Managing Motherhood: How "Queen Bee" Managers in the US Service Sector Reduce Motherhood Advantages in Work Scheduling

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Abstract:

Mothers in the US service sector experience intense conflict between the time demands of motherhood and employers' expectations that employees will be available to work unstable and unpredictable work schedules. While research shows that schedule instability has severe negative consequences for mothers' ability to arrange childcare and attend to other family matters, little work has investigated sources of variation in mothers' exposure to schedule instability. I find that on average, mothers in low-wage service sector jobs secure more stable and desirable work schedules than women without children. However, motherhood advantages in work scheduling are not explained by traits that shape other economic inequalities like differences in demographics, human capital, or sorting into occupations or firms. Using a combination of observational and experimental data collected from a large national sample of retail and food service workers, I show that the motherhood advantage in work scheduling varies substantially by the gender and parenthood status of employees' direct supervisor. Consistent with queen bee theories of women in management, I find that motherhood advantages in work scheduling present under male managers shrink considerably under female managers. Moreover, I find that queen bee behavior is limited to female managers without children, and it is only observed when female employees make scheduling requests specifically related to childcare. These results suggest that queen bee behavior may be a strategy that female managers without children in the service sector use to distance themselves from the negative stereotypes associated with motherhood and unavailability to work.

Introduction

Unstable and unpredictable work schedules are pervasive among low-wage workers in the US service sector. In an effort to reduce labor costs, service sector employers often seek to match staffing levels to real-time demand using scheduling practices that require that employees maintain 24/7 availability to work at a moment's notice and accommodate last-minute changes to their work schedule (Lambert 2008; Kalleberg 2011; Lambert, Fugiel, and Henly 2014; Schneider and Harknett 2019a). Schedule instability and lack of schedule control are particularly disruptive for mothers in the service sector. Mothers often struggle to secure consistent high-quality childcare arrangements and meet other family needs due to uncertainty around the times when they will need childcare and misalignment between the times that mothers work and that formal childcare arrangements are available (Henly and Lambert 2005, 2014; Scott, London, and Hurst 2005; Henly, Shaefer, and Waxman 2006; Carrillo et al. 2017; Harknett, Schneider, and Luhr 2020; Ishizuka 2021).

As a result, mothers who may require more flexible and predictable schedules or who may be unavailable to work at certain times often struggle to meet their employers' expectations of the "ideal worker" (Acker 1990; Blair-Loy 2003, 2004). For white collar workers, the ideal worker is typically coded male and expected to prioritize work over all other obligations and put in long hours (Acker 1990; Williams 2000). In the US service sector, the ideal worker is expected to maintain open availability to work whenever their employer demands (Hacker 2006; Kalleberg 2011; Luhr 2020). Previous research has found that service sector employers require open availability as a condition for employment (Lambert 2008; Lambert and Henly 2010; Lambert, Haley-Lock, and Henly 2012) and scheduling managers often reward employees who

maintain open availability and withhold hours and scheduling favors from those who do not (Lambert and Henly 2012; Luce and Fujita 2012; Messing et al. 2014).

One might expect that incompatibility between the time demands of parenting and just-in-time scheduling would result in a motherhood penalty in work scheduling analogous to the motherhood penalty in wages. Employers that give preferential treatment to employees who maintain open availability may assign worse schedules to mothers if they believe mothers will be less able to accommodate last-minute scheduling adjustments, inflexible schedules, and inconsistent working hours. Indeed, there is evidence of a motherhood penalty in hiring among service sector employers seeking employees with open and flexible availability (Ishizuka 2021). But despite the sharp conflict between the scheduling needs of mothers and their employers' ideal-worker expectations, women in the service sector have managed to obtain relatively stable and predictable work schedules compared to men, and some descriptive evidence aggregated across economic sectors suggests that mothers fare better than women without children on some measures of schedule instability (Presser 2003; McCrate 2012, 2021; Lambert et al. 2014; Lambert, Henly, and Kim 2019).

Even though precarious work schedules impose a tremendous cost on mothers working in the service sector, there has been little systematic investigation of motherhood scheduling penalties or premia in the service sector. I examine motherhood inequalities on three dimensions of schedule quality: timing instability, shift irregularity, and employer control, as well as on work-family conflict and schedule satisfaction. Unlike similar research on gender wage inequality among workers in the service sector (Brick, Schneider, and Harknett 2023) or racial inequality in work scheduling (Storer, Schneider, and Harknett 2020), I find persistent motherhood advantages in work scheduling that cannot be explained by differences between

mothers and women without children in demographics, human capital, or sorting into jobs and firms.

Instead, I suggest that motherhood scheduling inequalities among otherwise similar employees within the same firm are likely produced through interactions between employees and their frontline manager. Frontline managers in the US service sector face intense pressure from their employers to contain labor costs through just-in-time scheduling (Carré, Tilly, and Holgate 2008; Lambert and Henly 2012), but they also wield considerable discretion over how they distribute schedule instability and unpredictability among their employees, and often reserve scheduling favors and accommodations for their preferred employees (Kelly and Kalev 2006; Lambert and Henly 2012; Wood 2018). Frontline managers may vary in how they leverage their discretion to create motherhood scheduling penalties or premia.

A large body of literature suggests that female managers play an important role in determining how conflict between ideal worker expectations and gendered stereotypes gets translated into economic inequalities between male and female employees. I consider two competing explanations for how female managers may respond to conflict between the time demands of motherhood and just-in-time scheduling to produce motherhood inequalities in work scheduling. Theories of homophily suggest that female managers may reduce the negative effects of male-typed ideal worker norms on female employees. Evidence that female managers can reduce gender inequality in wages and employee evaluations (Tsui and O'Reilly 1989; Hultin and Szulkin 1999; Cohen and Huffman 2007; Stainback and Kwon 2012) may suggest that female managers may be more accommodating to mothers' scheduling needs. However, other work has shown that female managers often reproduce, or even exacerbate gender inequalities in the workplace. Much of this work finds evidence of the "queen bee" phenomenon, whereby

women who attain positions of power in male-dominated or male-typed environments are especially hostile towards other women, less supportive of equal opportunity programs, and emphasize their own stereotypically masculine traits that differentiate them from other women in the workplace (Staines, Tavris, and Jayaratne 1974; Kanter 1977a; Ellemers 2001; Ellemers et al. 2004; Derks et al. 2011; Derks, Van Laar, and Ellemers 2016). If female frontline managers exhibit queen bee behavior, mothers' advantage in work scheduling may be attributable to relatively favorable treatment by male supervisors.

