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Work–family interference in urban China: gender discrimination and the effects of work–family balance policies

Yuehua Xu¹✉, Shujie Zhang², Manyuan Li¹, Depeng Liu¹, Haichuan Zhao¹ and Guiyao Tang¹

Family responsibility discrimination is a form of discrimination against men and women because of their caregiving responsibilities. Unlike prior studies that have predominantly focused on Western contexts, this study shifts attention to observers' differentiated discrimination against men and women in China involved in work–family interference. The findings across four main experiments ($N = 2577$) suggest that shouldering family responsibility in the context of both family interference in work and work interference in family would stimulate more discrimination against men in urban China. We also explore whether a firm's work–family balance policies can mitigate such discrimination. The results demonstrate that such policies mitigate supervisors' discrimination against men involved in family interference in work but not observers' discrimination against men involved in work interference in family. Post-hoc experiments and further tests ($N = 931$) demonstrate the robustness of our findings and show additional insights. Our findings suggest that gender discrimination in non-Western contexts can be very different.

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INTRODUCTION

Conventional wisdom about gender discrimination is that women in the workplace are more likely to be discriminated against than men. Additionally, women are often paid less at the same positions^{1,2}, and are less likely to be promoted^{3,4}. One type of gender discrimination is family responsibility discrimination that often occurs among female workers based on their family responsibilities^{5,6}, which can be traced to their traditional roles of managing childcare and housework^{7,8} and related gender difference stereotypes⁹. The family responsibility discrimination issue has become more complicated of late with a large proportion of dual-earning families¹⁰ and growing demands for caregiving from men and breadwinning from women^{11,12}. This is more salient with the development of teleworking devices when many people have to work from home while shouldering more home responsibilities¹³.

Several studies have examined the differential impact on males and females of shouldering home responsibilities, but most have focused on the resulting work overload, stress, and work–family conflict^{14,15}. Little is known about how observers find this difference in shouldering childcare and housework responsibilities and how their views differ between men and women. Moreover, prior studies have predominantly focused on family responsibility discrimination in Western contexts¹⁶. While a few have examined labor market discrimination against married women and mothers^{17,18}, there is still limited knowledge about gender differences in the consequences of shouldering family responsibilities in China.

Scholars have suggested that cultural norms interact with institutional contexts to affect the patterns of gender convergence¹⁹. There are obvious differences in terms of political, economic, cultural, and institutional systems among countries^{20–24}. Nevertheless, Eastern countries have experienced dramatic society changes in the past few decades²⁵, with China as a typical example. In the past, it is generally believed that Chinese hold more conservative views in gender role attitudes²⁶.

However, it has been experiencing an integration of Eastern, Western, tradition and modernity views toward gender in the past decades²⁵. Therefore, it is important to understand more about Chinese people's views on gender roles and gender discrimination today. To fill these gaps, this study attempts to explore the following research questions by focusing on urban China where people encounter more work–family interference: In urban China, who are more likely to be discriminated against by observers when holding more family responsibilities, male or female workers? What measures can be used to fend off the discriminations?

According to social role theory, although originating from physical differences, the differences and similarities in the behaviors of men and women mainly emanate from societal gender role beliefs^{27,28}. Men are thought to be agentic (masterful, dominant, and aggressive), whereas women are thought to be communal (friendly, unselfish, and caring individuals)²⁹. Research has shown that gender role norms not only guide people's work and family role behaviors^{30,31}, but also affect their expectations and attributions regarding men and women^{32,33}. Although the literature has predominantly focused on discrimination against women^{34,35}, theoretically, both women and men can be discriminated against in gender-incongruent domains. We adopt the social role theory to propose that, because traditional gender role beliefs, such as that men should be breadwinners and women caregivers⁹, still prevail in urban China^{36,37}, men would be more discriminated against when holding more housework and childcare tasks as it is incongruent with gender expectations. Therefore, compared with women, men are more likely to be observed in contempt in the context of family interference in work (hereafter "FIW"), but less likely to be so in the context of work interference in family (hereafter "WIF"). In addition, we explore whether a firm's work–family balance ("WFB") policies can mitigate such discrimination, and whether the gender discrimination effects found vary across different groups.

¹School of Management, Shandong University, 27 Shandan, Licheng District, Jinan 250100, PR China. ²Business School, Shandong Normal University, 1 Daxue Road, Changqing District, Jinan 250300, PR China. ✉email: xuyueh@sdu.edu.cn

To test the hypothesized causal relationships, we conducted four main experiments from late November 2021 to early June 2022 with a total of 2577 participants from urban China. Participants were recruited from *Sojump* (<http://www.sojump.com>), a leading online crowdsourcing platform in China^{38–41}. The large pool of participants of *Sojump* and our random selection help us avoid potential selection biases in the experiments. For key observers, we zoomed in on supervisors and irrelevant observers of workers because their discrimination can directly or indirectly affect workers' work and life outcomes. Specifically, in our main experiments, irrelevant observers are general others in the society; in the post-hoc experiment, they are the community neighbors. In China, people are deeply influenced by the collectivist culture^{42,43}. In such a culture, people view the whole society as a big family⁴⁴, and similar to community neighbors in Western societies⁴⁵, they tend to use informal social control as the means to curb unethical behaviors of others in the society, which may bring consequences⁴⁶. Therefore, individuals care about the opinions and views of others (include families, friends, and even general others in the society) in their life and career development⁴⁷.

In all the experiments, we deployed a single-factor between-subject design. Participants were randomly assigned to different groups and asked to read different scenarios that manipulated the core factor. We examined supervisors' contempt under the context of FIW in Experiment 1 and 3, and irrelevant observers' contempt under the context of WIF in Experiment 2 and 4. Because supervisors care more about work performance of the workers, FIW would be more likely to influence their evaluation of the workers. In contrast, influenced by the collectivist culture⁴³ and Confucianism⁴², people in China would view the whole society as a big family and simply generalize experiences and habits acquired in the family to any individuals or groups in the society^{42,44}. Therefore, irrelevant observers (i.e., general others or community neighbors) would care more about whether the workers have fulfilled their family responsibility in their evaluation, and WIF would be affect their evaluation of the workers.

