A Woman's Place?: Sexism and Women's Labor and Marriage Market Outcomes

February 2, 2013

Introduction

Motivation

- Large literature documents aggregate differences in labor market outcomes between men and women and trends in these differences over time (Altonji and Blank, 1999; Blau and Kahn, 2000).
- A separate large literature studies aggregate changes over time in women's non-labor market outcomes like age at first marriage, marital rates and fertility and their relationship to changes in female labor market outcomes (for e.g. Stevenson and Wolfers, 2007).
    - Striking feature of both of these literatures, and of work on inequality more generally, is that they focus is on U.S. as a whole, with very little attention paid to spatial differences in these patterns.

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What We Do

- Show that there is large variation in gender gaps (wages and LFP) and in non-market outcomes (marriage, fertility) across labor markets, and show how the differences by "place" have changed over time.
- Examine explanations for these spatial differences:
  - Structural determinants: skill differences, industry structure, educational opportunity, etc.
  - Policies: divorce legislation, generosity of welfare payments, etc.
  - Preferences
  - Labor market discrimination

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  - Preferences
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What We Do

- Argue that beliefs about women's appropriate roles - women "place" - important determinant of both labor market and non-labor market outcomes.
  - For non-market outcomes, mainly the beliefs of women that matter.
  - Men's sexist views matter more for women's labor market outcomes, in manner consistent with market discrimination.

Spatial Variation in Gender Gaps

How Large Is it?

How much do women's outcomes vary across markets? A lot.

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How much do women's outcomes vary across markets? A lot.

- LFP gaps: Range from -0.26 in West Virginia to -0.12 in Vermont over the 1977 to 2002 time period
- Wage gaps: Range from -0.42 in Wyoming to -0.25 in Florida

Cross-State Variation in Female-Male LFP Differential

Whites only	Unconditional LFP Gaps			Residual LFP Gaps
	All	HS or Less	Some College or More	
1977 to 1984 (relative to 1981)				
Mean	-0.304	-0.334	-0.250	-0.297
SD	0.034	0.038	0.026	0.034
Max-Min	0.168	0.193	0.140	0.170
1985 to 1994 (relative to 1990)				
Mean	-0.174	-0.206	-0.132	-0.170
SD	0.035	0.040	0.026	0.034
Max-Min	0.165	0.170	0.166	0.169
1995 to 2002 (relative to 1998)				
Mean	-0.153	-0.196	-0.122	-0.151
SD	0.035	0.050	0.026	0.035
Max-Min	0.133	0.197	0.136	0.132
No. of states	50	50	50	50

- Residual LFP gaps are conditioned on education, experience and gender-specific year effects.

Cross-State Variation in Female-Male Wage Differential

	Unconditional Wage Gaps			Residual Wage Gaps
	All	HS or Less	Some College or More	
1977 to 1984 (relative to 1981)				
Mean	-0.422	-0.432	-0.373	-0.413
SD	0.040	0.059	0.041	0.038
Max-Min	0.158	0.230	0.190	0.163
1985 to 1994 (relative to 1990)				
Mean	-0.318	-0.326	-0.303	-0.317
SD	0.037	0.052	0.032	0.036
Max-Min	0.187	0.259	0.148	0.164
1995 to 2002 (relative to 1998)				
Mean	-0.251	-0.272	-0.251	-0.260
SD	0.035	0.048	0.035	0.032
Max-Min	0.191	0.260	0.166	0.178
No. of states	50	50	50	50

Cross-State Variation in Age at First Birth (From Census)

	Unconditional Age at First Birth			Residual Age at First Birth
	All	HS or Less	Some College or More	
Full Sample: Census 1980 to 2000 (relative to 1990)				
Mean	22.804	21.496	24.252	19.014
SD	0.583	0.415	0.652	0.477
Max-Min	2.554	1.929	2.742	2.081
Census 1980				
Mean	22.018	21.044	24.010	12.324
SD	0.438	0.364	0.438	0.308
Max-Min	1.947	1.662	1.804	1.392
Census 1990				
Mean	22.780	21.500	24.220	11.169
SD	0.648	0.467	0.701	0.471
Max-Min	2.874	2.283	3.074	2.073
Census 2000				
Mean	23.046	21.534	24.093	18.831
SD	0.737	0.500	0.807	0.556
Max-Min	3.175	2.522	3.387	2.443
No. of states	50	50	50	50

