THE EFFECTS OF ADOLESCENT CHILDBEARING AND UNION FORMATION ON WOMEN'S EDUCATION IN BRAZIL

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Adolescent Childbearing, Adolescent Union and Girls' Education

- Globally, women whose first birth and first marital union occurred in adolescence tend to exhibit worse social and economic outcomes than those who delayed childbearing or remained childless.

- Yet, scholars acknowledge that these differences may not reflect a causal effect of an adolescent birth.

- Magnitude of the disadvantage identified has been inconsistent across methods and contexts.

- Specifically, the lack of data identifying the timing of events has hindered the appropriate examination of this question in most developing countries.

Adolescent Childbearing
Theoretical Frameworks

- Resource-allocation perspective → Truncated educational path + less likely to have established a career + fewer resources

- Lack of psychological and emotional tools to offer for their children

- Yet, causal link is difficult to establish
    - Evidence shows a clear association between adolescent childbearing and negative outcomes
    - However, adolescent mothers would not necessarily have fared better had they waited for their first child
    - Common unobserved factors have an influence in both teen childbearing and socioeconomic outcomes
    - Negative outcomes could be mostly due to preceding socioeconomic disadvantage
    - "Second generation" of empirical studies is not conclusive (Kane, et al, 2013)
    - Research mostly conducted with data from industrialized countries
    - Limited data in developing countries

Adolescent Unions
Theoretical Frameworks

- Cumulative Disadvantage:
  - Marital Unions strengthen traditional gender roles
    - Increase in the amount of time spent in household labor (Bianchi et al, 2001)
    - Family demands cause them to turn down beneficial work opportunities (Keene & Reynolds, 2005)

  - Lost of support from extended kin, especially mothers
    - Evidence on teen mothers: Trent and Harlan, 1994; Molborn, 2010; Molborn and Jacobs, 2012)

Adolescent Unions
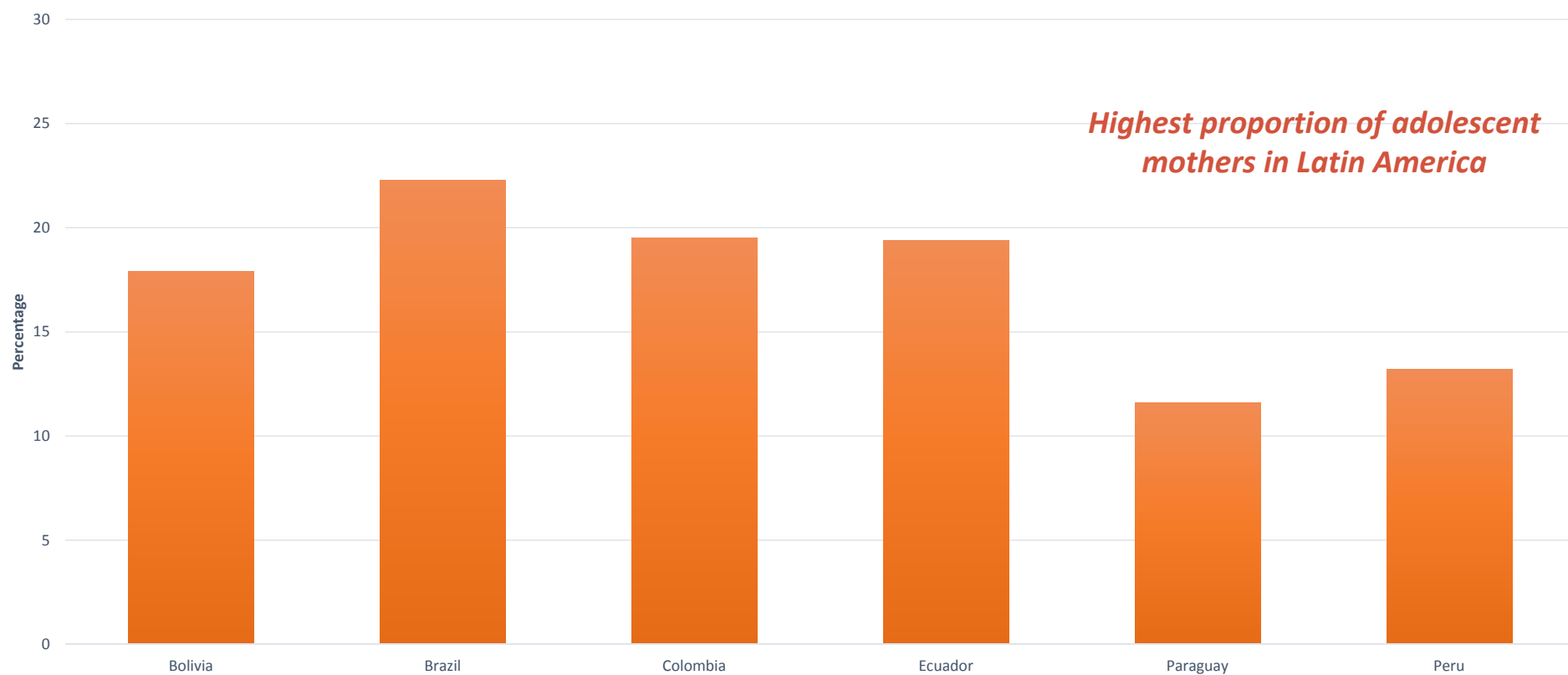## *Theoretical Frameworks*

