

# Understanding teenage fertility, cohabitation and marriage in Peru: an analysis using longitudinal data

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# Why teenage fertility, marriage and cohabitation?

- LAC region has the third highest teenage fertility rate (15-19 years old) after SSA and SA (World Bank, 2012); declining more slowly in LAC than in other regions (except EAP)
- In Peru, 14% of 15-19 girls (and about 20% of 18-19 girls) has had at least one child born alive; and 16% of girls has been married/cohabiting between age 15 and 19.
- Despite the poverty reduction in Peru the prevalence of teenage pregnancy has remained constant.
- Adverse implications for the mother's (mainly) physical, mental, emotional well-being, educational and labour market outcomes ( e.g. Field and Ambrus, 2008) and on newborns (e.g. Francesconi, 2008; Levine et al., 2001; Ashcraft and Lang, 2006)
- Strong correlation between teenage fertility and early marriage/cohabitation

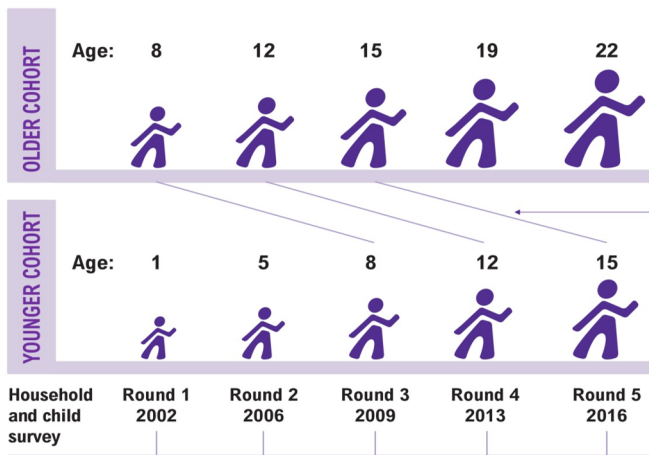
# What do we know and what we do not know

- Evidence suggest importance of the role of socioeconomic background (economic opportunities), (parental) education, SRH knowledge (and family planning policies) for early pregnancy in developing countries (Acharya et al., 2010; Azevedo et al., 2012; Pradhan et al., 2015; Magadi, 2017).
- Emerging literature on the role of preferences, expectations, uncertainty (forward looking behavior) and social norms and gender roles.
- Challenges: lack of longitudinal data in developing countries; reverse causality; limited information on behavioral components.

# Research Questions & Contribution

- 1 What are the main early predictors of teenage fertility, marriage/cohabitation?
  - Richness of the data at both at individual and household level
  - Using longitudinal data from a cohort tracked from ages 8 to 19 to deal with reverse causality issues
- 2 What are the changes at household and individual level increasing the probability of early pregnancy, cohabitation/marriage in Peru?
  - Enriching analysis using changes in variables over time (beyond levels); e.g. changes in socioeconomic status, migration, household structure, aspirations, test scores, and socio-emotional competencies.

# Young Lives data



# Survey questions and definitions

- Face-to-face interview + self-administered questionnaire (SAQ) in R3 and R4 to gather sensitive information (confidentiality, minimize under- and misreporting: drug, alcohol, or cigarette consumption, engagement in illegal and violent activities, and sexual behaviours).
- Early childbearing (asked at age 19): How many times have you given birth during your life?
- Marital/cohabiting status: What is your current marital status?, ever lived with a partner (either being married or cohabiting, including those who separated/divorced).

# Prevalence of early fertility, marriage/cohabitation in Young Lives

	Total	By gender		By wealth		
		Female	Male	Bottom	Top	
Has a child	0.12	0.21	0.05***	0.15	0.12	
No. Children	0.13	0.24	0.05***	0.16	0.14	
	1 child	0.11	0.18	0.04***	0.13	0.10
	> 1 child	0.01	0.03	0.00*	0.02	0.02
Cohab./Married	0.13	0.22	0.06***	0.16	0.15	
	Cohabitate	0.10	0.15	0.05***	0.10	0.11*
	Married	0.01	0.02	0.00*	0.01	0.02
	Separated	0.03	0.05	0.01*	0.05	0.02
	Single	0.87	0.78	0.94***	0.84	0.85
Observations	483	221	262	110	205	