I examine how frontline managers' gender and parenthood status shape motherhood scheduling inequalities in the US service sector using a combination of observational and experimental survey data collected from a national sample of 20,987 non-managers and 768 managers from 156 large retail and food service employers via the Shift Project. Using observational data from the sample of non-managers, I find that mothers' advantages over women without children in schedule quality and schedule satisfaction largely persist after adjusting for individual differences in demographic characteristics, human capital, and patterns of occupation and firm sorting. Consistent with queen bee theory, I show that this motherhood advantage is strongly and consistently explained by the favorable treatment of mothers by male supervisors and that the motherhood advantage shrinks or disappears entirely under female supervisors. Results from a vignette experiment show that queen bee behavior is limited to female managers who do not have children. While these managers are much less likely to make childcare-related scheduling accommodations for female employees than for male employees, no such gap is observed under female managers with children. Women managers with and without children are much more likely to grant vacation requests to women than to men. This evidence supports hypotheses that queen bee behavior among female managers may be motivated by how

strongly managers identify with mothers in the workplace and how strongly their scheduling practices may evoke negative stereotypes about women and mothers.

Background

The Ideal Worker and Work Time in the US Service Sector

The US labor market has long been organized around the conception of the "ideal worker" as an employee who is expected to be employed full-time and remain available to work overtime without any significant interference from family obligations. Gender is a constitutive element of the ideal worker, who is expected to embody stereotypically masculine traits such as an unwavering commitment to work, authoritativeness, technical competence, and emotional flatness (Connell 1987; Acker 1990; Williams 2000). Employees who exhibit these traits are rewarded with positive evaluations, pay raises, and promotions, baking gender inequality into firms' organizational structures and cultures (Acker 1990; Ridgeway 1997, 2001; Williams 2000; Smith 2002).

In the US service sector, an important masculine ideal worker norm is the expectation that workers be available to work unstable and unpredictable hours (Blair-Loy 2004; Luhr 2020). Over the last few decades, employers in the service sector have sought to reduce labor costs and minimize their own risk exposure by tightly coupling employee work hours to the real-time demand for labor. Just-in-time scheduling allowed employers to flexibly align staffing levels with customer flow on short notice (Lambert 2008; Carré and Tilly 2012). Practices like assigning employees to different schedules week-to-week, asking employees to leave early or stay late, having employees wait on-call, and cancelling shifts at the last minute shift the costs of uncertain and unstable demand for labor onto employees (Carré et al. 2008; Lambert 2008;

Kalleberg 2011; Lambert and Henly 2012; Lambert et al. 2014; Schneider and Harknett 2019a). Employers in the service sector often expect their employees to readily accommodate week-to-week or even hour-to-hour fluctuations in their work schedules, and many employers require open availability as a condition for employment (Lambert 2008; Lambert and Henly 2010; Lambert et al. 2012). Working unstable and unpredictable schedules negatively affects workers' health and wellbeing, earnings volatility, employee retention, and productivity (Golden 2015; Kesavan and Kuhnen 2017; Finnigan 2018; Williams et al. 2018; Hashemian and Ton 2019; Lambert et al. 2019; Schneider and Harknett 2019a, 2020; Choper, Schneider, and Harknett 2022). By organizing work around the idea that establishments can maximize efficiency by constantly making real-time adjustments to employees' work hours, employers create a demand for workers who are always available to be slotted into shifts at a moment's notice and are willing to tolerate the negative consequences of schedule instability.

Conflicting Expectations for Mothers in the Service Sector

Just-in-time scheduling arrangements all but demand that mothers in the low-wage jobs violate gendered expectations about their involvement in family life and their willingness to prioritize work over other obligations (Gerstel and Clawson 2014). With little control over their unstable and unpredictable schedules, mothers in low-wage service sector jobs often struggle to provide childcare themselves or secure reliable formal childcare arrangements, and instead rely on constellations of informal childcare provided by siblings, relatives, friends, or informal childcare providers (Henly and Lambert 2005, 2014; Scott et al. 2005; Carrillo et al. 2017; Harknett et al. 2020). Just-in-time scheduling may also exacerbate work-family conflict for mothers because women perform a disproportionate amount of household labor (Blair and Lichter 1991; Bianchi

et al. 2000; Fuwa 2004; Killewald and Gough 2010). Employers anticipate conflict between work and family life and tend to perceive mothers to be less committed to their work (Ridgeway and Correll 2004; Correll, Benard, and Paik 2007). Service sector employers appear to expect that mothers will be less willing to tolerate schedule instability and discriminate against mothers when hiring for jobs with irregular or variable schedules (Ishizuka 2021). Mothers thus face the dual threat of experiencing real conflict between the time demands of just-in-time scheduling and motherhood and being stereotyped as less willing or able to accommodate employers' scheduling demands.

Frontline Managers and Mothers' Work Schedules

Supervisor support is a key determinant of mothers' ability to secure family-friendly schedules in the workplace (Blair-Loy and Wharton 2002; Ryan and Kossek 2008; Kim and Mullins 2016; Perry-Jenkins and Gerstel 2020). Mothers in the service sector often seek out stable and flexible work schedules to help them meet their childcare and family needs, and securing these scheduling arrangements largely hinges on their direct supervisor. Employees in the service sector typically have very little control over their work schedules. Around half of hourly workers' schedules are decided by their employer without their input and another third report that their employer decides their schedule with only some employee input (Lambert et al. 2014; Schneider and Harknett 2019a). Employer-driven schedule control is largely enacted within establishments by frontline managers.

Employers put intense pressure on frontline managers to minimize labor costs by efficiently distributing work hours among their staff. Higher-level managers often provide frontline managers with a predetermined allotment of staffing hours to allocate to their

employees over a given time period, calculated based on sales and customer traffic data, and closely monitor establishments' staffing levels as frequently as every hour (Lambert 2008; Lambert and Henly 2010, 2012; Lambert and Haley 2021). Frontline managers then translate their employer's demands for labor cost containment into on-the-ground scheduling practices. While retail and food service firms go to great lengths to ensure that managers use efficient scheduling practices to contain labor costs, many firms allow managers to exercise considerable discretion over how they distribute schedule instability and unpredictability among their employees (Lambert 2008; Carré et al. 2010; Carré and Tilly 2012; Lambert and Henly 2012; Wood 2018; Lambert and Haley 2021).

Mothers report decidedly mixed experiences when seeking scheduling accommodations from their supervisors (Henly et al. 2006). On the one hand, managers often use work scheduling to reward ideal-worker behavior. Work hours are often awarded to employees who maintain open availability (Lambert and Henly 2012). Employees who fail to maintain open availability or refuse to accommodate last-minute scheduling changes risk being scheduled for fewer hours or being denied scheduling requests in the future (Luce and Fujita 2012; Messing et al. 2014). Under this style of management, mothers have trouble securing desirable schedules and may even be punished for not being able to accommodate last-minute scheduling changes (Henly et al. 2006). On the other hand, some supervisors choose to allocate relatively stable schedules to mothers. Henly et al. (2006) find that many parents secured desirable work schedules from supervisors who were understanding of the time demands of parenting and were flexible in accommodating their scheduling needs. Supervisors may by sympathetic to mothers' scheduling needs because they are also working parents (Henly et al. 2006; Bhave, Kramer, and Glomb 2010; Schulz and Reimann 2022) or because making such accommodations may reduce

absenteeism and turnover (Choper et al. 2022; Luhr, Schneider, and Harknett 2022). In either case, it is apparent that mothers' chances of obtaining a desirable schedule vary substantially between supervisors.