- Yet, research is inconclusive, specially for developing countries
  - Research literature is mostly descriptive
  - Benefits of family of origin could be overestimated
    - Families of origin may not be capable of providing support
    - Evidence on the association between SES and quality of parental care (Amato & Booth, 1997; Karney & Bradbury, 2005; Orbuch, Veroff, Hassan, & Horrocks, 2002, among others)

Research Questions

- What is the impact of adolescent childbearing on women's educational outcomes? What is the role of selectivity on the disadvantages identified?
- Does a marital union interact with adolescent childbearing to create additional educational disadvantages?
- Among women who had a teen birth, does a union at adolescence impose an additional educational disadvantage?
  - Years of Education
  - High School Graduation

- Using a new dataset, we are extending this research to also determine the impact of adolescent childbearing and union on measures reflecting girls' educational quality
  - Years of schooling
  - Age at dropping out
  - Public vs. private education

Proportion of Adolescent Mothers, Selected Latin American Countries, 2014
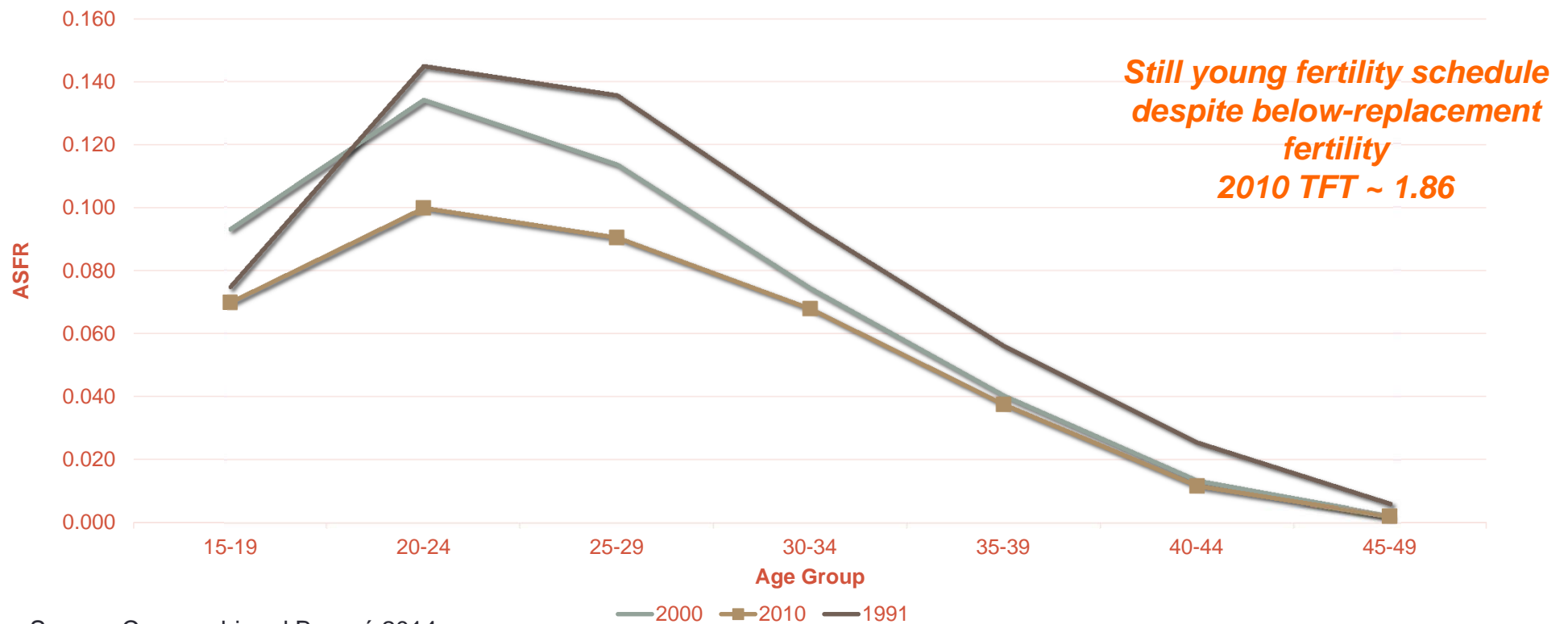## *Women Ages 20-49*

