Avances de Investigación

Etnicidad, género, ciudadanía y derechos.

Understanding teenage fertility, cohabitation, and marriage: the case of Peru

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22

35 años
GRADE
Grupo de Análisis para el Desarrollo

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Avances de Investigación 22

Understanding teenage fertility, cohabitation, and marriage: the case of Peru[1]

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1 Thanks to Grace Chang for excellent research assistance. Young Lives/Niños del Milenio is an international study of childhood poverty, following the lives of 12,000 children in 4 countries (Ethiopia, India, Peru, and Vietnam) over 15 years (www.younglives.org.uk). Young Lives is core-funded from 2001 to 2017 by aid from the UK Department for International Development (DFID), and was co-funded by IrishAid from 2014 to 2015. The William and Flora Hewlett Foundation fund aspects of Young Lives gender research (2014-2016), including the research carried out for this paper. The views expressed are those of the authors. They are not necessarily those of, or endorsed by, Young Lives, the University of Oxford, DFID or other funders. Comments welcome to marta.favara@qeh.ox.ac.uk and asanchez@grade.org.pe
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The publication was conducted with funds designated by the International Development Research Centre, Canada, through the Think Tank Initiative.

Lima, September 2016

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ABSTRACT

In this study, we used data from the Young Lives study, which investigates teenage childbearing, marriage, and cohabitation by tracking a cohort of individuals from the ages of 8 to 19 years. While the present analysis does not intend to establish causality, the longitudinal nature of the data allows us to identify the combination of early circumstances and life changes that induce a higher likelihood of these events. The analysis addresses bias due both to reverse causality and to community characteristics that are usually unobserved and fixed over time, a strategy that is quite unique in studies of developing countries. About 1 out of 5 females (and 1 out of 20 males) in our sample had at least one child by the age of 19, and 80 percent of them were married or cohabiting. Early marriage/cohabitation is indeed intrinsically related to early pregnancy and largely predicted by the same factors. For females specifically, girls from poor households with an absent parent for a prolonged period have a higher risk of early childbearing. Similarly, girls whose self-efficacy and educational aspirations decrease over time are more at risk of becoming a mother during adolescence. Conversely, school attendance and better school performance predict a lower risk of early pregnancy; our analysis suggests that this is largely because it postpones the first sexual relationship.

INTRODUCTION

According to the 2012 World Bank report on teenage pregnancy, the Latin American and Caribbean region has the third highest teenage fertility rate on the globe—after Sub-Saharan Africa and South Asia (World Bank, 2012). Teenage childbearing has progressively become a major policy concern, as the majority of studies point to a negative impact (although with significant differences in magnitude) of early fertility on parents' (mainly on mothers') outcomes and on the birth and future of the newborns (Geronimus et al., 1994; Francesconi, 2008; Levine et al., 2001; Lopez Turley, 2003; Ashcraft and Lang, 2006). Similarly, a woman's age at her first marriage—or at first cohabitation—is an important area of concern for policy in developing countries because early marriage/cohabitation might have adverse implications for her physical, mental, and emotional wellbeing, as well as for her educational and labor market outcomes (see, for example, Field and Ambrus, 2008). Furthermore, early marriage/cohabitation often is not the result of a planned choice and is frequently associated with early fertility. This is certainly the case in Peru, as we will discuss later on.

While policy responses have historically focused on access to health services and information, more recently a variety of social programs have proven to be effective in reducing teen pregnancy through different channels: conditional cash programs enhance school attendance (see Cortes et al., 2016 for *Familias en Acción* and *Subsidio*

Educativo in Colombia; or Lopez-Calva and Perova, 2012 for Juntos in Peru); the longer school days program in Chile extends the time that adolescents spend in protected environments (Berthelon and Kruger, 2011); and skills training programs increase adolescents' labor market opportunities, skills, and expectations about their future, as in the case of the Dominican Republic's Youth and Employment Program (Ibarraran et al., 2014; Novella and Ripani, 2015).

Although the economics literature highlights family backgrounds, welfare, and family planning policies as the main determinants of early pregnancy, there is still a lot to learn about the factors behind the decision to have a child at a young age. In fact, studying the determinants of early childbearing, cohabitation, and marriage is challenging because of the multiplicity of mechanisms that lead to getting married/cohabiting and becoming a parent during adolescence. Like many other individual decisions, getting married/cohabiting and having a baby are forward-looking decisions involving preferences, expectations, and a certain degree of uncertainty. Finally, to a great extent, behavioral and psycho-social elements (such as self-control, self-efficacy, self-esteem, and self-confidence) and the sociocultural context (social norms, gender roles, and stereotypes) are likely to play a crucial role.

This paper intends to contribute to the economic literature that investigates the origin of teenage pregnancy and early marriage/cohabitation in Peru. The ultimate objective is to improve understanding of the risk factors of one important gender-related issue that has historically provoked asymmetric costs for boys and girls. First, we investigate how early cohabitation, marriage, and childbearing vary according to early socioeconomic conditions; second, we explore to what extent the factors related to early poverty matter equally for boys and girls; third, we examine whether factors such as low aspirations

and low expectations of future economic success, school achievement, socio-emotional competencies, knowledge of family planning, and sexual behaviors, can contribute to explaining teenage childbearing and marriage in disadvantaged contexts; and finally, we look at how changes in socioeconomic status, migration, and household structure, as well changes in aspirations, test scores, and socio-emotional competencies during childhood and early adolescence, might have increased or decreased the probability of teenage childbearing, marriage, and cohabitation.

While the present analysis does not intend to establish causality, it seeks to identify the combination of early circumstances and life changes that induce a higher likelihood of the previously mentioned events. It exploits the longitudinal nature of the Young Lives data, a unique individual-level panel following a cohort of about 635 children between ages 8 and 19. In Peru, Young Lives collects information on fertility, marital, and cohabiting status, sexual behaviors, and knowledge about sexual and reproductive health (SRH) at the ages of both 15 and 19. Furthermore, rich information at the household and individual levels is collected starting at the age of 8. This includes children's cognitive and psycho-social competencies, school history, parental expectations about their children's future, and children's educational aspirations.[5]

This information is used to elaborate a very rich picture of the correlates of early childbearing, cohabitation, and marriage. In the baseline specification, we look at the role of individual- and household-level characteristics observed during mid-childhood. In an extended specification, the role of changes in these characteristics over time is

5 It is important to note that information about cognitive and psycho-social competencies is collected for all children regardless of their school enrollment status, which avoids the selection problems that commonly arise when school-based tests are used.

investigated. In both the case of the "level variables" and of the "change variables," we look at conditions prior to the event, in order to avoid any potential reverse causality issues. Furthermore, our strategy allows us to control for unobservable community characteristics that are fixed over time. This is quite unique—particularly in developing countries, where research on long-term determinants of fertility and marriage are quite scarce due to the limited availability of longitudinal data.

We find that 1 out of 5 females (and 1 out of 20 males) has at least one child at age 19, and 80 percent of them are married or cohabiting. Although we report results for males and females together, most of the relationships we uncover are identified in the female sample only. Therefore, focusing on females, our main findings for teenage pregnancy can be summarized as follows: first, living in poor households during childhood and the absence of one of the parents during a prolonged period are associated with an increased risk of early pregnancy. Second, higher school attendance and better school performance reduce the risk of early pregnancy. The negative correlation between school attendance and early pregnancy appears to be partially explained by the (same-sign) correlation between school achievement and the probability of having had sex during adolescence. Third, changes in aspirations, self-efficacy, family structure, and migration also play a role in the occurrence of early pregnancy. Finally, given that early marriage/cohabiting is intrinsically related to early pregnancy, its correlates are also very similar. However, the association with school attendance is stronger for the former, suggesting that opportunity cost considerations have a greater weight in the marriage/cohabiting decision.

The remainder of the paper is structured as follows: Section 2 describes the data and the country context, providing some information about the magnitude of early marriage and fertility in Peru

using both representative national data and Young Lives data. Finally, it provides a brief review of the literature on the consequences of teenage childbearing and describes the main outcome, comparing Young Lives teenage parents and married young people with their peers. Section 3 reviews the empirical economics literature on the determinants and risk factors associated with early marriage and childbearing and describes the empirical strategy adopted in this paper. Section 4 and 5 report and discuss our findings.

1. DATA AND COUNTRY CONTEXT

1.1. Data

This paper uses the Peruvian sample of the Young Lives Survey, a unique individual-level panel dataset that follows two cohorts of children in Ethiopia, India (Andhra Pradesh and Telangana), Peru, and Vietnam for more than a decade and four rounds of data collection. The younger cohort was born in 2001/03, aged around 1 year old at the time of the first round in 2002 and 12 years old when interviewed for the last time in 2013/14. In this paper we only use data for the older cohort, born in 1994/95 and aged around 8 years old in Round 1, 12 years old in 2006, 15 years old in 2009, and 19 years old in Round 4. Almost 90 percent of the older cohort children in the study sample in 2002 were interviewed in Round 4. Specifically, the attrition rate over the 12-year period of data collection was about 10.3%, which is relatively low compared to many longitudinal studies in developing countries.

The older cohort sample for Peru gathers information for approximately 700 individuals, spread over 20 sentinel sites in different geographical regions.[6] The sampling design purposely over-sampled poor areas. In fact, the 20 clusters were randomly selected from the comple-

6 These include three clusters in the department of Lima, and 17 in Amazonas, Ancash, Apurimac, Arequipa, Ayacucho, Cajamarca, Huanuco, Junin, La Libertad, Piura, Puno, San Martin, and Tumbes.

te list of districts in Peru in 2002, excluding the wealthiest 5%. Each cluster was given a probability of being selected that was proportional to its population size. Then, within each selected cluster, an area was randomly selected and families with children aged 6 to 18 months and 7 to 8 years were selected to be part of the younger and older cohort, respectively. Although Young Lives is not intended to be representative of the country as a whole, because of the sampling procedure used, the Young Lives sample for Peru has been found to optimally reflect the diversity of children and families in Peru, excluding the wealthiest 5%.[7]

The survey collects information through a face-to-face interview with the main caregiver (household questionnaire), and with the "index child" (child questionnaire). In addition, a self-administered questionnaire (SAQ) is completed by the index child in Rounds 3 and 4.[8] The SAQ is intended to gather information that is considered "sensitive" (such as information about risky behaviors: drug, alcohol, or cigarette consumption, engagement in illegal and violent activities, and sexual behaviors), in order to guarantee the child full confidentiality and minimize the risk of potential under- and misreporting. The main variables of interest in our analysis come from the household and child questionnaires, with the exception of the variables related to sexual behaviors, contraceptive use, and information about sexual

7 For more details about the sampling design, see Escobal and Flores (2008).

8 The protocol of the SAQ, which is typically administered at the end of the visit, is as follows. The interviewer explains to the child that he or she will be asked a number of questions about aspects that might be considered sensitive. The child is told that he or she is free to choose whether to complete the questionnaire, and he or she is free to leave questions blank if he or she wishes to do so. Then the interviewer mentions that all answers will remain confidential, that he or she will put the completed questionnaire in a sealed envelope, and that neither the questionnaire nor the envelope will contain the child's name, but rather a code. Once the interviewer states this information, the child is asked whether he or she wants to complete the questionnaire. If the child agrees, he or she is left alone for 15 minutes. Finally, once the child completes the questionnaire, this questionnaire is sealed in an envelope with the code that corresponds to the child.

and reproductive health, which come from the self-administered questionnaires.

Our outcome variables (childbearing and marital/cohabiting status) are defined using information from the child questionnaire collected when the sampled individual was 19 years old. More specifically, early childbearing is a dummy variable defined based on the following question: "How many times have you given birth during your life?" This includes both children who are still alive, and those who are not. Both boys and girls were asked this question. The marital/cohabiting status is defined by a dummy variable based on the question "What is your current marital status?", and it takes a value of 1 if the Young Lives child has ever lived with a partner (either being married or cohabiting, including those who separated/divorced), and 0 if the Young Lives child is single.