The results from the first experiment reveal that men receive more contempt from supervisors than women in the context of FIW. Contrary to our prediction, the results of the second experiment demonstrated that men are more held in contempt by irrelevant observers in the context of WIF. The third and fourth experiments demonstrate that a firm's WFB policies mitigate supervisors' discrimination against men, but not the discrimination by irrelevant observers. Our additional analyses showed that people of lower subjective socioeconomic status and working in male-dominated industries showed significantly more contempt for males. Moreover, we found that WFB policies play significant roles in alleviating discrimination against males in the context of FIW for those with higher subjective SES, higher education, higher or lower income, working in male-dominated industries, and born in the urban or rural areas. Additional post-hoc experiments,

robustness checks, and further tests demonstrate the robustness of our findings.

RESULTS

Study 1: Gender discrimination in the context of FIW

The goal of Experiment 1 was to determine the differences in *supervisor contempt for a female versus male worker* in the context of FIW. This study comprised 650 participants with managerial experience from urban China. All participants were randomly assigned to one of the two scenarios, with 325 participants in each scenario. In both scenarios, participants were asked to imagine that they were supervisors of a department, and a worker in the department was often asked to leave for family reasons. All the information is the same in both scenarios except for *worker's gender*. After reading the scenarios, participants were asked to rate their contempt for the worker. They were also asked to report their personal background information and the *pandemic risk levels of the regions* in which they stayed because it was conducted during COVID-19 pandemic.

The results of the *T*-test are shown in the top half of Table 1, and reveal that participants in the male worker group showed more contempt than those in the female worker group ($M_{diff} = 0.387$, $se = 0.110$, $p < 0.001$), indicating discrimination against men involved in FIW. The bar chart in the top left corner of Fig. 1 shows the means for supervisor contempt under the different conditions in Experiment 1. It is clear to see the difference in supervisor-perceived contempt for female and male workers.

Study 2: Gender discrimination in the context of WIF

The goal of Experiment 2 was to determine the differences in *irrelevant observer contempt for a male versus female worker* in the context of WIF when working at home. The irrelevant observers were general others in the society. This study included a total of 816 participants from urban China. They were randomly assigned to one of the two scenarios. In both scenarios, participants were asked to imagine that they, as irrelevant observers, found a wife/husband's negligence in her/his childcare when she/he was working at home. All the information is the same in both scenarios except for the *worker's gender*. After reading the scenarios, participants were asked to rate their contempt for the worker and report their personal background information, as in Experiment 1.

As shown in the top half of Table 2, the participants showed higher contempt for male workers than for female workers ($M_{diff} = 0.232$, $se = 0.081$, $p < 0.01$), indicating discrimination against men with WIF. The bar chart in the top-right corner of Fig. 1 shows the means for irrelevant observers' contempt under the different conditions in Experiment 2. We can clearly see participants demonstrated more contempt for male workers than for female workers. To further explore the mechanism underlying irrelevant observers' contempt, we asked participants to rate *family conscientiousness of the worker* described in the scenario

Table 1. Two-sided independent sample T-test results of supervisor contempt in Experiments 1 and 3.

Construct		N	Mean (s.d.)	Diff	s.e.	95% C.I.	t	d.f.	Effect size (<i>r</i>)
<i>Experiment 1 (Sample size 650): Supervisor contempt for the worker (male vs. female)</i>									
Contempt	Male	325	3.352 (1.408)	0.387***	0.110	(0.172, 0.601)	3.54	648	0.138
	Female	325	2.965 (1.379)						
<i>Experiment 3 (Sample size 513): Supervisor contempt for the male worker</i>									
Contempt	High WFB	255	3.054 (1.365)	−0.327**	0.125	(0.083, 0.572)	2.64	511	0.116
	Low WFB	258	3.381 (1.448)						