Little empirical attention has been paid to motherhood inequalities in work scheduling, and it is therefore not clear how managers resolve the competing incentives to punish mothers for deviating from ideal worker norms surrounding work scheduling and to accommodate mothers' scheduling needs. Some descriptive evidence across economic sectors in the US suggests that mothers work more stable schedules than women without children (McCrate 2021). This motherhood advantage is perhaps unsurprising both because employers face an economic incentive to reduce turnover by making some scheduling accommodations for mothers, and because mothers may be more likely to select into jobs with stable schedules because they face relatively high costs from schedule instability. I therefore expect to observe a motherhood advantage in scheduling in the US service sector:

> *H1: Mothers experience better work scheduling outcomes than otherwise similar women without children.*

Female Managers and Motherhood Scheduling Premia

Even though frontline managers wield considerable influence over their employees' schedules, there has been little systematic empirical investigation into their effect on motherhood inequalities in work scheduling in the service sector. In what follows, I consider how supervisors manage conflict between mothers' scheduling needs and the time demands of just-in-time scheduling. I focus specifically on how supervisors' willingness to accommodate mothers' schedules varies around one important dimension of their identity within the workplace: the

supervisor's gender. Drawing on social identity theory, I argue that while female managers may sometimes benefit from elevating the status of other women in the workplace, accommodating mothers' scheduling needs may harm female managers' status by highlighting their membership in a gender category that is stereotyped to conflict with ideal worker expectations.

A large body of research suggests that women in the workplace receive greater support from supervisors who are also women. Managers may exhibit *homophily* and favor same-gender employees because doing so enhances their social identity – managers develop a positive self-image by perceiving themselves and their employees as belonging to the same gender category and favorably comparing members of their gender category to non-members (e.g. Tsui and O'Reilly 1989; Tsui, Egan, and O'Reilly 1992; Ensher and Murphy 1997; Goldberg, Riordan, and Schaffer 2010). Empirical evidence suggests that same-gender manager-employee relations are advantageous in hiring, performance evaluations, retention, wages, mentorship, discipline, and workplace bullying (Tsui and O'Reilly 1989; Tsui et al. 1992; Ragins and Cotton 1999; Elliott and Smith 2004; Gorman 2005; Cohen and Huffman 2007; Roscigno, Lopez, and Hodson 2009; Castilla 2011).

These same identity-enhancing processes may also lead female managers to be more willing than male managers to help mothers mitigate work-family conflict (Fagenson 1993; Wallen 2002; Foley et al. 2006). Moreover, homophily may be more likely in the service sector because women have greater access to organizational power. While much of the prior research on how women are penalized for deviating from male-typed ideal worker norms takes place in workplaces where men have disproportionate supervisory power, about half of employees and first-line managers in retail sales and food service are female (Bureau of Labor Statistics 2023). If female managers exhibit gender homophily when setting work schedules, we should expect

that:

H2: Motherhood scheduling penalties are smaller under female managers than under male managers.

But identification with mothers in the workplace may also harm female managers' status. Gender is a salient categorical distinction in the workplace around which expectations and beliefs are organized. Identification with the "male" category can be advantageous because men are stereotypically expected to occupy higher-status positions in organizations and to embody positive traits that correspond to conceptions of the ideal worker, while identification with the "female" category often evokes stereotypes surrounding motherhood that are antithetical to ideal-worker expectations (Acker 1990; Williams 2000; Blair-Loy 2003; Chattopadhyay, Tluchowska, and George 2004). While service-sector employees are expected to be available to work at a moment's notice and tolerate last-minute changes to their work hours, employers also recognize that mothers are more likely to have family obligations that limit their availability to work unpredictable and fluctuating schedules. This conflict between motherhood and ideal-worker expectations leads mothers to be evaluated less favorably and paid less when their gender becomes a salient status characteristic (Driskell and Mullen 1990; Wagner and Berger 1997; Ridgeway and Correll 2004; Correll et al. 2007; Ridgeway 2011).

To protect and enhance their social identity, female managers may exhibit "queen bee" behavior by acting in a stereotypically masculine fashion and actively depressing other women's status in the organization in order to distance themselves from their low-status gender category (Staines et al. 1974; Kanter 1977a; Ely 1994; Ibarra 1999; Chattopadhyay et al. 2004; Ellemers et al. 2004; Derks et al. 2011, 2016). Indeed, many women who advance to upper-level positions do so in part by successfully emulating culturally desirable male-typed behaviors (Ely 1994;

Ibarra 1999). Some research on the uptake of work-family policies finds evidence of queen bee behavior among female managers. For example, Blair-Loy and Wharton (2002) find that mothers with female supervisors are much less likely to use family-care and flexibility policies. If female managers exhibit queen bee behavior, we should expect that:

H3: Motherhood scheduling penalties are greater under female managers than under male managers.

Homophily and queen bee behavior may be understood as two types of mobility strategies that female managers can pursue to advance their status within organizations. Under social identity threat, where an individual's status is diminished by their association with a marginalized group, individuals may enhance their own status either through individual mobility strategies that distance themselves from the marginalized group or by pursuing social change that elevates the status of the group as a whole (Tajfel and Turner 1979; Branscombe et al. 1999; Chattopadhyay et al. 2004). Individuals' choice of strategies depends on how strongly they identify with or feel committed to the marginalized group – high-identifiers tend to pursue social change strategies while low-identifiers pursue individual mobility (Branscombe et al. 1999; Ellemers 2001; Derks et al. 2011, 2016).

Female managers in the service sector may face a social identity threat where they risk being perceived as belonging to a gender category whose status is diminished by negative stereotypes surrounding motherhood. In the face of social identity threat, female managers who are not mothers may pursue individual mobility strategies to distance themselves from mothers in the workplace by negatively responding to mothers' scheduling needs. Female managers who are themselves mothers may be more likely to identify with other mothers in the workplace and thus may pursue social change strategies that support other mothers.

H4: Female managers who are mothers are more likely than female managers who are not mothers to make childcare-related scheduling accommodations for employees who are mothers.

H5a: Female managers who are not mothers are less likely to make scheduling accommodations for female employees' childcare needs than for male employees.

H5b: Female managers who are mothers make scheduling accommodations for female and male employees' childcare needs at similar rates.

The social identity threat that women managers face when setting employees' work schedules also varies with the extent to which exhibiting in-group favoritism may expose managers to negative social comparisons. When negative stereotypes about ingroups are made more salient, high-identifying group members are more likely to exhibit in-group favoritism while low-identifiers are more likely to distance themselves from their low-status group (Branscombe et al. 1999; Derks et al. 2011). In the context of work scheduling, female managers' queen bee behavior may be limited to settings where negative stereotypes about mothers' commitment to work are activated. Thus, we may expect that nonmothers' queen bee responses are limited to when employees make scheduling requests related to their childcare needs.