Cross-State Variation in Proportion of Women Never Married by Age x

Whites only	Unconditional Proportion of Never Married Females		
	Age 20 to 29	Age 30 to 39	Age 40 and above
	All	All	All
Full Sample: CPS 1977 to 2002 (relative to 1990)			
Mean	0.398	0.103	0.043
SD	0.079	0.029	0.015
Max-Min	0.332	0.129	0.064
1977 to 1984 (relative to 1981)			
Mean	0.315	0.065	0.034
SD	0.072	0.019	0.012
Max-Min	0.273	0.085	0.053
1985 to 1994 (relative to 1990)			
Mean	0.397	0.102	0.043
SD	0.081	0.032	0.015
Max-Min	0.345	0.147	0.068
1995 to 2002 (relative to 1998)			
Mean	0.474	0.127	0.056
SD	0.092	0.037	0.018
Max-Min	0.390	0.150	0.077
No. of states	50	50	50

Spatial Convergence Over Time?

- Have cross-state differences been stable or have they been closing?
- To measure convergence
  - Construct panel of 150 states across 3 time periods
  - Regress outcome on state dummies and time-period dummies to see how much of the variation across state and time can be accounted for by differences across time and differences across states.

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Simple Convergence Analysis

- Three time periods: 1977 to 1984, 1985 to 1994 and 1995 to 2002
  - (We are extending both backwards and forwards)
- Regression analysis estimates show that there is essentially no variation at state*time level, which indicates that ranking of states across time quite stable.
- Rather than show regression estimates, I will simply graphically present outcomes, pooled to 9 Census Divisions.