1.2 The incidence of teenage fertility, cohabitation, and marriage in Peru

The main source of data used to calculate the incidence of teenage childbearing and teenage marriage/cohabitation is the Peruvian Demographic and Health Survey (DHS), a nationally representative survey that targets women of reproductive age, from 15 to 49 years. Using the international definition of teenage childbearing (from ages 15 to 19), we compute the incidence of teenage marriage/cohabitation and fertility using the DHS 2015, and we compare it to the last round of Young Lives data available—when adolescents are 19 years old—as reported respectively in 1 and 2.

According to the DHS 2015, 13.6% of female teenagers have had at least one child born alive, and 16.4% is or was married or

cohabiting between ages 15 and 19. The proportion of teenage mothers and women married or cohabiting is substantially higher within the Young Lives sample, with 21% of girls having had a child and 22% married or cohabiting by the age of 19.[9] The most common living arrangement in this age-group is cohabitation (62% and 71% of teenagers that are currently living with their partner cohabit, according to the DHS and Young Lives samples, respectively).

There is a strong relationship between teenage parenthood and teenage marriage/cohabitation: in both the DHS and Young Lives survey, approximately 8 out of ten women who have had children live with a partner, compared to only 1 out of twenty among those who have not.

Comparing women and men within the Young Lives sample, we observe that early fertility and marriage or cohabitation are considerably more prevalent among females (Table 2). By the age of 19, only 5% of boys report having a child, and only 5% are cohabiting, while none is married and only 1% were married and separated. Unfortunately, the DHS only collects information about women; thus, a comparison in this case is not possible.

In addition, using DHS data we document important differences based on location: the probability of having children during adolescence or being married/cohabiting in rural areas as compared to urban areas more than doubles (Table 1). Conversely, no significant differences based on location emerge using the Young Lives data, which might result from the sampling design and the small sample size within rural areas (Table 2).

As expected, in DHS data there are differential patterns depending on age. Teenage childbearing increases dramatically at ages 18-19

9 This percentage also includes those who got married before the age of 19 but then separated.

(1 out of 5) compared to ages 15-17 (1 out of 20). A similar pattern is observed for teenage marriage/cohabitation. Similarly, in the Young Lives data we observe a considerable increase in fertility between the last two rounds of data collection—corresponding to age 15 and 19—despite the small sample size.

Finally, another interesting pattern observed in the Young Lives data suggests a higher prevalence of teenage parents and cohabiting/married teenagers among the poorest segment of the population, as reported in Table 3, where the prevalence of fertility and marriage/cohabitation are reported across different socioeconomic classes. These classes are indicated by the household's wealth index, defined in A.1.

1.3 Consequences of early childbearing

Teenage childbearing implies a direct economic cost for society, in the sense that teenage mothers are more dependent on social welfare as a result of their condition (Azevedo et al., 2012; Fletcher and Wolfe, 2008; Hotz et al., 2005). However, the indirect economic and social costs might be even more significant and might increase lifelong gender inequality by disproportionally affecting the future of women.

Distinguishing whether poor outcomes for teenage parents seen later in life are the continuation of a lower economic trajectory, or whether early parenthood is their cause, is challenging. Few papers find a convincing identification strategy that is able to disentangle the effects of early childbearing from other confounding factors associated with living in deprived socioeconomic contexts. Most of them use miscarriage and sibling or cousin comparisons to assess causality (e.g. Azevedo et al., 2012; Francesconi, 2008; Levine et al., 2001; Lopez Turley, 2003).

Despite these methodological challenges, the economics and medical literature identify a number of consequences for both parents (more frequently the mother) and the child born to a teenage mother. Teenage mothers are more likely to exhibit lower educational achievement, lower test scores, and a lower probability of completing high school and enrolling in post-secondary education (e.g. Arceo-Gómez and Campos-Vázquez, 2012; Berthelon and Kruger, 2011; Herrera and Sahn, 2015; Azevedo et al., 2012). It is important to note that these results control for the fact that teenage mothers are likely to have lower school achievement prior to pregnancy. In most cases, those effects are persistent over time, but some encouraging evidence suggests that there is a potential to catch up in education despite lower initial achievement (Webbink et al., 2009). Similarly, Field and Ambrus (2008) find that each additional year of marriage delay among adolescent girls in Bangladesh is associated with a higher number of school years completed and higher literacy among Bangladesh adolescents.

The evidence regarding the consequences of teenage parenthood on labor force participation are mixed. On the one hand, being a parent reduces the time available for other activities. On the other hand, becoming parents might increase the necessity for employment to satisfy a greater need, particularly in context of scarce economic resources and support (Azevedo et al., 2012). A reduction in (female) labor force participation in terms of the number of working hours and annual income can be observed in the short term but eventually fades out in the long run (Arceo-Gómez and Campos-Vázquez, 2012; Fletcher and Wolfe, 2008).

In terms of health, the risk of maternal mortality is higher among adolescent girls than older women, according to a 2008 WHO report. Furthermore, teenage childbearing has a number of repercussions for

newborns' health and opportunities later in life. Babies of adolescent mothers face a significantly higher risk of death and have worse nutrition compared to babies born to older women (WHO, 2008). Using the Peruvian sample of Young Lives data for one year old children born to teenage mothers, Arias and Lopez-Calva (2012) find an effect on the child's height-for-age and weight-for-age ranking (z-score). The effect decreases over time and can reverse by age five. Conversely, they find persistent negative effects on risky behaviors and behavioral problems. These results are supported by Levine et al. (2001) and Grogger (2008) using data from the US.

Furthermore, children of teen mothers experience negative effects on their educational achievement and future income, and are at a greater risk of inactivity and teenage childbearing (Francesconi, 2008).

In Table 4 we compare adolescents who are married/cohabiting and/or are parents by the age of 19, using a number of dimensions measured at the same age: school achievement, participation in paid activities, nutrition (being overweight, being obese), and their subjective well-being.[10] Of the adolescents with children/married/cohabiting at the age of 19, only 17 percent are in education, versus 62 percent of those who are not married/cohabiting and do not have a child. This proportion is even lower (12 percent) among girls, who are also more likely to be obese and overweight, as a result of a recent pregnancy or due to general malnutrition.

Looking at the newborns' nutritional status, we find that about 29 percent of children of adolescent parents exhibit stunted growth,

10 The individual's self-reported subjective well-being is measured through a nine-point self-anchoring scale (also known as "Cantril's Ladder"), with which he or she answers the following question: "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?".

and a significant portion of them (14 percent) have severely stunted growth.[11] Comparatively, national statistics show that average stunting in Peru was 17.5 percent for the same year that Young Lives newborns were measured (2013). While levels of stunted growth in the Young Lives sample might be expected to be larger due to the pro-poor nature of the study, stunted growth has been close to national statistics in previous rounds of the Young Lives study,[12] and the reduction in stunted growth observed at the national level has also been observed in Young Lives children.[13] This suggests that the considerably higher rate of stunted growth in the Young Lives newborns, as compared to the national rate, might be due to the fact that the newborns are children of adolescent parents.

11 According to the World Health Organization (WHO), a child is stunted and severely stunted if his or her height-for-age is less than -2 or -3 standard deviations, respectively, from the WHO Child Growth Standards median among children aged 0-5 years (http://www.who.int).

12 For instance, in 2002 the stunting level in the cohort born between 2001-2002 was 29 percent, compared to 31 percent at the national level, according to the DHS.

13 Over the last two decades, Peru has made significant progress in its fight against stunting. In the Young Lives study, this progress is reflected in the reduction in stunting over birth cohorts.

2. UNDERSTANDING TEENAGE FERTILITY, COHABITATION, AND MARRIAGE

2.1 Core predictors in the literature

Little is known about why boys and girls decide to have a child during adolescence. Most of the existing literature focuses on childbearing more than on family formation, recognizing that the two events are strongly correlated in a variety of contexts at such early ages (e.g. Alfonso, 2008; Glick et al., 2015).

This section provides a brief (and non-exhaustive) review of the economics literature that investigates this issue, predominantly—but not exclusively—in Latin America. We focus predominantly on (i) the economics literature that investigates the determinants of teenage parenthood and (ii) the literature that uses subjective expectations to make inferences about behaviors.

Living in poverty with a lack of economic opportunities is regularly identified as one of the main factors that determines teenage childbearing, in both developed and developing countries. An interesting paper by Arkes and Klerman (2009) using individual-level data from the 1997 National Longitudinal Survey of Youth (NLSY) and state unemployment rates, found that teenage fertility is counter-cyclical for 15–17 year old females. Indeed, an increase in the unemployment rate increases the probability of teenage childbearing, mainly due to an increased tendency for more frequent and unprotected sexual relations.

Other socioeconomic characteristics frequently associated with poverty—such as poor education, single motherhood, parents' marital disruption, and birth to a teenage mother—are some of the factors highly correlated with teenage pregnancy and motherhood. Using DHS data from six Latin American countries, including Peru, Azevedo et al. (2012) found a negative correlation between the probability of being a teen mother and higher parental education, living in urban areas, and coming from wealthier families.[14] They also found that teenagers whose fathers do not live in the same household were more likely to become pregnant. At the country level, the prevalence of teenage childbearing was positively correlated to the poverty headcount ratio, the total fertility rate, the percentage of rural population, and the percentage of public health expenditure. Finally, they found a negative correlation between teenage childbearing and the average GDP per capita, as well as the share of women in wage employment education.

Similarly, using the 2008 Bolivian Demographic and Health Survey (DHS), Alfonso (2008) found that childbearing was more prevalent among adolescents who lived in poverty and who were thus more likely to be socially vulnerable. Other factors significantly related to the probability of teenage pregnancy/childbearing included living in female-headed and/or large households and having poor access to and knowledge about SRH and family planning methods.

Other papers highlight the critical role of education—both self and parental education—in delaying young women's marriage and fertility. For example, using data from Madagascar, Glick et al. (2015) found that a woman's first birth was delayed by 0.75 years with every additional four years of schooling completed by her mother. Also, for

14 The following data were used: Bolivia (DHS, 2008), Colombia (DHS, 2010), Dominican Republic (DHS, 2007), Haiti (DHS, 2006), Honduras (DHS, 2006), and Peru (DHS, 2008).

the adolescent girl, each additional year of schooling resulted in a 1.5 year delay of marriage.

Migration status is another potential determinant of teenage childbearing, although evidence from developing countries is scarce on this. A paper by Cygan-Rehm and Riphahn (2014) using the German Socioeconomic Panel found that teenage fertility was associated with migration status and residence in East Germany, together with the teenager's age, education level, and family income.

The age of sexual initiation and sexual behaviors are another aspects strongly linked to teenage fertility. Azevedo et al. (2012) reported a higher incidence of teenage childbearing among girls who had their first sexual experience at younger ages, who did not regularly use any contraceptive method, and especially who did not use contraception during their first sexual experience.

Similarly, Núñez and Flórez (2001), using DHS data from six LAC countries (Bolivia, Brazil, Colombia, Guatemala, Dominican Republic, and Peru), suggest that teenagers living in poor households are more likely to be at risk of early childbearing because they tend to become sexually active earlier than adolescents living in wealthier families.

Noticeably, all papers cited to this point show pure correlations. Only a few studies in the literature identify the causes of teenage parenthood and marriage decisions, using exogenous variations in the supply of contraceptives and abortion laws as an identification strategy. Some examples of this strategy are found in the papers by Lundberg and Plotnick (1995) and Kane and Staiger (1996), which used access to abortion and the contraceptive supply across the United States to analyze some of the causes of teenage motherhood. Lundberg and Plotnick (1995) found that the presence of accessible family planning services reduces the probability of premarital pregnancy. At the same

time, Kane and Staiger (1996) found that restricting access to abortion has no clear effect on teen birth rates. In fact, quite counter-intuitively, they found that a modest change in abortion access was associated with a small decline in teenage births only among in-wedlock births, while out-of-wedlock births were relatively unaffected. More recent studies such as Ananat and Hungerman (2012) analyzed the effects of geographical variation in the introduction of oral contraceptives (the pill) on early motherhood and career decisions in the United States. They found that the introduction of the pill was responsible for a decline in the fertility of unmarried women under 21 only in the short term.