H6: Female managers without children disfavor female employees' scheduling requests more when requests are related to childcare than when they are unrelated to childcare.

Data and Methods

The Shift Project

This study uses data collected by the Shift Project, an ongoing national survey of US retail and food service workers. The first set of analyses use observational data to examine how non-managers' work scheduling outcomes vary by their parenthood status and their supervisor's gender. The second set of analyses use a vignette experiment to examine how managers' scheduling decisions vary by their own parenthood status, their employee's gender, and if their employee requests scheduling accommodations for childcare or vacation. Respondents were recruited via Facebook ad campaigns that targeted users ages 18 to 64 who were employed by one of 156 large retail and fast-food employers in the US.

These data are drawn from a nonprobability sample with a low response rate, potentially raising concerns about bias due to selection into the sample. Previous analyses of Shift data have shown that associations between key analytic variables are comparable to those observed in "gold standard" large-scale national datasets such as the Current Population Survey (CPS) or the National Longitudinal Survey of Youth (NLSY) and found little evidence of selection on unobservables (Schneider and Harknett 2019b, 2019a), suggesting that associations observed in the Shift sample should be generalizable to the population of interest. There may be concern that the estimated treatment effects from the vignette experiments are not generalizable to any substantively meaningful real-world population due to non-random selection into the sample**.** However, recent work has shown that experimental treatment effects estimated from online convenience samples are generally comparable to estimates from population samples, particularly after controlling for differences in observable characteristics (Goodman, Cryder, and Cheema 2013; Weinberg, Freese, and McElhattan 2014; Mullinix et al. 2015; Levay, Freese, and Druckman 2016).

The main advantage of using Shift Project data is that these surveys collect rich and detailed data that is not otherwise available from a large sample of low-wage workers in the service sector – a population that can be difficult to reach and often comprises just a small portion of sampling frames for publicly available data sources such as the NLSY or CPS. In addition to work scheduling data also collected by publicly available surveys like the NLSY, Shift Project surveys collect detailed data on respondents' exposure to various forms of just-in-time scheduling practices, scheduling preferences and satisfaction, and how their work schedule affects work-family conflict. Shift data are employee-employer matched, allowing analysts to assess interorganizational variation in working conditions, wages, and inequality. Finally, including vignette experiments in Shift Project surveys allows us to study how difficult-to-observe processes unfold across different contexts.

Observational study of non-managers

I test H1-H3 using observational data collected from a sample of 20,987 survey respondents who self-identify as non-managers. These analyses examine how five work scheduling outcomes vary with *parenthood status* (man without kids, woman without kids, father, mother), *supervisor gender* (male, female), and their interaction. The construction of the outcome variables is discussed in greater detail in Appendix 1.

The first three outcomes capture three dimensions of work schedule quality obtained via principal-components factor analysis of 8 indicators of schedule instability. This approach follows Lambert and Fugiel's (2023) recommendation to develop and implement multidimensional and congeneric composite measures of schedule quality. The first factor is *timing instability*, and it is largely determined by respondents' exposure to on-call shifts, last-

minute shift cancellations and adjustments to start and end times, receiving less than two weeks' notice of their schedule, and week-to-week variation in total hours worked. The second factor is *irregular shifts*. Respondents with higher scores on this factor tend to work a variable or rotating schedule (rather than a regular day, evening, or night shift), work clopening shifts (a night shift followed by a morning shift), have little control over their schedule, but also tend to have more advance notice of their schedule. The third factor represents *employer control* and describes schedules with little employee input, little advance notice, and low variation in weekly hours. The fourth outcome is a *work-family conflict scale* derived from four survey questions that ask respondents to rate their agreement with statements that their schedule provides flexibility to handle family matters, makes it difficult to caregive, causes family stress, and makes it difficult to get time off. The fifth outcome is a Likert measure of respondents' self-reported *schedule satisfaction*.

The linear regressions are specified as follows:

$$Y_i = \beta_0 + \beta_1(\text{parenthood})_i + \beta_2(\text{supervisor gender})_i + \beta_3(\text{parenthood X supervisor gender})_i + X_i\gamma + \epsilon_i \quad (1)$$

Where Y_i represents one of the four outcomes and X_i represents a vector of covariates. All analyses control for age. Controls for individual characteristics (race, education, school enrollment status, and marital and cohabitation status), job characteristics (usual weekly hours, job tenure, hourly wage, and occupation) and firm fixed effects are introduced sequentially.

Vignette experiment study of managers

I use a vignette experiment to examine how managers' own parenthood status shapes how they affect motherhood inequalities in work scheduling in settings that evoke negative expectations

about motherhood and settings that do not (H4-H6). Because the term "manager" is used inconsistently in retail and food service and can reflect a wide range of authority and work tasks, I limit the sample to managers whose direct supervisor works offsite to ensure that I am using responses from managers who have significant authority over how work is carried out at their establishment. The final analytical sample contains 768 managers.

In this study, managers were asked to respond to a vignette experiment where a worker requests a last-minute schedule change:

> [EMPLOYEE NAME] has worked for you at [EMPLOYER NAME] for [TENURE]. They have requested you change their shift tomorrow because [REASON]. How do you respond?

Worker identities are randomized by gender (male and female) and race (Black, Hispanic, and White) using typically-middle-class first and last names with high congruence, meaning that experimental subjects are very likely to perceive the name as representing someone of the intended demographic characteristics (Gaddis 2017a, 2017b). REASON is randomized: the worker either requests to change their shift to take a vacation day or to accommodate their childcare falling through. Respondents are asked to choose whether to permit the vignette worker's schedule change request.

I measure how managers' responses to the vignette vary by managers' own *parenthood status* (man without kids, woman without kids, father, mother), *vignette worker gender* (male or female) and the *schedule conflict* (vacation and childcare conflict) that the vignette worker describes. I interact these three variables to estimate how managers' parenthood status affects inequality in work scheduling in each experimental condition. While the childcare condition is meant to evoke negative status expectations for mothers, the vacation condition is meant to have neutral status implications.

I use linear probability models to test hypotheses about how managers vary in their responses to the vignette. The models are specified as:

$$
\begin{aligned}
Y_i = \beta_0 + \beta_1(\text{parenthood status})_i + \beta_2(\text{vignette worker gender}) + \beta_3(\text{schedule conflict}) \\
+ \beta_4(\text{parenthood status X vignette worker gender}) \\
+ \beta_5(\text{parenthood status X schedule conflict}) \\
+ \beta_6(\text{vignette worker gender X schedule conflict}) \\
+ \beta_7(\text{parenthood status X vignette worker gender X schedule conflict }) \\
+ \gamma \text{age}_i + \delta\eta_i + \epsilon_i
\end{aligned}
\tag{2}
$$

where η_i represents firm fixed effects to account for heterogeneity in managers' scheduling environments. H4 is tested by comparing the rates at which female managers with and without children grant scheduling accommodations to female employees in the childcare condition. H5a and H5b are tested by examining the differences in the rates that managers grant scheduling accommodations to female and male employees. H6 is tested by examining the equivalent difference under the vacation condition.