## Methods: equation (1) Early predictors

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



## Methods: equation (2) Dynamic predictors

$$\begin{aligned} Y_{ij,19} = & \gamma_0 + Z_i\Gamma_1 + X_{i,8}\Gamma_2 \\ & + \textit{SingleParent}_{i,8}\Gamma_3 + \textit{TeenageMother}_i\Gamma_4 \\ & + \textit{Aspirations}_{i,12}\Gamma_5 + \textit{Expectations}_{i,12}\Gamma_6 \\ & + \textit{SchoolAttendance}_{i,15}\Gamma_7 + \textit{TestScores}_{i,12}\Gamma_8 \\ & + \textit{SocioEmotional}_{i,8}\Gamma_9 \\ & + \textit{SexKnowledge}_{i,15}\Gamma_{10} + \textit{SexBehaviours}_{i,15-19}\Gamma_{11} \\ & + \Delta X_{i,8-15}\delta_2 + \Delta \textit{SingleParent}_{i,8-15}\delta_3 \\ & + \Delta \textit{Aspirations}_{i,12-15}\delta_5 \\ & + \Delta \textit{TestScores}_{i,12-15}\delta_8 \\ & + \Delta \textit{SocioEmotional}_{i,12-15}\delta_9 \\ & + \omega_j + \epsilon_{i,19} \end{aligned} \tag{2}$$

# Predictors of early childbearing

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Female	0.165*** (0.038)	0.165*** (0.037)	0.163*** (0.034)	0.162*** (0.035)	0.162*** (0.035)	0.163*** (0.037)	0.222*** (0.044)
Age	0.067*** (0.023)	0.067*** (0.023)	0.068*** (0.023)	0.069*** (0.022)	0.069*** (0.023)	0.068*** (0.022)	0.066** (0.029)
Urban	0.059 (0.047)	0.058 (0.046)	0.056 (0.046)	0.060 (0.053)	0.060 (0.052)	0.049 (0.062)	0.013 (0.049)
Wealth Index, age 8	-0.217 (0.130)	-0.211 (0.130)	-0.219 (0.136)	-0.184 (0.155)	-0.184 (0.155)	-0.207 (0.164)	-0.229** (0.108)
No.siblings, age 12	-0.007 (0.010)	-0.006 (0.010)	-0.005 (0.010)	-0.009 (0.010)	-0.009 (0.011)	-0.016 (0.010)	-0.020** (0.010)
At school, age 15				-0.150** (0.069)	-0.150** (0.068)	-0.146** (0.069)	-0.074 (0.072)
Std. Knowledge Index							-0.007 (0.018)
Had sex before age 17							0.246*** (0.049)
Unprotected sex, age 15							-0.030 (0.049)
Mother educ.	x	x	x	x	x	x	x
Older siblings	x	x	x	x	x	x	x
Puberty (age 12)	x	x	x	x	x	x	x
Teen mother (age 12)		x	x	x	x	x	x
Broken family (age 8)		x	x	x	x	x	x
Aspir. & expect. (age 12)			x	x	x	x	x
Test scores (age 12)				x	x	x	x
Non-cogn skills (age 12)					x	x	x
Cluster fixed effects	No	No	No	No	No	Yes	Yes
Observations	483	483	483	483	483	483	420
R-squared	0.096	0.097	0.099	0.110	0.110	0.171	0.292

## Predictors of early marriage/cohabitation: main results

- Predictors show similar patterns than for early childbearing (for age, gender and age at the first sexual relationship)
- Marginal effect of the wealth index variable considerably decreases
- Both school attendance and the vocabulary test score negatively correlated to early marriage/cohabitation: test scores seem to be more important (double marginal effect than for childbearing):