Highest proportion of adolescent mothers in Latin America

Source: DHS Surveys, compiled by Rodríguez, 2014 (UN.ECLAC)

Why Brazil is an interesting case?
Age-Specific Fertility Rates, Brazil: 1991**, 2000*** and 2010***

Still young fertility schedule despite below-replacement fertility
2010 TFT ~ 1.86

Source: Cavenaghi and Berquó 2014

Data & Methods

- 2013 School-to-Work-Transitions Survey (SWTS), collected by ILO
  - 3,288 respondents, ages 15-29
  - Analytical sample, ages 19-29
  - Strengths:
  - Information on the social and economic background of young adults during childhood
  - Information on age at first union and age at first birth, rarely available for low- and middle-income countries.
  - Covers *all* young people and not only children of the head of the household

Data & Methods

- Analysis restricted to women ages 19 and older

- Dependent Variables:
  - Years of Education, Graduation from High School
- Independent Variables:
  - Adolescent Birth (18 at 1st birth or younger)
  - Early Marital Union (1st Cohabitation or Marriage at 18 or younger)

- Controls:
  - Age, race, parental education, parental occupation, urbanicity, region of residence, migration status, social class during childhood.

- Confounding Variables Accounted for:
  - SES during childhood, race, parental education, parental occupation & (internal) migration
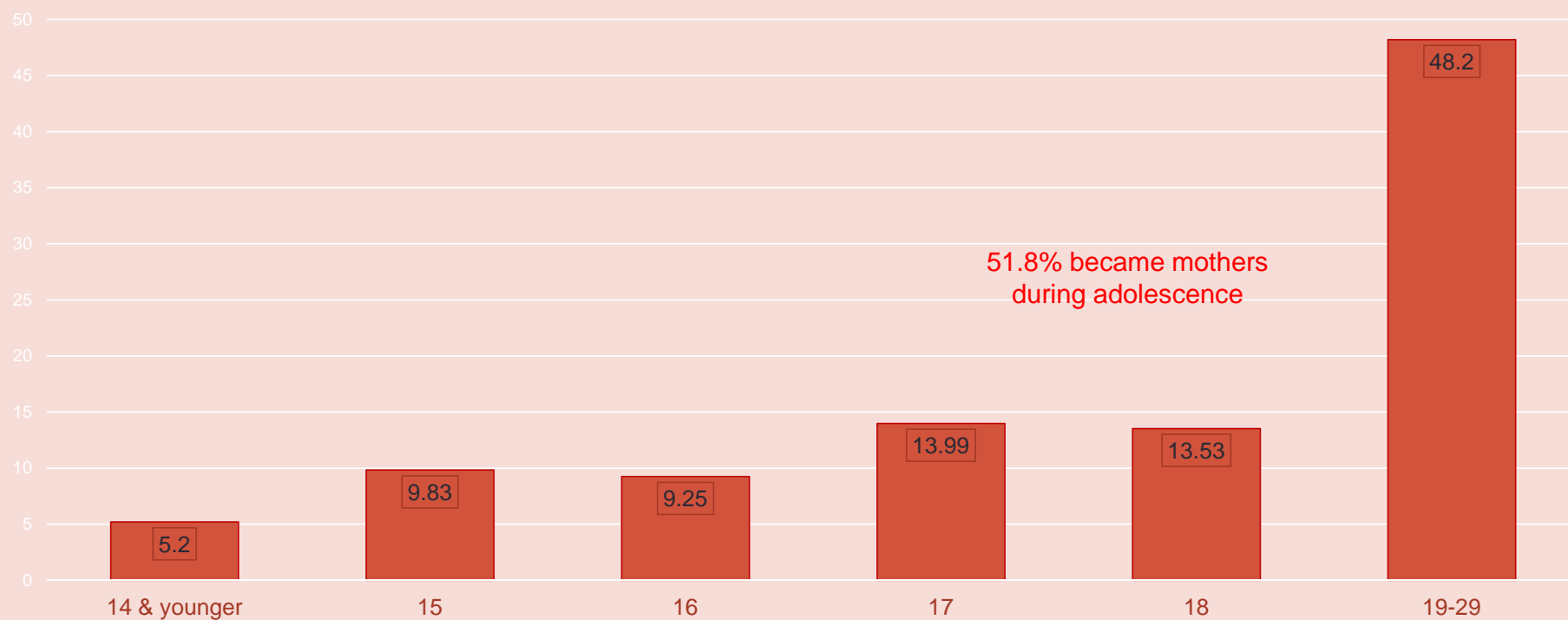
Data & Methods
Preliminary Analysis

