Who has the right to a job? Labor market competition and men's support for women's work*

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Abstract

Studies have shown that social norms have the potential to shape labor market equilibria. We test to what extent labor market conditions can alter social norms. In particular, we test whether men's support for women's work depends on the competition they face from women in their industries. We use labor market data from India to construct a measure of labor market competition that considers the industry percent female of average male worker in a given state and match this to attitudes on women's work from five waves of World Value Survey data spanning from 1990 to 2012. We find that men are more supportive of women's work when the overall female labor force participation is high, however, they are less supportive if more women work in their own industry.

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1 Introduction

There is growing evidence that social norms affect women's labor supply (Alesina et al., 2013; Bursztyn et al., 2020; Fernández and Fogli, 2009; Jayachandran, 2021; Olivetti et al., 2020). The causality appears to go in the other direction as well: an experiment in India that increased women's labor supply by increasing their control over income increased social support for women's work three years after the experiment began (Field et al., 2021).

We ask whether the degree to which women work in industries in which they compete with men affects social support for women's work. We examine the case of India, which is notable for low (and recently decreasing) rates of female labor force participation (Heath and Jayachandran, 2017). We hypothesize that, while overall increases in female labor force participation increase social support for women's work (as in Field et al. (2021)), if women enter sectors in which they compete with men, men will be less likely to support women's work.

To test this hypothesis, we use five rounds of the National Sample Survey (NSS) Employment and Unemployment Modules (ranging from 1987 to 2009) to construct a measure of the competition from women faced by a man in a given state at a certain time: what fraction female is his industry? We match this variable to data on support for women's work from the five rounds of the World Values Survey (spanning from 1990 to 2012), looking in particular at respondents' disagreement with the statement: "When jobs are scarce, men should have more right to a job than women." We estimate plausibly causal effects of exogenous changes in labor market outcomes conditional on state and year fixed effects, paying attention to the recent concerns that time-varying treatment effects can yield biased estimates (Callaway and Sant'Anna, 2021; de Chaisemartin and D'Haultfœuille, 2020; Goodman-Bacon, 2021).

We indeed find that, conditional on overall female labor supply, at times when the typical man faces more labor market competition from women, people report less support for women's labor supply. Specifically, a one standard deviation increase (within-state) in competition leads to a 12 percentage point decrease in support

for women's work, on a mean of 37%. This coefficient is not statistically different between men and women, fitting with evidence from South Asia that women don't necessarily have any more liberal gender attitudes than do men, in areas such as tolerance of intimate partner violence (Schuler and Islam, 2008) or son preference (Jayachandran, 2017). Meanwhile, the main effect of female labor force participation fits with evidence that increasing female labor supply liberalizes norms around women working: a one standard deviation increase (within-state) in female labor supply leads to a 14 percentage point increase in support for women's work.

We provide evidence that the direction of causal channel behind these results is that labor markets changes affect norms, rather than norms affecting labor supply. First, note that the most obvious reverse causality story – gender norms liberalize, so women feel freer to enter jobs where they work closely with men – would predict a positive relationship between support for women's work and labor market competition from women, which is the opposite of our empirical results. We also test whether lagged support for women's work affects women's labor supply, and find no evidence for a story in which norms change first and then labor supply responds.

Our results relate to a literature on the intra-household determinants of female labor supply (Field et al., 2021; Heath and Tan, 2020; Lowe and McKelway, 2021; McKelway, 2020). While we estimate wage losses for men when more work in their industries, these jobs are available to their own wives. In a unitary household, men should benefit from the increased household-level income, especially given evidence that norms around housework are sticky enough that women's time in housework does not respond to their increased labor supply (McKelway, 2023). However, it appears instead that men prefer women (even their own wives) not enter their industries, perhaps because women working lowers their own bargaining power.

We also contribute to a literature on the determinants of men's attitudes towards women and their support for women's rights. Exposure to women political leaders (Beaman et al., 2009) or as peers on military teams (Dahl et al., 2021) liberalizes gender attitudes about women's beliefs. We point out that exposure to women may not always liberalize gender attitudes if such exposure comes with a cost for men. We thus join Fernández (2014) in arguing that men are more supportive of women's

rights when such rights do not affect them directly.

The rest of the paper proceeds as follows. In Section 2, we present the data sources, a descriptive analysis of gender attitudes, and define the labor competition variable. Section 3 outlines the estimation strategy and tests for reverse causality. We show the main results in Section 4. In Section 5, we examine the robustness of the estimations using a shift-share instrument and alternative two-way fixed effects estimators. We conclude the paper by discussing the policy implications in Section 7.

2 Data

2.1 Data sources

We use two data sources for our analysis: the World Values Survey (WVS) (rounds 1990, 1995, 2001, 2006, 2012) and the Indian National Sample Survey (NSS) Employment and Unemployment Modules (rounds 1987, 1993, 1999, 2004, and 2009).