*** indicates significance at the $p < 0.001$ (** $p < 0.01$) level of confidence.

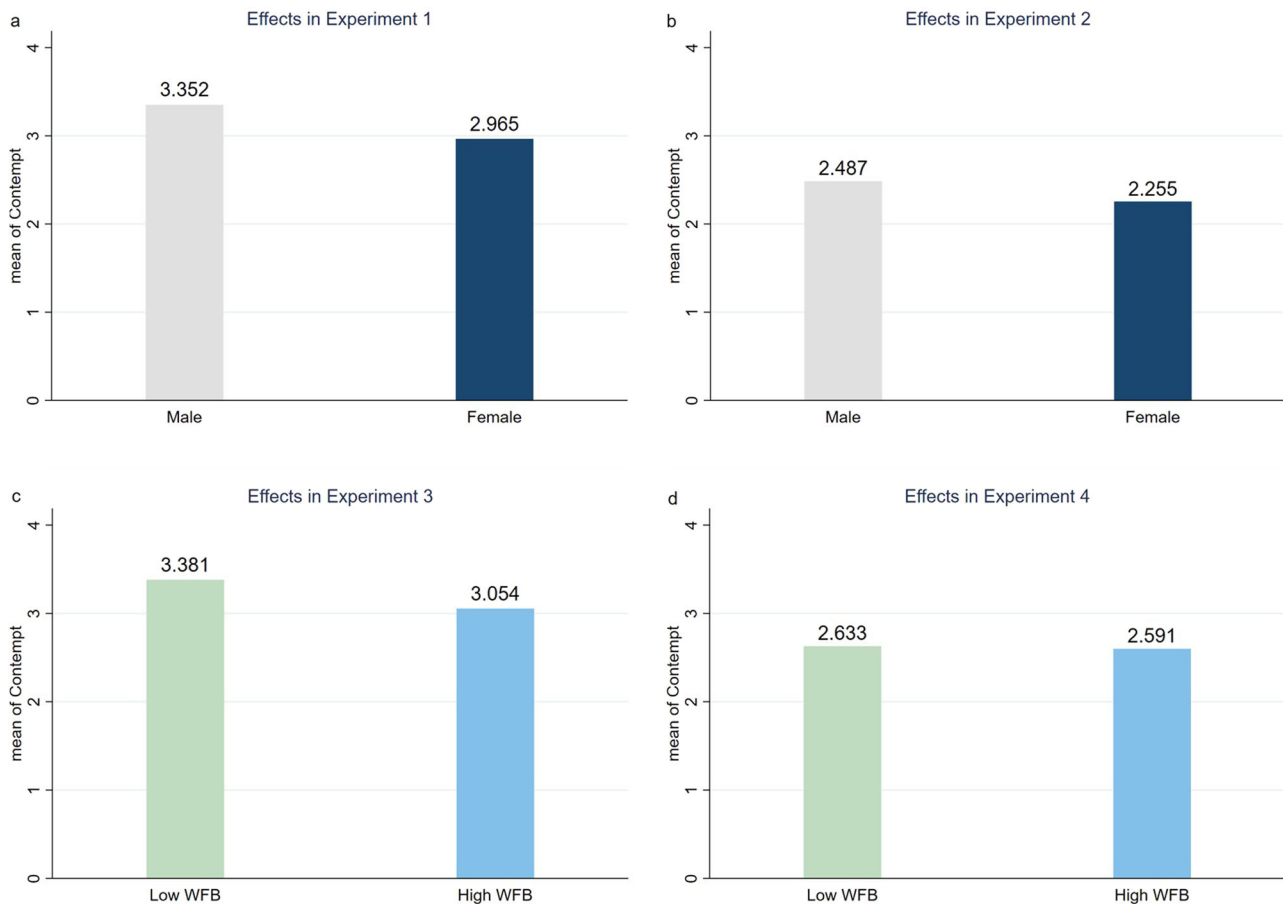


Fig. 1 Comparing participants' contempt under different conditions. **a**, **b**, **c**, and **d** respectively depict the means for supervisor contempt under the different conditions in Experiments 1, 2, 3, and 4.

using an existing scale⁴⁸. The results revealed that for the full sample, participants showed lower family responsibility ratings for male workers than for female workers ($M_{diff} = -0.335$, $se = 0.069$, $p < 0.001$).

Study 3: Effect of WFB policies in the context of FIW

Given our findings on gender discrimination against male workers with FIW in Experiment 1, Experiment 3 was designed to further examine the effect of a firm's WFB policies in mitigating supervisor contempt for the male worker with FIW. In total, 513 managers from urban China were recruited and randomly assigned to two scenarios (*low vs. high WFB policies*). We manipulated the firm's WFB policies by differentiating the descriptions. Under high WFB policies, the firm was described as caring for workers' interests and helping workers to take on their family responsibilities, while under low WFB policies, it was described as neglecting worker interests and implementing strict management policies. The manipulation of the male worker's FIW was the same as in Experiment 1. Finally, the participants were asked to rate their contempt for the male worker and answer questions for the manipulation check. All measures of the variables were the same as in Experiment 1.

As shown in the bottom half of Table 1, participants showed less contempt for the male worker with FIW in the condition of high WFB policies than in the condition of low WFB policies ($M_{diff} = -0.327$, $se = 0.125$, $p < 0.01$). The bar chart in the lower left corner of Fig. 1 shows the means of participants' contempt for male workers under different conditions in Experiment 3. It is clearly seen that WFB policies alleviate supervisors' contempt for male workers with FIW to a large extent.

Study 4: Effect of WFB policies in the context of WIF

Based on our findings on gender discrimination against male workers with WIF in Experiment 2, Experiment 4 was designed to examine the role of a firm's WFB policies in mitigating irrelevant observer contempt for the male worker with WIF. A total of 598 participants from urban China participated in this experiment. They are randomly assigned to two scenarios (*low vs. high firm WFB policies*). The manipulation of the firm's WFB policies was the same as in Experiment 3, while that of the male workers' WIF was the same as in Experiment 2. Finally, the participants were asked to rate their contempt for the male worker and answer questions for the manipulation check. All measures of the variables were the same as in Experiment 2.

As shown in the bottom half of Table 2, participants showed no difference in contempt for male workers with WIF under the conditions of low and high WFB policies ($M_{diff} = -0.042$, $se = 0.106$, *n.s.*). The same trends can be observed in the bar chart in the lower-right corner of Fig. 1.

Additional results in the four main experiments

We also investigated whether the gender discrimination effects found in Experiments 1–4 vary across groups. Prior studies have shown significant correlations between socioeconomic status (SES) and gender stereotypes^{49,50}. As links between SES and people's attitudes may differ by whether SES is assessed objectively or subjectively⁵¹, we further grouped the participants in all experiments according to their *subjective SES* and *objective SES*. Following the literature^{51,52}, we selected *education* and *income* as the objective SES indicators. In addition, we also

Table 2. Two-sided independent sample *T*-test results of irrelevant observer contempt in Experiments 2 and 4.

Construct		<i>N</i>	Mean (s.d.)	Diff	s.e.	95% C.I.	<i>t</i>	d.f.	Effect size (<i>r</i>)
<i>Experiment 2 (Sample size 816): Irrelevant observer contempt for the worker (male vs. female)</i>									
Contempt	Male	403	2.487 (1.180)	0.232**	0.081	(0.074, 0.391)	2.87	814	0.100
	Female	413	2.255 (1.128)						
<i>Experiment 4 (Sample size 598): Irrelevant observer contempt for the male worker</i>									
Contempt	High WFB	299	2.591 (1.232)	−0.042	0.106	(−0.166, 0.251)	0.40	596	0.016
	Low WFB	299	2.633 (1.363)						

** indicates significance at the $p < 0.01$ level of confidence.

Table 3. Two-sided independent sample *T*-test results of supervisors' contempt for different groups in Experiment 1.