Internal validity in the experiment is high because treatment is randomly assigned. Estimated treatment effects are not biased by unobserved affinities or aversions between managers and employees or selection into specific types of manager-employee relations. I implement two survey design elements to try to improve external validity. First, the vignette is explicitly situated in the respondent's workplace. Second, the vignette comes at the end of a battery of questions about managers' role at their establishment and their managerial practices, with the goal of priming managers to think about their real-life work establishment when responding to the vignettes.

Results

Descriptive statistics

The analytical sample of non-managers contains data from 20,987 survey respondents who self-identify as non-managers. Descriptive statistics are presented in Table 1. This sample is predominantly non-Hispanic White (81 percent) and female (74 percent). About half of the women in the sample are mothers and one-third of the men are fathers. Most of the respondents are between 18 and 40 years old and the majority hold some college education. Almost all the sample works less than 40 hours per week for an average wage of $11.73 per hour. Just over half of the sample has a direct supervisor who is female.

[[Table 1 about here]]

Table 2 contains descriptive statistics for the outcome variables and the individual components of the scale variables. The three measures of schedule quality are centered at zero with a standard deviation of 1. Together, these factors explain just over half of the variance in the schedule instability indicators. Schedule instability is common for workers in this sample. In the month prior to being surveyed, about 22 percent of respondents worked an on-call shift, 43 percent worked a clopening shift, two-thirds of respondents experienced changes to the timing of a scheduled shift, and 15 percent had a shift cancelled altogether. One-third of respondents receive their work schedule with less than two weeks' notice. Only about one-quarter of respondents work a regular daytime shift. In the month prior to being surveyed, the average difference in respondents' maximum and minimum weekly hours worked was 12.5 hours. The work-family conflict scale is centered at zero with a standard deviation of 0.8 and a Cronbach's alpha of 0.81. The components of the work-family conflict scale are also described in Table 2 and indicate that a substantial proportion of respondents report having difficulty getting time off

and caregiving, and many report that their schedule causes stress at home and is not flexible enough to handle family matters. About 80 percent of respondents indicate they are either "somewhat" or "very" satisfied with their work schedule.

[[Table 2 about here]]

Regressions of non-managers' scheduling outcomes on parenthood status

Table 3 contains results from regressions of non-managers' work scheduling outcomes on parenthood status. There are four models for each outcome where controls are sequentially added for age, other demographics and human capital, job characteristics, and firm fixed effects. Predicted scheduling outcomes from fully adjusted models are presented in Figure 1. The coefficients on *mother* reflect inequality in work scheduling outcomes between mothers and women without children, net of controls. Consistent with the motherhood advantage in work scheduling (H1), after adjusting for all controls, mothers score 0.04 SD lower on timing instability and 0.08 SD lower on shift irregularity than women without children. Mothers also score 0.06 SD lower on employer control, suggesting that they have greater input into their schedule and more advance notice than women without children. Mothers also report higher 0.06 points higher on the 4-point schedule satisfaction scale than women without children and do not report higher work-family conflict than women without children. Altogether, these results indicate a small but significant motherhood advantage in work scheduling. Moreover, analyses of scheduling outcomes for men indicate that this parenthood advantage does not extend to fathers. Fathers fare the same or worse than both women without children and men without children on each outcome.

[[Table 3 about here]]

[[Figure 1 about here]]

Comparing coefficients across models, motherhood penalties in models of timing instability and employer control that only adjust for age reverse after adding controls for employer and job characteristics, indicating that mothers tend to work in jobs with lower quality schedules than women without children. Within the same jobs at the same employer, mothers have higher quality schedules. Motherhood advantages in age-adjusted models of shift irregularity and schedule satisfaction shrink after controlling for demographic, job, and employer characteristics, suggesting that mothers select into jobs where their shifts are more predictable.

The effect of supervisor gender on mothers' work schedules

Table 4 presents results from regressions of work scheduling outcomes on parenthood status, supervisor gender, and their interaction. Figure 2 depicts predicted outcomes from fully adjusted models. The coefficients on parenthood status describe differences in work scheduling outcomes under male supervisors. Mothers clearly have better scheduling outcomes than women without children under male managers. Net of all controls, mothers score about 0.07 SD lower on timing instability, 0.12 SD lower on shift irregularity, 0.07 SD lower on employer control, 0.04 SD lower on work-family conflict ($p<0.10$) and 0.09 points out of 4 higher on schedule satisfaction. The same advantages are not present for fathers, who do not experience significantly different scheduling outcomes from men or women without children except that they tend to score higher on the employer control factor.

[[Table 4 about here]]

[[Figure 2 about here]]

Do female managers amplify or reduce the motherhood advantage in work scheduling? The coefficients on supervisor gender in the fully adjusted models are nonsignificant, indicating that women without children do not experience different scheduling outcomes under male and female managers. Contradicting theories of homophily (H2) and consistent with queen-bee behavior (H3), the motherhood advantages in shift irregularity, work-family conflict, schedule satisfaction, and timing instability ($p<0.10$) shrink under female managers by between 0.05 and 0.08 standard deviations. Manager gender has no effect on the motherhood advantage in the employer control factor. The effect of manager gender on motherhood advantages in scheduling is not sensitive to the inclusion of model controls except for shift irregularity, where the negative effect of female managers on the motherhood scheduling advantage is only observed within employers. While scheduling outcomes for women without children stay about the same under female managers, outcomes for mothers are significantly worse than under male managers. Outcomes for fathers do not change significantly, consistent with the expectation that queen bee behavior should only affect scheduling outcomes for female employees.

Vignette experiment: managers' responses to requests for schedule adjustments

Next, I examine data collected from managers in the retail and food service sector who responded to a vignette experiment where they were asked to respond to an employee's request for a last-minute adjustment to their schedule to either take a vacation day or to accommodate a childcare conflict. The vignette experiment is used to check the robustness of the patterns found in the prior analysis of observational data, and it also allows us to observe variation in managers' behavior by their own parental status to see if there are differences in the behavior of managers

who are mothers (high-identifying) and who do not have children (low-identifying), as predicted by queen bee theories.

Descriptive statistics for the manager sample are presented in Table 5. Compared to the sample of nonmanagers, managers are more likely to be white and male. Managers also tend to be older, are more likely to be married and cohabiting, and are more likely to have children. Education beyond high school is more common for managers. Managers also tend to work more hours for higher wages compared to nonmanagers.