Finally, a growing body of the economics literature has been making inferences about fertility behaviors and early childbearing by looking at the role of subjective expectations. For example, Carrasco (2012) found teenage pregnancy in the Dominican Republic to be related to a lack of life goals and a perceived lack of opportunities, particularly among the poorest sector of the population. Similarly, Plotnick's empirical studies (Plotnick, 1992 y 1993; Plotnick et al., 2007) in the United States and the United Kingdom showed that teenagers' positive attitudes and expectations about their future negatively affected the probability of pregnancy. They argued that adolescents with higher opportunity costs, indicated by better grades and higher expectations and aspirations for their schooling, expect and desire to marry and have children at older ages.

A recent paper by Rascon-Ramirez (2014) showed that high parental expectations about their childrens' education decreased the likelihood of teenage pregnancy and motherhood in the United Kingdom. This effect was robust and considerable in terms of magnitude—about half of the effect of being born to a teenage mother, one of the strongest predictors of teenage motherhood.

Novella and Ripani (2015) investigated the impact of the youth training program *Juventud y Empleo* in the Dominican Republic and found that the program reduced the probability of teenage pregnancy by about 20 percent, with a stronger effect among the poorest sector. The program seemed to lower teenage pregnancy rates by improving soft skills and expectations, among other reasons.

Similar to what Arkes and Klerman (2009) found in the United States, Cygan-Rehm and Riphahn (2014) found evidence supporting counter-cyclical teenage fertility in Germany as well. In fact, teenage pregnancies rose in times of high (youth) unemployment. They argued that this was because young women believed they had little to no chance of finding a good job, and therefore tried to gain social recognition by having a child at a young age.

Finally, some authors highlighted that the combination of being poor and marginalized in an unequal society increased rates of early, extra-marital childbearing among economically disadvantaged women by heightening their sense of despair and lack of "hope" for a better future. For example, using individual-level data from the United States, Kearney and Levine (2012) investigated the role of lower-tail income inequality in determining rates of early, extra-marital childbearing among women of low socioeconomic status (SES). They found a considerably higher rate of teenage childbearing among girls from disadvantaged backgrounds living in places with a larger gap between the poor and the middle class, as compared to girls who have similar backgrounds, but face less inequality. They argued that this is because income inequality is strongly linked to lower economic mobility and the ability to improve one's situation in life.

2.2 Predicting teenage fertility, cohabitation, and marriage using Young Lives data

Our aim is to study the risk factors of early childbearing and early marriage/cohabitation in Peru. We see these two outcomes as intrinsically related. In the Young Lives sample, there is a large overlap between teenage parents and cohabiting/married adolescents: about 79 percent of teenage parents are married/cohabiting and about 71 percent of those who are married/cohabiting have a child. Moreover, the decision to marry/cohabit early is often a result of early pregnancy. Specifically, we calculate that in approximately 70 percent of the cases of parents who live together, the couple likely started cohabiting or got married when they discovered they were expecting a child.[15]

We investigate these two outcomes for adolescents at the age of 19, an age by which individuals who started school at the norm-age and progressed normally should have completed secondary education. We report the prevalence of these outcomes in the Young Lives data and show its variability by gender, place of residence, and economic status in Tables 2 and 3, respectively.

We seek to contribute to the literature in two ways. First, we will present more rigorous estimates of the individual and household characteristics (measured early in childhood) that act as risk factors for teenage childbearing and cohabitation/marriage. Second, we will shed light on the role of a broad set of risk factors that are frequently not available in datasets from developing contexts—such as aspirations and expectations, school achievement and socio-emotional competencies,

15 To reach this conclusion, we compared the date (month and year) of the first marriage or the first cohabitation for couples that live together with the date of birth of their first child. Assuming that the child was born nine months after conception, we calculate that the cohabitation or marriage event took place after conception in 70 percent of cases.

knowledge about sexual and reproductive health (SRH), and sexual behaviors. To this end, we propose the following linear probability model:

$$
\begin{aligned}
Y_{ij,19} = {} & \gamma_0 + Z_i\Gamma_1 + X_{i,8}\,\Gamma_2 \\
& + \mathit{SingleParent}_{i,8}\Gamma_3 + \mathit{TeenageMother}_{i,8}\Gamma_4 \\
& + \mathit{Aspirations}_{i,12}\Gamma_5 + \mathit{Expectations}_{i,12}\Gamma_6 \\
& + \mathit{SchoolAttendance}_{i,15}\Gamma_7 + \mathit{TestScores}_{i,12}\Gamma_8 \\
& + \mathit{SocioEmotional}_{i,8}\Gamma_9 \\
& + \mathit{SexKnowledge}_{i,15}\Gamma_{10} + \mathit{SexBehaviours}_{i,15\text{-}19}\Gamma_{11} \\
& + \omega_j + \epsilon_{i,19} \qquad (1)
\end{aligned}
$$

where $Y_{ij,19}$ corresponds to a binary outcome Y of individual $_i$ (observed at age 19) born in cluster j. The vectors associated with the Γ coefficients include a number of child and household controls; ω_j is a cluster fixed effect; and $\epsilon_{i,19}$ is the error term.

In our empirical strategy, the vectors associated with the Γ coefficients are introduced sequentially. In the case of the variables associated with the Γ coefficients, we use the earliest measurements available, unless otherwise specified. In the Young Lives study, household characteristics are measured starting from Round 1 (age 8), whereas questions answered by the child were gradually introduced from Rounds 1 (age 8) through 4 (age 19).

As for the specific content of these vectors, Z_i includes basic demographic characteristics (age and sex); and $X_{i,8}$ controls for the household and family characteristics typically observed in health surveys such as the DHS, including: the mother's education level, number of siblings, whether the individual has an older brother or an older sister, the residential area (urban versus rural), and the household wealth index—a composite measure of living standards including

housing quality, access to services, and a consumer durables index. The vector $X_{i,8}$ also includes a dummy variable equal to one if the child has reached puberty by the age of 12 (voice change for boys and menarche for girls), and 0 otherwise. With the exception of the number of siblings and the puberty dummy, both measured at the age of 12, all the variables included in this vector are measured at the age of 8, thus capturing the context in which the individual grew up. Finally, we control for $TeenageMother_{i,8}$ and $SingleParent_{i,8}$, which capture whether the individual was born to a teenage mother, and whether the individual was raised in a single-parent household—the latter measured when the individual was 8 years old. A detailed description of all the variables included in the analysis is reported in A.1 in the Appendix.

At the next stage, we introduce variables that measure both one's own educational aspirations as well as parental expectations about education and family formation. These aspects are measured prior to occurrence of the outcomes. Specifically, $Aspirations_{i,12}$ measures one's own aspirations to complete higher education (university), whereas $Expectations_{i,12}$ considers the expectations that the main caregiver (the mother, in most cases) has regarding the age at which her child will get married, have a baby, and leave full-time education. Both one's own aspirations and parental expectations were measured for the first time when the child was 12 years old.

We then introduce school enrollment and achievement as well as socio-emotional competencies as potential determinants of early childbearing and marriage. Not only these dimensions are important per se, but they might be related to aspirations and expectations (school achievement could drive school aspirations, and vice versa; socio-emotional competencies could be similar). $TestScores_{i,12}$ is a vector that controls for test scores in mathematics and vocabulary knowledge at the age of 12, whereas $SocioEmotional_{i,8}$ introduces

measures of individual self-efficacy and self-esteem at the age of 8. In both cases, the earliest measurements of the variables are used.[16] In addition, $SchoolAttendance_{i,15}$ controls for school attendance at the age of 15 (while there is attendance information from earlier ages, school attendance is close to universal at age 12; it only starts decreasing once children begin secondary education).

As a final control in this model, we incorporate the role of the individual's knowledge about SRH and contraceptive methods with $SexKnowledge_{i,15}$, and sexual behaviors with $SexBehaviours_{i,15\text{-}19}$.

More specifically, $SexBehaviours_{i,15\text{-}19}$ controls for whether the individual was 16 years old or under when he/she first engaged in sexual intercourse, and whether the individual had had unprotected sex before the age of 15 (measured when the individual was 19 and 15 years old, respectively). This set of variables was measured using a self-administered questionnaire that was specifically designed to minimize under-reporting.

The model in Equation 1 is estimated for the full sample. In addition, to test whether the associations between the selected determinants and the outcomes of interest differ by gender, the model is re-estimated to test for interaction of all the right-hand side variables with a gender dummy. In doing so, we obtain a much more flexible specification. Our hypothesis is that females might be more sensitive than males to certain factors.

Three aspects of the proposed reduced-form strategy are worth highlighting. First, all the selected independent variables are either

16 In the Young Lives database, these scales are called the pride index and the agency index, respectively. The former builds on the self-esteem concept presented by Rosenberg (1965) and is related to an individual's overall evaluation of his/her own worth. The latter builds on the concept of the locus of control, presented by Rotter (1966), and self-efficacy, presented by Bandura (1993), and it measures the child's freedom of choice and his/her agency (or power) to influence his/her own life. The full list of survey questions used to compute the two scales are reported in Table A.1.

time-invariant or mostly observed before outcomes occur, which reduces possible concerns of reverse causality that often affect this type of estimations. Specifically, most of our control variables come from Rounds 1 and 2, and only a few from Round 3. We calculate that by Round 3, there were at most 3 individuals in the Peruvian sample who had a child, 4 cohabiting couples, and 1 married couple.

Second, the inclusion of cluster fixed effects allows us to purge any type of omitted variable bias that might arise due to the existence of unobserved cluster characteristics, including the quantity and quality of the health services available in the community. Third, while potential omitted variable bias due to unobserved child and household characteristics cannot be ruled out, the size of the omitted variable bias is unlikely to be large since our estimation controls for an extended set of household and child controls.

In order to improve our understanding of how the selected child and household characteristics predict early childbearing and marriage/cohabiting, we estimate an alternative model to investigate to what extent and in which direction changes in the selected variables over time correlate with the outcomes of interest. This strategy allows us to measure how changes in socioeconomic status, migration, household structure, aspirations, test scores, and socio-emotional competencies might affect the selected outcome above and beyond the impact the same variables have in levels. The model specification is defined as follows:

$$
\begin{aligned}
Y_{ij,19} = {} & \gamma_0 + Z_i\Gamma_1 + X_{i,8}\Gamma_2 \\
& + SingleParent_{i,8}\Gamma_3 + TeenageMother_{i,8}\Gamma_4 \\
& + Aspirations_{i,12}\Gamma_5 + Expectations_{i,12}\Gamma_6 \\
& + SchoolAttendance_{i,15}\Gamma_7 + TestScores_{i,12}\Gamma_8 \\
& + SocioEmotional_{i,8}\Gamma_9
\end{aligned}
$$

$$+ SexKnowledge_{i,15}\Gamma_{10} + SexBehaviours_{i,15\text{-}19}\Gamma_{11} + \Delta X_{i,8\text{-}15}\delta_2 + \Delta SingleParent_{i,8\text{-}15}\delta_3 + \Delta Aspirations_{i,12\text{-}15}\delta_5 + \Delta TestScores_{i,12\text{-}15}\delta_8 + \Delta \text{SocioEmotional}_{i,12\text{-}15}\delta_9 + \omega_j + \epsilon_{i,19} \quad (2)$$

In order to estimate this model, some of the categorical variables in levels (those that vary over time) were re-defined in order to obtain results that are easy to interpret. In particular, (i) the *urban* dummy at the age of 8 was replaced by an *always lived in an urban area at ages 8 and 15* dummy; (ii) the *single-parent household* dummy at the age of 8 was replaced by an *always single-parent household at ages 8 and 15* dummy; and, (iii) the *child aspires to higher education* dummy was replaced by a dummy that takes the value of 1 if the child has *persistently low aspirations at ages 12 and 15*, 0 otherwise. Accordingly, when looking at changes over time in these factors, we consider the following deviations: (i) for location type—whether the individual experienced either urban-rural or rural-urban migration between ages 8 and 15, respectively; (ii) for the number of parents in the household—whether the parents split or the *parents split and regrouped again/a new family was formed* between ages 8 and 15; and, (iii) for aspirations of higher education—whether aspirations changed either negatively (downward aspirations, or changing from aspiring to complete university to aspiring to complete a lower level of education) or positively (upward aspirations, or changing from aspiring to complete a level of education lower than university to aspiring to complete university). All the other variables that are time-varying are continuous, and changes over time were introduced in the standard way (later value minus initial value). In order to avoid reverse causality, in all cases we consider changes that occurred by the age of 15.