The WVS provides data on the beliefs and values of Indian citizens. Sample sizes for each round ranged from 2000 to 4000 respondents, leading to a total sample of 9100 pooled across all rounds, as described in table 1.[1]

The NSS is a nation-wide household survey that contains data on labor supply. Sample sizes range from around 450,000 to 670,000 respondents depending on the year. We use the NSS to measure labor force participation as well as create a labor competition measure (details on in section 2.3). To determine employment status and labor force participation, we rely on the "principle usual activity status" (PUAS) question on the NSS, which asks an individual what their usual principle activity was for the past 365 days [2]. We categorized industries using their two-digit National

[1]Although the sample used in the WVS study consists of relatively better-off Indians and not nationally representative, it is important to note that these individuals likely play a significant role as opinion leaders in shaping overall social norms.

[2]We define labor force participation as individuals who are either employed or unemployed but seeking employment. The PUAS codes ranging from 11 to 81 (as in Figure A1) are used to identify individuals in the labor force.

Industrial Classification (NIC) code, and collapsed the NSS data by state and year to create state-year specific labor competition variables.

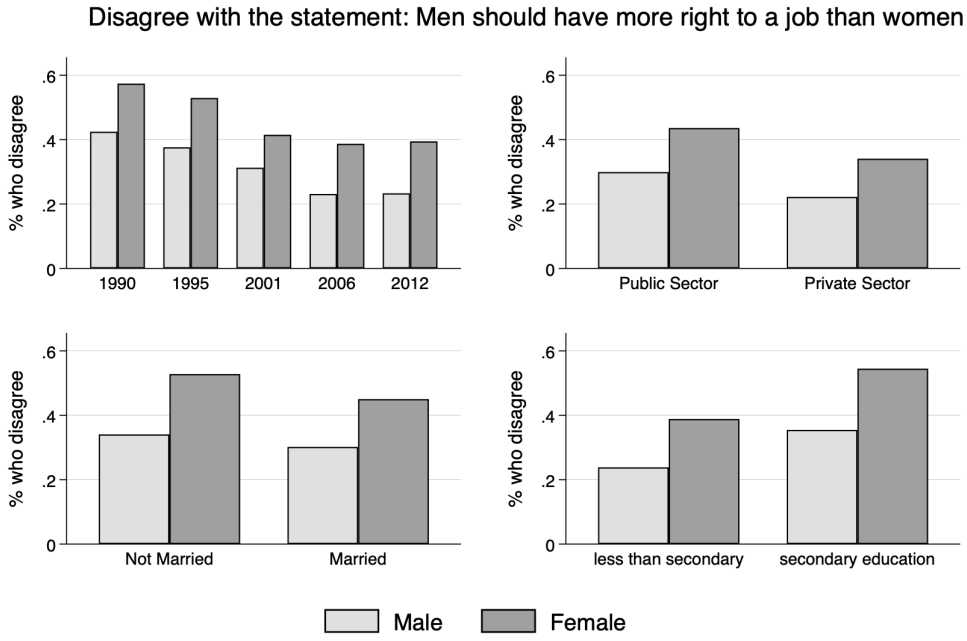
To link the WVS and NSS data, we match each individual at given states in the WVS data to their closet round of NSS with a lag of 2 to 3 years for our analysis: see table A1. That is, we measure whether recent changes in labor market outcomes correspond to current gender attitudes. Given that it likely takes some time for respondents to notice labor market changes and alter their gender attitudes to change in response, we argue that this is a reasonable construction of our key independent variable.

2.2 Defining support for women's work

Our main outcome variable of interest is a binary variable measuring attitudes towards women's work, which was asked in all five waves of the World Values Survey. We specifically focus on the question that asks respondents that if they agree or disagree with the statement that *"When jobs are scarce, men should have more right to a job than women."*. Here, a *"disagree"* response indicates more egalitarian attitude and greater support for women's work.

Figure 1 shows descriptive analysis of attitudes towards women's work by gender, survey years, sectors, marital status, and education levels. We find that female respondents generally have a higher percentage of "disagree" responses compared to male respondents. Over the time period we studied, we also observe a noticeable decline in support for women's work among both men and women. Public sectors workers, individuals who are not married, and those with secondary educations tend to have more liberalized attitudes. Men with less than secondary education have the lowest support, while women who are not married or have completed secondary education show the highest support.