[[Table 5 about here]]

Table 6 presents results from linear probability models where the outcome is an indicator for if a manager permits the employee in the vignette to change their schedule. Predicted probabilities are presented in Table 7 and Figure 3.

[[Table 6 about here]]

[[Table 7 about here]]

Queen bee theory predicts that female managers without children will distance themselves from employees who are mothers and respond negatively to their childcare needs while managers who are mothers will support employees who are mothers. In line with H4, female managers who are mothers are 16 percentage points more likely than female managers who are not mothers to make scheduling accommodations for female employees who request a scheduling adjustment due to a childcare conflict (Table 7; Figure 3). Consistent with H5a and H5b, managers who are women without children are 17 percentage points less likely to allow female employees to adjust their schedules due to conflicts with childcare than they are to allow male employees to make the same adjustment, while mothers treat childcare-related scheduling requests the same for male and female employees. Female managers without children are less

willing than managers who are mothers to accommodate female employees' childcare-related scheduling conflicts but no different in their willingness to accommodate the same requests from male employees.

[[Figure 3 about here]]

Results from the vacation condition suggest that queen bee behavior in work scheduling also varies with the salience of threats to managers' social status in the workplace. When faced with scheduling requests that are unrelated to childcare, female managers with and without children both exhibit strong homophily responses (H6), granting last-minute vacation requests to female employees at rates about 20 percentage points higher than for male employees. Female managers with and without children differ in their responses to the childcare and vacation conditions in patterns consistent with queen bee theory. Consistent with the idea that childcare conflicts should elicit sympathetic responses from managers who are mothers and negative responses from female managers without children, managers who are mothers are 20 percentage points more likely to permit a female employee to change her schedule in the childcare condition than in the vacation condition while female managers without children are no more likely to permit a scheduling adjustment. There is no equivalent difference male managers with and without children: while their permission rates for male employees do not change between the two conditions, their permission rates for female employees increase by about 25 to 30 percentage points in the childcare condition.

Conclusions

Working mothers often struggle to balance the competing time demands of work and family. In the US service sector, unpredictable work schedules pose a significant challenge to mothers'

ability to care for their children or secure high-quality alternative childcare arrangements. While much research on mothers working low-wage service sector jobs examines the negative consequences of schedule instability for mothers, little work systematically investigates the factors that influence mothers' ability to secure desirable work schedules. Unlike gender and motherhood penalties in wages and earnings, motherhood inequalities in work scheduling are not explained by the standard set of factors that are typically thought to shape inequality like differences in human capital, occupational sorting, or selection into different firms. Instead, mothers tend to secure more stable and predictable schedules than otherwise similar employees working the same jobs in the same firms.

Turning towards processes that generate gender inequalities within firms, I examine the role of managers' gender and parenthood status in shaping motherhood scheduling inequalities. There is ongoing and unresolved debate surrounding if and when women in management act as "agents of change" or "cogs in the machine" (e.g. Cohen and Huffman 2007; Penner, Toro-Tulla, and Huffman 2012; Srivastava and Sherman 2015). I find that while female managers negatively affect mothers' work schedule quality on average, female managers vary considerably in whether they act as agents of change or cogs in the machine. This variation in female managers' effect on motherhood inequalities in work scheduling is largely consistent with queen bee theories of management, which suggest that female managers may actively discriminate against women in the workplace when their own status is threatened by gender stereotypes that conflict with local conceptions of the ideal worker.

I extend previous research on queen bee behavior to account for motherhood-specific workplace inequalities. In the face of social identity threat stemming from conflict between expectations surrounding mothers' commitment and availability to work and the time demands

of employment in low-wage service sector jobs, I show that female managers pursue different status-enhancing strategies depending on their own motherhood status. Managers who are not mothers tend to pursue individual mobility strategies and punish mothers who request scheduling accommodations for childcare while managers who are mothers treat male and female parents the same. In further support of the social identity threat model of queen bee behavior, I show that mother and nonmother female managers both exhibit same-gender favoritism in work scheduling situations that are not related to childcare. These results suggest that managers favor demographically similar others when doing so enhances the status of their demographic group and low-identifying managers penalize demographically similar others when conflict between expectations of their demographic group and ideal worker expectations become salient and threaten managers' own status.

Motherhood inequalities in work scheduling are largely dependent on the structure and content of social relations between supervisors and employees in the workplace. This investigation into the social relational determinants of workplace inequalities takes to heart Reskin's (2003) call to investigate the social mechanisms at the psychological, interpersonal, and organizational levels that link status to inequality. At the psychological and interpersonal level, the above analyses suggest that managers' bias in accommodating work scheduling requests varies with how employees' requests activate negative status expectations and the extent to which managers may be able to distance themselves from the negatively stereotyped group. At the organizational level, motherhood advantages or penalties in work scheduling are strongest among otherwise similar employees working the same job in the same firm. Within firms, motherhood advantages in work scheduling are highly contingent on whether mothers are matched to demographically similar or different supervisors.

This study also demonstrates the utility of pairing experimental and observational data to study hard-to-observe social processes. Analyses of observational data demonstrate whether aggregate patterns of inequality by gender and parenthood status are consistent with different theories of women in management, but these data do not allow me to test the specific mechanisms hypothesized to drive queen bee behavior. Through the experimental vignettes, I manipulate the extent to which negotiations over employee work schedules present threats to managers' social identity and observe how managers' behavior varies accordingly. While experiments allow researchers one avenue to test mechanisms underlying social phenomena, this strategy is not without limitations. Managers may respond to survey experiments differently from how they would handle their real employees' work schedules. Some of this concern is alleviated by situating the experimental vignettes in the respondent's establishment, rather than in a hypothetical workplace.

Future research may be interested in further investigating the organizational characteristics that influence queen bee behavior. Is queen bee behavior less prevalent in establishments or firms with more women? What about in firms that assign more predictable schedules or allow employees to have greater control over their work hours? Future analyses may also consider the career and mobility consequences of queen bee behavior. Mothers may be more likely to leave service sector jobs if they have a female manager. Such mobility may drive changes in wages, job quality, and labor force participation.

Data Availability Statement

For information regarding additional results and copies of the computer programs used to generate the results presented in the article, please address correspondence to the corresponding author.