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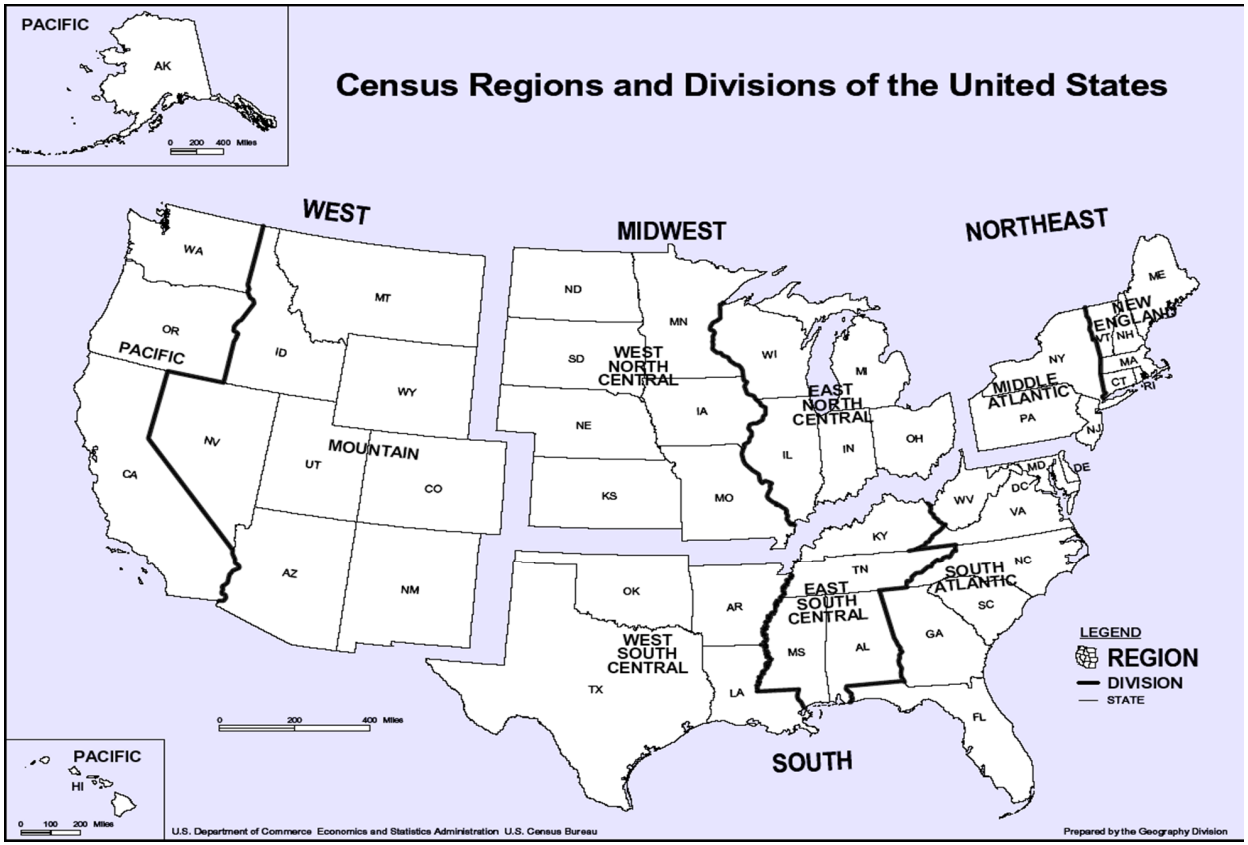