Figure 1: Gender attitude towards jobs from WVS, 1990-2012



2.3 Defining competition from women

To capture the intra-sectoral competition between men and women, we constructed the key measurement of *competition from women* at state-year level, defined as follows:

$$Competition_{s,t} = \frac{1}{\sum_{i=1}^{N_{s,t}} \mathbb{1}(male_i)} \sum_{i=1}^{N_{s,t}} \mathbb{1}(male_{i,s,t,k}) \frac{\mathrm{N}_{k,s,t}^{Female}}{\mathrm{N}_{k,s,t}} \tag{1}$$

We first computed the concentration of women working in industry k in state s at time t, as the ratio of number of female workers $\mathrm{N}_{k,s,t}^{Female}$ to the total number of workers in that industry $\mathrm{N}_{k,s,t}$. Then we calculated the average concentration of female co-workers for individual male workers at the state-year level, by dividing the sum of these concentrations by the total number of male workers. This variable measures the percentage of female co-workers (within the same industry) that an average male

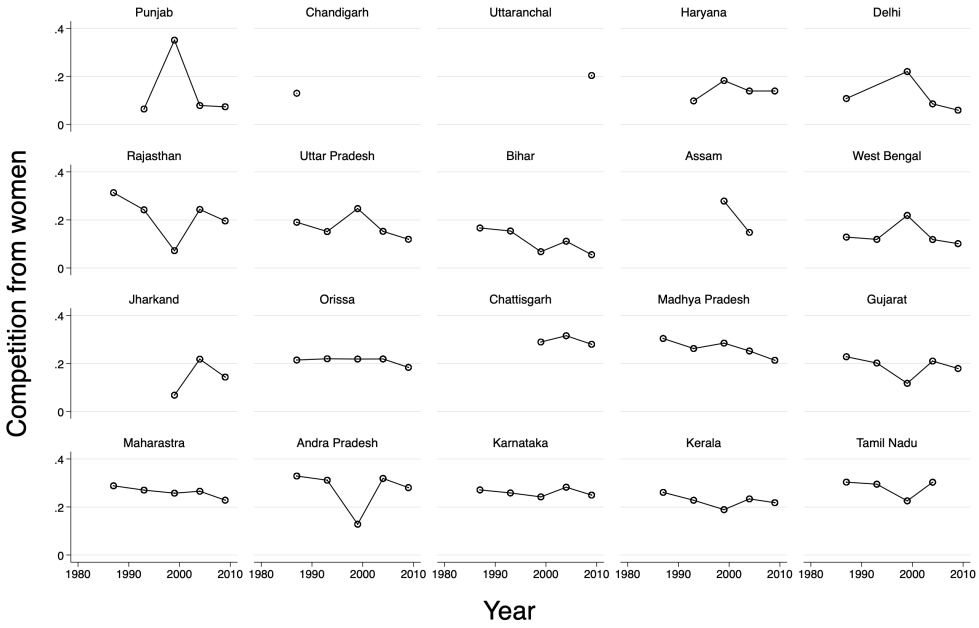
worker would have in a given state. Figure 2 shows a plot of this variable by state and year, which are the key variations we explore in our identification.

Our definition of labor market competition at the state-year level corresponds to the assumption that social norms about women's work spread not just among co-workers, but also among neighbors and other social ties, so that a respondent's perceptions about women's work come not just through their own industry's exposure, but also the exposure of others in the same state. This construction has the additional advantage of being defined for those who are out of the labor force, which may indeed be endogenous to the gender competition variable.

This variable is correlated with the female labor force participation ($flfp$) at the state-year level[3]; however, it has a distinct interpretation. While the female labor force participation captures the overall female labor supply in a state, the competition variable also takes into account the industry-specific variations in which women decide to join. In other words, the competition variable captures the potential labor market competition that male workers face from female co-workers in the same industry, whereas $flfp$ does not account for this intra-sectoral dynamics. Therefore, the competition variable provides a more nuanced measure of gender-related labor market competition that may affect male and female workers differently. We include $flfp$ as an additional control in all estimation models.

[3]The correlation between competition and female labor force participation is 0.47 after controlling for state and year fixed effects. A scatter plot of the residuals can be found in Figure A2.

Figure 2: Competition from women by State and Year



2.4 Summary statistics

Table 1 presents summary statistics for the individuals included in the final estimation samples merged from the WVS and NSS, broken down by gender.

A total of 9,100 individuals are included, with 42 percent being female. The sample is largely married (78%) and has an average age of 36. Over half of the sample has completed secondary education and are employed, with 8% working in the public sector, 40% in the private sector, and 52% in other less formal sectors. About 37% of the respondents expressed support for women's work, i.e., they disagree with the premise that scarce jobs should go to men. At the state-year level, the average competition from women is 0.2 and the average $flfp$ is 0.27.

Individual characteristics vary significantly between men and women in this sample, so we estimate all our models by gender and include individual specific controls. Women in the sample are younger and more likely to be married. 49% of women

has completed secondary education, however, only 26% of them are employed, compared to 74% of men. Conditional on working, the majority of women work in less formal sectors (67%). Average industry-level wage for women are slightly lower and significantly different from men's at the 95% level. Women are also more supportive of women's work (46% of women and 31% of men).