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Tables

Table 1. Descriptive statistics for non-manager sample

Variable	% or mean
Race	
White Non-Hispanic	81.3
Black Non-Hispanic	3.68
Hispanic	11.34
Multi/Other	3.68
Female	74.2
Parental status	
Woman without kids	36.54
Mother	37.66
Man without kids	17.53
Father	8.27
Age	
18-19 years old	14.35
20-29 years old	31.44
30-39 years old	13.03
40-49 years old	12.88
50-59 years old	19.15
60+ years old	9.15
Education	
No degree or diploma earned	5.56
High school diploma/GED	35.47
Some college	58.97
Enrolled in school	27.43
Cohabitation status	
Married, living with spouse	28.04
Living with a partner	18.48
Not living with a spouse or partner	53.49
Usual hours per week	
0 to 10	3.85
10 to 20	19.75
20 to 30	27.13
30 to 40	44.1
40 or more	5.18
Hourly wage ($)	11.73
Tenure	
Less than 1 year	20.97
1 year	15.11
2 years	15.13
3 years	10.65
4 years	6.14
5 years	5.23
6 or more years	26.76
Supervisor gender	
Male	44.6
Female	55.4
n	20987

Table 2. Descriptive statistics of outcome variables and their components

Outcome variables	mean	sd	proportion of variance
Schedule instability factors			
Timing instability	0	1	0.21
Shift irregularity	0	1	0.19
Employer control	0	1	0.13
	mean	sd	alpha
Work family conflict scale	0	0.8	0.81
	%		
Satisfied with schedule			
Not at all satisfied	6.25		
Not too satisfied	14.44		
Somewhat satisfied	45.25		
Very satisfied	34.06		
Scale components			
Schedule instability components	% or mean	Work-family conflict components	%
On-call	22.23	Easy to get time off	
Cancelled shift	15.4	Strongly Disagree	7.47
Timing change	65.71	Disagree	16.8
Clopening	42.53	Agree	47.22
Less than 2 week notice	32.24	Strongly Agree	28.51
Schedule control		Family-friendly schedule flexibility	
Decided by employer	55.45	Never true	11.22
Decided by employer with employee input	35.14	Sometimes true	36.68
Decided by employee	9.41	Often true	30.15
Schedule type		Always true	21.96
Variable Schedule	35.72	Shift causes family stress	
Regular Daytime schedule	26.5	Always true	10.66
Regular Evening Schedule	8.31	Often true	14.89
Regular Night Shift	7.68	Sometimes true	39.74
Rotating Schedule	17.26	Never true	34.71
Other	4.53	Difficult to caregive	
Hour variation	12.46	Always true	7.45
		Often true	11.37
		Sometimes true	27.75
		Never true	53.43

Table 3. Regressions of scheduling outcomes on parenthood status

	Timing instability				Shift irregularity			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Parenthood status (base=woman without kids)								
Mother	0.0600**	0.0676***	0.0177	-0.0375*	-0.215***	-0.147***	-0.109***	-0.0755***
Man without kids	-0.0653***	-0.0695***	-0.0533**	-0.00177	-0.109***	-0.0951***	-0.0553**	-0.0218
Father	-0.0577*	-0.0254	-0.0293	-0.0287	-0.263***	-0.207***	-0.120***	-0.0404
Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics and human capital	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Work characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Firm fixed effects	No	No	No	Yes	No	No	No	Yes
	Employer control				Work-family conflict			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Parenthood status (base=woman without kids)								
Mother	0.0598**	-0.00683	-0.0233	-0.0578**	0.0187	0.00557	0.0164	0.0116
Man without kids	-0.0273	-0.0511*	-0.0621**	-0.0643**	0.00352	0.00487	-0.0174	-0.0159
Father	0.133***	0.0793**	0.0494	0.0123	0.108***	0.0918***	0.0619*	0.0583*
Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics and human capital	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Work characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Firm fixed effects	No	No	No	Yes	No	No	No	Yes
	Schedule satisfaction							
	(1)	(2)	(3)	(4)				
Parenthood status (base=woman without kids)								
Mother	0.0871***	0.0725***	0.0595***	0.0569**				
Man without kids	-0.00483	-0.00527	-0.0233	-0.0287				
Father	0.0186	0.00146	-0.0226	-0.0297				
Age	Yes	Yes	Yes	Yes				
Demographics and human capital	No	Yes	Yes	Yes				
Work characteristics	No	No	Yes	Yes				
Firm fixed effects	No	No	No	Yes				

N=20,987; +p<0.10 *p<0.05 **p<0.01 ***p<0.001

Table 4. Regressions of scheduling outcomes on parenthood status by supervisor gender

	Timing instability				Shift irregularity			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Parenthood status (base=woman without kids)								
Mother	0.0291	0.0348	0.00374	-0.0673**	-0.236***	-0.170***	-0.139***	-0.122***
Man without kids	-0.0354	-0.0370	-0.0108	0.00480	-0.0501+	-0.0385	-0.0329	-0.0248
Father	-0.0568	-0.0248	-0.0313	-0.0527	-0.188***	-0.133***	-0.0873*	-0.0359
Supervisor gender								
Female	0.0721**	0.0680**	0.0694**	-0.00300	0.132***	0.133***	0.0680**	0.0373+
Parenthood X supervisor gender								
Mother X female	0.0555+	0.0580+	0.0261	0.0514+	0.0423	0.0442	0.0543+	0.0800**
Man without kids X female	-0.0378	-0.0449	-0.0734+	-0.0191	-0.0774+	-0.0724+	-0.0296	0.00698
Father X female	0.0557	0.0518	0.0477	0.0621	-0.119*	-0.119*	-0.0610	-0.0146
Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics and human capital	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Work characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Firm fixed effects	No	No	No	Yes	No	No	No	Yes

	Employer control				Work-family conflict			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Parenthood status (base=woman without kids)								
Mother	0.0445	-0.0163	-0.0325	-0.0677*	-0.0303	-0.0394+	-0.0335	-0.0403+
Man without kids	-0.0428	-0.0641*	-0.0710*	-0.0791**	0.00281	0.00610	-0.0203	-0.0243
Father	0.120***	0.0709+	0.0454	0.00234	0.0932**	0.0808**	0.0403	0.0238
Supervisor gender								
Female	0.00103	0.00763	0.0249	0.0285	-0.0137	-0.00776	-0.00145	-0.0192
Parenthood X supervisor gender								
Mother X female	0.0253	0.0155	0.0155	0.0163	0.0831**	0.0767**	0.0850**	0.0884***
Man without kids X female	0.0354	0.0325	0.0266	0.0341	-0.00424	-0.00600	0.00211	0.00734
Father X female	0.0366	0.0292	0.0211	0.0298	0.0334	0.0261	0.0538	0.0775+
Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics and human capital	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Work characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Firm fixed effects	No	No	No	Yes	No	No	No	Yes

	Schedule satisfaction			
	(1)	(2)	(3)	(4)
Parenthood status (base=woman without kids)				
Mother	0.110***	0.0938***	0.0856***	0.0889***
Man without kids	-0.0326	-0.0339	-0.0361	-0.0338
Father	0.00397	-0.0165	-0.0196	-0.0111
Supervisor gender				
Female	-0.0440*	-0.0476*	-0.0179	0.00498
Parenthood X supervisor gender				
Mother X female	-0.0418	-0.0385	-0.0452	-0.0550*
Man without kids X female	0.0443	0.0447	0.0243	0.0162
Father X female	0.00796	0.0157	-0.0167	-0.0453
Age	Yes	Yes	Yes	Yes
Demographics and human capital	No	Yes	Yes	Yes
Work characteristics	No	No	Yes	Yes
Firm fixed effects	No	No	No	Yes

