

Risky Business: The effects of teacher representation on student risk- taking behaviors

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Paper co-authored with

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Motivation

- Rates of **risky sexual behavior** among adolescents are high
 - 46% of high school students have had sex (CDC 2010)
 - 39% of sexually active students did not use condom at last sex (CDC 2010)
 - Rates are higher among African-American students
- Recent evidence in the **representative bureaucracy** literature offers a possible effective intervention.
 - Atkins & Wilkins (2011) find that more African-American teachers in a district improves students' reproductive health measures

Representative Bureaucracy Theory

■ Passive Representation:

- Symbolic representation: changes behavior of client, gives credibility to bureaucracy
- Role Model
- Change behavior of majority bureaucrats

■ Active Representation:

- Shift policies of organization
- Advocate for individual minority clients
- Critical mass may be required

Evidence of Representative Bureaucracy in Schools

- Higher test scores for minority students (Dee 2004)
- Higher academic achievement for female students (Keiser, Wilkins, Meier & Holland 2002)
- Fewer students dropping out of school (Pitts 2005)
- Lowers pregnancy rate for African American teens (Atkins & Wilkins 2013)

Explanations from Economic Theory

- Minority teachers may raise the expectations of minority students (college, earnings)
- Risky behaviors decline when opportunity costs rise
 - Focuses on role model mechanism
- Evidence:
 - Higher college expectations reduce the number of sexual partners among adolescents (Cowan 2011)
 - Students with higher college expectations exercised more and smoked less (McDade et al 2011)

This Study

Research Questions:

Does the presence of African-American and Latino teachers reduce sexual activity, teen pregnancy, and poor birth outcomes among female students?

And, do minority teachers raise college expectations among minority students?

Contributions:

- Individual-level data
- National sample
- Broader set of outcomes
- Can test relationship for Latino sub-sample
- Examination of a potential mechanism

National Longitudinal Study of Adolescent Health

Description:

- Nationally representative longitudinal survey of adolescents in grades 7-12 in the 1994/5 SY
- Students from 144 schools interviewed over 4 waves (spanning 13 years)

This Study:

- Wave 1: administrator, in-school, and in-home surveys
- Waves 2 & 4: in-home survey
- Sample: 7,019 female students from 132 schools

Variables

Risky behavior variables:

- Sex in the 3 months prior to the interview (**29%**)
 - Observed at waves 1 and 2
- Whether ever had a pregnancy that ended when age<20 (**17%**)
 - Observed at wave 4
- Whether first birth (even if not teen birth) was LBW (**10%**)
 - Observed at wave 4

Representation variables (linear and squared):

- % African American teachers (**12%**)
- % Latino teachers (**2%**)
- % Female teachers (**62%**) – won't focus on this today

Control Variables

Individual-level

- Age in 1994 (**16**)
- Race/Ethnicity (**23% African-Am, 15% Latina, 8% other**)
- Foreign-born (**7%**)
- PVT score (**100**)
- Adolescent had LBW (when outcome=first birth LBW)

Family-level

- Father was non-resident in 1994 (**44%**)
- Mother was non-resident in 1994 (**13%**)
- Resident parent education (**19% <HS, 20% some college, 28% college+**)

School-level

- % African-American students (**20%**)
- % Latino students (**17%**)
- Average age of student body (**15**)

Sexual Activity Specification

$$B_{it} = T_s\alpha + X_i\beta + Y_s\gamma + \mu_i + \varepsilon_{ist}$$

B_{it} = whether adolescent i had sex in the 3 months prior to interview wave t

T_s = African American, Latino, and female teacher representation variables (linear and squared percentages)

X_i = individual and family characteristics

Y_s = school characteristics

μ_i = random effects parameter

Reproductive Health Outcomes Specification

$$O_i = T_s\alpha + X_i\beta + Y_s\gamma + \varepsilon_{is}$$

O_i = whether adolescent i ever had a pregnancy that ended (due to abortion, miscarriage or birth) before age 20

= whether adolescent i 's baby was born low birth weight among those adolescents who had a birth by the wave 4 interview

Methods

- Linear probability model
- Random effects for sexual activity
- Separate subsamples (African American, Latina, white women).
- The standard errors in all regressions are adjusted for intra-cluster correlations at the school level.