Table 1: Summary Statistics

	Total		Men		Women		
	mean	sd	mean	sd	mean	sd	p-value
Individual level							
Age	36.841	11.921	37.157	12.220	36.413	11.490	(0.003)
Female	0.425	0.494	0.000	0.000	1.000	0.000	(.)
Married	0.781	0.414	0.763	0.425	0.805	0.396	(0.000)
Secondary Education	0.569	0.495	0.625	0.484	0.492	0.500	(0.000)
Employed	0.534	0.499	0.745	0.436	0.258	0.437	(0.000)
Support for women working	0.376	0.485	0.311	0.463	0.465	0.499	(0.000)
Conditional on being employed...							
Public Sector	0.083	0.276	0.107	0.309	0.048	0.213	(0.000)
Private Sector	0.397	0.489	0.479	0.500	0.279	0.449	(0.000)
Other Sector	0.520	0.500	0.414	0.493	0.673	0.469	(0.000)
Average industry wage(log)	6.313	0.631	6.327	0.616	6.294	0.650	(0.013)
State-Year level							
Competition from women	0.200	0.074	0.200	0.074	0.200	0.075	(0.797)
$flfp$	0.271	0.125	0.271	0.125	0.272	0.125	(0.545)
Observations	9100		5236		3864		

Notes: Only working age (16-65) individuals are included. P-value for test of the difference in means between Men and Women, where null hypothesis is that they are equal.

3 Identification

3.1 Two-way fixed effects estimation

We estimate effects of competition on support for women working at the individual level using the following two-way fixed effects (TWFE) model.

$$Support_{ist} = \beta Competition_{st} + \theta flfp_{st} + \gamma_t + \lambda_s + \epsilon_{ist} \tag{2}$$

where $Support_{ist}$ is a binary variable that equals 1 if an individual i in state s at time t *disagrees* with the statement that "Men should have more right to a job than women when jobs are scare". $Competition_{st}$ is the percentage of female workers a typical male worker faces in his industry in state s at time t, calculated as in equation 1. We also include $flfp_{st}$, the average female labor force participation rate in state s at time t, state fixed effect λ_s, and year fixed effect γ_t. We also estimate a specification with a vector of individual-level controls X_{ist}, including age, education level, and marital status (as well as gender, as described in equation 3. We cluster standard errors at the state-year level.

We further explore whether the effects of competition on support for women working differs by the gender of the respondent, estimating equation 3:

$$\begin{aligned} Support_{ist} = \beta_1 Competition_{st} + \beta_2 competition_{st} \times female_i \\ + \theta_1 flfp_{st} + \theta_2 flfp_{st} \times female_i + \pi female_i + \gamma_t + \lambda_s + \epsilon_{ist} \end{aligned} \tag{3}$$

where interaction terms of competition (or labor force participation) and gender are included. Here, the main object of interest is β_2, representing the difference in average effect between men and women.

3.2 Test for reverse causality

One potential threat to our identification is reverse causality, where individual attitudes towards women working may impact their labor supply decisions. To address this issue, we test whether the lagged support variable can predict labor force participation and competition from women.

$$Y_{ist} = \beta Support_{s,t-1} + \gamma_t + \lambda_s + \epsilon_{ist} \tag{4}$$

We estimate equation 4, where Y_{ist} represents individual-level labor supply, including whether individual i in state s is in the labor force at time t,and the competition from women that individual i faces in his or her industry in state s at time t. The independent variable $Support_{s,t-1}$ is calculated as the percentage of respondents in the World Value Survey (WVS) who supported women working in state s at time t-1.

We find no evidence of a reverse causality relationship (Table 2). The coefficients of lagged support on labor force participation and competition are small and statistically insignificant (column 1, 3). To see whether the effects of lagged support differ by gender, we estimate equation 4 with an interaction term of lagged support and gender, and again find small and statistically insignificant impacts (column 2, 4).

Table 2: Lagged support on labor participation and competition

	In the labor force (0/1)		Competition from women	
	(1)	(2)	(3)	(4)
lagged_support	0.011		0.004	
	(0.017)		(0.025)	
lagged_support × Male		-0.005		0.005
		(0.039)		(0.025)
lagged_support × Female		0.022		0.004
		(0.052)		(0.025)
Year FE	Y	Y	Y	Y
Loc FE	Y	Y	Y	Y
Mean of Dep. Var	0.581	0.581	0.211	0.211
Observations	1,258,598	1,258,553	1,258,598	1,258,553
R-squared	0.014	0.347	0.795	0.795

Notes: Data on labor force participation and competition are from the NSS data set. The dependent variable "in the labor force" is a dummy variable defined as 1 if an individual is either employed or unemployed but seeking for jobs. The dependent variable "competition from women" is defined as in equation 1.

4 Main results

Table 3 regresses a dummy variable for gender attitude towards whether scarce jobs should go to men than women, with a value of 1 for disagreement. We report four sets of estimates, all of which include year and state fixed effects. The first set estimates the average effect of competition on support for women's work, controlling for overall female labor force participation rate as in equation 2. The second set explores heterogeneity by gender by adding interaction terms between competition and gender, as in equation 3. The third includes individual-specific covariates such as age, education level, and marriage status. The fourth set of results includes a

dummy variable for whether a state has passed the Hindu Succession Act (HSA)[4], as evidence has shown that this policy could increase women's labor supply, particularly into high-paying jobs (Heath and Tan, 2020).