Construct		<i>N</i>	Mean (s.d.)	Diff	s.e.	95% C.I.	<i>t</i>	d.f.	Effect size (<i>r</i>)	Suest
<i>Experiment 1 (Sample size 650): Supervisor contempt for the worker (male vs. female)</i>										
Higher subjective SES	Male	30	3.433 (1.718)	0.284	0.446	(−0.609, 1.177)	0.64	57	0.084	0.06
	Female	29	3.149 (1.708)							
Lower subjective SES	Male	295	3.344 (1.376)	0.397***	0.112	(0.177, 0.616)	3.54	589	0.144	
	Female	296	2.947 (1.345)							
Higher income	Male	83	3.365 (1.547)	0.477*	0.239	(0.007, 0.949)	2.00	158	0.157	0.2
	Female	77	2.888 (1.463)							
Lower income	Male	242	3.347 (1.361)	0.358**	0.123	(0.117, 0.599)	2.92	488	0.131	
	Female	248	2.989 (1.355)							
Higher education level	Male	280	3.401 (1.454)	0.453***	0.120	(0.219, 0.687)	3.80	554	0.159	2.64
	Female	276	2.948 (1.356)							
Lower education level	Male	45	3.045 (1.039)	−0.016	0.271	(−0.554, 0.520)	−0.06	92	0.006	
	Female	49	3.061 (1.516)							
Female-dominated industry	Male	78	2.974 (1.247)	−0.063	0.197	(−0.450, 0.324)	−0.32	184	0.024	6.74**
	Female	108	3.037 (1.372)							
Male-dominated industry	Male	247	3.471 (1.437)	0.542***	0.132	(0.283, 0.800)	4.12	462	0.188	
	Female	217	2.929 (1.385)							
Born in urban areas	Male	226	3.466 (1.414)	0.380**	0.134	(0.117, 0.644)	2.84	450	0.133	0.01
	Female	226	3.086 (1.437)							
Born in rural areas	Male	99	3.091 (1.367)	0.401*	0.183	(0.040, 0.761)	2.19	196	0.155	
	Female	99	2.690 (1.201)							

*** indicates significance at the $p < 0.001$ (** $p < 0.01$, * $p < 0.05$) level of confidence.

grouped the participants according to other characteristics and obtained the following interesting results as shown in Tables 3–6.

Overall, the subjective SES is only moderately correlated with education (Experiment 1: $r = 0.16$; Experiment 2: $r = 0.17$) and monthly income (Experiment 1: $r = 0.31$; Experiment 2: $r = 0.38$), indicating that they are different. Moreover, we find that participants with lower subjective SES demonstrated significantly more contempt for male workers than for females in both the FIW (Table 3) and WIF contexts (Table 4) (FIW: $M_{diff} = 0.397$, $se = 0.112$, $p < 0.001$; WIF: $M_{diff} = 0.244$, $se = 0.083$, $p < 0.01$). In the context of FIW, participants in both higher- and lower income subgroups showed more contempt for male workers than for female workers (higher income: $M_{diff} = 0.477$, $se = 0.239$, $p < 0.05$; lower income: $M_{diff} = 0.358$, $se = 0.123$, $p < 0.01$), whereas in the context of WIF, only lower income participants showed more contempt for male subgroups (lower income: $M_{diff} = 0.236$, $se = 0.085$, $p < 0.01$). However, participants with higher educational levels showed significantly more contempt for males than for females in both FIW and WIF contexts (FIW: $M_{diff} = 0.453$, $se = 0.120$, $p < 0.001$; WIF: $M_{diff} = 0.297$, $se = 0.093$, $p < 0.001$). Overall, these findings are

largely consistent with past studies in that people of lower socioeconomic status hold more conventional beliefs such as gender role stereotypes^{53,54}. However, we can see clearly differences between subjective SES and objective SES indicators. Particularly, the findings on the impact of education shows a departure^{55,56}, perhaps because individuals with higher levels of education often experienced greater psychological anxiety and stress in China, particularly during the pandemic⁵⁷. To reduce stress and conflict, they may be using intuitive reasoning to increase predictability and feeling of control⁵⁸ and adopt conventional gender stereotypical thinking.

In addition, participants working in *male-dominated industries* showed significantly more contempt for males (FIW: $M_{diff} = 0.542$, $se = 0.132$, $p < 0.001$; WIF: $M_{diff} = 0.307$, $se = 0.101$, $p < 0.01$). This may be because traditional gender role expectations for men are relatively stronger in male-dominated industries⁵⁹, and workers in such industries may hold relatively more traditional gender role stereotypes. In the context of FIW, participants *born in urban* as well as *rural areas* showed more contempt for males (urban areas: $M_{diff} = 0.380$, $se = 0.134$, $p < 0.01$; rural areas: $M_{diff} = 0.401$,

Table 4. Two-sided independent sample *T*-test results of irrelevant observers' contempt for different groups in Experiment 2.

Construct		<i>N</i>	Mean (s.d.)	Diff	s.e.	95% C.I.	<i>t</i>	d.f.	Effect size (<i>r</i>)	Suest
<i>Experiment 2 (Sample size 816): Irrelevant observer contempt for the worker (male vs. female)</i>										
Higher subjective SES	Male	24	2.264 (0.927)	0.047	0.363	(−0.686, 0.779)	0.13	45	0.019	0.29
	Female	23	2.217 (1.510)							
Lower subjective SES	Male	379	2.501 (1.194)	0.244**	0.083	(0.081, 0.407)	2.91	767	0.105	
	Female	390	2.257 (1.104)							
Higher income	Male	49	2.531 (1.282)	0.204	0.251	(−0.294, 0.702)	0.81	95	0.083	0.01
	Female	48	2.327 (1.186)							
Lower income	Male	354	2.481 (1.167)	0.236**	0.085	(0.068, 0.403)	2.76	717	0.103	
	Female	365	2.245 (1.122)							
Higher education level	Male	305	2.513 (1.218)	0.297***	0.093	(0.114, 0.480)	3.19	631	0.127	2.54
	Female	328	2.216 (1.130)							
Lower education level	Male	98	2.405 (1.055)	0.001	0.161	(−0.316, 0.318)	0.01	181	0.001	
	Female	85	2.404 (1.118)							
Female-dominated industry	Male	145	2.297 (1.143)	0.093	0.134	(−0.169, 0.356)	0.70	302	0.040	1.64
	Female	159	2.204 (1.178)							
Male-dominated industry	Male	258	2.594 (1.189)	0.307**	0.101	(0.108, 0.506)	3.03	510	0.134	
	Female	254	2.287 (1.097)							
Born in urban areas	Male	228	2.538 (1.223)	0.266**	0.114	(0.043, 0.490)	2.34	458	0.109	0.25
	Female	232	2.272 (1.217)							
Born in rural areas	Male	175	2.421 (1.120)	0.187†	0.113	(−0.035, 0.409)	1.66	354	0.088	
	Female	181	2.234 (1.007)							

*** indicates significance at the $p < 0.001$ (** $p < 0.01$, † $p < 0.1$) level of confidence.

Table 5. Two-sided independent sample *T*-test results of the effects of firm WFB for different groups in Experiment 3.