Endogeneity

We assume that the % of minority teachers is exogenous, but this may not be true:

- Minority teachers may select into schools that have minority students with high expectations, healthy behaviors
- Minority parents with high achieving children may choose schools with high percentages of minority teachers

→ Limitation of this analysis

Results

Outcome: Had sex in last 3 months

	African-American	Latina	White
% of African-American teachers	-0.003*	-0.003	-0.002
% of African-American teachers squared/100	0.003*	0.005	0.004
% of Latino/a teachers	-0.006	-0.010**	-0.006*
% of Latino/a teachers squared/100	0.008	0.020**	0.014
<i>N</i>	2,759	1,833	6,557
<i>Unique N</i>	1,626	1,078	3,790

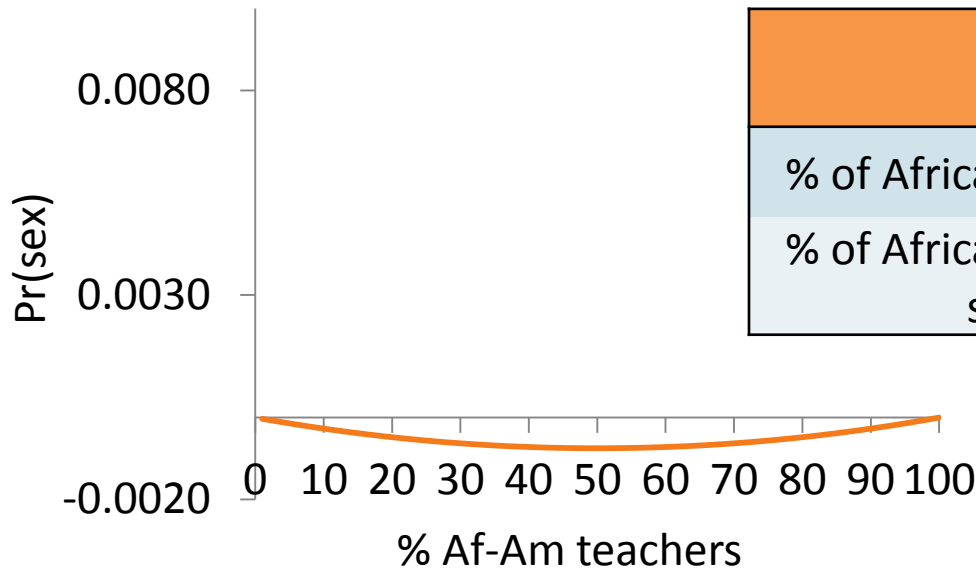
Linear probability, random effects model coefficients reported.

Robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

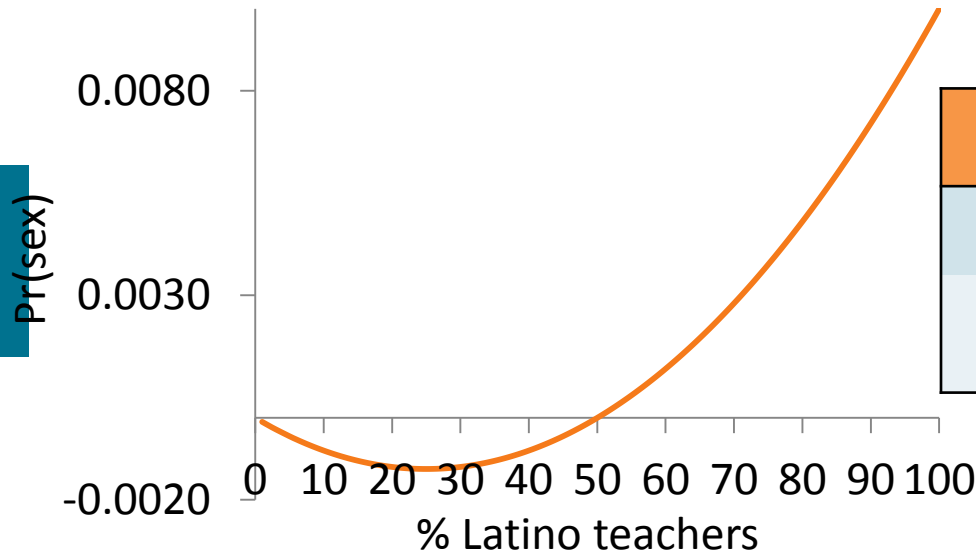
Graph of non-linear effects

Outcome: Had sex in last 3 months



	African-American
% of African-American teachers	-0.003*
% of African-American teachers squared/100	0.003*

→ Not consistent with **critical mass** argument



	Latina
% of Latino/a teachers	-0.010**
% of Latino/a teachers squared/100	0.020**

Results

Outcome: Had teen pregnancy