The results suggest that, conditional on overall female labor supply, when labor market competition increases, people become less supportive of women's work. Specifically, a one standard deviation increase (within-state) in competition from women (about 0.051 – i.e. the composition of a typical man's industry is now 5.1 percent points more female) leads to an 10.7 percentage points decrease in average support for women's work, which represents a 28% decrease relative to a mean of 37% (Column 1). This coefficient is not substantively or statistically different between men and women (Column 2), suggesting that both genders may perceive increased competition from women in a similar way. Adding in additional individual controls or HSA policy does not materially affect the estimates (Column 3, 4).

While our main focus is on the competition variable, our finding on the overall female labor force participation variables coincides with previous literature (Field et al., 2021) in suggesting that increasing overall female labor supply liberalizes people's attitudes towards job equality between men and women. A one standard deviation increase in overall female labor force participation rate (about 0.079) will make people 14 percentage points more supportive of women's work, which translates to a substantial 38% increase relative to the mean. This effect holds for both men and women, and is robust to the inclusion of additional covariates and state-specific HSA policy. This finding implies that as women become more involved in the labor market, people become more accepting of women working.

The negative effect of competition from women on support for women's work could suggest that when women's labor market opportunities expand, especially when they work and compete with men in the same sector, men may perceive them as a threat to their own employment prospects and thus may become less supportive. It is also possible that men may believe that working in a sector with higher female

[4]Amendments to the HSA explicitly made daughters eligible to be coparceners, which traditionally include only male relatives. This policy was phased into different states in India between 1976 and 2005, with some states enacting the changes earlier than others.

representation may threaten their own sense of masculinity (Leavitt et al., 2022).

Moreover, our finding that the negative effect of competition is similar for men and women suggests that women, who have traditionally faced discrimination and more constraints in the labor market, may also view the entrance of other women into their sectors as a threat to their own economic status or perceived role in society.

Overall, our results suggest that while increasing labor market participation for women can lead to positive changes in attitudes towards women's work, it is important to be award of potential backlash from both men and women in response to increased competition from women.

Table 3: Main Effects on Support for Women Working

	Support for women working			
	(1)	(2)	(3)	(4)
Competition from women	-2.108*	-2.325*	-2.339*	-2.357*
	(1.231)	(1.270)	(1.269)	(1.256)
Competition from women × Female		0.469	0.446	0.445
		(0.706)	(0.705)	(0.705)
Female LFP	1.801**	1.800**	1.803**	1.813**
	(0.753)	(0.772)	(0.774)	(0.763)
Female LFP × Female		0.038	0.032	0.032
		(0.409)	(0.411)	(0.411)
Female	0.143***	0.039	0.059	0.059
	(0.016)	(0.048)	(0.048)	(0.048)
p-value(net effect of competition on women)		0.156	0.139	0.131
p-value(net effect of flfp on women)		0.022	0.019	0.017
Mean of Dep. Var	0.376	0.376	0.376	0.376
within-state standard deviation of				
competition	0.051	0.051	0.051	0.051
flfp	0.079	0.079	0.079	0.079
Observations	9,100	9,100	9,100	9,100
R-squared	0.096	0.097	0.106	0.106
Year FE	Y	Y	Y	Y
State FE	Y	Y	Y	Y
Individual controls			Y	Y
HSA				Y

Notes: Dependent variable "Support for women working " equals to 1 if respondents answered "not agree" to the question "When jobs are scarce, men should have more right to a job than women" in the World Value Surveys. All regressions include state and year fixed effects. Column 3 add individual-specific controls including age and education levels. Column 4 also adds a dummy variable indicating whether the state has passed the Hindu Succession Act(HSA). Robust standard errors clustered at state-year level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5 Robustness

5.1 Shift-share version of competition

We argue that our main results, as given in table 3, should be interpreted as the effect of an exogenous change in men's labor market competition from women on attitudes about women's work. The fact that we found no effect of lagged support for women's work on labor market outcomes provides evidence against a reverse causality interpretation of our findings (i.e. changing social norms prompt changes in labor supply). To further support our preferred interpretation, we construct a shift-share version of gender competition based on Bartik (1991) to reflect plausibly exogenous exposure to competition from women driven by changes in employment (elsewhere in the country) in a given area's industries that have high lagged values of competition from women.

Specifically, we calculate the predicted competition from women variable in each state and year as follows:

$$\widetilde{competition}_{s,t} = \sum_{i=1}^{N_{s,t}} \overbrace{\text{competition}_{\text{k,}-\text{s,t}}}^{\text{Shift}} \cdot \overbrace{\text{N}_{k,s,t_0}^{Female}/\text{N}_{k,t_0}^{Female}}^{\text{Share}} \tag{5}$$

where s indexes state, t year, and k industry. The "Shift", $\text{competition}_{\text{k,}-\text{s,t}}$, is the average competition from women in industry k over all states except for state s in year t. This *delocalized* shift help remove any changes in intra-sectoral competition that might be caused by changes in the underlying characteristics of works in the state. The "Share" is the fraction of female workers in industry k that reside in state s at baseline t_0, which represents the local share of a certain industry. We fixed this share at baseline, and believe it could be less sensitive to endogeneity given high migration costs across states. A similar approach has been used for measuring gender wage gaps (Aizer, 2010) and migration flows (Card, 2001).