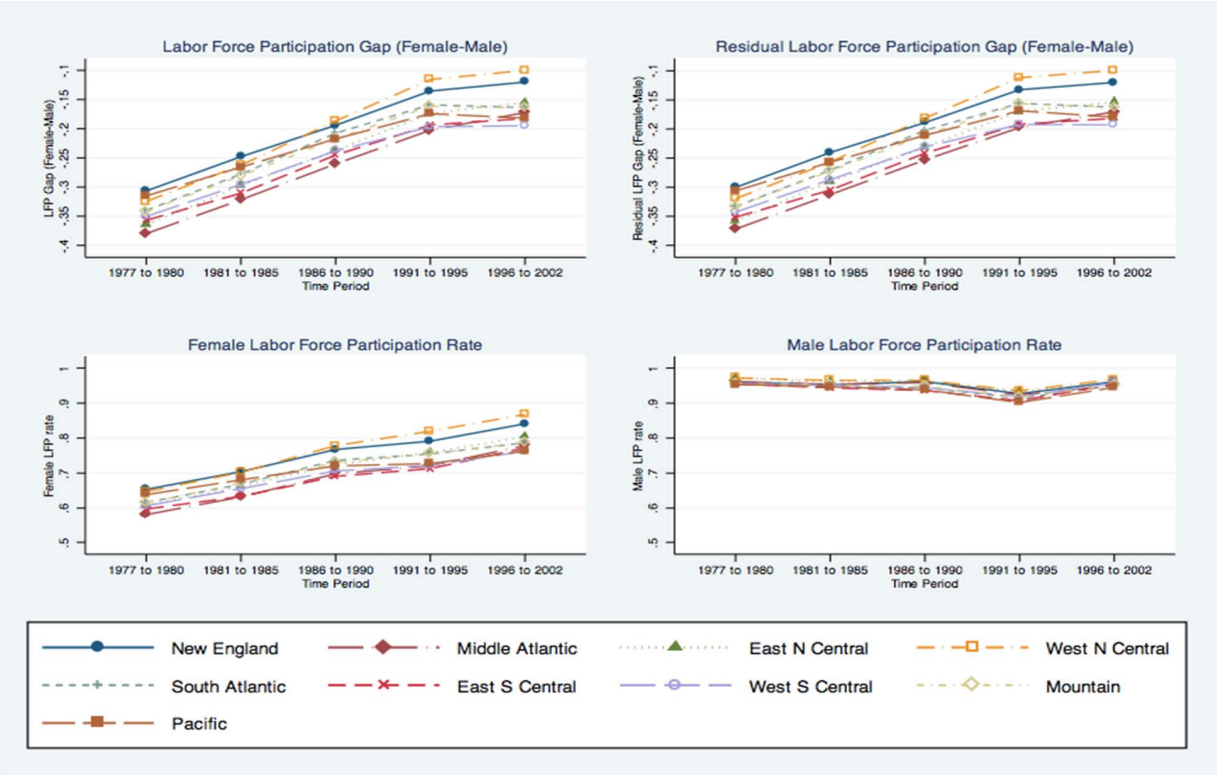
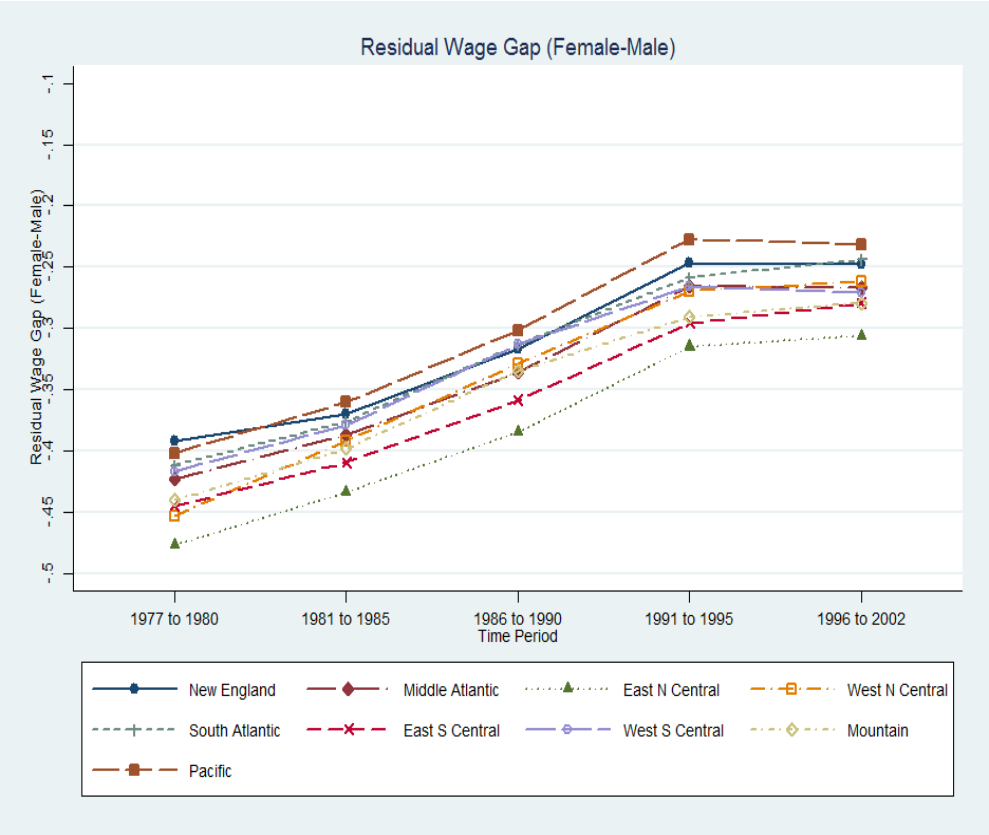
Census Divisions