3.1 Characteristics of teenage marriage and teenage parenthood

In Table 6 we compare the mean characteristics of young parents and the rest of their cohort, at the ages of 8, 12, or 15. Similarly, Table 7 describes the mean characteristics of young people who got married or have lived with a partner, compared to other 19 year olds who are still single. These differences are reported alongside tests for statistical significance. Not surprisingly, the differences between young parents and the rest of their cohort are quite similar to those between young people who got married or have lived with a partner and those who are still single. As mentioned above, to a large extent there is an overlap between the two categories; those who had a baby also got married or lived with a partner.

Looking first at some basic demographic and socioeconomic characteristics, it is evident that early childbearing and marriage/cohabitation is more frequent among girls and more prevalent among those living in poverty. In fact, most young parents in the sample are girls (80%), and so are those who are married/cohabiting (75%). Both of them tend to be slightly older than their counterparts.

Furthermore, young parents and married/cohabiting young people tend to have grown up in poorer families: only 6-7% come from families in the highest tercile of the wealth index—a composite measure of living standards that incorporates the housing quality

index, access to services index, and consumer durables index—compared to 20-21% of their counterparts.

Focusing on human capital investment, on average those who have a child and those who got married or cohabited are less likely to still be in education. In fact, 86% of those who are married/cohabiting and 88% of young parents were still in education at the age of 15, compared to 96% and 95% of their 19 year old counterparts, respectively. Furthermore, married/cohabiting 19 year olds tended to perform worse than their single counterparts on the Peabody Picture Vocabulary Test that was administered at the age of 12.

Finally, young parents and married/cohabiting young people are much more likely to have had their first sexual relationship before the age of 16: 71% of young parents—compared to 30% of their counterparts—and 62% of married/cohabiting young people—compared to 31% of those who are still single—had their sexual debut before turning 16. Furthermore, those who have a baby tended to have poorer knowledge about contraceptive methods at the age of 15.

3.2 Main model

Our main results are reported in Tables 8 and 9 (without gender interactions) and Tables 10 and 11 (with gender interactions). The model specification corresponds to Equation (1). Variables on the right-hand side are introduced sequentially, starting with variables commonly observed in cross-sectional household surveys; then different dimensions that might affect the probability of early childbearing and early marriage/cohabiting are gradually introduced. Results in Columns (vi) and (vii) also control for cluster fixed effects. It is important to observe that the sample size is reduced in 63 observations between

Models (vi) and (vii). This is because a small group of individuals decided not to answer the self-administered questionnaire, which asks the questions about sexual knowledge and behaviors.

At first glance, it is reassuring that the variables considered for the analysis collectively account for a meaningful portion of the variation in outcomes. Looking at the model without gender interactions, we obtain R-squared values of 29% for early childbearing, and 26% for early marriage/cohabitation. When the gender interactions are included, the R-squared values increase to 44% and 40%, respectively.

We start by describing the risk factors of early childbearing. Column (i) shows that both sex and age matter. Being female is associated with an increase of 16.5 percentage points (pp) in the probability of early childbearing, whereas aging from 18 to 19 years increases this probability by 6.7 pp. These correlations remain constant for all of the subsequent specifications. Also, an increase in the household wealth index of one standard deviation at the age of 8 would appear to reduce the probability of early childbearing by a large margin (22 pp); however, in this specific model, the coefficient is not statistically significant. In addition, no association with the mother's education level, place of residency, or the number and age of siblings is observed in this specification.

No additional insights are obtained when the model is extended to take into account whether the individual comes from a single-parent household or whether the individual's mother was a teenage mother—shown in Column (ii) (none of these variables are associated with the outcomes of interest). Furthermore, when the child's aspirations for higher education and parental expectations are introduced—shown in Column (iii)—none of these dimensions are found to predict childbearing at age 19.

In the next stage, the role of school achievement and socio-emotional competencies is assessed—shown in Columns (iv) and (v).

The main finding is that school attendance at age 15 reduces the probability of early childbearing by 15 pp. At the same time, neither test scores nor socio-emotional competencies at the age of 15 predict childbearing. The fact that school attendance stands as statistically significant even when the estimation controls for proxies of cognitive and non-cognitive skills suggests that merely attending school might be a buffer for teenage childbearing.

Finally, in Column (vii)—the full-model specification—the role of sexual knowledge and behaviors is assessed. In this case, we discover that the age at which the individual had his or her first sexual relationship is an important predictor of early childbearing. Specifically, having had sex at age 16 or under increases the probability of early childbearing by 25 pp. On the other hand, neither knowledge about SRH nor the occurrence of unprotected sex predict early childbearing.

This model also confirms that the previous associations with age and gender are robust. Importantly, in this full specification, the relationship with the wealth index (a proxy for the family's early socioeconomic status) emerges as statistically significant: a one standard deviation increase in the index reduces the probability of early childbearing by 23 pp. In addition, we find that the number of siblings is negatively associated with the probability of childbearing at age 19. In both cases the coefficients are similar to those obtained before, suggesting that the key difference is that the full-model specification allows for more precise estimates.

A final aspect worth mentioning is that the coefficient associated with school attendance decreases by almost half and becomes statistically insignificant between Models (vi) and (vii). This suggests that there is a strong relationship between school attendance and the age at the first sexual experience. We discuss the implications of this finding in the next section. Although Models (vi) and (vii) are not

calculated using the same sample (63 observations are lost from (vi) to (vii)), changes in the coefficients are not due to changes in the sample. Specifically, when running Models (i) to (vi) using the diminished sample, we obtain the same point estimates as those reported here.

When using the early marriage/cohabitation model (Table 9), patterns similar to those just commented above are observed. Focusing on the full-model specification, age, gender, and age at the first sexual relationship—which predicted early childbearing—also predict early marriage/cohabitation, and the marginal effects are also similar. At the same time, in this model the marginal effect of the wealth index variable considerably decreases in magnitude and loses statistical significance. Another interesting feature of this model is the seemingly more important role of school performance, as measured by test scores. In the full-model specification, both school attendance and the vocabulary test score predict early marriage/cohabitation, and the marginal effects observed tend to double those observed for early childbearing.

In Table 10 we proceed to re-estimate the two most complete specifications of our model for early childbearing and early marriage/cohabitation, introducing interactions with the gender of *the individual is female* dummy. Both models explain a much larger portion of the variance in the outcomes of interest, suggesting that gender plays an important role in how the selected determinants affect the outcomes. The most striking aspect that emerges from these results is that many of the factors previously associated with early childbearing and early marriage/cohabitation are considerably more relevant—and, in many cases, are only relevant—for females.

Specifically, in the childbearing model, only the association with age is gender-neutral. Conversely, the association with whether the first sexual relationship occurred at age 16 or younger is 49 pp larger (in absolute value) for females as compared to males, and the

association with the wealth index is only relevant for females, with a marginal effect that almost triples (in absolute value) that observed in the model without gender interactions. Something similar occurs in the marriage/cohabitation model. In this case, only the association with school attendance is gender-neutral, whereas the association with the age at the first sexual relationship and with the wealth index is only relevant for females, with marginal effects that more than double (in absolute value) those observed in the model that does not take gender heterogeneity into account. In addition, the association with the vocabulary test score is only relevant for females. This association is above and beyond that of school attendance.

Some other relevant factors arise in these models. First, having an older brother increases the probability of early pregnancy for females. Second, coming from a single-parent household predicts both early childbearing and cohabiting/marrying by the age of 19; however, the sign of the marginal effect varies with gender. For males, coming from a single-parent household is associated with a reduction in the probability of both childbearing and marriage/cohabitation (by around 10 pp), whereas for females it is associated with an increase in this probability (by 5 and 16 pp, respectively). Third, in this case we observe a role for the variable that measures sexual knowledge as a predictor of marriage/cohabiting by the age of 19.

Overall, these results suggest that the aggregated coefficients (Tables 8 and 9, with no gender interactions) were driven to a large extent—and exclusively, in some cases—by the female group.

3.3 Extended model

The results of Equation (2)—the extended model that controls for changes in child and household characteristics over time—are reported

in Table 11 for the full sample and the female sample, respectively. We abstained from adding interactions with gender given the large number of variables involved in Equation (2) and the small number of observations available. In the estimations for the female sample, the R-squared values obtained are very high: 59% for childbearing and 53% and marriage/cohabiting.

Most of the previous conclusions remain unchanged as far as the main predictors of childbearing and marriage/cohabitation. At the same time, controlling for factors that vary over time provides additional insights about the importance of socio-emotional competencies and family structure.

First, we uncover the importance of aspirations and agency. Having persistently low educational aspirations is associated with an increase in early marriage/cohabitation (by 23 pp), whereas a decrease in aspirations (downward aspirations) between ages 12 and 15 is associated with an increase in the probability of early childbearing and early marriage/cohabitation (by 9 pp and 13 pp, respectively). Relatedly, an increase in agency between ages 12 and 15 is associated with a large decrease in the probability of early childbearing (an increase reduces likelihood by 35 pp with 1 s.d.).

Second, in terms of family structure, we find a reduction in the probability of early childbearing when a child's parents had originally separated, but either they re-joined or a new couple was formed when the child was between ages 12 and 15.

Third, we also find a role for migration: while moving from rural to urban areas is not important, moving from urban to rural areas is associated with a dramatic increase in the probability of early marriage/cohabitation.

The above results correspond to the full sample, and they also hold for the female-only sample, with the possible exception of the

point estimates for agency and urban-rural migration. The coefficients for these factors are not statistically significant in the female-only case, though the point estimates are large and similar to those observed for the full sample.

There is also one important insight that arises only when looking at the female sample. In the previous sub-section, we found that coming from a single-parent household had a substantial effect for females. In this extended specification, we observe with more precision that what really makes the difference for females is coming from a persistently single-parent household, which increases the probabilities of both childbearing and marriage/cohabitation at age 19 by 13 and 18 pp, respectively (as compared to coming from a household where there were always two parents).

Overall, results from this sub-section show that changing conditions matter at both the child and household levels. In fact, when all else remains constant, changes in socio-emotional dimensions, family structure, and migration are associated with changes in the probability of teenage childbearing and cohabiting/marriage. At the same time, changes in wealth and changes in school performance do not seem to play a role.

4. DISCUSSION OF THE RESULTS AND CONCLUSIONS

Most of the evidence available about what predicts early childbearing and teenage marriage/cohabitation is based on cross-sectional data, and thus afflicted by problems of reverse causality. In this study, we used longitudinal data to reach a better understanding of the risk factors associated with both outcomes. The nature of the Young Lives data also allows us to address possible bias due to reverse causality or the existence of community characteristics that are unobservable and fixed over time. Also, the multiplicity of individual- and household-level characteristics that we are able to measure—many of which are often unobserved—give us a certain confidence about the robustness of the observed associations.

In Peru, early childbearing and early marriage/cohabiting are intrinsically related. In the majority of cases, the latter is a consequence of the former. Therefore, most of the aspects that drive early childbearing also drive early marriage/cohabiting. However, some specific determinants seem to be outcome-specific. It is also important to stress that most of our results are driven by the female sub-sample, the sub-group for which both outcomes are more prevalent.

For females, we find that early pregnancy is driven mainly by five aspects: (i) age; (ii) family wealth (during childhood); (iii) family structure; (iv) school attendance and school performance during adolescence; and (v) sexual relationships during adolescence (at age 16 or under). The importance of age and household wealth are well

known. However, our results highlight the importance of long-term household wealth as a driving factor for teenage pregnancy. Although it is tempting to interpret this result in purely economic terms—higher long-term household income increases the opportunity cost of early pregnancy—this result might also be partially incorporating household preferences and the household's ability to process information.

Our results also shed light on the role of family structure. Keeping all else constant, the absence of one parent in the household increases the probability of early pregnancy. Specifically, according to the results from the extended model, the prolonged absence of one parent—during the entire childhood and adolescence period—is what makes a difference. When families re-group or new two-parent families are formed, the effect is no longer observed. This could be due to psychological reasons, economic reasons, or—more likely—a combination of both. In addition, having older brothers in the household makes early pregnancy more likely.