With the delocalized shifts, fixed shares, and two-way fixed effects, we argue that the exposure to competition from women is plausibly exogenous. We re-estimated model 2 and 3 using this shift-share competition variable constructed following 5,

and reported the results in Table 4.

Our findings persist when employing the shift-share version of the competition measure. The estimated effect of this competition variable on support for women working is attenuated compared to the main results: a one standard deviation increase in competition (0.014) is associated with a 2.5 percentage points decrease in average support for women working (Column 1). The specifications that account for gender heterogeneity and include additional controls have similar magnitudes of effect, although they are estimated with less precision (Column 2-4).

Table 4: Main Effects on Support for Women Working, using shift-share competition

	Support for women working			
	(1)	(2)	(3)	(4)
$\widetilde{Competition}$	-1.813*	-1.707	-1.498	-1.500
	(1.073)	(1.081)	(1.096)	(1.093)
$\widetilde{Competition}\times$ Female		-0.298	-0.282	-0.280
		(0.202)	(0.201)	(0.203)
Female LFP	0.551**	0.386	0.380	0.382
	(0.261)	(0.261)	(0.261)	(0.261)
Female LFP × Female		0.404***	0.379***	0.380***
		(0.132)	(0.132)	(0.132)
Female	0.144***	0.0785**	0.0962***	0.0957***
	(0.016)	(0.036)	(0.036)	(0.036)
Mean of Dep. Var	0.376	0.376	0.376	0.376
within-state standard deviation of				
competition	0.014	0.014	0.014	0.014
flfp	0.079	0.079	0.079	0.079
Observations	9,100	9,100	9,100	9,100
R-squared	0.095	0.097	0.105	0.105
Year FE	Y	Y	Y	Y
State FE	Y	Y	Y	Y
Control			Y	Y
HSA				Y

Notes: $\widetilde{Competition}$ is using delocalized shifts and fixed baseline shares as defined in equation 5. Dependent variable "Support for women working " equals to 1 if respondents answered "not agree" to the question "When jobs are scarce, men should have more right to a job than women" in the World Value Surveys. All regressions include state and year fixed effects. Column 3 add individual-specific controls including age and education levels. Column 4 also adds a dummy variable indicating whether the state has passed the Hindu Succession Act(HSA). Robust standard errors clustered at state-year level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.2 TWFE estimators with heterogeneous treatment effects

A fast-growing literature has highlighted that two-way fixed effects (TWFE) estimators may be biased if the treatment effects are heterogeneous across groups or over time, leading to the development of alternative estimators (Callaway and Sant'Anna, 2021; de Chaisemartin and D'Haultfœuille, 2022; Goodman-Bacon, 2021; Sun and Abraham, 2021). de Chaisemartin and D'Haultfœuille (2020) propose a new estimator, DID_M, which estimates the average treatment effects across all the group-year cells whose treatment changes from the last to current period. This estimator can be easily extended to applications with a non-binary treatment, which is well-suited for our study.

To use this new estimator, we make two modifications. First, we discretized the continuous competition treatment into 10 percentiles based on its distribution (Figure A3), which allowed us to apply the *did_multiplegt* package in Stata. Second, this new estimator requires a stable group assumption: between each pair of consecutive years, there are states where the competition from women does not change. To meet this assumption, we imposed a threshold of 0.02[5], that is, if the competition in one state changes by less than 0.02 year to year, it is treated as a stable group.

We compared the treatment effect estimated by the standard TWFE estimator (Table 5, Panel A) to the new DID_M estimator (Panel B), and found that our estimations are robust. The estimated treatment effect of competition using DID_M is -1.96, with a standard error of 1.342, which very close (7% smaller) to the standard TWFE estimator result $\hat{\beta_{fe}}$ in Panel A. We cannot reject the null hypothesis that these two coefficients are statistically different (t-stat = -0.07).

In addition, we estimated the effects of competition using a discretized version of the treatment variable and standard TWFE estimator in Panel C. Our results show that compared to lowest level of competition, higher competition leads to less support for women's work, with negative, smaller, and statistically significant coefficients for dummies on each percentile.

[5]This threshold is determined given that average year-to-year change in competition across states is about 0.015.