Stability of Cross-Region Differences in LFP Gaps Over time



Stability of Cross-Region Differences in Wage Gaps Over time



Stability of Cross-Region Differences in Incidence of Never Married

What Accounts for These Patterns?

Candidate Explanations: Standard Culprits

1. Skill differences across labor markets
   - All regressions condition on standard measures of skill (education, experience)
2. Industry Structure
   - Since industries have different male-female employment ratios because of physical requirements (relative importance of brawn), spatial variation in industry mix could generate differences in market outcomes.
3. State Policies
   - Unilateral divorce, legal age at first marriage
   - Welfare benefits

Candidate Explanations: Preferences and Discrimination

- Women's Attitudes Towards Work, Family
  - Internalization of social norms, culture, gender identity ((Akerlof and Kranton, 2000; Fortin, 2005, 2009)
- Discrimination
  - Effect of prejudice, which is made manifest when women labor market choices transgress on agreed-upon social convention.

Empirical Analysis: Data on LFP and Wages

- Current Population Survey (CPS): 1977 to 2002
  - 1977-1978 May, 1979-2002 Merged Outgoing Rotation Group
  - Compute hourly wages for full-time white men and women 25 to 64 following Autor Katz and Kearney (2008).
  - Focus on whites to avoid conflating issues regarding gender differences and a different set of issues related to differential racial outcomes.
- State Level Regressions
  - First stage: Estimate regression of log wages (or LFP) on education, quadratic in experience, female*year effects, female dummy for each state.
  - Take estimated female dummies (there are 50, one for each state) and use those as our labor market outcomes.
  - Weight by precision of the wage or participation gap estimate.
- Could do in one step but since variation in explanatory variables all at the state level, standard errors may be too small.

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Selection Bias Correction for Wages

- Important concern when studying male-female wage gaps.
- Try a number of approaches that have appeared in the literature. (Brown (1984), Neal (2002), Olivetti and Petrongolo (2008)). Doesn't especially matter.

Explanatory Variables

- Cross-State differences in Industry Composition
  - Proxy using a predicted demand index in each year based on state-level differences in industrial composition.
  - Project national differences in female composition across industries onto historical state-level differences in industrial composition in 1950 (employment shares in different 1 digit industries). .

$$D_{st} = \sum sjt^f \frac{E_{1950,js}}{E_{1950,s}}$$

    - sjt^f: fraction female in each industry (at the national level) at time $t = 1980, 1990, 2000$; $\frac{E_{1950,js}}{E_{1950,s}}$: employment share of each industry in each state in 1950.
  - State policies: divorce laws, age at legal marriage, average real welfare benefit from Moffitt (2002)

Data on Male and Female Sexist Beliefs

- General Social Survey (GSS)
  - Almost annual survey of approximately 1,500
  - Battery of questions, we are interested in the subset of 8 questions relating to gender
  - Use 11 years of data spanning 1977 to 1998 where all 8 questions were asked
  - Male and female responses to the same questions

Data on Male and Female Sexist Beliefs

Types of Questions

- Do you approve or disapprove of a married woman earning money in business or industry if she has a husband capable of supporting her?
- Women should take care of running their home and leave running the country up to men.
- A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.
- A preschool child is likely to suffer if his/her mother works.
- It is more important for a wife to help her husbands career than to have one herself.
- Much better if man is achiever outside home, woman takes care of home/family.
- If your party nominated woman for president, would you vote for her if she were qualified for the job?
- Agree? Most men are better suited emotionally for politics than are most women.

Beliefs about Womens Roles Across States/Regions Over Time

- Substantial variation across states in both men's and women's sexist beliefs.
- Sexism has declined quite dramatically over time.
  - Decline among both men and women and for each separate dimension of sexist belief.
- Little evidence of convergence in sexism across regions.
  - Most of the variation in sexism is cross-sectional or secular changes over time
  - Regression of region-by-year male sexism on region and time fixed effects yields an R-squared of about 0.8.
  - GSS has too few observations per state-year cell to reliably measure changes over time at the state-level.

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Beliefs about Womens Roles Across States/Regions Over Time

- In analysis, focus on pooled cross-sectional variation in measured sexism.
  - Can compute sexist beliefs in state/region on average and at different percentile points.
  - Interestingly, at every percentile point, women's sexist views larger than men's.

Some Simple Regressions

Labor Market Gaps and Mean Sexism

CPS: 1977 to 2002	Residual Labor Force Participation Gaps		
	(1)	(2)	(3)
Average Male Sexism	-0.144***		-0.133**
	[0.040]		[0.055]
Average Female Sexism		-0.098**	-0.013
		[0.038]	[0.053]
Observations	44	44	44
R-squared	0.268	0.153	0.270
	Residual Selection-Corrected Wage Gaps		
Average Male Sexism	-0.313***		-0.268***
	[0.094]		[0.096]
Average Female Sexism		-0.228**	-0.058
		[0.089]	[0.083]
Observations	44	44	44
R-squared	0.262	0.171	0.268