It is also important to highlight the relationship that exists between school attendance, school performance, sexual relationships during adolescence, and early pregnancy, as this has policy implications that we will later describe. Strictly speaking, it is not possible to identify whether dropping out of school during adolescence makes one more likely to have a sexual relationship during the same age period—and thus, more likely to have a child—or if it is the other way around. However, the role played by school performance at age 12 in the model—measured before children start leaving school—suggests that at least for some women, low performance at school is what leads to a higher probability of having sex during adolescence, and this eventually leads to early pregnancy. From an economics point of view, improved school performance increases the opportunity cost of early pregnancy.

Comparatively, the number of predictive factors of early childbearing for males is more restricted, as far as we are able to detect. Only age appears to play a similar role for both males and females. In addition, while having sex at age 16 or under matters for both males and females, the magnitude of the effect is much larger for females.

In terms of family structure, the absence of one parent in the household during childhood affects males and females in an opposite way: it reduces the probability of early childbearing for males while increasing it for females. This result could also be driven by the existence of gender spheres within the household, and thus be related to both economic and cultural concerns. Specifically, it is likely that the male child is expected to replace the father in households where the father is absent, whereas this expectation does not exist for females.

As for the early marriage/cohabitation model, results remain similar. Although statistical significance is lost in some cases, the similarity of the point estimates suggest that this might be a consequence of the small sample size. One important difference between the two models relates to the role played by school achievement, which remains important for influencing early marriage/cohabiting, even after sexual behavior during adolescence is controlled. This suggests that opportunity cost considerations are very important when deciding to get married or cohabit—and perhaps they are more important in this case than when deciding to have a child.

Finally, the extended models give us additional insights about the importance of time-varying dimensions. While the importance of socio-emotional competencies and aspirations is not patent in our main model, the extended model that accounts for changes over time shows that both changes in self-efficacy and in aspirations for higher education during adolescence arise as important predictors of both outcomes. Similarly, as mentioned above, changes in family structure over time do

matter. On the other hand, changes in household wealth and changes in school performance over time do not seem to play a role.

What we have, then, is a very rich yet complex picture. The importance of time-varying dimensions suggest policy might play a role to reduce the prevalence of teenage pregnancy. In particular, our analysis allows us to identify some specific areas in which this may be the case. First, policies aimed at improving school performance and school completion rates might be effective tools for reducing early pregnancy by increasing the opportunity cost of such a decision. Both education policies and anti-poverty programs (e.g., Conditional Cash Transfer programs) are relevant in this respect. These policies should start early.

Second, policies aimed at improving sexual education for adolescents appear to be key in reducing early pregnancy. Sexual relationships during adolescence should not be a predictor of early childbearing. In this area, there is space for both the education and health sectors to work together. Given that school attendance in Peru is near universal up to the first and second grades of secondary school (ages 12 to 13, approximately), sexual education at school should also start early.

Third, the importance of socio-emotional dimensions—the role of changes in socio-emotional competencies and aspirations, in particular—suggests a space for policies aimed at reinforcing soft skills. A sensible strategy would be to promote these three types of policies simultaneously; they complement each other, and their joint application would potentially create a strong safety net for adolescents.

5. REFERENCES

Alfonso, Mariana (2008). *Girls just want to have fun?: sexuality, pregnancy and motherhood among Bolivian teenagers*. Working Paper Series, 615. Washington, DC: Inter-American Development Bank.

Ananat, Elizabeth Oltmans and Daniel M. Hungerman (2012). The power of the pill for the next generation: oral contraception's effects on fertility, abortion and maternal & child characteristics. *The Review of Economics and Statistics, 94*(1), 37–51.

Arceo-Gómez, Eva O. and Raymundo M. Campos-Vázquez (2012). *Teenage pregnancy in Mexico: evolution and consequences*. Serie Documentos de Trabajo, 3. México, DF: Centro de Estudios Económicos. El Colegio de México.

Arias, Elena and Luis F. Lopez-Calva (2012). *The impact of maternal age on non-cognitive skills development and the consequences for social progress in Peru*. Unpublished manuscript.

Arkes, Jeremy and Jacob Alex Klerman (2009). Understanding the link between the economy and teenage sexual behaviour and fertility outcomes. Journal of Population Economics, 22(3), 517–536.

Ashcraft, Adam and Kevin Lang (2006). *The consequences of teenage childbearing*. Working Paper, 12485. Cambridge, MA: National Bureau of Economic Research.

Azevedo, Joao Pedro; Luis F. Lopez-Calva and Elizaveta Perova (2012). *Is the baby to blame?: an inquiry into the consequences of early childbearing*. Policy Research Working Paper, 6074. Washington, DC: World Bank.

Bandura, Albert (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117–148.

Berthelon, Matias E. and Diana I. Kruger (2011). Risky behavior among youth: incapacitation effects of school on adolescent motherhood and crime in Chile. *Journal of Public Economics, 95*(1), 41–53.

Carrasco, Haydeeliz. (2012). *El embarazo adolescente en hogares pobres de la Republica Dominicana: evidencia a partir de la EEPS 2010*. Unpublished manuscript.

Cortés, Darwin; Juan Miguel and Dario Maldonado (2016). On the design of educational conditional cash transfer programs and their impact on non-education outcomes: the case of teenage pregnancy. *The B.E. Journal of Economic Analysis & Policy, 16*(1), 219-258.

Cygan-Rehm, Kamila and Regina Riphahn (2014). *Teenage pregnancies and births in Germany: patterns and development*. SOEP Papers on Multidisciplinary Panel Data Research, 665. Berlin: German Socio-Economic Panel Study (SOEP).

Escobal, Javier and Eva Flores (2008). *An assessment of the Young Lives sampling approach in Peru*. Young Lives Technical Note, 3. Oxford: Young Lives.

Field, Erika and Attila Ambrus (2008). Early marriage, age of menarche, and female schooling attainment in Bangladesh. *Journal of Political Economy, 116*(5), 881–930.

Fletcher, Jason M. and Barbara L. Wolfe (2008). *Education and labor market consequences of teenage childbearing: evidence using the timing of pregnancy outcomes and community fixed effects*. CEPR Discussion Papers, 573. Canberra: Centre for Economic Policy Research, Research School of Economics, Australian National University.

Francesconi, Marco (2008). Adult outcomes for children of teenage mothers. *Scandinavian Journal of Economics, 110*(1), 93–117.

Geronimus, Arline T.; Sanders Korenman, and Marianne M. Hillemeier (1994). Does young maternal age adversely affect child development?: evidence from cousin comparisons in the United States. *Population and Development Review, 20*(3), 585–609.

Glick, Peter; Chrisopher Handy and David E. Sahn (2015). *Schooling, marriage and age of first birth in Madagascar*. Discussion Paper, 8795. Bonn: Institute for the Study of Labour (IZA).

Grogger, Jeffrey (2008). Consequences of teen childbearing for incarceration among adult children. In Saul D. Hoffman and Rebecca A. Maynard. *Kids having kids: economic costs and social consequences of teen pregnancy* (pp. 289-322). 2nd edition. Washington, DC: The Urban Institute Press.

Herrera, Catalina and David Sahn (2015). *The impact of early childbearing on schooling and cognitive skills among young women in Madagascar*. Working Paper, 247. Cornell University Food and Nutrition Policy Program.

Hotz, V. Joseph; Susan Williams McElroy and Seth G. Sanders (2005). Teenage childbearing and its life cycle consequences: exploiting a natural experiment. *Journal of Human Resources, XL*(3), 683–715.

Ibarraran, Pablo; Laura Ripani, Bibiana Taboada, Juan Miguel Villa and Brígida García (2014). Life skills, employability and training for disadvantaged youth: evidence from a randomized evaluation design. *IZA Journal of Labor and Development*, 3, 1-24.

Kane, Thomas J. and Douglas Staiger (1996). Teen motherhood and abortion access. *The Quarterly Journal of Economics, 111*(2), 467–506.

Kearney, Melissa S. and Phillip B. Levine (2012). *Why is the teen birth rate in the United States so high and why does it matter?* Working Paper, 17965. Cambridge, MA: National Bureau of Economic Research (NBER).

Levine, Judith A.; Harold Pollack and Maureen E. Comfort (2001). Academic and behavioral outcomes among the children of young mothers. *Journal of Marriage and Family 63*(2), 355–369.

Lopez-Calva, Luis F. and Elizabeta Perova (2012). *The impact of conditional cash transfers on the incidence of teenage pregnancies: evidence from Peru*. Unpublished manuscript.

Lopez Turley, Ruth (2003). Are children of young mothers disadvantaged because of their mother's age or family background? *Child Development, 74*(2), 465–474.

Lundberg, Shelly and Robert D. Plotnick (1995). Adolescent premarital childbearing: do economic incentives matter? *Journal of Labor Economics, 13*(2), 177– 200.

Novella, Rafael and Laura Ripani (2015). *Are you (not) expecting?: the unforeseen benefits of job training on teenage pregnancy.* Working Paper Series, 660. Washington, DC: Inter-American Development Bank.

Nüñez, Jairo and Carmen Elisa Flórez (2001). *Teenage childbearing in Latin American countries*. Research Network Working Paper, R-434. Washington, DC: Inter-American Development Bank.

Plotnick, Robert D. (1992). The effects of attitudes on teenage premarital pregnancy and its resolution. *American Sociological Review, 57*(6), 800–811.

Plotnick, Robert D. (1993). The effect of social policies on teenage pregnancy and childbearing. *Families in Society, 74*(6), 324–328.

Plotnick, Robert. D.; Irwin Garfinkel, Sara S. McLanahan and Inhoe Ku (2007). The impact of child support enforcement policy on nonmarital childbearing. *Journal of Policy Analysis and Management, 26*(1), 79–98.

Rascon-Ramirez, Ericka G. (2014). *Teenage pregnancy and motherhood in England: do parents' educational expectations matter?* Available at https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=ESPE2014&paper_id=634.

Rosenberg, Morris (1965). *Society and the adolescent self-image*. Princeton, New Jersey: Princeton University Press.

Rotter, Julian B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*(1), 1–28.

Webbink, Dinand; Nicholas G. Martin and Peter M. Visscher (2009). Does teenage childbearing reduce investment in human capital? *Journal of Population Economics, 24*(2), 701–730.

WHO (2008). Adolescent pregnancy. *MPS Notes, 1*(1), 1-4.

World Bank (2012). *Teenage pregnancy and opportunities in Latin America and the Caribbean: on teenage fertility decisions, poverty and economic achievement*. Washington, DC: World Bank.

Table 1
Early childbearing and early marriage and cohabitation among young women in Peru

	Age 15-19	Age 15–17	Age 18–19
National level			
Have children (in %)	13.6	4.4	18.8
Ever married/cohabited (in %)	16.4	6.5	22.8
Have children	81.7	76.4	83.8
Do not have children	5.1	3.3	8.6
Urban level			
Have children (in %)	10.7	3.5	13.7
Ever married/cohabited (in %)	13.2	5.0	16.7
Rural level			
Have children (in %)	23.9	7.5	40.0
Ever married/cohabited (in %)	28.1	11.1	47.9

Note: The source is the Peruvian Demographic and Health Survey from 2015. Results are nationally representative.

Table 2
Prevalence of teenage marriage/cohabitation and fertility in Young Lives data, by gender and urban/rural location

Panel A: Total and by gender and rural/urban location		**Total**		**Female**		**Male**			**Rural**		**Urban**
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	p-value	Mean	Std. Error	Mean	Std. Error
Has a child	0.12	*0.015*	0.21	0.027	*0.05*	0.013	***	0.13	0.033	0.12	0.017
No. of children born	0.13	0.017	0.24	0.033	*0.05*	0.014	***	0.14	0.037	0.13	0.020
Has one child	0.11	0.014	0.18	0.026	0.04	0.012	***	0.12	0.032	0.10	0.016
Has more than one child	*0.01*	*0.005*	0.03	0.011	0.00	0.004	*	0.01	0.010	0.02	0.006
Lives with partner(Cohabitant/Married)	0.13	0.016	0.22	0.028	0.06	*0.015*	***	0.14	0.034	0.13	0.017
Cohabitant	0.10	0.013	*0.15*	0.024	*0.05*	0.013	***	0.08	0.027	0.10	*0.015*
Married	*0.01*	*0.005*	0.02	0.010	0.00	0.000	*	*0.01*	*0.010*	*0.01*	*0.005*
Separated	0.03	0.008	*0.05*	*0.015*	0.01	0.007	*	*0.05*	0.021	0.02	0.008
Single	0.87	0.016	0.78	0.028	0.94	*0.015*	***	0.86	0.034	0.87	0.017
Observations		483		221		262			102		381

Note: * *p<0.1* ** *p<0.05* ***p<0.1*. No statistically significant differences have been found between rural and urban areas (t-test not reported in the table).