- 2017 Reproductive Responses to Zika Epidemic (RRZE), collected by UT-Austin (with colleagues)
- 1,657 women at reproductive age in Recife (already collected) + 2,000 women at reproductive age in Belo Horizonte (collecting ~ late ~ July 2017)
- Analytical sample ~ women ages 20 + ~ 1,380
- **Preliminary Results!!**

OUTCOME	METHOD
Adolescent Childbearing	
Years of Education	OLS
	Regression Adjustment (RA)
	Inverse Probability Weighting (IPW)
	Augmented Inverse Probability Weighting (AIPW)
	Coarsened Exact Matching (CEM)
High School Completion	Logistic Regression
	Regression Adjustment (RA)
	Inverse Probability Weighting (IPW)
	Augmented Inverse Probability Weighting (AIPW)
	Coarsened Exact Matching (CEM)
Marital Union: 1. Union interacting with childbearing + 2. Among Adolescent Mothers	
Years of Education	OLS
Graduation from HS	Logit
Preliminary Analysis ~ Was the interviewer's mother an adolescent mother?	
Years of Education	OLS
Graduation from HS	Logit

Proportion of Women by Age at First Birth
Among mothers

Age at First Child

51.8% became mothers
during adolescence

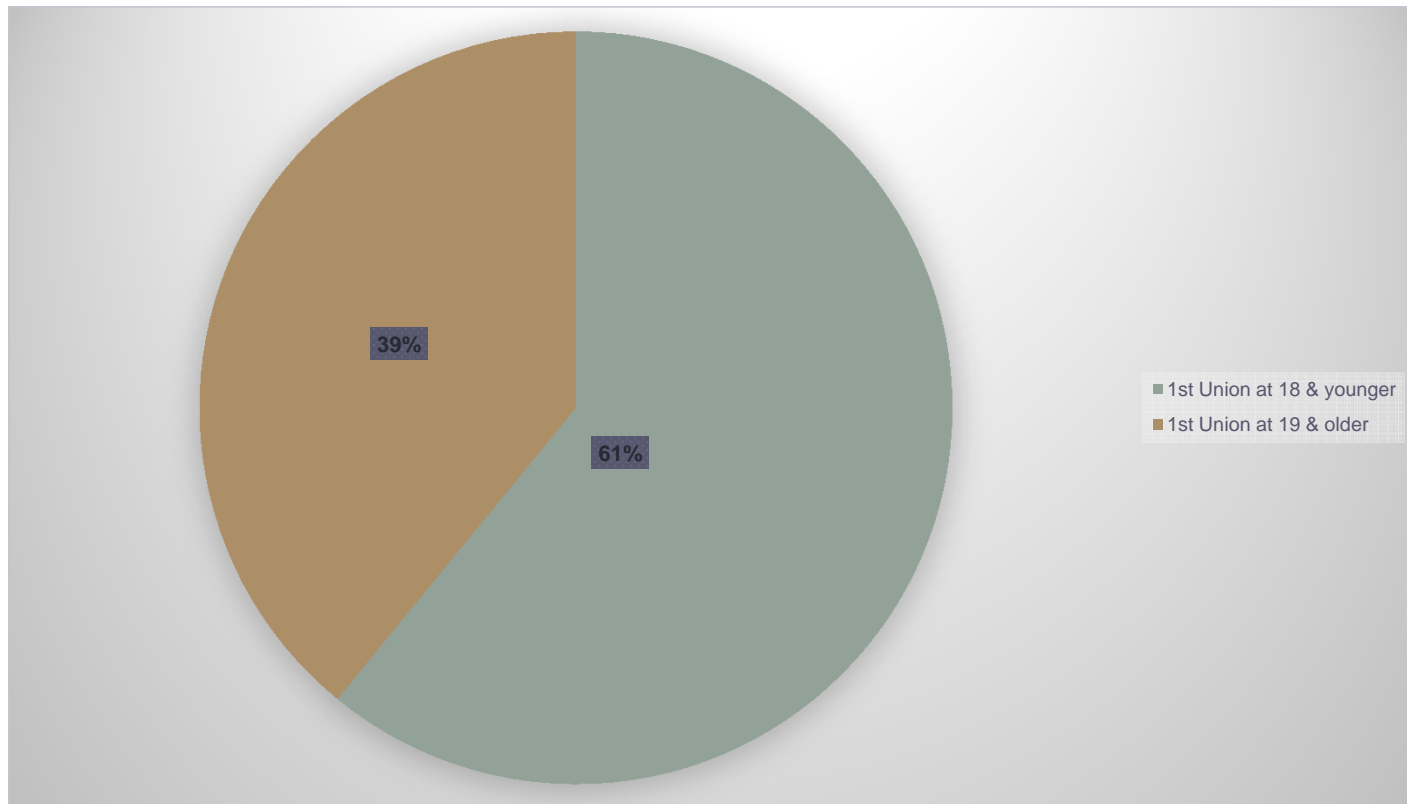| Age	Value
14 & younger	5.2
15	9.83
16	9.25
17	13.99
18	13.53
19-29	48.2

