Vietnam	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female (ref. male)	-0.19***	-0.19***	-0.18***	-0.22***	-0.027	-0.029	-0.071	-0.10*
	(0.050)	(0.051)	(0.047)	(0.047)	(0.064)	(0.063)	(0.047)	(0.046)
Urban (ref. rural)		-0.14*		-0.053		0.15		-0.00069
		(0.062)		(0.056)		(0.11)		(0.054)
SES (ref. bottom tertile)								
Middle		0.012		0.15**		0.19*		0.12*
		(0.064)		(0.058)		(0.083)		(0.057)
Top		0.20**		0.32***		0.32***		0.25***
		(0.078)		(0.065)		(0.085)		(0.059)
Mother's education (ref. no education)								
Less than secondary (ref. for Peru*)		-0.014		0.090				0.57***
		(0.081)		(0.058)				(0.12)
Secondary		0.029		0.11		-0.046		0.70***
		(0.095)		(0.066)		(0.082)		(0.13)
More than secondary		0.077		0.26**		0.15		0.72***
		(0.11)		(0.088)		(0.093)		(0.13)
Other education (e.g. religious)		-0.018		-0.19				0.21
		(0.092)		(0.19)				(0.50)
Constant	0.28***	0.28**	0.28***	0.12	0.022	-0.29*	0.11	-0.57***
	(0.078)	(0.10)	(0.075)	(0.084)	(0.10)	(0.13)	(0.075)	(0.13)
Observations	777	777	910	910	567	567	907	907

Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table A6: Changes in the coefficient of females after accounting for different factors (self-efficacy)

	Dependent variable: Self-efficacy							
	Maths score (models 1-4)				+ time spent (models 5-8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Female (ref: male)	-0.18***	-0.043	-0.077	-0.13***	-0.15**	0.0010	-0.022	-0.11**
	(0.042)	(0.038)	(0.059)	(0.036)	(0.052)	(0.049)	(0.067)	(0.038)
Maths score	0.037	0.11***	0.070*	0.068***	0.034	0.086***	0.048	0.060***
	(0.021)	(0.018)	(0.028)	(0.018)	(0.022)	(0.020)	(0.030)	(0.018)
Household tasks					0.00017	-0.0085	-0.019	-0.0094
					(0.0067)	(0.0081)	(0.011)	(0.0072)
Household/unpaid care					-0.0056	-0.021*	-0.023	-0.011
					(0.012)	(0.0100)	(0.013)	(0.0079)
Household chores					-0.0087	-0.017	-0.028	-0.030
					(0.012)	(0.015)	(0.025)	(0.016)
Paid activity					-0.0010	-0.0075	-0.011	-0.0052
					(0.0054)	(0.0050)	(0.0075)	(0.0049)
Constant	0.25***	0.062	0.10	0.18**	0.24**	0.094	0.16	0.24***
	(0.065)	(0.061)	(0.091)	(0.058)	(0.078)	(0.077)	(0.11)	(0.070)
Observations	670	825	420	782	670	825	420	782

	Dependent variable: Self-efficacy							
	+ AWSA (models 9-12)				+ socioeconomic and ethnic background (models 13-16)			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Female (ref: male)	-0.16**	0.017	-0.097	-0.13***	-0.12*	0.013	-0.077	-0.13***
	(0.051)	(0.054)	(0.067)	(0.039)	(0.050)	(0.055)	(0.068)	(0.039)
Maths score	0.0065	0.089***	-0.0019	0.047*	0.018	0.080***	-0.0082	0.036
	(0.023)	(0.020)	(0.030)	(0.019)	(0.023)	(0.021)	(0.032)	(0.019)
Household tasks	0.0039	-0.0088	-0.018	-0.0058	-0.00094	-0.0081	-0.018	-0.0043
	(0.0067)	(0.0081)	(0.011)	(0.0073)	(0.0067)	(0.0084)	(0.011)	(0.0076)
Household/unpaid care	-0.0036	-0.021*	-0.017	-0.0067	-0.013	-0.021*	-0.016	-0.0068
	(0.012)	(0.0100)	(0.012)	(0.0079)	(0.012)	(0.010)	(0.012)	(0.0081)
Household chores	-0.0093	-0.018	-0.010	-0.029	-0.015	-0.018	-0.012	-0.025
	(0.012)	(0.015)	(0.025)	(0.016)	(0.012)	(0.015)	(0.025)	(0.016)
Paid activity	-0.0011	-0.0077	-0.0078	-0.0042	-0.0047	-0.0055	-0.0089	-0.0039
	(0.0053)	(0.0050)	(0.0073)	(0.0049)	(0.0052)	(0.0052)	(0.0074)	(0.0049)
AWSA	0.20***	-0.037	0.29***	0.13**	0.18***	-0.039	0.29***	0.12**
	(0.045)	(0.050)	(0.055)	(0.039)	(0.045)	(0.050)	(0.057)	(0.040)
SES (ref: bottom tertile)								
Middle					0.0083	0.033	0.17*	-0.0019
					(0.051)	(0.050)	(0.081)	(0.047)
Top					0.088	0.067	0.076	0.043
					(0.063)	(0.059)	(0.082)	(0.049)