	African-American	Latina	White
% of African-American teachers	-0.002	0.002	-0.000
% of African-American teachers squared/100	0.004***	0.001	-0.000
% of Latino/a teachers	-0.000	0.010**	-0.003
% of Latino/a teachers squared/100	0.000	-0.020***	0.002
<i>N</i>	1,605	1,066	3,760

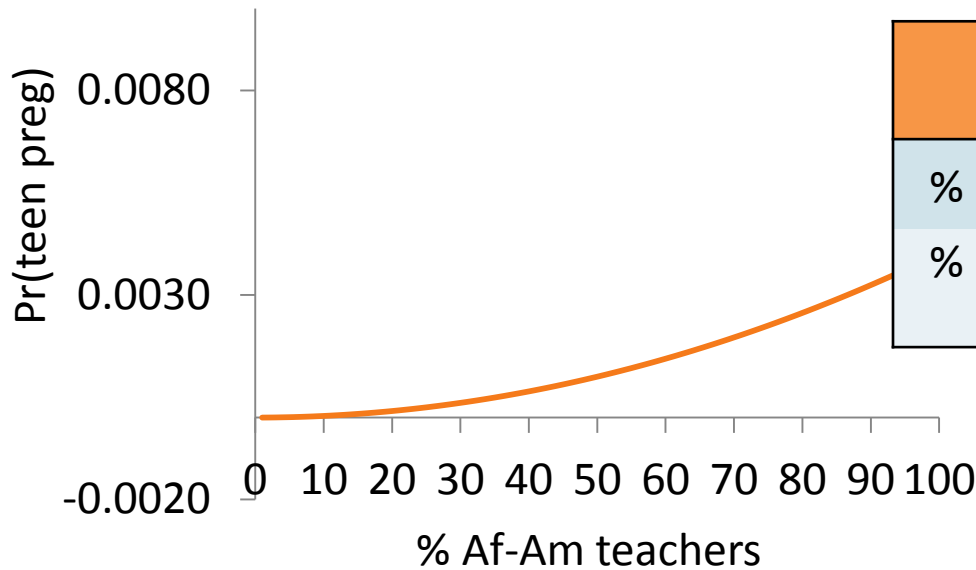
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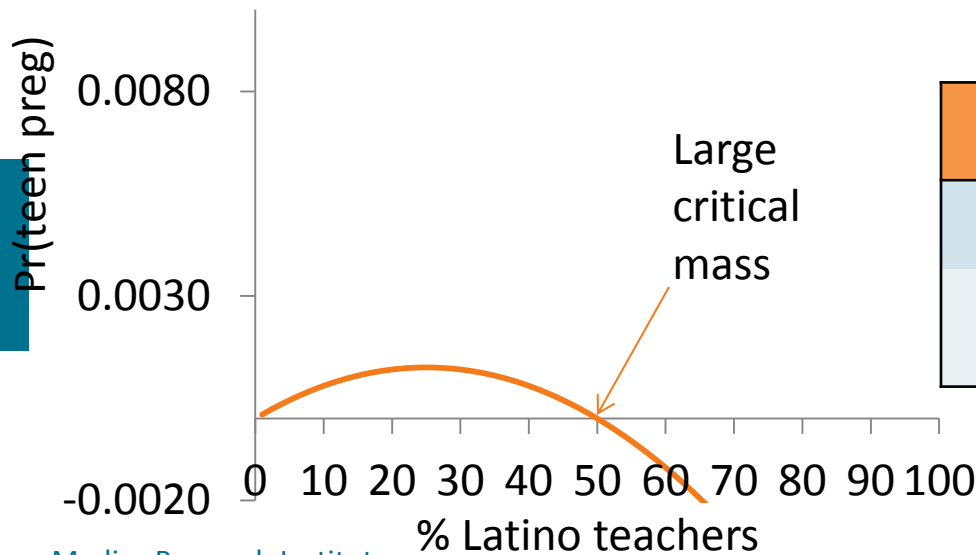
Graph of non-linear effects