Wage Gaps and Different Percentile Pt of Sexism Distribution

	Residual Female-Male Selection-Corrected Wage Gap				
Male Sexism					
10th Percentile	-0.055	-0.043		-0.035	0.042
	[0.087]	[0.098]		[0.103]	[0.078]
50th Percentile	-0.258**	-0.244**		-0.242*	-0.243**
	[0.113]	[0.112]		[0.120]	[0.098]
90th Percentile	0.003	0.004		-0.013	0.052
	[0.070]	[0.069]		[0.075]	[0.065]
Average female sexism		-0.033			0.011
		[0.088]			[0.079]
Female Sexism					
10th Percentile			-0.123	-0.081	
			[0.123]	[0.112]	
50th Percentile			-0.012	0.075	
			[0.138]	[0.117]	
90th Percentile			-0.083	-0.024	
			[0.054]	[0.066]	
Predicted female employment					0.016***
					[0.005]
Ln Average Real Benefit 1977 to 2002					0.071
					[0.050]
Unilateral divorce law (1=yes)					0.014
					[0.017]
No Fault Law (post-1970 adopter)					-0.012
					[0.016]
Observations	43	43	43	43	43
R-squared	0.297	0.299	0.165	0.302	0.534

LFP Gaps and Different Percentile Pt of Sexism Distribution

	Residual Female-Male Labor Force Participation Gap				
Male Sexism					
10th Percentile	0.025	0.032		0.017	0.026
	[0.067]	[0.063]		[0.073]	[0.055]
50th Percentile	-0.158***	-0.150**		-0.152**	-0.141**
	[0.053]	[0.057]		[0.057]	[0.058]
90th Percentile	0.013	0.014		0.014	0.008
	[0.034]	[0.034]		[0.043]	[0.036]
Average female sexism		-0.02			-0.036
		[0.055]			[0.050]
Female Sexism					
10th Percentile			-0.04	-0.013	
			[0.065]	[0.085]	
50th Percentile			-0.051	-0.017	
			[0.062]	[0.094]	
90th Percentile			-0.004	0.02	
			[0.028]	[0.035]	
Predicted female employment					-0.003
					[0.003]
Ln Average Real Benefit 1977 to 2002					-0.005
					[0.030]
Unilateral divorce law (1=yes)					0.018**
					[0.009]
No Fault Law (post-1970 adopter)					-0.004
					[0.009]
Observations	43	43	43	43	43
R-squared	0.291	0.294	0.141	0.303	0.428

Summary of Labor Market Results

- Gender wage and employment gaps are related to median male sexism but not to the 10th or 90th percentile.
- Large participation effects among women working few hours; small effect on full-time employment.
- Same is not true for female sexism
- Magnitudes are significant
  1. SD increase in male median sexism is associated with 2.8% decrease in relative female offer wage (42% of cross-state SD)
  2. 1.6 percentage point decrease in relative female LFP (52% of cross state standard deviation)

Summary of Labor Market Results

Other variables:

- States with higher predicted employment (based on 1950 industrial composition) appear to have larger female-male wage gaps.
- Women appear to have higher relative LFP rates in states with unilateral divorce laws.

Summary of Results for Marriage Outcomes

Estimated results quite different than those for labor market outcomes.

- Little evidence that male sexism matters for marriage market outcomes conditional on female sexism and other state-level characteristics.
- If anything, female age at first child appears to be significantly correlated with female sexism rather than male sexism.
- No evidence that quantiles of the female (or male) sexism distribution matter differently for marriage market outcomes.
- Preliminary results suggest that male sexism is not a significant determinant of cross-state differences in marriage market outcome