Construct		<i>N</i>	Mean (s.d.)	Diff	s.e.	95% C.I.	<i>t</i>	d.f.	Effect size (<i>r</i>)	Suest
<i>Experiment 3 (Sample size 513): Supervisor contempt for the male worker</i>										
Higher subjective SES	High WFB	41	2.862 (1.581)	−1.096**	0.363	(0.371, 1.822)	3.01	71	0.336	5.47*
	Low WFB	32	3.958 (1.490)							
Lower subjective SES	High WFB	214	3.090 (1.320)	−0.209	0.131	(−0.049, 0.467)	1.59	438	0.076	
	Low WFB	226	3.299 (1.426)							
Higher income	High WFB	86	3.062 (1.561)	−0.469†	0.246	(−0.016, 0.955)	1.91	158	0.150	0.49
	Low WFB	74	3.531 (1.536)							
Lower income	High WFB	169	3.049 (1.258)	−0.271†	0.143	(−0.009, 0.552)	1.90	351	0.101	
	Low WFB	184	3.320 (1.411)							
Higher education level	High WFB	237	3.080 (1.380)	−0.340**	0.132	(0.082, 0.598)	2.59	469	0.119	0.01
	Low WFB	234	3.420 (1.472)							
Lower education level	High WFB	18	2.704 (1.120)	−0.296	0.353	(−0.417, 1.010)	0.84	40	0.132	
	Low WFB	24	3.000 (1.142)							
Female-dominated industry	High WFB	63	3.101 (1.361)	−0.217	0.255	(−0.286, 0.721)	0.86	127	0.076	0.26
	Low WFB	66	3.318 (1.521)							
Male-dominated industry	High WFB	192	3.038 (1.369)	−0.365*	0.143	(0.084, 0.645)	2.56	382	0.130	
	Low WFB	192	3.403 (1.426)							
Born in urban areas	High WFB	181	3.138 (1.432)	−0.318*	0.154	(0.015, 0.620)	2.06	362	0.108	0.02
	Low WFB	183	3.456 (1.504)							
Born in rural areas	High WFB	74	2.847 (1.167)	−0.353†	0.202	(−0.046, 0.752)	1.75	147	0.143	
	Low WFB	75	3.200 (1.293)							

** indicates significance at the $p < 0.01$ (* $p < 0.05$, † $p < 0.1$) level of confidence.

Table 6. Two-sided independent sample *T*-test results of the effects of firm WFB for different groups in Experiment 4.

Construct		<i>N</i>	Mean (s.d.)	Diff	s.e.	95% C.I.	<i>t</i>	d.f.	Effect size (<i>r</i>)	Suest
<i>Experiment 4 (Sample size 598): Irrelevant observer contempt for the male worker</i>										
Higher subjective SES	High WFB	17	2.529 (1.259)	0.170	0.452	(−1.096, 0.755)	−0.38	28	0.072	0.25
	Low WFB	13	2.359 (1.182)							
Lower subjective SES	High WFB	282	2.595 (1.232)	−0.051	0.109	(−0.164, 0.266)	0.47	566	0.020	
	Low WFB	286	2.646 (1.371)							
Higher income	High WFB	55	2.624 (1.234)	0.166	0.255	(−0.672, 0.340)	−0.65	101	0.065	0.79
	Low WFB	48	2.458 (1.354)							
Lower income	High WFB	244	2.583 (1.233)	−0.084	0.117	(−0.147, 0.313)	0.71	493	0.032	
	Low WFB	251	2.667 (1.365)							
Higher education level	High WFB	263	2.591 (1.170)	−0.042	0.112	(−0.177, 0.263)	0.38	522	0.017	0.00
	Low WFB	261	2.633 (1.384)							
Lower education level	High WFB	36	2.593 (1.631)	−0.039	0.334	(−0.628, 0.706)	0.12	72	0.014	
	Low WFB	38	2.632 (1.227)							
Female-dominated industry	High WFB	94	2.270 (1.208)	−0.193	0.198	(−0.198, 0.586)	0.98	174	0.074	1.00
	Low WFB	82	2.463 (1.426)							
Male-dominated industry	High WFB	205	2.738 (1.217)	0.041	0.125	(−0.286, 0.204)	−0.33	420	0.016	
	Low WFB	217	2.697 (1.336)							
Born in urban areas	High WFB	197	2.646 (1.292)	0.007	0.135	(−0.272, 0.257)	−0.06	387	0.003	0.46
	Low WFB	192	2.639 (1.362)							
Born in rural areas	High WFB	102	2.484 (1.105)	−0.139	0.173	(−0.201, 0.480)	0.81	207	0.056	
	Low WFB	107	2.623 (1.370)							

$se = 0.183, p < 0.05$). Similar effects were found in the context of WIF (urban areas: $M_{diff} = 0.266, se = 0.114, p < 0.01$; rural areas: $M_{diff} = 0.187, se = 0.113, p < 0.1$). This may have been caused by rapid migration in China, resulting in urban and rural people becoming increasingly similar in attitudes, including in gender role stereotypes.