	Dependent variable: Self-efficacy							
	+ AWSA (models 9-12)				+ socioeconomic and ethnic background (models 13-16)			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Mother's education (ref: no education)								
Less than secondary					-0.013	0.0082	-0.042	0.026
					(0.049)	(0.047)	(0.12)	(0.10)
Secondary					0.019	0.024	0.058	0.0014
					(0.096)	(0.070)	(0.12)	(0.12)
More than secondary					-0.037	-0.16	-0.073	0.20
					(0.14)	(0.12)	(0.14)	(0.13)
Other education (e.g. religious)					-0.029	-0.12	-0.46	-0.0031
					(0.056)	(0.092)	(0.43)	(0.36)
Urban (ref: rural)					-0.051	-0.031	-0.045	-0.053
					(0.052)	(0.048)	(0.10)	(0.039)
Ethnicity/caste					Yes	Yes	Yes	Yes
Constant	0.24**	0.074	0.23*	0.27***	0.24*	0.0021	0.088	0.23
	(0.077)	(0.081)	(0.11)	(0.070)	(0.12)	(0.094)	(0.21)	(0.15)
Observations	670	825	420	782	670	825	420	782

Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table A7: Changes in the coefficient of females after accounting for different factors (agency)

	Dependent variable: Agency							
	Maths score (models 1-4)				+ time spent (models 5-8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Female (ref: male)	-0.21***	-0.10*	0.0054	-0.067	-0.24***	-0.063	0.091	-0.060
	(0.053)	(0.049)	(0.074)	(0.049)	(0.065)	(0.061)	(0.085)	(0.053)
Maths score	0.071**	0.18***	0.11**	0.14***	0.042	0.11***	0.086*	0.12***
	(0.027)	(0.022)	(0.036)	(0.024)	(0.028)	(0.024)	(0.037)	(0.025)
Household tasks					-0.031***	-0.040***	-0.013	-0.029**
					(0.0085)	(0.0100)	(0.014)	(0.0099)
Household/unpaid care					0.0055	-0.049***	-0.041*	-0.018
					(0.016)	(0.012)	(0.016)	(0.011)
Household chores					-0.020	-0.040*	-0.015	-0.0067
					(0.015)	(0.018)	(0.032)	(0.022)
Paid activity					-0.021**	-0.033***	-0.0074	-0.010
					(0.0068)	(0.0062)	(0.0095)	(0.0067)
Constant	0.29***	0.15*	-0.064	0.074	0.51***	0.40***	-0.064	0.20*
	(0.083)	(0.077)	(0.12)	(0.079)	(0.099)	(0.095)	(0.14)	(0.096)
Observations	670	825	420	782	670	825	420	782

	Dependent variable: Agency							
	+ AWSA (models 9-12)				+ socioeconomic and ethnic background (models 12-16)			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Female (ref: male)	-0.24***	-0.11	0.0032	-0.11*	-0.20**	-0.15*	0.026	-0.091
	(0.064)	(0.066)	(0.085)	(0.053)	(0.064)	(0.066)	(0.085)	(0.053)
Maths score	-0.0037	0.099***	0.027	0.097***	0.0068	0.084**	-0.0016	0.080**
	(0.029)	(0.025)	(0.038)	(0.025)	(0.029)	(0.026)	(0.040)	(0.026)
Household tasks	-0.025**	-0.039***	-0.012	-0.023*	-0.029***	-0.029**	-0.0085	-0.021*
	(0.0083)	(0.0100)	(0.014)	(0.0099)	(0.0085)	(0.010)	(0.014)	(0.010)
Household/unpaid care	0.0089	-0.048***	-0.034*	-0.012	0.0026	-0.040**	-0.031*	-0.011
	(0.015)	(0.012)	(0.016)	(0.011)	(0.015)	(0.012)	(0.016)	(0.011)
Household chores	-0.020	-0.037*	0.0065	-0.0047	-0.028	-0.031	0.0074	-0.0018
	(0.015)	(0.018)	(0.031)	(0.021)	(0.015)	(0.018)	(0.032)	(0.022)
Paid activity	-0.021**	-0.033***	-0.0038	-0.0085	-0.022**	-0.029***	-0.0035	-0.010
	(0.0066)	(0.0062)	(0.0092)	(0.0066)	(0.0066)	(0.0062)	(0.0094)	(0.0066)
AWSA	0.35***	0.11	0.34***	0.22***	0.34***	0.14*	0.32***	0.21***
	(0.056)	(0.061)	(0.071)	(0.053)	(0.057)	(0.061)	(0.072)	(0.054)
SES (ref: bottom tertile)								
Middle					-0.078	0.081	0.17	0.0037
					(0.064)	(0.060)	(0.10)	(0.063)
Top					0.031	0.19**	0.22*	0.12
					(0.079)	(0.071)	(0.10)	(0.065)
Mother's education (ref: no education)								
Less than secondary					0.062	0.12*	-0.14	0.24
					(0.063)	(0.056)	(0.15)	(0.14)
Secondary					0.17	0.11	-0.024	0.37*
					(0.12)	(0.084)	(0.16)	(0.16)
More than secondary					0.17	-0.19	-0.099	0.12
					(0.17)	(0.15)	(0.18)	(0.18)
Other education (e.g. religious)					0.040	-0.26*	-0.60	0.12
					(0.071)	(0.11)	(0.54)	(0.48)
Urban (ref: rural)					-0.084	0.0032	0.019	-0.064
					(0.065)	(0.057)	(0.13)	(0.053)
Ethnicity/caste					Yes	Yes	Yes	Yes
Constant	0.52***	0.45***	0.018	0.24*	0.27	0.39***	-0.33	0.16
	(0.097)	(0.10)	(0.14)	(0.096)	(0.15)	(0.11)	(0.26)	(0.20)
Observations	670	825	420	782	670	825	420	782

Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Figure A5: Gender differences in self-efficacy by SES/wealth based on OLS regression at age 22 (Round 5)
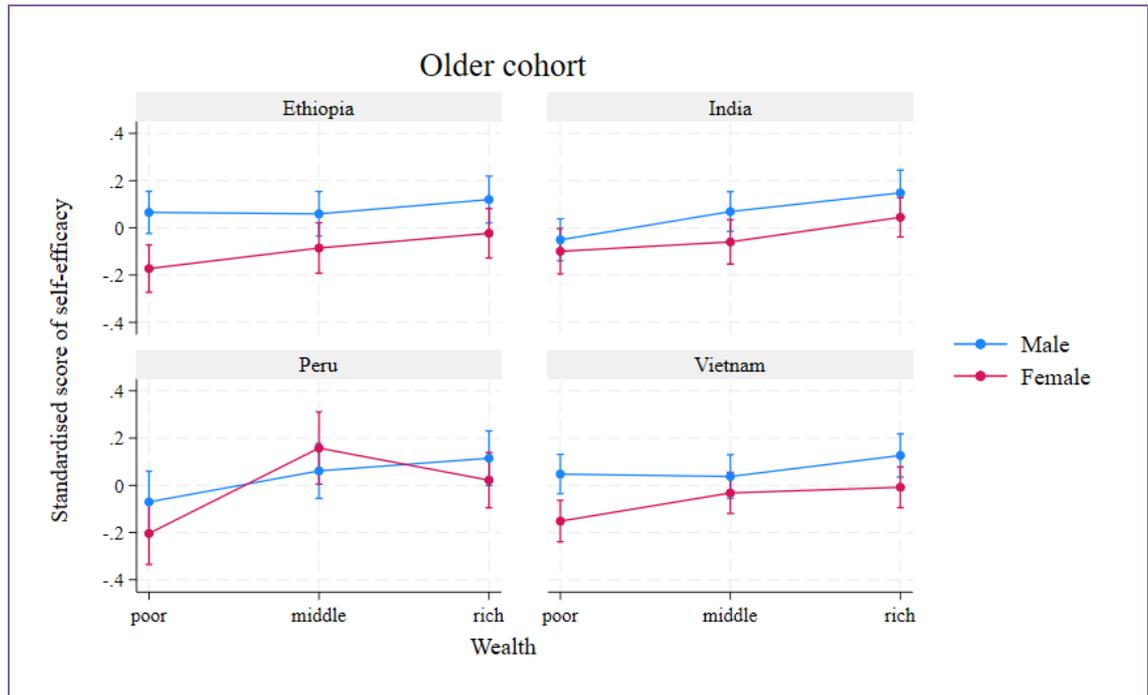