## Predictors of early childbearing and marriage/cohabitation by gender

	Early childbearing		Early marriage	
	Common coefficient	Interaction with Female dummy	Common coefficient	Interaction with Female dummy
Female	0.771 (0.827)		-0.810 (1.196)	
Wealth Index, age 8	0.022 (0.116)	-0.653*** (0.180)	0.161 (0.118)	-0.543** (0.223)
Being at school at age 15	-0.074 (0.075)	0.070 (0.163)	-0.205* (0.106)	0.119 (0.161)
Std. PPVT score at age 12	-0.008 (0.024)	-0.049 (0.032)	0.005 (0.033)	-0.126*** (0.040)
Had sex before the age of 17	0.066* (0.035)	0.485*** (0.060)	0.041 (0.038)	0.439*** (0.094)
Child has older brother	-0.019 (0.041)	0.105* (0.060)	0.029 (0.034)	0.015 (0.064)
Child has older sisters	0.034 (0.041)	-0.019 (0.061)	0.033 (0.041)	-0.035 (0.086)
One parent in the hh, age 8	-0.093** (0.040)	0.144* (0.083)	-0.104*** (0.036)	0.274*** (0.082)
Observations		420		420
R-squared		0.444		0.404
Cluster fixed effects		Yes		Yes

*Controls: age, mum's education, urban/rural, puberty (a. 12); teen mother; No. siblings (a.12) Aspir./expect. (a.12); Math score (a.12); non-cogn. skills (a.12); unprotected sex and sexual knowledge (a.15); cluster fixed effect.*

## Predictors of early childbearing and marriage/cohabitation: changing initial conditions

	All		Only girls	
	Childbearing	Marriage	Childbearing	Marriage
Rural, age 8& 15	0.020 (0.064)	-0.029 (0.046)	0.057 (0.114)	-0.058 (0.137)
Urban to rural, age 8-15	0.222 (0.184)	0.379** (0.175)	0.155 (0.220)	0.343 (0.219)
Rural to urban, age 8-15	-0.014 (0.069)	0.038 (0.071)	-0.010 (0.161)	-0.007 (0.146)
Broken family, age 8& 15	-0.037 (0.056)	0.008 (0.060)	0.133* (0.066)	0.176* (0.084)
Family became broken, age 8-15	-0.032 (0.037)	0.058 (0.066)	-0.085 (0.082)	0.095 (0.129)
Broken to re/new-joint family, age 8-15	-0.130** (0.048)	0.039 (0.087)	-0.251* (0.131)	0.015 (0.174)
Low educ. aspirations, age 8& 15	0.031 (0.064)	0.233*** (0.079)	-0.111 (0.139)	0.358** (0.128)
Downward educ. aspirations, age 8-15	0.088** (0.033)	0.126** (0.057)	0.199* (0.107)	0.092 (0.127)
Upward educ. aspirations, age 8-15	-0.059 (0.054)	-0.024 (0.029)	-0.030 (0.090)	-0.078 (0.046)
Std. Self-efficacy, age 12	-0.360*** (0.109)	-0.051 (0.185)	-0.196 (0.390)	-0.208 (0.586)
Change in Self-efficacy, age 12-15	-0.351*** (0.110)	-0.051 (0.179)	-0.213 (0.386)	-0.250 (0.546)
Observations	407	(407)	188	188
R-squared	0.324	(0.299)	0.593	0.532
Cluster fixed effects	Yes	(Yes)	Yes	Yes

## Summing up

- Most of the aspects that drive early childbearing also drive early marriage/cohabiting.
- Results driven by the female sub-sample, the sub-group for which both outcomes are more prevalent.
- Early childbearing: (i) age; (ii) family wealth (during childhood–long-term; partially incorporating preferences and ability to process information); (iii) family structure; (iv) school attendance (not possible to disentangle reverse causality–universal attendance at age 12) and school performance/ increasing opportunity cost (since age 12, before children start leaving school); and (v) sexual relationships during adolescence (at age 16 or less).
- Similar results (less strong) for early marriage/cohabitation
- Importance of time-varying dimensions: (i) changes in self-efficacy and in aspirations for higher education; (ii) changes in family structure over time do matter; (iii) changes in household wealth and changes in school performance over time do not seem to play a role.

## Conclusions & Policy implications

- Give to adolescents the capability to choose about their sexuality and fertility: policies should aim at aligning individual decisions with desirable social outcomes.
- Paramount to ensure that fertility decisions are the result of choices rather than constraints.
  - Widening the set of social and economic opportunities (policies aimed at improving school performance and school completion rates, e.g. education policies or anti-poverty programmes—cct)
  - Influencing the relative cost of childbearing at an early age
- Policies aimed at improving sexual education (education and health sector together) for adolescents appear to be key in reducing early pregnancy (by postponing sexual initiation).
- Importance of socio-emotional dimensions suggests a space for policies aimed at reinforcing soft skills.