Source: Own elaboration based on 2013 Brazil School-to-Work Transition Survey (ILO).
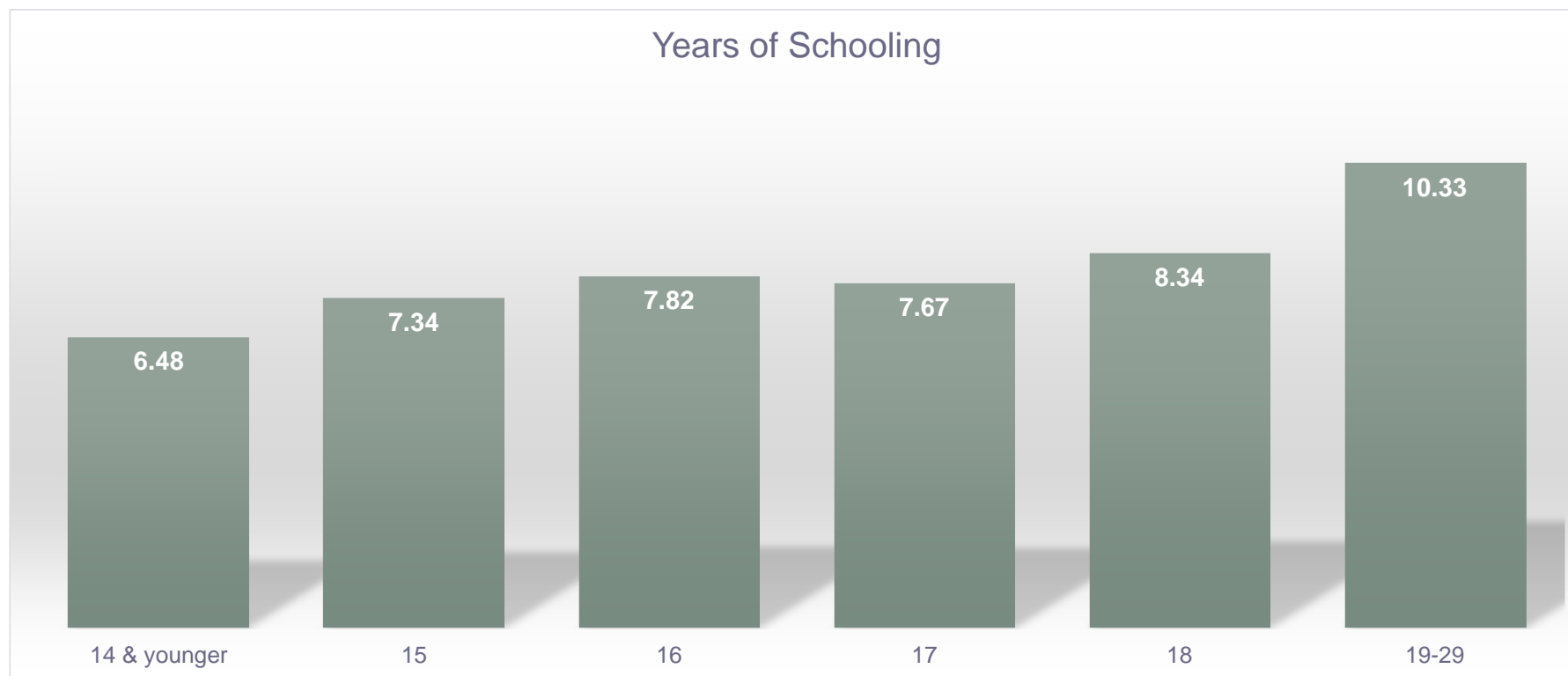
Proportion of Teen Mothers in a Marital Union by the Time of First Birth

Source: Own elaboration based on 2013 Brazil School-to-Work Transition Survey (ILO).