Table 3

Prevalence of teenage marriage, fertility, and unprotected sex in Young Lives data, by wealth index

Panel B: by wealth index	**First tercile of wealth, age 15 (bottom)**		**Second tercile of wealth, age 15 (mid)**		**Third tercile of wealth, age 15 (top)**		**t - test (bottom & mid)**	**t - test (bottom & top)**
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	p-value	p-value
Has a child	0.15	0.034	0.11	0.024	0.12	0.023	*	
No. of children born	0.16	0.040	0.11	0.026	0.14	0.028	*	
Has one child	0.13	0.032	0.10	0.023	0.10	0.021	*	
Has more than one child	0.02	0.013	0.01	0.006	0.02	0.010		
Lives with partner (Cohabitant/Married)	0.16	0.035	0.10	0.023	0.15	0.025	**	
Cohabitant	0.10	0.029	0.08	0.021	0.11	0.022	**	*
Married	0.01	0.009	0.00	0.000	0.02	0.010		
Separated	0.05	0.022	0.02	0.012	0.02	0.010		
Single	0.84	0.035	0.90	0.023	0.85	0.025	**	
Observations	110		168		205			

Note: * p<0.1 ** p<0.05 ***p<0.1. The t-test between the mid and top terciles of wealth were all insignificant and thus not reported in the table.

Table 4
Consequences of teenage marriage and parenthood on the teenage parents

	Married/Cohabiting/ Have children		Not married/cohabiting/ No children		t-test
	Mean	Std. Error	Mean	Std. Error	p-value
All					
Enrollment in education	0.17	0.043	0.62	0.024	***
Workforce participation	0.62	0.056	0.71	0.023	
Overweight	0.45	0.058	0.24	0.021	***
Obese	0.09	0.034	0.03	0.009	**
Subjective wellbeing (ladder)	6.16	0.183	5.97	0.076	
Observations	77		406		
Girls					
Enrollment in education	0.12	0.043	0.71	0.036	***
Workforce participation	0.53	0.066	0.64	0.038	
Overweight	0.55	0.068	0.27	0.035	***
Obese	0.13	0.045	0.03	0.014	**
Subjective wellbeing (ladder)	6.17	0.223	6.05	0.116	
Observations	58		163		
Boys					
Enrollment in education	0.32	0.110	0.56	0.032	*
Workforce participation	0.89	0.072	0.76	0.028	
Overweight	0.16	0.086	0.22	0.027	
Obese	0.00	0.000	0.03	0.011	
Subjective wellbeing (ladder)	6.11	0.305	5.91	0.102	
Observations	19		243		

Note: * p<0.1 ** p<0.05 ***p<0.1.

Table 5
Consequences of teenage marriage and parenthood on the baby

	All babies		Girls		Boys	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
Child is stunted	0.29	0.071	0.26	0.094	0.32	0.11
Child is severely stunted	0.14	0.055	0.09	0.06	0.21	0.096
Observations	42		23		19	

Note: All 42 children were newborns to adolescent parents.

Table 6
Descriptive Statistics: comparing adolescent parents to their peers

	Total		Does not have a child		Has a child		t-test
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	p-value
Demographic and long-term SES characteristics							
Child is a girl	0.46	0.023	0.41	0.024	0.79	0.054	***
Age in R4	18.41	0.025	18.38	0.026	18.59	0.070	**
Site type - Urban, age 8	0.76	0.020	0.76	0.021	0.78	0.055	
First tercile of wealth, age 8	0.44	0.023	0.43	0.024	0.52	0.066	
Second tercile of wealth, age 8	0.37	0.022	0.36	0.023	0.41	0.065	
Third tercile of wealth, age 8	0.19	0.018	0.20	0.020	0.07	0.034	*
Mother's education - None or Primary school	0.42	0.022	0.42	0.024	0.45	0.066	
Mother's education - Secondary school	0.41	0.022	0.41	0.024	0.45	0.066	
Mother's education - Higher education	0.16	0.017	0.17	0.018	0.10	0.040	
Household composition							
Child has older brother, age 8	0.49	0.023	0.48	0.024	0.59	0.065	
Child has older sister, age 8	0.45	0.023	0.44	0.024	0.48	0.066	
Number of siblings, age 12	2.36	0.069	2.35	0.073	2.43	0.192	
Menarche or changed voice by age 12	0.48	0.023	0.47	0.024	0.53	0.066	
Inter-generational aspects							
YL child's mother was a teenage mother	0.18	0.018	0.18	0.019	0.21	0.054	
Mother was single mother	0.16	0.017	0.16	0.018	0.17	0.050	

	Total		Does not have a child		Has a child		t-test
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	p-value
Schooling and learning							
Child is enrolled, age 15	0.94	0.010	0.95	0.010	0.88	0.043	*
PPVT, age 12 (standardized)	0.11	0.041	0.13	0.044	-0.05	0.105	
Math, age 12 (standardized)	0.09	0.043	0.10	0.046	0.03	0.124	
Aspirations							
Child educational aspirations, Age 12	0.79	0.018	0.79	0.020	0.79	0.054	
Parental expectation of age for marriage	27.31	0.169	27.38	0.180	26.78	0.491	
Parental expectation of age for having a child (fertility)	28.18	0.178	28.21	0.191	27.93	0.481	
Parental expectation of age for leaving full-time education	22.14	0.141	22.12	0.152	22.31	0.382	
Non-cognitive skills							
Self-efficacy, age 12	0.03	0.021	0.03	0.023	0.00	0.049	
Self-esteem, age 12	-0.02	0.020	-0.02	0.022	-0.01	0.054	
Knowledge of contraceptive methods							
Knowledge index	0.07	0.047	0.11	0.048	-0.19	0.162	*
Sexual behaviors							
First sexual relationship at age 16 or under	0.35	0.022	0.30	0.023	0.71	0.062	***
Risky behaviors							
Unprotected sex, age 15	0.07	0.012	0.07	0.012	0.11	0.042	
Observations		483		425		58	

Note: * p<0.1 ** p<0.05 ***p<0.1.

Table 7
Descriptive statistics: comparing married/cohabiting adolescents with their peers

	Total		Not Married/Cohabiting		Married/ Cohabiting		t-test
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	p-value
Demographic and long-term SES characteristics							
Child is a girl	0.46	0.023	0.41	0.024	0.75	0.054	***
Age in R4	18.41	0.025	18.39	0.027	18.55	0.066	*
Site type - Urban, age 8	0.76	0.020	0.75	0.021	0.80	0.050	
First tercile of wealth, age 8	0.44	0.023	0.44	0.024	0.46	0.062	
Second tercile of wealth, age 8	0.37	0.022	0.35	0.023	0.48	0.062	
Third tercile of wealth, age 8	0.19	0.018	0.21	0.020	0.06	0.030	**
Mother's education - None or Primary school	0.42	0.022	0.41	0.024	0.51	0.062	
Mother's education - Secondary school	0.41	0.022	0.42	0.024	0.38	0.061	
Mother's education - Higher education	0.16	0.017	0.17	0.018	0.11	0.039	
Household composition							
Child has older brother, age 8	0.49	0.023	0.47	0.024	0.58	0.062	
Child has older sister, age 8	0.45	0.023	0.44	0.024	0.46	0.062	
Number of siblings, age 12	2.36	0.069	2.35	0.074	2.45	0.182	
Menarche or changed voice by age 12	0.48	0.023	0.47	0.024	0.54	0.062	
Inter-generational aspects							
YL child's mother was a teenage mother	0.18	0.018	0.18	0.019	0.20	0.050	
Mother was single mother	0.16	0.017	0.16	0.018	0.20	0.050	

	Total		Not Married/Cohabiting		Married/ Cohabiting		t-test
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	p-value
Schooling and learning							
Child is enrolled, age 15	0.94	0.010	0.96	0.010	0.86	0.043	**
PPVT, age 12 (standardized)	0.11	0.041	0.14	0.045	-0.12	0.092	*
Math, age 12 (standardized)	0.09	0.043	0.11	0.046	0.01	0.117	
Aspirations							
Child educational aspirations, Age 12	0.79	0.018	0.80	0.020	0.74	0.055	
Parental expectation of age for marriage	27.31	0.169	27.41	0.181	26.69	0.462	
Parental expectation of age for having a child (fertility)	28.18	0.178	28.24	0.193	27.82	0.450	
Parental expectation of age for leaving full time education	22.14	0.141	22.10	0.153	22.45	0.358	
Non-cognitive skills							
Self-efficacy, age 12	0.03	0.021	0.02	0.024	0.04	0.041	
Self-esteem, age 12	-0.02	0.020	-0.02	0.021	0.03	0.056	
Knowledge of contraceptive methods							
Knowledge index	0.07	0.047	0.08	0.049	0.00	0.145	
Sexual behaviors							
First sexual relationship at age 16 or under	0.35	0.022	0.31	0.023	0.62	0.062	***
Risky behaviors							
Unprotected sex, age 15	0.07	0.012	0.07	0.012	0.10	0.038	
Observations	483	418	65				

Note: * p<0.1 ** p<0.05 *** p<0.01.

Table 8
Linear probability model estimates for the risk factors of early childbearing

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Child is female	0.165***	0.165***	0.163***	0.162***	0.162***	0.163***	0.222***
	(0.038)	(0.037)	(0.034)	(0.035)	(0.035)	(0.037)	(0.044)
Age	0.067***	0.067***	0.068***	0.069***	0.069***	0.068***	0.066**
	(0.023)	(0.023)	(0.023)	(0.022)	(0.023)	(0.022)	(0.029)
Child lives in urban area	0.059	0.058	0.056	0.060	0.060	0.049	0.013
	(0.047)	(0.046)	(0.046)	(0.053)	(0.052)	(0.062)	(0.049)
Wealth index, age 8	-0.217	-0.211	-0.219	-0.184	-0.184	-0.207	-0.229**
	(0.130)	(0.130)	(0.136)	(0.155)	(0.155)	(0.164)	(0.108)
Mother's education - Secondary school	0.002	0.001	0.002	0.007	0.007	0.004	0.009
	(0.029)	(0.029)	(0.031)	(0.031)	(0.031)	(0.034)	(0.039)
Mother's education - Higher education	-0.026	-0.026	-0.026	-0.017	-0.016	-0.021	0.015
	(0.059)	(0.058)	(0.058)	(0.054)	(0.054)	(0.056)	(0.064)
Child has older brother	0.036	0.037	0.038	0.034	0.034	0.034	0.022
	(0.028)	(0.028)	(0.029)	(0.030)	(0.030)	(0.032)	(0.031)
Child has older sisters	0.024	0.023	0.022	0.017	0.017	0.021	0.026
	(0.030)	(0.031)	(0.031)	(0.031)	(0.031)	(0.029)	(0.028)
Number of siblings, age 12	-0.007	-0.006	-0.005	-0.009	-0.009	-0.016	-0.020**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.010)
Had menarche/changed voice by age 12	0.030	0.030	0.029	0.024	0.024	-0.006	-0.021
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.023)	(0.026)
YL child had teenage mother		0.008	0.009	0.010	0.010	-0.006	-0.036
		(0.047)	(0.047)	(0.044)	(0.044)	(0.049)	(0.049)