Figure A6: Gender differences in agency by SES/wealth based on OLS regression at age 22 (Round 5)
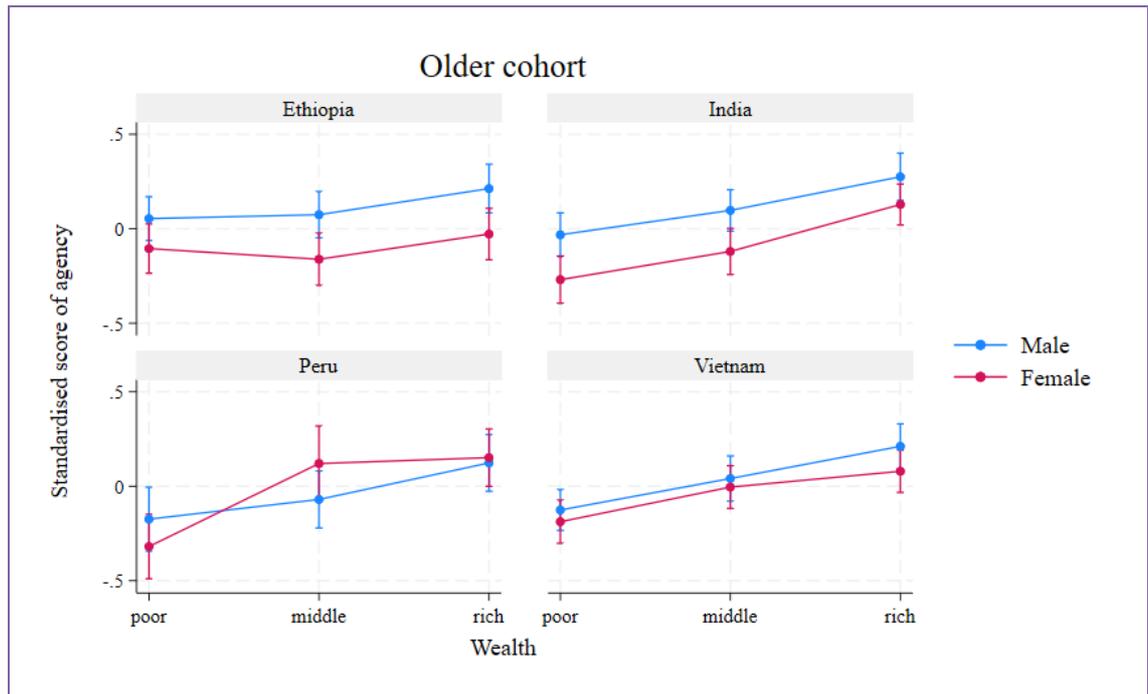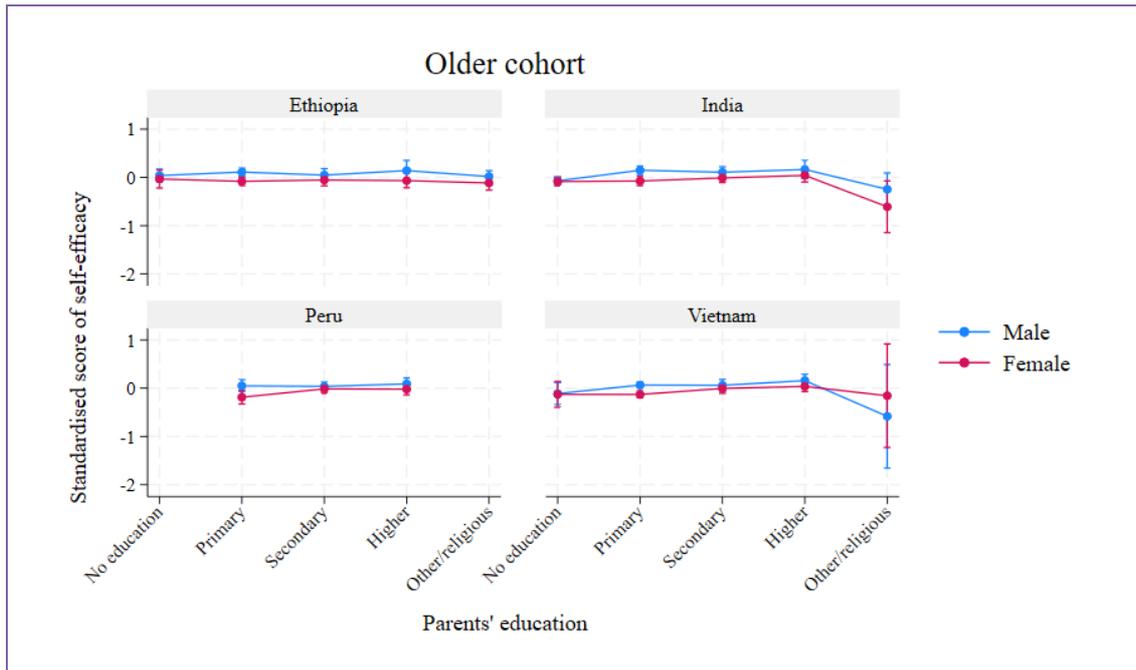
Figure A7: Gender differences in self-efficacy by parents' education based on OLS regression at age 22 (Round 5)

Notes: The coefficients are from the interaction between parents' education and gender. Results are similarly insignificant for agency. The results remain the same in separate analyses by mother's and father's education.

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