Mean Years of Schooling by age at First Birth
Only Females, 19 & older

Years of Schooling

Age	Years of Schooling
14 & younger	6.48
15	7.34
16	7.82
17	7.67
18	8.34
19-29	10.33

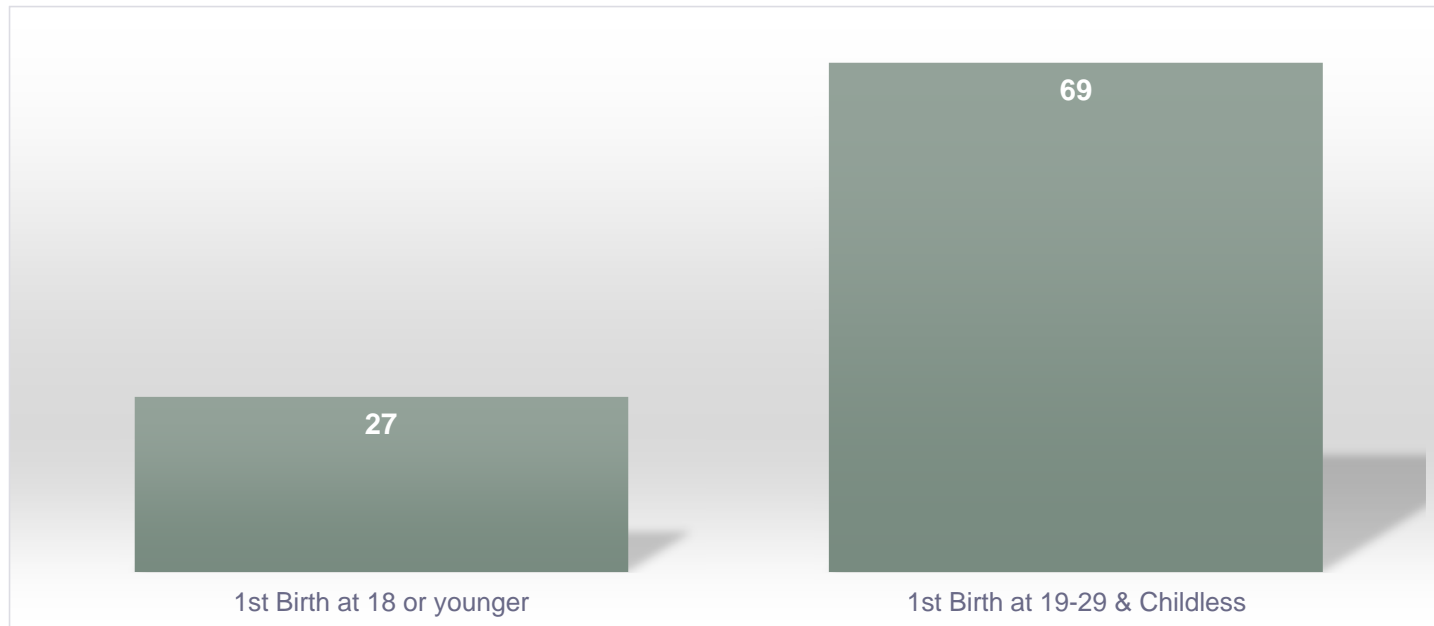Source: Own elaboration based on 2013 Brazil School-to-Work Transition Survey (ILO).

AV4   Mean Years of Schooling: -Teen mothers=7.84; Not teen mothers: 10. 33
Aida Villanueva, 3/25/2016

Proportion Completing High School by Adolescent Childbearing
Only Females, 19 & older

Source: Own elaboration based on 2013 Brazil School-to-Work Transition Survey (ILO).