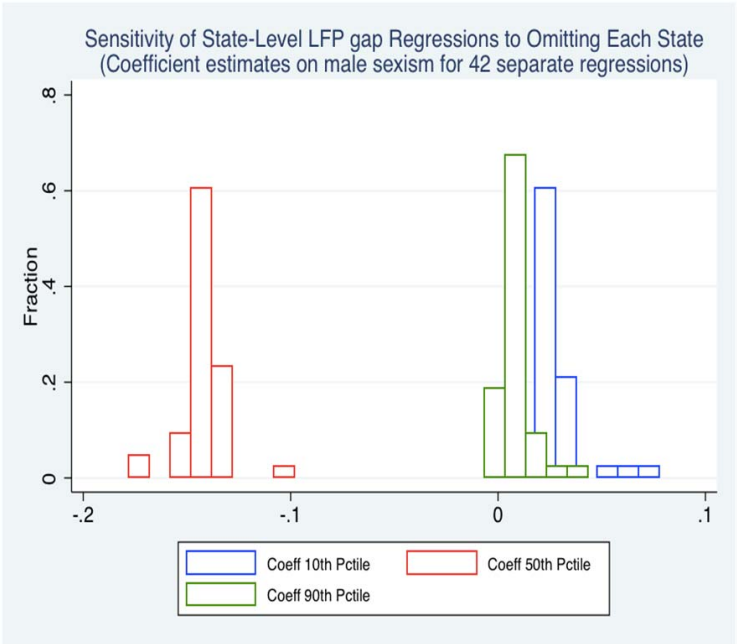
One Marriage Market Outcome: Age of First Child

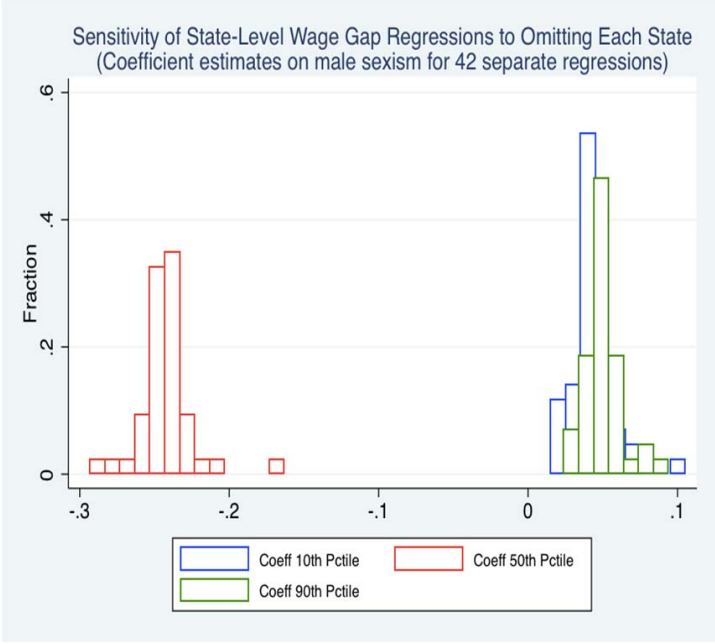
	Residual Age at First Child (1980 to 2000)				
Average male sexism	-1.016	-0.436			
	[0.803]	[0.516]			
Average female sexism	-2.047**	-0.860*	-2.050**		-0.947**
	[0.844]	[0.492]	[0.770]		[0.407]
Male Sexism					
10th Percentile			0.151	0.414	0.364
			[0.898]	[0.844]	[0.528]
50th Percentile			-0.79	-0.563	-0.356
			[0.722]	[0.793]	[0.531]
90th Percentile			-0.305	-0.55	-0.275
			[0.555]	[0.607]	[0.362]
Female Sexism					
10th Percentile				-1.158	
				[0.980]	
50th Percentile				0.065	
				[0.912]	
90th Percentile				-1.033**	
				[0.455]	
Predicted female employment		0.101***			0.097***
		[0.016]			[0.015]
Ln Average Real Benefit 1977 to 2002		0.897***			0.913***
		[0.206]			[0.218]
Unilateral divorce law (1=yes)		-0.190*			-0.193*
		[0.109]			[0.106]
No Fault Law (post-1970 adopter)		0.028			0.021
		[0.094]			[0.098]
Observations	43	43	43	43	43
R-squared	0.437	0.682	0.455	0.467	0.692

Various Robustness Exercises...