The results also show that firm WFB policies play significant roles in alleviating discrimination against males in the context of FIW (Table 5) for those with higher subjective SES ($M_{diff} = -1.096, se = 0.363, p < 0.01$), with higher education ($M_{diff} = -0.340, se = 0.132, p < 0.01$), with higher income ($M_{diff} = -0.469, se = 0.246, p < 0.1$), with lower income ($M_{diff} = -0.271, se = 0.143, p < 0.1$), working in male-dominated industries ($M_{diff} = -0.365, se = 0.143, p < 0.05$), born in the urban areas ($M_{diff} = -0.318, se = 0.154, p < 0.05$), and born in the rural areas ($M_{diff} = -0.353, se = 0.202, p < 0.1$). Overall, these results demonstrate the robustness of our findings regarding the effects of a firm's WFB policies in the FIW context.

Post-hoc experiments and further tests

To verify the robustness of the results and provide additional insights, we conducted five additional experiments in late August 2023 with a total of 931 participants from urban China. See Table 7 for detailed results. First, we included a post-hoc experiment (i.e., Post-hoc Experiment) including 132 participants to examine whether the results in Experiment 2 hold when the participants are the community neighbors of the focal workers (i.e., irrelevant observers living in the same community as the focal workers). We find more contempt for men than for women ($M_{diff} = 0.369, se = 0.216, p < 0.05$), which is similar to the findings in Experiment 2.

Second, both engaging in care of aged parents and engaging in care of child are typical family responsibilities. To test whether the gender discrimination we founded varies with the types of family responsibilities, we conducted another two experiments (i.e., Experiment 1i and 2i), with only the content of family

responsibility changed to engaging in care of aged parents. A total of 212 participants were included for Experiment 1i and 196 for Experiment 2i. The analysis shows significant and more contempt for men than for women in both FIW and WIF contexts (FIW: $M_{diff} = 0.433, se = 0.198, p < 0.05$; WIF: $M_{diff} = 0.345, se = 0.188, p < 0.05$), which is consistent with what we have found in Experiment 1 and Experiment 2.

Third, we added two additional experiments to examine gender role discrimination in the context of FIW and WIF when switching participants' perspectives. Specifically, the Experiment 1ii considers FIW from the point of view of irrelevant observers while Experiment 2ii considers WIF from the point of view of supervisors. The sample size of Experiment 1ii is 211 and that for Experiment 2ii is 180. We found that irrelevant observers show more contempt towards men than women in the context of FIW, which is marginally significant ($M_{diff} = 0.290, se = 0.199, p < 0.10$), while supervisors show less contempt for men than for women in the context of WIF, which is not significant ($M_{diff} = -0.115, se = 0.206, n.s.$). This may be because supervisors do not care much about the impact of work on the family in China.

Fourth, we also used ordinary linear square regression (OLS) as an alternative analytical method and controlled for the influence of participants' personal information, such as age, gender, education level, etc., and regional pandemic risk. As reported in Table 8, the results in all the four main experiments remain consistent with that from the main analyses. The results demonstrate robustness of our findings.

DISCUSSION

Employing four experiments in China, our research finds that in urban China discrimination against men involved in FIW is higher than against their female counterparts. These results are contrary to past findings that women were more discriminated in workplace^{3,4,60}, but it is consistent with the traditional gender role beliefs that women are expected to bear more family responsibilities, and men are expected to bear more work

Table 7. Results for the post-hoc experiment and further tests.

Construct		N	Mean (s.d.)	Diff	s.e.	95% C.I.	t	d.f.	Effect size (r)
<i>Post-hoc Experiment (Sample size 132): Community observer contempt for the worker (male vs. female) in the context of WIF</i>									
Contempt	Male	64	3.016 (1.350)	0.369*	0.216	(−0.058, 0.795)	1.71	130	0.148
	Female	68	2.647 (1.124)						
<i>Experiment 1i (Sample size 212): Supervisor contempt for the worker (male vs. female) in the context of FIW (care of aged parents)</i>									
Contempt	Male	107	3.747 (1.498)	0.433*	0.198	(0.043, 0.824)	2.19	210	0.149
	Female	105	3.314 (1.386)						
<i>Experiment 2i (Sample size 196): Irrelevant observer contempt for the worker (male vs. female) in the context of WIF (care of aged parents)</i>									
Contempt	Male	96	2.712 (1.449)	0.345*	0.188	(−0.026, 0.716)	1.84	194	0.131
	Female	100	2.367 (1.174)						
<i>Experiment 1ii (Sample size 211): Irrelevant observer contempt for the worker (male vs. female) in the context of FIW</i>									
Contempt	Male	101	3.469 (1.426)	0.290†	0.199	(−0.102, 0.682)	1.46	209	0.100
	Female	110	3.179 (1.456)						
<i>Experiment 2ii (Sample size 180): Supervisor contempt for the worker (male vs. female) in the context of WIF</i>									
Contempt	Male	85	2.674 (1.259)	−0.115	0.206	(−0.522, 0.293)	−0.56	178	0.042
	Female	95	2.789 (1.485)						

* indicates significance at the $p < 0.05$ († $p < 0.1$) level of confidence.

Table 8. OLS regression results in the four main experiments.

Variable	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Gender	−0.352*** (0.106)	−0.225** (0.080)		
WFB			−0.348** (0.124)	−0.057 (0.104)
<i>Controls</i>				
Participants' gender	−0.128 (0.117)	−0.200* (0.093)	−0.113 (0.136)	−0.262* (0.118)
Age	0.149* (0.059)	0.057 (0.037)	0.105 (0.097)	−0.044 (0.062)
Degree	0.147 (0.090)	−0.011 (0.047)	0.124 (0.110)	−0.104 (0.092)
Income	−0.010 (0.073)	0.034 (0.047)	−0.027 (0.084)	−0.042 (0.066)
SES	−0.329** (0.110)	−0.104 (0.067)	0.087 (0.130)	−0.034 (0.093)
Born in city or not	0.354** (0.119)	0.059 (0.084)	0.203 (0.143)	0.128 (0.115)
Regional risk	0.598*** (0.118)	0.412*** (0.088)	0.216 (0.134)	0.459*** (0.112)
Industry within more women	−0.087 (0.129)	−0.109 (0.095)	0.005 (0.157)	−0.233† (0.128)
Constant	2.708*** (0.592)	2.523*** (0.321)	2.034** (0.673)	3.462*** (0.524)
N	650	816	513	598

*** indicates significance at the $p < 0.001$ (** $p < 0.01$, * $p < 0.05$, † $p < 0.1$) level of confidence; standard errors are given in parentheses.

responsibilities⁸. In other words, male workers are expected to focus on their work rather than being distracted by family responsibilities.