Are Adolescent Mothers Disadvantaged?
Outcome 1: Years of Education

Panel A. Years of Education & Adolescent Childbearing				
Method	Difference (Years of Education)	S.E	p	N
OLS, Null Model	-2.284	0.18	0.000	1,080
OLS	-1.767	0.167	0.000	1,080
Reg. Adjustment*	-1.730	0.198	0.000	1,080
Match: CEM	-1.770	0.167	0.000	1,065
Inverse Probability Weights (IPW)*	-1.687	0.215	0.000	1,080
Augmented Inverse-Probability Weighting (AIPW)	-1.644	0.191	0.000	1,080
Selection Model*	-2.035	1.203	0.094	1,080

Are Adolescent Mothers Disadvantaged?
Outcome 2: High School Completion

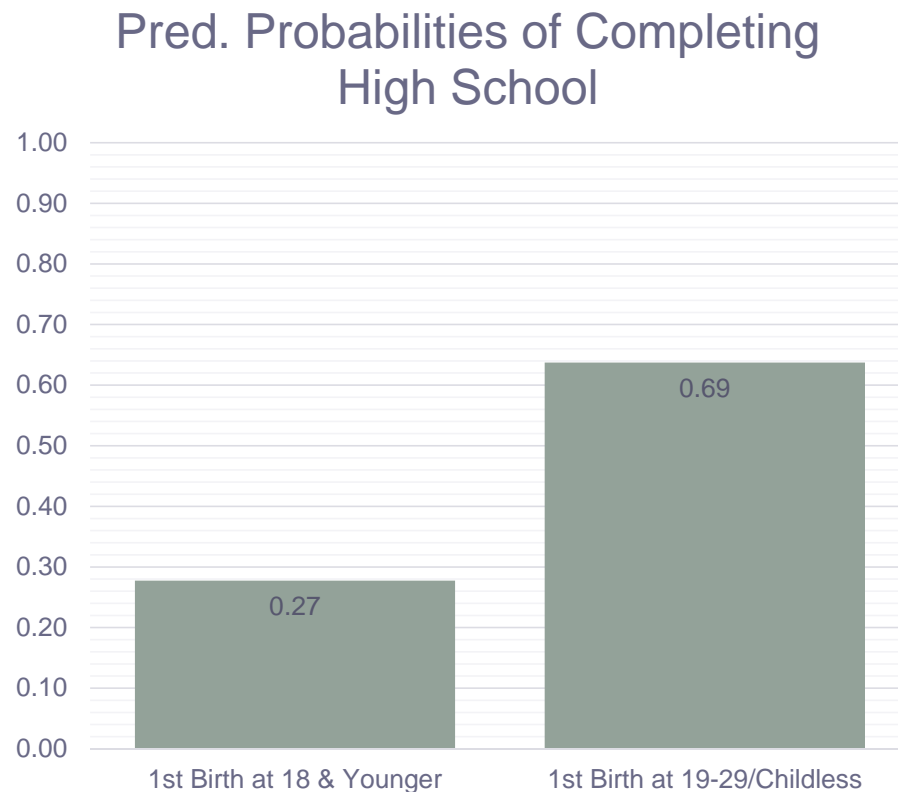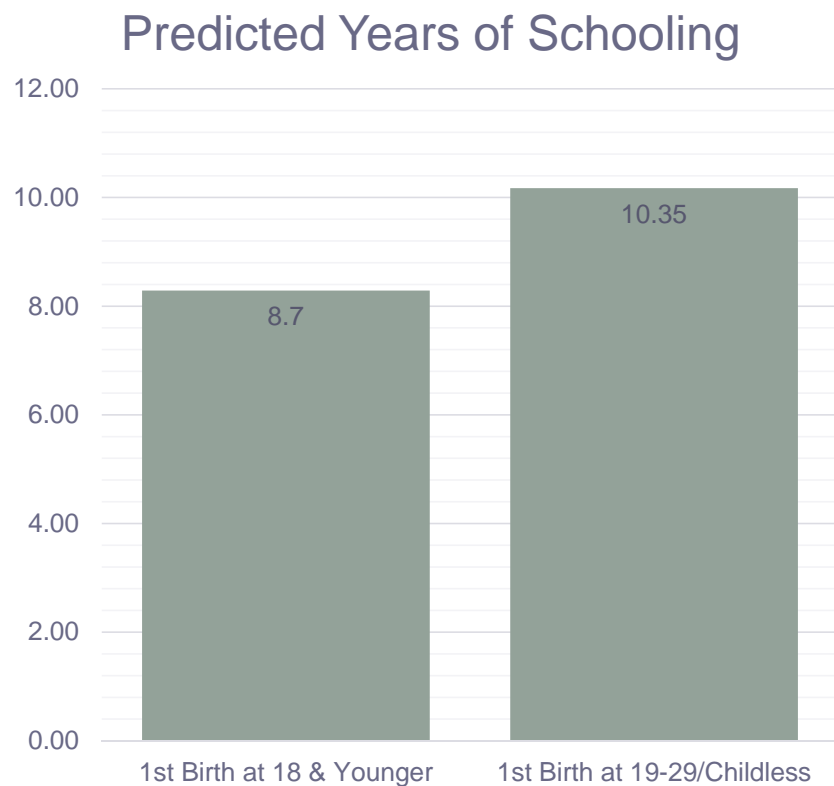| Method	Difference	S.E	p	N
Null Model	-0.419	0.165	0.000	1,080
Teen Mother				
Non-Teen Mother				
Logit Model, with controls	-0.402	0.165	0.000	1,080
Teen Mother				
Non-Teen Mother				
Reg. Adjustment*	-0.351	0.033	0.000	1,080
Teen Mother				
Non-Teen Mother				
Match: CEM	-0.373	0.165	0.000	1,065
Teen Mother				
Non-Teen Mother				
Inverse Prob. Weights (IPW)*	-0.346	0.034	0.000	1,080
Teen Mother				
Non-Teen Mother				
Augmented Inverse-Prob. Weighting (AIPW)	0.345	0.032	0.000	1,080
Teen Mother				
Non-Teen Mother				