Outcome: Had teen pregnancy



	African-American
% of African-American teachers	-0.002
% of African-American teachers squared/100	0.004***

→ Inconsistent with theory



	Latina
% of Latino/a teachers	0.010**
% of Latino/a teachers squared/100	-0.020***

Results

Outcome: First birth is LBW

	African-American	Latina	White
% of African-American teachers	0.000	0.002	-0.000
% of African-American teachers squared/100	-0.000	-0.009	0.003
% of Latino/a teachers	0.018***	0.010	-0.004
% of Latino/a teachers squared/100	-0.047***	-0.019	0.014
<i>N</i>	683	452	1,695

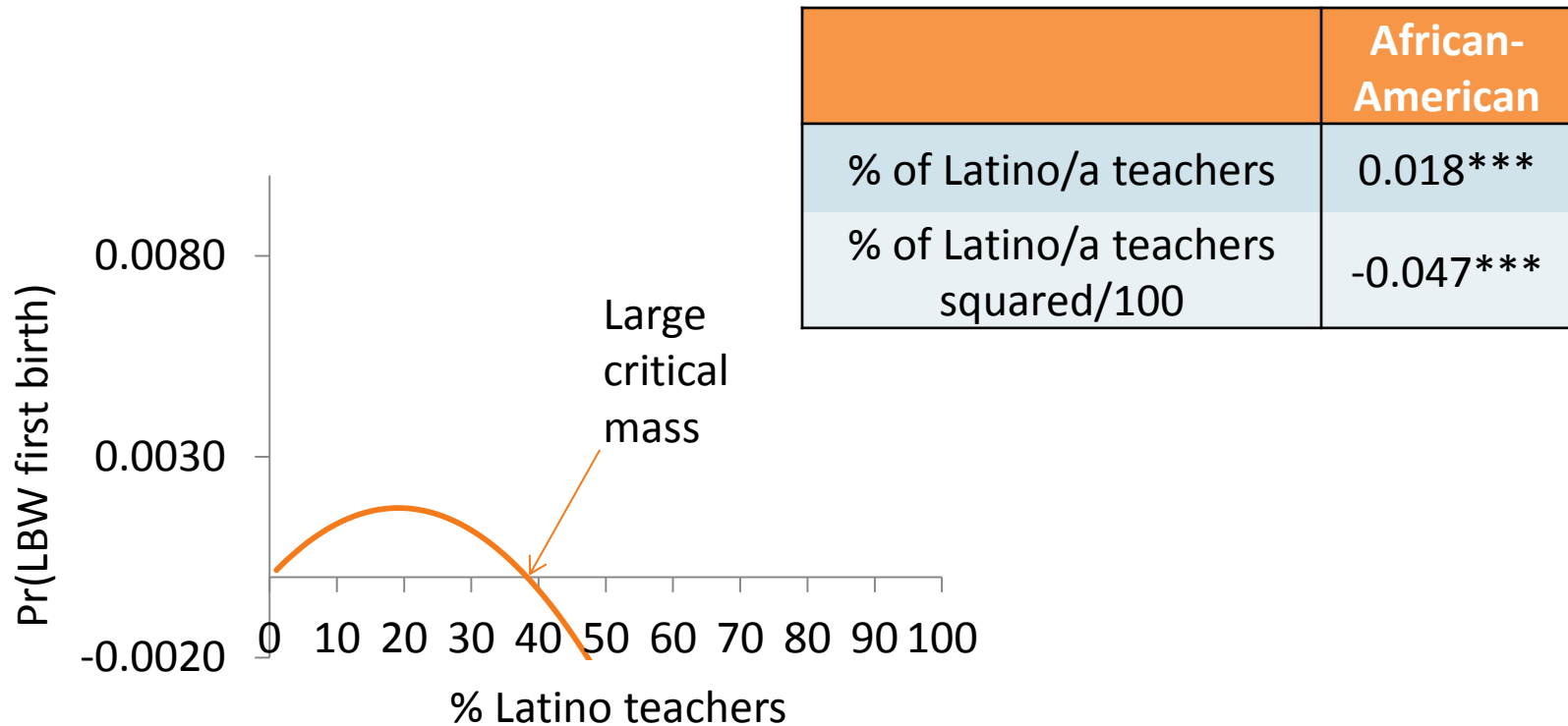
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*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Graph of non-linear effects