Contrary to our prediction, the results show that in urban China discrimination against men involved in WIF is higher than that

against females. This may be due to people's enhanced expectations of men to assume more family responsibilities. Urban Chinese women—like women elsewhere—face a double burden in the male-centered work world and female-centered home⁶¹. With various social efforts to promote gender equality in

China⁶², such expectations may be increasing, especially in the context of working from home. However, in reality, women still perform more housework and care work in the family context¹⁴. Facing a gap between expectations and reality, people tend to be less tolerant of men's accidental negligence of family responsibilities than that of women.

In addition, we find that a firm's WFB policies can reduce supervisors' discrimination against males in the context of FIW, whereas such an effect was not observed in the context of WIF. According to existing research, a firm with WFB policies often has a family friendly culture. This means that supervisors support workers to achieve a better balance between work and family life⁶³, and would not criticize them for assuming more family responsibilities. However, the firm's WFB policies fail to alleviate discrimination against men in the family context, suggesting that such policies have a limited effect. Future studies should explore other tactics that can help alleviate this discrimination.

The findings have important implications for the literature and practice. First, previous studies have often focused on discrimination against minority groups. Contrary to the conventional wisdom that women are more likely than men to face discrimination^{1–4}, we find that shouldering family responsibilities in the contexts of both FIW and WIF would stimulate more discrimination against men in China relative to women. Further, unlike prior research that has focused on the varying degrees of discrimination when people violate traditional gender stereotype⁶⁴, our findings suggest that in China, people's expectations around division of family responsibilities are changing. Finally, while previous studies have been focused on gender discrimination in Western contexts, our findings suggest that gender discrimination in non-Western contexts can be very different.

Second, this study contributes to the literature by examining tactics for mitigating workplace gender discrimination. Previous studies found that the commonly used work–family accommodations, such as flexible work arrangements⁶⁵, might create a “flexibility stigma” for females who use such policies⁶⁶. Our study goes beyond this to demonstrate that a WFB policy package can play a positive role in fending off discrimination against male workers facing FIW, and presents a clearer picture of the consequences of work–family accommodation.

Finally, this research contributes to the work–family literature. While prior studies have mostly focused on consequences such as work overload, burnout, work–family conflict^{14,15}, and legal resolution⁶⁷, our findings on gender differences in suffering family responsibility discrimination enrich the understanding of how observers, including supervisors and irrelevant observers, view workers involved in FIW and WIF, respectively. Because observer discrimination could put further pressure on workers, researchers can pursue this strand to investigate how other observers view such workers and how to address such discrimination.

Future research could also investigate other factors that can reduce gender discrimination, particularly in the post-pandemic era. For instance, companies such as Microsoft and Twitter have indicated that staff could stay remote even after the pandemic eased. It has become necessary to explore whether the widespread application of teleworking technology can improve the division of family responsibilities and gender attitudes among workers.

METHODS

This study was approved by the Research Ethics Committee of the first author's affiliated university and was performed in accordance with the ethical standards of the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. In all the studies, the participants provided informed consent before participation. All participants were compensated for their time

with a flat fee ranging from ¥ 7–10 to each participant in the different experiments.

Sampling method

We recruited participants from *Sojump*, which is a leading online crowdsourcing platform like Mechanical Turk in China. It comprises 2.6 million respondents, whose personal information was confirmed, allowing for an authentic, diverse, and representative sample. Many studies have used samples from *Sojump* in China in their research^{38–41}.

To ensure the quality of the experiments, in all of our studies, exclusion criteria were applied and administered in all experiments. Respondents were required to pass a captcha image check to gain access, and the *Sojump* platform excluded repeat participants for all our experiments. We also excluded participants under the age of 18. In experiments with participants as supervisors, participants were restricted to those who had experiences of supervising workers; in all the experiments, participants should work or live in the urban areas. In addition, we excluded participants who did not complete the main task or failed the attention-check task. Across all experiments, as an attention check, we asked the participants to indicate their imaginary identities. The attention check could be passed only when the selected options were consistent with the experimental instructions. We have compared the participants in the treatment group and control group for each experiment, and found no significant differences on personal attributes, such as age, gender, education level, etc.

Experiment 1 recruited 710 participants with managerial experience. Of these participants, 60 failed the attention-check questions, leaving 650 participants for the final analysis (48.9% (318) females; 4.6% (30) aged 18–25 years, 30.5% (198) aged 26–30 years, 46.2% (300) aged 31–40 years, 10.7% (70) aged 41–50 years, 7% (46) aged 51–60 years, and 1% (6) aged above 60 years; the mean of monthly income in the range of 8001–17,000 yuan; 85.5% obtained the bachelor degree or above). A total of 844 participants were recruited for Experiment 2. Among them, only 816 participants passed the attention check and were used for data analysis (56.5% (461) females; 15.2% (124) aged 18–25, 34.3% (280) aged 26–30, 31.1% (254) aged 31–40, 10.2% (83) aged 41–50, 7.7% (63) aged 51–60, and 1.5% (12) aged >60 years; the mean of monthly income in the range of 4001–8000 yuan; 77.7% obtained the bachelor degree or above). Experiment 3 recruited another 615 managers, among whom 102 failed the attention check, leaving 513 participants for analysis (47.6% (244) females; 3.1% (16) aged 18–25, 31.6% (162) aged 26–30, 58.9% (302) aged 31–40, 5.8% (30) aged 41–50, and 0.6% (3) aged 51–60; the mean of monthly income in the range of 8001–17,000 yuan; 91.9% obtained the bachelor degree or above). A total of 625 participants were recruited in Experiment 4, among whom 598 passed the attention check and were used for data analysis (47.5% (284) females; 19.7% (118) aged 18–25 years, 34.4% (206) aged 26–30 years, 37.6% (225) aged 31–40 years, 5.9% (35) aged 41–50 years, and 2.3% (14) aged 51–60 years; the mean of monthly income in the range of 8001–17,000 yuan; 87.6% obtained the bachelor degree or above).