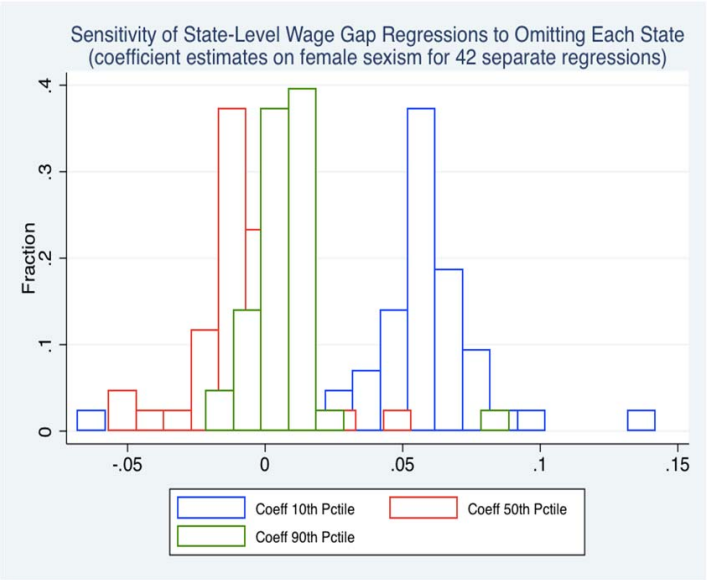
- Control for female-male difference in NAEP reading and math test scores in each state.
- Re-estimate models with different wage imputation procedures.
  - Results essentially unchanged.
- One thing to worry about is possibility that results driven by some weird state. Conduct a simple robustness exercise for outliers.
  - Multiple times, run regression of outcome of full distribution of sexist view of one gender, holding average sexist view of other gender constant.
  - Re-estimate regression multiple times, each time dropping a state.
  - Plot distribution of point estimates.

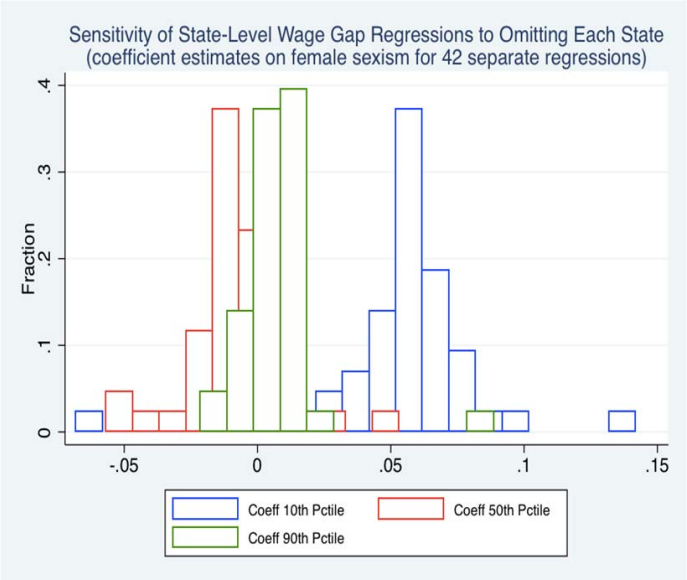
Sensitivity of Wage-Gap Estimates to Dropping States (Male Distribution)





Sensitivity of Wage-Gap Estimates to Dropping States (Female Distribution)





What do we Make of These Results

Conclusion

- Male sexism is an important determinant of cross-state differences in labor market outcomes, even after controlling for female attitudes and other state level differences. Indeed, the sexist views of men on the whole matter more than women's view for women's labor market outcomes.
  - The fact that its effect operates seems to operate in the middle of the distribution consistent with a Becker-style model in which sexism is analogous to racial prejudice.
  - Prejudice type model would suggest that negative effect of men's views on women's labor market outcomes to be close to the middle of the distribution, since this is where the "marginal employer" is likely to be in that case.
  - For blacks previous work has shown that left tail of racial prejudice distribution views related to racial wage differences. Contrast interesting.

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  - For blacks previous work has shown that left tail of racial prejudice distribution views related to racial wage differences. Contrast interesting.
- Non-labor market outcomes like marriage are, by contrast, much more closely related to women's own views about their appropriate roles than to the views of men in their state.