Table 5: Comparing different TWFE estimators

	Estimate	Standard error
Panel A: standard TWFE estimator		
$\hat{\beta_{fe}}$	-2.108*	1.231
Panel B: new TWFE estimator		
DID_M	-1.968	1.342
DID_M^{pl}	-0.137	0.056
Panel C: discretized treatment variable		
10th - 20th pctl	-0.232***	0.037
20th - 30th pctl	-0.116***	0.038
30th - 40th pctl	-0.314***	0.044
40th - 50th pctl	-0.277***	0.057
50th - 60th pctl	-0.352***	0.070
60th - 70th pctl	-0.477***	0.086
70th - 80th pctl	-0.589***	0.092
80th - 90th pctl	-0.684***	0.111
$\geq$ *90th pctl*	-0.877***	0.115

Notes: This table reports estimates of the effect of competition from women on support using different estimators. Panel A: $\hat{\beta_{fe}}$ is the $TWFE$ estimation result from Table 3(col 1). Panel B: DID_M is the estimator computed following de Chaisemartin and D'Haultfœuille (2020), with $female$ and $flfp$ as controls. To compute the DID_M estimators, competition is categorized into 10 bins based on its distribution. The DID_M estimators require to have stable groups whose treatment does not change between consecutive time periods. To meet this restriction, a threshold of 0.02 is imposed for determining treatment changes. That is, if the competition in one state changes by less than 0.02 year to year, it is treated as a stable group. Panel C report standard $TWFE$ estimation using discretized treatment variable dummies, with the competition level less than the 10th percentile as the reference group.

6 Potential mechanism: earning loss for men

As discussed earlier, a possible explanation for the negative impact of competition on gender attitudes could be the perceived threat to individual's employment prospects. This situation could arise if increases in competition from women are

driven primarily by supply shifts into the industry rather than positive labor demand shocks, which would lower equilibrium wages in the industry. To investigate this potential mechanism, we analyze wage and sector information from the NSS data sets in this section.

Table A2 presents our analysis of individual wages using the same identification strategy outlined in Section 3.1. We find that men's wages decrease as the level of competition from women in their sectors increases. Specifically, a one standard deviation increase (within-state) in competition from women (about 0.051) leads to an 42 percent decrease in men's wage (Column 1). This effect is substantial, statistically significant, and robust after controlling for age and education levels (Column 2). Adding sector controls reduces the effect size by half to about 19 percent, although not statistically significant (Column 3). We do not observe any statistically significant impact on women's wage.

We also find that the negative effect of competition on men's wage is consistent across major sectors. Since adding sector controls shrinks the effect size, we wanted to test whether the results are driven solely by different sector compositions between men and women. To do so, we regressed individual wages on competition interacted with both gender and sectors, and plotted the interaction coefficients of the largest five sectors in Figure A4. The results show that men in the agriculture sector experienced the largest and statistically significant drop in their wage, while the decrease size was comparable with other sectors. Women's wage in these sectors increased but are nosily estimated.

These findings suggest that competition from women in the same sector may lead to a negative impact on men's wage, while women do not experience any significant changes. The potential earning loss for men when an average woman begins working in their sectors is about 175 INR (Indian Rupee) per week [6]. The lack of impacts on women's wages may be due to the fact that they already face gender pay gaps and discrimination in the labor market. These results provide suggestive evidence that the negative impact of competition on gender attitudes may be drive by men's

[6]We multiplied the coefficient of competition on the probability of a woman being employed (0.545) by the average wage for a female worker (322.3) to get this estimate.

concerns over their own job prospects, rather than a general prejudice against women in the workplace.

7 Conclusion

Given evidence that women's labor supply affects attitudes towards women working (Field et al., 2021), we test whether the specific industries women enter affect the extent of support for women's work. In particular, we find that support for women's work in a given state is lower at times when the typical man faces more competition from women, as measured by the percent female of his industry: a one standard deviation (within-state) increase in competition leads to an 10.7 percentage points decrease in support for women's work. This effect is similar between men and women. We provide evidence that this result is not driven by reverse causality; there is no evidence that lagged support for women's work affects our measure of labor market competition, and results are very similar if we construct a Bartik-style measure of labor market competition (Bartik, 1991).

These results raise interesting questions for future research, such as the extent to which men's support for their own wife's work differs from their overall support for women's work, and if the degree of intra-household coooperation affect these opinions. Our results also have implications for policy-makers interested in improving women's labor force participation and economic empowerment. While there is evidence that exposure to female peers or role models affects gender attitudes (Beaman et al., 2009; Dahl et al., 2021), our results caution that such exposure can backfire if men view women as in competition. This insight thus provides rationale for the existence of single-sex spaces, like schools.