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Only one parent in household, age 8		0.013	0.017	0.017	0.017	0.002	-0.054
		(0.038)	(0.038)	(0.036)	(0.036)	(0.044)	(0.042)
Child had high aspirations, age 12			0.024	0.035	0.035	0.056	0.040
			(0.029)	(0.035)	(0.035)	(0.036)	(0.043)
Parental expectation: age for marriage			-0.004	-0.005	-0.005	-0.005	-0.004
			(0.008)	(0.008)	(0.008)	(0.007)	(0.007)
Parental expectation: age for having a child			0.001	0.003	0.003	0.005	0.007
			(0.006)	(0.006)	(0.006)	(0.007)	(0.006)
Parental expectation: age for leaving full-time education			0.002	0.003	0.003	0.003	0.002
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Still attends school, age 15				-0.150**	-0.150**	-0.146**	-0.074
				(0.069)	(0.068)	(0.069)	(0.072)
Standardized PPVT score, age 12				-0.020	-0.020	-0.024	-0.029
				(0.020)	(0.020)	(0.021)	(0.024)
Standardized Math score, age 12				0.007	0.007	0.006	-0.001
				(0.023)	(0.023)	(0.023)	(0.026)
Standardized Self-efficacy, age 12					0.005	0.005	-0.008
					(0.033)	(0.032)	(0.043)
Standardized Self-esteem, age 12					0.001	0.020	-0.009
					(0.030)	(0.037)	(0.035)
Standardized Knowledge Index							-0.007
							(0.018)
Had sex before age 17							0.246***
							(0.049)

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Unprotected sex, age 15							-0.030
							(0.049)
Observations	483	483	483	483	483	483	420
R-squared	0.096	0.097	0.099	0.110	0.110	0.171	0.292

Note: The table reports the estimates of the linear probability model with robust standard errors (in parentheses). * p<0.1 ** p<0.05 ***p<0.01. Model 1 uses the baseline control: household and demographic characteristics. The consecutive models have additional controls as follows: Model (ii) controls for inter-generational aspects. Model (iii) controls for parental expectations. Model (iv) controls for schooling measures. Model (v) controls for non-cognitive skills. Model (vi) controls for non-cognitive skills, clustered at the cluster level. Model (vii) controls for sexual behavior, clustered at the cluster level. For a detailed description of control variables, refer to the Appendix.

Table 9
Linear probability model estimates for the risk factors of early marriage

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Child is female	0.163***	0.164***	0.159***	0.157***	0.157***	0.155***	0.214***
	(0.040)	(0.039)	(0.036)	(0.037)	(0.038)	(0.042)	(0.049)
Age	0.063**	0.065**	0.064**	0.067**	0.071***	0.061**	0.068**
	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)	(0.024)	(0.028)
Child lives in urban area	0.094*	0.090*	0.087*	0.098*	0.099*	0.088	0.056
	(0.050)	(0.050)	(0.050)	(0.050)	(0.049)	(0.066)	(0.058)
Wealth Index, age 8	-0.190*	-0.177	-0.169	-0.103	-0.095	-0.056	-0.054
	(0.103)	(0.105)	(0.106)	(0.120)	(0.121)	(0.135)	(0.112)
Mother's education - Secondary school	-0.054	-0.056	-0.054	-0.046	-0.046	-0.046	-0.041
	(0.035)	(0.034)	(0.035)	(0.035)	(0.036)	(0.032)	(0.031)
Mother's education - Higher education	-0.071	-0.073	-0.069	-0.050	-0.048	-0.049	-0.024
	(0.059)	(0.057)	(0.056)	(0.058)	(0.058)	(0.062)	(0.066)
Child has older brother	0.040	0.043	0.043	0.034	0.035	0.041	0.028
	(0.036)	(0.037)	(0.038)	(0.038)	(0.038)	(0.040)	(0.036)
Child has older sisters	0.008	0.003	0.001	-0.009	-0.010	-0.005	0.011
	(0.037)	(0.037)	(0.038)	(0.038)	(0.038)	(0.038)	(0.037)
Number of siblings, age 12	-0.006	-0.004	-0.003	-0.009	-0.010	-0.015	-0.023
	(0.012)	(0.013)	(0.013)	(0.014)	(0.014)	(0.015)	(0.017)
Had menarche/changed voice by age 12	0.034	0.033	0.034	0.028	0.028	0.004	-0.020
	(0.026)	(0.026)	(0.026)	(0.025)	(0.025)	(0.023)	(0.026)
YL child had teenage mother		0.007	0.011	0.011	0.012	-0.014	-0.033
		(0.038)	(0.040)	(0.039)	(0.039)	(0.040)	(0.050)

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Only one parent in household, age 8		0.047	0.050	0.050	0.051	0.038	-0.001
		(0.045)	(0.046)	(0.043)	(0.043)	(0.054)	(0.057)
Child had high aspirations, age 12			-0.026	-0.009	-0.009	0.003	-0.017
			(0.039)	(0.038)	(0.037)	(0.032)	(0.032)
Parental expectation: age for marriage			-0.004	-0.007	-0.007	-0.006	-0.008
			(0.008)	(0.007)	(0.007)	(0.007)	(0.006)
Parental expectation: age for having a child			0.001	0.003	0.004	0.006	0.009
			(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Parental expectation: age for leaving full-time education			0.006	0.008	0.008	0.008	0.004
			(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Still attends school, age 15				-0.210***	-0.213***	-0.228***	-0.192***
				(0.063)	(0.064)	(0.063)	(0.058)
Standardized PPVT score, age 12				-0.046*	-0.046*	-0.033	-0.048*
				(0.022)	(0.024)	(0.023)	(0.028)
Standardized math score, age 12				0.015	0.015	0.013	0.001
				(0.020)	(0.020)	(0.022)	(0.026)
Standardized self-efficacy, age 12					0.025	0.019	-0.004
					(0.032)	(0.032)	(0.040)
Standardized self-esteem, age 12					0.028	0.046	0.031
					(0.034)	(0.041)	(0.045)
Standardized knowledge index							0.036
							(0.021)
Had sex before age 17							0.204***
							(0.056)

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Unprotected sex, age 15							-0.028
							(0.053)
Observations	483	483	483	483	483	483	420
R-squared	0.091	0.094	0.098	0.123	0.126	0.188	0.261

Note: The table reports the estimates of the linear probability model with robust standard errors (in parentheses). * p<0.1 ** p<0.05 ***p<0.01. Model 1 uses the baseline control: household and demographic characteristics. The consecutive models have additional controls as follows: Model (ii) controls for inter-generational aspects. Model (iii) controls for parental expectations. Model (iv) controls for schooling measures. Model (v) controls for non-cognitive skills. Model (vi) controls for non-cognitive skills, clustered at the cluster level. Model (vii) controls for sexual behavior, clustered at the cluster level. For a detailed description of control variables, refer to the Appendix.

Table 10
Linear probability model estimates of interaction term for early childbearing and early marriage

	Early childbearing				Early marriage			
	(vi)		(vii)		(vi)		(vii)	
	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)
Child is female	0.692	–	0.771		-1.149	–	-0.810	
	(0.875)		(0.827)		(1.253)		(1.196)	
Age	0.076**	-0.013	0.080**	-0.043	0.030	0.081	0.050	0.045
	(0.034)	(0.055)	(0.037)	(0.055)	(0.032)	(0.068)	(0.034)	(0.065)
Child lives in urban area	0.018	0.102	-0.072	0.160	0.059	0.120	0.003	0.126
	(0.068)	(0.133)	(0.072)	(0.093)	(0.076)	(0.110)	(0.070)	(0.088)
Wealth Index, age 8	0.002	-0.501**	0.022	-0.653***	0.105	-0.389*	0.161	-0.543**
	(0.137)	(0.233)	(0.116)	(0.180)	(0.137)	(0.224)	(0.118)	(0.223)
Mother's education - Secondary school	-0.042	0.146*	-0.030	0.091	-0.045	0.044	-0.047	0.024
	(0.036)	(0.074)	(0.037)	(0.076)	(0.034)	(0.077)	(0.039)	(0.069)
Mother's education - Higher education	-0.022	0.070	-0.013	0.111	-0.029	0.028	-0.036	0.066
	(0.068)	(0.086)	(0.074)	(0.076)	(0.078)	(0.104)	(0.074)	(0.086)
Child has older brother	-0.002	0.091	-0.019	0.105*	0.056	-0.015	0.029	0.015
	(0.038)	(0.066)	(0.041)	(0.060)	(0.041)	(0.085)	(0.034)	(0.064)
Child has older sisters	0.022	-0.002	0.034	-0.019	0.009	-0.023	0.033	-0.035
	(0.038)	(0.058)	(0.041)	(0.061)	(0.039)	(0.078)	(0.041)	(0.086)
Number of siblings, age 12	-0.006	-0.021	-0.012	0.005	-0.003	-0.029	-0.012	-0.005
	(0.013)	(0.027)	(0.014)	(0.027)	(0.018)	(0.026)	(0.021)	(0.032)

	Early childbearing				Early marriage			
	(vi)		(vii)		(vi)		(vii)	
	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)
Had menarche/changed voice by age 12	-0.011	0.047	0.003	-0.005	-0.028	0.100	-0.020	0.052
	(0.030)	(0.072)	(0.025)	(0.060)	(0.034)	(0.104)	(0.031)	(0.091)
YL child had teenage mother	-0.028	0.053	-0.024	-0.017	-0.024	-0.000	-0.014	-0.064
	(0.044)	(0.076)	(0.051)	(0.087)	(0.044)	(0.063)	(0.061)	(0.066)
Only one parent in household, age 8	-0.060*	0.157*	-0.093**	0.144*	-0.074**	0.261***	-0.104***	0.274***
	(0.031)	(0.085)	(0.040)	(0.083)	(0.030)	(0.088)	(0.036)	(0.082)
Child had high aspirations, age 12	0.040	0.033	0.036	-0.003	0.000	0.022	-0.021	0.010
	(0.026)	(0.078)	(0.024)	(0.072)	(0.034)	(0.094)	(0.046)	(0.087)
Parental expectation: age for marriage	0.000	-0.013	-0.008	0.014	0.009	-0.033**	-0.000	-0.010
	(0.008)	(0.013)	(0.008)	(0.016)	(0.007)	(0.014)	(0.006)	(0.011)
Parental expectation: age for having a child	-0.000	0.012	0.008	-0.010	-0.003	0.022*	0.008	-0.001
	(0.008)	(0.011)	(0.005)	(0.015)	(0.008)	(0.012)	(0.005)	(0.009)
Parental expectation: age for leaving	0.003	0.001	0.002	0.001	0.001	0.017	-0.004	0.017
full-time education	(0.003)	(0.012)	(0.004)	(0.011)	(0.006)	(0.012)	(0.006)	(0.011)
Still attends school, age 15	-0.022	-0.295*	-0.074	0.070	-0.136	-0.206	-0.205*	0.119
	(0.063)	(0.152)	(0.075)	(0.163)	(0.097)	(0.154)	(0.106)	(0.161)
Standardized PPVT score, age 12	-0.000	-0.067*	-0.008	-0.049	0.018	-0.130***	0.005	-0.126***
	(0.020)	(0.034)	(0.024)	(0.032)	(0.029)	(0.045)	(0.033)	(0.040)
Standardized math score, age 12	-0.003	0.008	0.002	-0.030	-0.005	0.029	-0.016	0.019
	(0.023)	(0.046)	(0.027)	(0.047)	(0.026)	(0.035)	(0.027)	(0.039)

	Early childbearing				Early marriage			
	(vi)		(vii)		(vi)		(vii)	
	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)	Coef (boys)	Coef (girls-boys)
Standardized self-efficacy, age 12	0.024	-0.016	0.001	0.015	0.022	0.034	-0.008	0.069
	(0.023)	(0.066)	(0.033)	(0.077)	(0.033)	(0.057)	(0.040)	(0.070)
Standardized self-esteem, age 12	0.007	0.045	0.010	-0.062	0.023	0.049	0.037	-0.046
	(0.022)	(0.070)	(0.027)	(0.067)	(0.043)	(0.073)	(0.045)	(0.075)
Standardized knowledge index			0.007	-0.007			0.045**	0.001
			(0.023)	(0.029)			(0.021)	(0.040)
Had sex before age 17			0.066*	0.485***			0.041	0.439***
			(0.035)	(0.060)			(0.038)	(0.094)
Unprotected sex, age 15			-0.008	-0.026			0.005	-0.059
			(0.066)	(0.271)			(0.056)	(0.273)
Observations		483		420		483	420	
R-squared		0.226		0.444		0.259	0.404	

Note: The table reports the estimates of the interaction terms through a linear probability model with robust standard errors (in parentheses), clustered at the cluster level. * p<0.1 ** p<0.05 ***p<0.01. The models used are Model (vi), which includes household, demographic, inter-generational aspects, schooling, and aspirations as controls. Model (vii) additionally controls for sexual behavior. Within each model, there are two columns, one presents the estimates for boys and the other, the interaction term (girls-boys).