Post-hoc Experiment recruited 159 participants. Of these participants, 27 failed the attention-check questions, leaving 132 participants for the final analysis (48.5% (64) females; 6.8% (9) aged 18–25 years, 34.9% (46) aged 26–30 years, 43.9% (58) aged 31–40 years, 10.6% (14) aged 41–50 years, 3.8% (5) aged 51–60 years; the mean of monthly income in the range of 8001–17,000 yuan; 84.0% obtained the bachelor degree or above). A total of 226 participants were recruited for Experiment 1i with managerial experience. Among them, only 212 participants passed the attention check and were used for data analysis (48.1% (102) females; 3.7% (8) aged 18–25 years, 33.5% (71) aged 26–30 years,

50.5% (107) aged 31–40 years, 9.9% (21) aged 41–50 years, 2.4% (5) aged 51–60 years; the mean of monthly income in the range of 8001–17,000 yuan; 89.6% obtained the bachelor degree or above). Experiment 2i recruited another 211 participants, among whom 15 failed the attention check, leaving 196 participants for analysis (50.5% (99) females; 8.2% (16) aged 18–25 years, 33.2% (65) aged 26–30 years, 51.0% (100) aged 31–40 years, 6.6% (13) aged 41–50 years, 1.0% (2) aged 51–60 years; the mean of monthly income in the range of 8001–17,000 yuan; 91.3% obtained a bachelor degree or above). A total of 221 participants were initially recruited for Experiment 1ii. However, 10 participants did not pass the attention-check questions, resulting in a final sample size of 211 participants for data analysis (55.5% (117) females; 10.4% (22) aged 18–25 years, 33.2% (70) aged 26–30 years, 45.0% (95) aged 31–40 years, 9.0% (19) aged 41–50 years, 2.4% (5) aged 51–60 years; the mean of monthly income in the range of 8001–17,000 yuan; 89.1% obtained the bachelor degree or above). In Experiment 2ii, a total of 212 managers were initially recruited. Following the attention check, 180 managers successfully passed and were included in the final data analysis (59.4% (107) females; 3.3% (6) aged 18–25 years, 40.6% (73) aged 26–30 years, 47.8% (86) aged 31–40 years, 6.0% (11) aged 41–50 years, 1.7% (3) aged 51–60 years, and 0.6% (1) aged above 60 years; the mean of monthly income in the range of 8001–17,000 yuan; 90.0% obtained the bachelor degree or above).

Procedure

We employed a single-factor between-subject design for all experiments. Participants were randomly assigned to two groups and asked to read different scenarios that manipulated the core factor (Experiments 1 and 2: male vs. female worker; Experiments 3 and 4: male worker and low vs. high WFB policies; Post-hoc Experiment, Experiments 1i, 2i, 1ii, and 2ii: male vs. female worker). We designed firm WFB policies based on the EU Work-Life Balance Directive (or Directive 2019/1158) and corporate social responsibility for work-life balance^{68,69}. After reading the scenarios, participants were asked to rate their contempt using a scale developed by Romani, Grappi, and Bagozzi⁷⁰. In addition, they were also asked to report their own personal background information, such as gender, age, education level, the region where they live, and the pandemic risk level of each region according to the list provided by the Chinese government (“0” for low-risk regions, “1” for middle- or higher-risk regions). During the pandemic, the Chinese government kept updating the risk level of each region every day in the official website (http://www.gov.cn/fuwu/2021-08/08/content_5630141.htm), which was also easily accessible in the WeChat.

Manipulation check

We used both words and pictures to manipulate gender of the workers in the scenarios in Experiments 1 and 2, which were so obvious that there was no need for a manipulation check. For Experiment 3, participants in the high WFB policies condition reported higher levels of perception of firm WFB policies ($M = 5.77$) than participants in the low WFB policies condition ($M = 2.85$; $t = -32.42$, $p < 0.001$). Similar results were found in Experiment 4; participants in the high WFB policies condition reported higher levels of perception of firm WFB policies ($M = 5.89$) than participants in the low WFB policies condition ($M = 3.05$; $t = -30.19$, $p < 0.001$). These results demonstrate the effectiveness of the WFB manipulation.

Data analysis strategy

To test whether any intergroup differences in the mean of the dependent variable, *contempt*, across the four studies, we conducted the main analyses with a two-sided independent

sample *T*-test using STATA. Although the dependent variable was non-normally distributed, previous scholars⁷¹ have pointed out that *T*-test results are still robust under non-normally distributed data. We reported 95% confidence intervals for the *T*-tests and calculated the effect sizes (*r*) using the following equation⁷².

$$r = \sqrt{\frac{t^2}{t^2 + df}} \quad (1)$$

We also performed a least-squares regression analysis for a series of grouped samples (e.g., lower- vs. higher income levels) and tested the between-subsample differences in coefficients using a seemingly unrelated estimation (*Suest* command in STATA).

Reporting summary

Further information on research design is available in the Nature Research Reporting Summary linked to this article.

DATA AVAILABILITY

All data, codes, and scenarios of experiments used in the current article are available at <https://osf.io/52jnt>.

CODE AVAILABILITY

All data, codes, and scenarios of experiments used in the current article are available at <https://osf.io/52jnt>.

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AUTHOR CONTRIBUTIONS

Y.X. led the theorizing, conceptualization, methodology, and writing of the manuscript. S.Z. and M.L. substantially contributed to the conceptualization, methodology, and writing of the manuscript. The first three authors can be considered co-first authors. D.L., H.Z., and G.T. contributed to the conceptualization of the manuscript.

COMPETING INTERESTS

The authors declare no competing interests.

ETHICS APPROVAL:

We have obtained informed consent from all participants. This research was approved by the Research Ethics Committee of Shandong University and was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

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Correspondence and requests for materials should be addressed to Yuehua Xu.

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