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Table A1: Survey round mapping

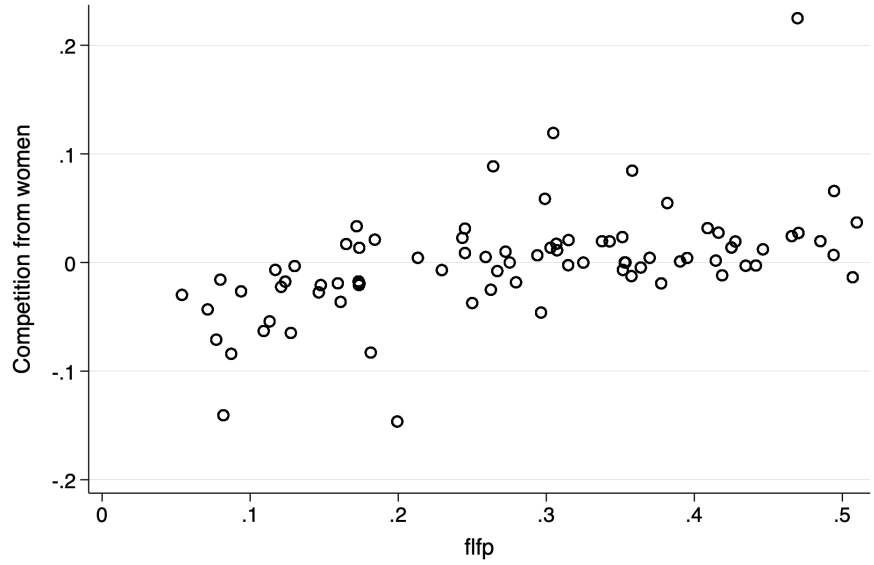
Main Estimating Equation		Test for Reverse Causality
World Values Survey (attitudes)	National Sample Survey (labor outcomes)	Lagged World Values Survey (lagged attitudes)
1990	1987	–
1995	1993	1990
2001	1999	1995
2006	2004	2001
2012	2009	2006

Figure A1: Principle Usual Activity Status (PUAS) Codes in NSS

CATEGORIES

Value	Category
00	NR
11	Worked in h.h. enterprise (self-employed): own account worker
12	Employer
21	Worked as helper in h.h. enterprise (unpaid family worker)
31	Worked as regular salaried/ wage employee
41	Worked as casual wage labour : in public works
51	Worked as casual wage labour : In other types of work
81	Did not work but was seeking and/or available for work
91	Attended educational institution
92	Attended domestic duties only
93	Attended domestic duties and was also engaged in free collection of goods (vegetables, roots, firewood, cattle feed, etc.), sewing, tailoring, weaving, etc. for household use
94	Rentiers, pensioners , remittance recipients, etc.
95	Not able to work due to disability
97	Others (including begging, prostitution, etc.)
99	Children 0 - 4 age -group

Figure A2: Correlation between competition and female labor force participation



Note: The scatter plot shows the residuals controlling for state and year fixed effects.

Figure A3: Histogram of Competition Variable

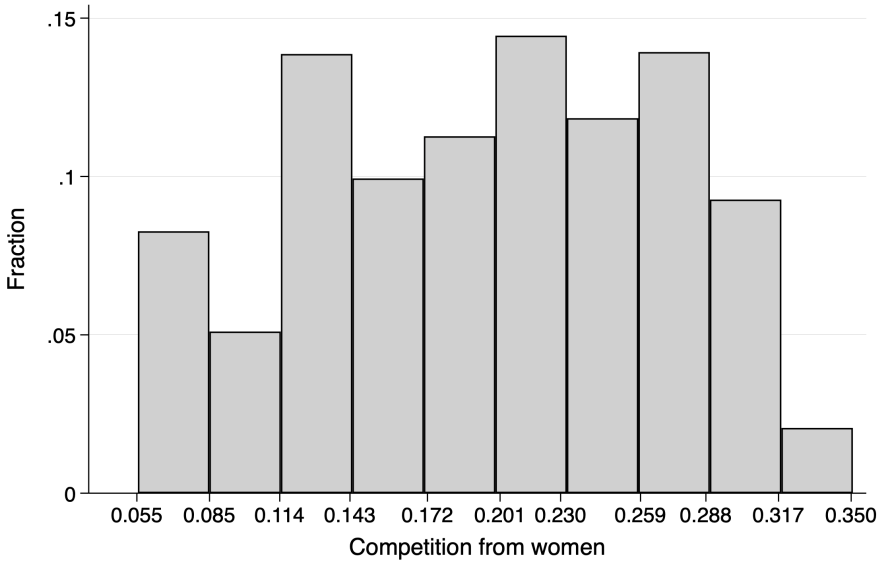


Table A2: Effects of competition on wage

	Wage (asinh)		
	(1)	(2)	(3)
Competition from women × Male	-8.351***	-8.806***	-3.776
	(2.887)	(3.192)	(2.411)
Competition from women × Female	0.797	-0.847	3.578
	(4.107)	(4.452)	(3.533)
Mean of Dep. Variable	3.901	3.234	3.379
Male Mean	4.055	4.055	4.055
Female Mean	3.442	3.442	3.442
Observations	703,065	575,088	539,831
R-squared	0.553	0.474	0.592
Control: individual		Y	Y
Control: sector			Y

Notes: The dependent variable is the inverse hyperbolic sine of wage at individual level. All regressions include state and year fixed effects. Column 2 control for age and education, and column 3 control for sectors additionally. Robust standard errors clustered at state-year level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure A4: Effects of Competition on Wage by Sectors