Are Adolescent Mothers Disadvantaged?
Regression on Regular Samples vs. 'Matched Samples' Matching Strategy: CEM

	Years of Education		H.S. Completion	
	OLS	Matched Sample	Regular Sample	Matched Sample
1st Birth at 18 or younger	-1.767***	-1.770***	-1.705***	-1.674***
	(0.167)	(0.167)	(0.165)	(0.165)
N	1,080	1,065	1,080	1,065

Are Adolescent Mothers Disadvantaged? Yes
Predicted Years of Schooling & Predicted Probability of High School Completion

Source: Own elaboration based on 2013 Brazil School-to-Work Transition Survey (ILO).

1   From Regression Adjustmen

Leticia Marteleto, 5/11/2017

Are adolescent Mothers in Unions Disadvantaged?
Only Women who were Adolescent Mothers
Age at union < age at first birth ~ unfortunately no information on month of events

	Years of Schooling	High School Completion
First Marital Union at 18 & Younger	-1.039***	0.394***
	(0.260)	(0.108)
N	448	448

Source: Own elaboration based on 2013 Brazil School-to-Work Transition Survey (ILO).

Are adolescent mothers in union disadvantaged? Yes

Predicted Years of Schooling & Predicted Probability of High School Completion by Age at 1st Union , *Only women who were Adolescent Mothers*

Years Schooling

7.89 — 1st Union at 18 & Younger
8.70 — 1st Union at 19 & Older

Graduation High School

0.18 — 1st Union at 18 & Younger
0.31 — 1st Union at 19 & Older

Is there an interaction between adolescent childbearing and adolescent union in determining educational disadvantages?

Results across regular and balanced samples are substantially similar

	Years of Schooling		Graduation from H.S.	
	Population-based	Matched	Population-based	Matched
Teen Mother	-1.59***	-1.60***	-1.57***	-1.52***
	(0.23)	(0.24)	(0.22)	(0.22)
Teen Union	-1.61***	-1.58***	-1.25***	-1.19***
	(0.25)	(0.29)	(0.23)	(0.25)
Teen Mother x Teen Union	0.80***	0.79**	0.55	0.49
	(0.36)	(0.36)	(0.37)	(0.38)
N	1,080	1,065	1,080	1,065

Conclusions

- Negative associations between adolescent childbearing & educational outcomes, after accounting for differential selection:
  - Adolescent childbearing is associated with *1.644 - 2.284* fewer years of schooling
  - A decrease of about a *34.5 percent* in the predicted probabilities of completing HS, according to our most conservative estimates.

- Effects remain large & significant after accounting for differential selection into teen motherhood.

Conclusions

- Among women who were teen mothers, adolescent unions are also consequential:
  - One fewer year of schooling, versus teenage mothers who delayed a marital union
  - A decrease of about 52 percent in the predicted probabilities of graduating from High School

Limitations

- Assumption of selection on observables
  - We rule out the possible presence of other drivers of the selection into adolescent motherhood
- We observe women 19 and older
  - We cannot capture potential '*catching up*' of teenage mothers in their educational process ~ after age 29 ~ we can improve this point with the new data
- Relatively small sample size
- Wish we had more covariates pre-birth ~ while women were growing up
- Will include more variables reflecting quality of education (private education, area of study, etc) once data is collected in second city of study (Belo Horizonte) ~ July 2017

Thank you!!

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