Table 11
Linear probability model estimates of changes in initial conditions for early childbearing and early marriage

	All		Only girls	
	Early childbearing	Early marriage	Early childbearing	Early marriage
Child is female	0.228***	0.225***		
	(0.049)	(0.056)	–	–
Age	0.052*	0.051*	0.014	0.018
	(0.029)	(0.026)	(0.039)	(0.049)
In rural area at ages 8 and 15	0.020	-0.029	0.057	-0.058
	(0.064)	(0.046)	(0.114)	(0.137)
Migrated from urban to rural area between ages 8 and 15	0.222	0.379**	0.155	0.343
	(0.184)	(0.175)	(0.220)	(0.219)
Migrated from rural to urban area between ages 8 and 15	-0.014	0.038	-0.010	-0.007
	(0.069)	(0.071)	(0.161)	(0.146)
Wealth Index, age 8	-0.229	-0.081	-0.760***	-0.382
	(0.157)	(0.125)	(0.169)	(0.251)
Change in wealth index between ages 8 and 15	0.091	-0.002	0.023	0.110
	(0.096)	(0.127)	(0.213)	(0.277)
Mother's education - Secondary school	0.026	-0.032	0.089	-0.026
	(0.050)	(0.036)	(0.096)	(0.066)
Mother's education - Higher education	0.038	-0.012	0.166*	0.062
	(0.071)	(0.074)	(0.085)	(0.107)

	All		Only girls	
	Early childbearing	Early marriage	Early childbearing	Early marriage
Child has older brother	0.032	0.046	0.088**	0.059
	(0.032)	(0.037)	(0.039)	(0.057)
Child has older sisters	0.031	0.008	0.004	-0.000
	(0.028)	(0.040)	(0.036)	(0.078)
Number of siblings, age 12	-0.034**	-0.027	-0.036	-0.013
	(0.014)	(0.017)	(0.032)	(0.037)
Change in number of siblings between ages 12 and 15	-0.026	0.002	-0.039	0.011
	(0.024)	(0.021)	(0.054)	(0.049)
Had menarche/changed voice by age 12	-0.005	-0.013	0.004	0.046
	(0.035)	(0.033)	(0.072)	(0.094)
YL child had teenage mother	-0.054	-0.058	-0.085	-0.123
	(0.042)	(0.053)	(0.074)	(0.073)
Broken family remained between ages 8 and 15	-0.037	0.008	0.133*	0.176*
	(0.056)	(0.060)	(0.066)	(0.084)
Parents separated between ages 8 and 15	-0.032	0.058	-0.085	0.095
	(0.037)	(0.066)	(0.082)	(0.129)
Broken family regrouped or a new couple formed between ages 8 and 15	-0.130**	0.039	-0.251*	0.015
	(0.048)	(0.087)	(0.131)	(0.174)
Persistently low educational aspirations between ages 12 and 15	0.031	0.233***	-0.111	0.358**
	(0.064)	(0.079)	(0.139)	(0.128)
Downward educational aspirations between ages 12 and 15	0.088**	0.126**	0.199*	0.092
	(0.033)	(0.057)	(0.107)	(0.127)
Upward educational aspirations between ages 12 and 15	-0.059	-0.024	-0.030	-0.078
	(0.054)	(0.029)	(0.090)	(0.046)

	All		Only girls	
	Early childbearing	Early marriage	Early childbearing	Early marriage
Parental expectation: age for marriage	-0.004	-0.007	0.001	-0.005
	(0.007)	(0.008)	(0.012)	(0.012)
Parental expectation: age for having a child	0.007	0.006	0.009	0.004
	(0.006)	(0.006)	(0.015)	(0.011)
Parent expectation: age for leaving full-time education	0.002	0.005	0.004	0.016
	(0.004)	(0.006)	(0.011)	(0.011)
In school between ages 12 and 15, or still enrolled at age 15	-0.063	-0.132**	0.080	0.000
	(0.065)	(0.050)	(0.113)	(0.111)
Standardized PPVT score, age 12	-0.026	-0.036	-0.047	-0.098*
	(0.032)	(0.035)	(0.047)	(0.050)
Change in PPVT score between ages 12 and 15	-0.006	0.039	0.022	0.037
	(0.040)	(0.036)	(0.051)	(0.046)
Standardized math score, age 12	-0.011	0.002	-0.035	-0.008
	(0.032)	(0.038)	(0.056)	(0.056)
Change in math score between ages 12 and 15	-0.024	0.003	-0.027	-0.044
	(0.024)	(0.037)	(0.029)	(0.040)
Standardized self-efficacy, age 12	-0.360***	-0.051	-0.196	-0.208
	(0.109)	(0.185)	(0.390)	(0.586)
Change in self-efficacy between ages 12 and 15	-0.351***	-0.051	-0.213	-0.250
	(0.110)	(0.179)	(0.386)	(0.546)
Standardized self-esteem, age 12	0.138	0.058	0.178	-0.228
	(0.135)	(0.184)	(0.218)	(0.291)
Change in self-esteem between ages 12 and 15	0.144	0.032	0.173	-0.177
	(0.135)	(0.163)	(0.216)	(0.274)

	All		Only girls	
	Early childbearing	Early marriage	Early childbearing	Early marriage
Standardized knowledge index	0.004	0.043**	-0.002	0.056
	(0.018)	(0.019)	(0.025)	(0.038)
Had sex before age 17	0.243***	0.185**	0.557***	0.464***
	(0.052)	(0.066)	(0.104)	(0.134)
Unprotected sex, age 15	-0.015	0.002	-0.002	0.080
	(0.048)	(0.059)	(0.152)	(0.142)
Observations	407	407	188	188
R-squared	0.324	0.299	0.593	0.532

Note: The table reports the estimates of the interaction terms through a linear probability model with robust standard errors (in parentheses), clustered at the cluster level. * p<0.1 ** p<0.05 ***p<0.01. The model used for these estimates is Model (vii), which incorporates all controls. For detailed information on the controls, refer to the Appendix. The first two columns report the estimates for early childbearing and early marriage for the whole sample. The last two columns report the estimates for early childbearing and early marriage for the female sample only.

7. APPENDIX

Table A.1
Definitions of variables

Variable	Definition
Dependent variables	
Has a child	Dummy variable equal to 1 if YL child has ever given birth/ fathered a child (whether or not the child is still alive), and 0 otherwise
Lives with partner (Cohabitant or Married)	Dummy variable equal to 1 if YL child has ever married/cohabited/separated, and 0 if the YL child is single
Demographic & long-term SES characteristics	
Child is a girl	Dummy variable equal to 1 if the child is female, and 0 if male
Age in R4	Age at Round 4 (R4) in years
Site type - Rural, age 8	YL child's household's type of residential area when he/she was 8 years old (Round 1). Dummy variable of 1 for urban area and 0 for rural area
Mother's education level	We define three levels of maternal education: 1) No complete education or Primary School; 2) Secondary education (grade 10); 3) Higher education (above grade 10).
Wealth index	A composite index of living standards measured in Round 1. The variable takes values between 0 and 1; a larger value reflects a wealthier household. The wealth index is the simple average of three sub-indices: 1) A housing quality index (quality of floor, wall, roof, and number of rooms per capita); 2) An access to services index (access to drinking water, electricity, sewage, and type of cooking fuel used); 3) and a consumer durables index (TV, radio, fridge, microwave, computer, etc). In the analysis we used three dummies corresponding to the bottom, mid, and top terciles of the wealth index distribution measured in Round 1.

Variable	Definition
Household composition	
Child has older brother, age 8	Whether YL child has an older brother at age 8
Child has older sister, age 8	Whether YL child has an older sister at age 8
Number of siblings, age 12	Number of siblings the YL child has
Menarche or changed voice by age 12	Dummy variable of 1 if the YL child has reached puberty by age 12 (signaled by changed voice for boys and menarche for girls), and 0 if he/she did not reach puberty by age 12. The questions involved are as follows: for boys: "Has your voice changed (deepened)? If so, at what age did you notice it changing?". For girls: "Have you started your period yet? If so, at what age did it start?"
Inter-generational aspects	
YL child's mother was a teenage mother	Young Lives child's mother had him/her when she was 19 years old or younger.
Single parent household	YL child grew up with only one or no biological parents in the household.
Schooling and learning	
Child is enrolled, age 15	YL child is enrolled in education at age 15
PPVT, age 12	Standardized score for the Peabody Picture Vocabulary Test at age 12
Math, age 12	Standardized score for the Math test at age 12
Aspirations	
Child educational aspirations, age 12	Derived from the responses to the question "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?" The dummy variable is 1 for children with high educational aspirations (aspiring to university) at age 12, and 0 otherwise
Parental expectation of age for leaving full-time education	"At what age did/do you expect [YL child] to leave full-time education?".
Parental expectation of age for having a child (fertility)	"At what age did/do you expect [YL child] to have a child?".
Parental expectation of age for marriage	"At what age did/do you expect [YL child] to get married and start cohabiting?".

Variable	Definition
Psycho-social competencies	Young Lives collected information about two psycho-social competencies: the self-esteem scale and the self-efficacy scale, referred to as the pride index and the agency index, respectively. The former builds on the self-esteem concept described by Rosenberg (1965) and is related to the child's overall evaluation of his/her own worth. The latter builds on the concept of locus of control described by Rotter (1966) and self-efficacy described by Bandura (1993), and it measures the child's freedom of choice and his/her agency (or power) to influence his/her own life. The procedure adopted to compute the non-cognitive scores are as follows: (i) all relevant questions are re-coded to be positive outcomes; (ii) all relevant questions are normalized to z-scores (mean subtracted and divided by std. deviation); (iii) an average of the relevant z-scores is taken across the non-missing values of the questions. All questions are on Likert-type scales from 1 to 4 in Round 2 (R2) and from 1 to 5 in Round 3 (R3), with some variations in phrasing between Rounds 2 and 3 as specified below:
Self-efficacy (same for R2 and R3)	1) If I try hard, I can improve my situation in life; 2) Other 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 at school I will be rewarded by a better job in the future; 5) I have no choice about the work I do; I must work.
Self-esteem	1) I feel proud to show my friends or other visitors where I live (only R2); 2) I am ashamed of my clothes (R2 and R3); 3) I feel proud of the job my [caregiver/head of household] does (only R2); 4) I am often (in R2)/never (in R3) embarrassed because I do not have the right books, pencils, and other materials for school; 5) I am proud of my achievements at school (only R2); 6) I am ashamed (in R2)/proud (in R3) of my shoes; 7) I am worried that I don't have the correct uniform (in R2); I am proud that I have the correct uniform (in R3); 8) I am proud of the work I have to do (R2 and R3); 9) I feel my clothing is right for all occasions (R2 and R3);

Variable	Definition
Knowledge on SRH	
Knowledge index	A standardized score reflecting the number of correct answers to questions related to contraceptive methods (as seen below). Only fully answered questions were considered in the sample (when all 5 questions were answered): 1) A woman/girl cannot get pregnant the first time she has sex; 2) If a girl washes herself after sex she will not get pregnant; 3) Using a condom can prevent getting a disease through sex; 4) A person who looks very healthy cannot pass on a disease through sex; 5) A person can get HIV or AIDS by having sex.
Sexual behaviors	
First sexual relationship before age 16	Dummy variable with a value of 1 if the YL child was age 16 or younger when he/she first engaged in sexual intercourse, and 0 if he/she had sex after age 16 or has never had sex
Unprotected sex, age 15	Of the YL children who engaged in sex, the dummy variable has a value of 1 for those who engaged in unprotected/unsafe sex (drinking tea) and 0 for those who had protected sex (condom, morning after pill, injections, other methods)

UNDERSTANDING TEENAGE FERTILITY, COHABITATION, AND MARRIAGE: THE CASE OF PERU

se terminó de editar en el
mes de setiembre del 2016.