Outcome: First birth is LBW



→ Spillover from one minority group to another

Summary of Results

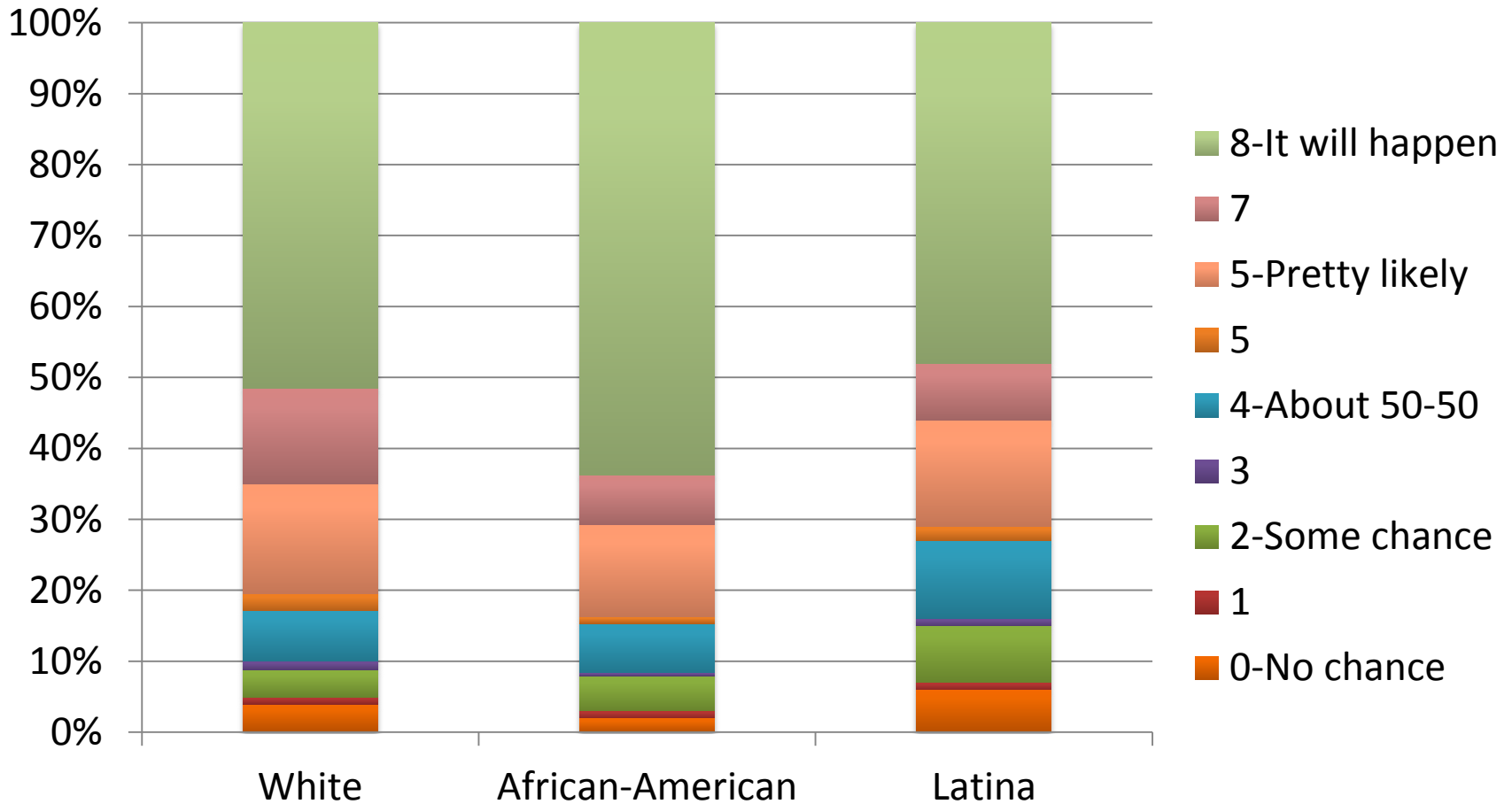
- Minority teachers reduce sexual activity among students from the same race/ethnicity; some spillover effect for white students.
- Mixed evidence on the relationship between minority teachers and teen pregnancy and LBW births
 - *African-American teachers* may increase teen pregnancy
 - *Latino/a teachers* decrease teen pregnancy (for Latinas) and decrease LBW births (for African American students) after a large critical mass is achieved

Can college expectations explain the sexual activity result?

In a separate analysis, we examine teacher representation and students' rating of their college expectations

On a scale from 'no chance' to 'it will happen', what do you think are the chances you will graduate from college?

Distribution of College Expectations



Results

Outcome: Chances will graduate college

	African-American	Latina	White
% of African-American teachers	0.0056	0.0026	0.023*
% of African-American teachers squared/100	0.0000	-0.0000	-0.0004*
% of Latino/a teachers	0.022	-0.034	-0.033
% of Latino/a teachers squared/100	-0.0001	0.0008**	0.0012**
<i>N</i>	1,652	1,580	4,253

Ordinary least squares coefficients reported.

Robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Linear Results

Outcome: Chances will graduate college

	African-American	Latina	White
% of African-American teachers	0.0090**	0.0038	0.005
% of Latino/a teachers	0.015**	0.013**	-0.008
<i>N</i>	1,652	1,580	4,253

Ordinary least squares coefficients reported.

Robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Conclusions

- We find support for our hypothesis that representation of African-American and Latino/a teachers reduces sexual activity among African-American and Latina female students.
 - Mixed evidence with respect to the reproductive health outcomes
- We find that the presence of minority teachers raises expectations about college graduation for minority students.
- We find no evidence that minority teachers worsen outcomes for non-minority students, and in fact find some evidence that non-minority students also benefit in terms of reductions in sexual activity and increases in college expectations from the presence of minority teachers.
- We find little evidence supporting the critical mass argument. The beneficial effect of minority teachers on sexual activity and college expectations among minority students arises immediately.