N=20,987; +p<0.10 *p<0.05 **p<0.01 ***p<0.001

Table 5. Descriptive statistics for manager sample

Variable	% or mean
Race	
White Non-Hispanic	84.23
Black Non-Hispanic	2.56
Hispanic	9.7
Multi/Other	3.5
Female	69.92
Parental status	
Woman without kids	27.99
Mother	41.93
Man without kids	16.93
Father	13.15
Age	
18-19 years old	5.34
20-29 years old	29.56
30-39 years old	22.01
40-49 years old	17.71
50-59 years old	19.27
60+ years old	6.12
Education	
No degree or diploma earned	4.69
High school diploma/GED	31.51
Some college	63.8
Enrolled in school	11.46
Cohabitation status	
Married, living with spouse	39.32
Living with a partner	21.48
Not living with a spouse or partner	39.19
Usual hours per week	
0 to 10	1.3
10 to 20	4.95
20 to 30	27.6
30 to 40	66.15
40 or more	
Hourly wage ($)	14.20
Tenure	
Less than 1 year	6.77
1 year	7.55
2 years	12.11
3 years	11.2
4 years	7.29
5 years	8.72
6 or more years	46.35
n	768

Table 6. Linear probability model of permission to change schedule

	Permission to change schedule
Parenthood status (base=woman without kids)	
Mother	-0.0316
Man without kids	0.274**
Father	0.168+
Vignette worker gender	
Female	0.199**
Parenthood status X vignette worker gender	
Mother X female	0.00842
Man without kids X female	-0.457***
Father X female	-0.264*
Experimental condition	
Childcare	0.389***
Parenthood status X experimental condition	
Mother X childcare	0.0216
Man without kids X childcare	-0.339**
Father X childcare	-0.342*
Vignette worker gender X experimental condition	
Female X childcare	-0.371***
Parenthood X worker gender X condition	
Mother X female X childcare	0.162
Man without kids X female X childcare	0.578**
Father X female X childcare	0.637**
Age	Yes
Employer fixed effects	Yes

Table 7. Predicted probabilities of permission to change schedule

Experimental condition	Childcare			Vacation		
Employee gender	Female	Male	Difference	Female	Male	Difference
Manager parenthood status						
Mother	0.942	0.944	-0.002	0.740	0.533	0.217**
Woman without kids	0.782	0.954	-0.172*	0.764	0.564	0.200**
Difference (mother - woman no kids)	0.160*	-0.010		-0.024	-0.031	
Father	0.981	0.780	0.201+	0.668	0.733	-0.065
Man without kids	0.839	0.889	-0.050	0.581	0.839	-0.258**
Difference (father - man no kids)	0.142	-0.109		0.087	-0.106	

Figures

Figure 1. Scheduling Inequalities by Parenthood Status

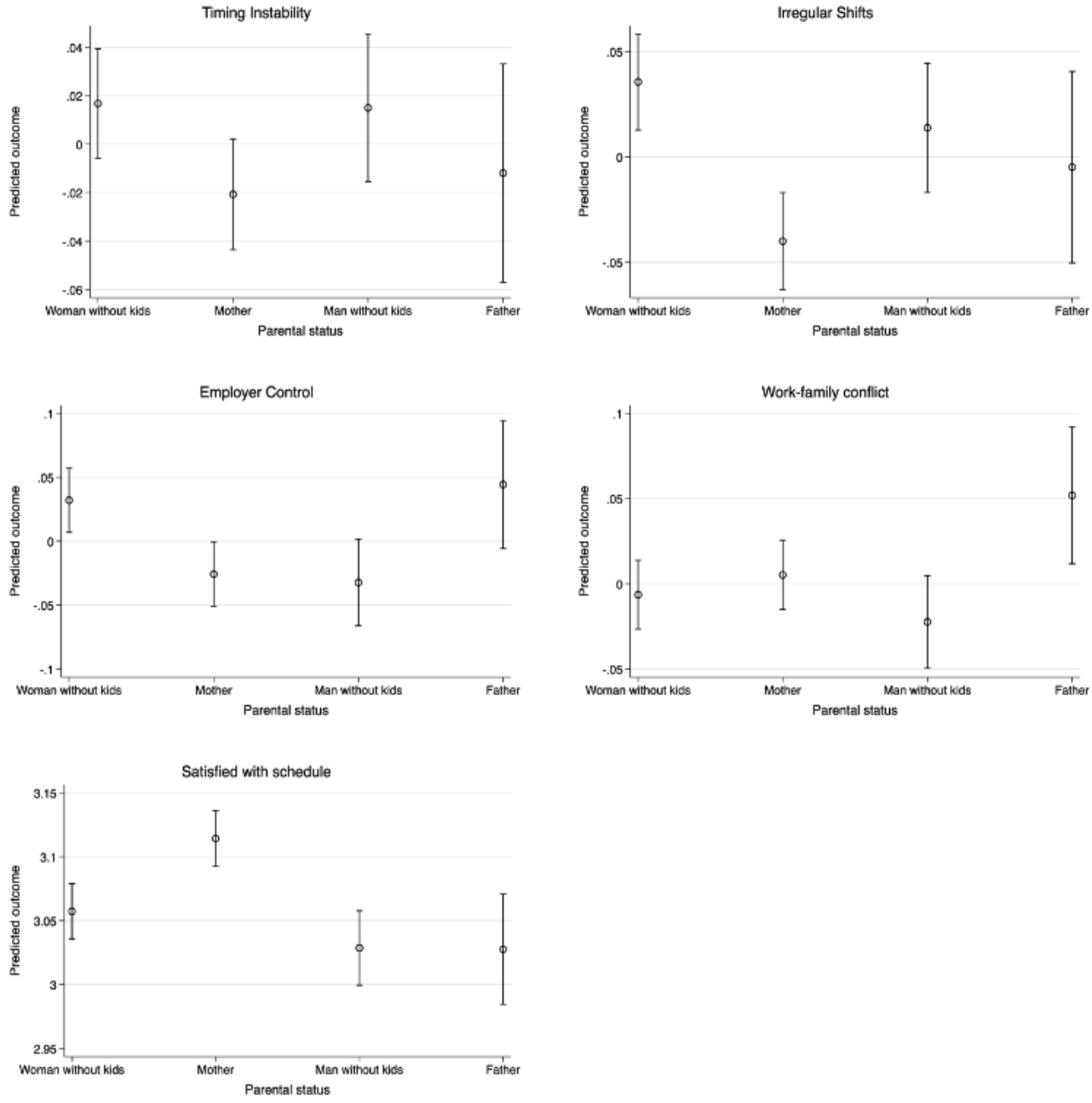


Figure 2. Scheduling Inequalities by Parenthood Status and Supervisor Gender

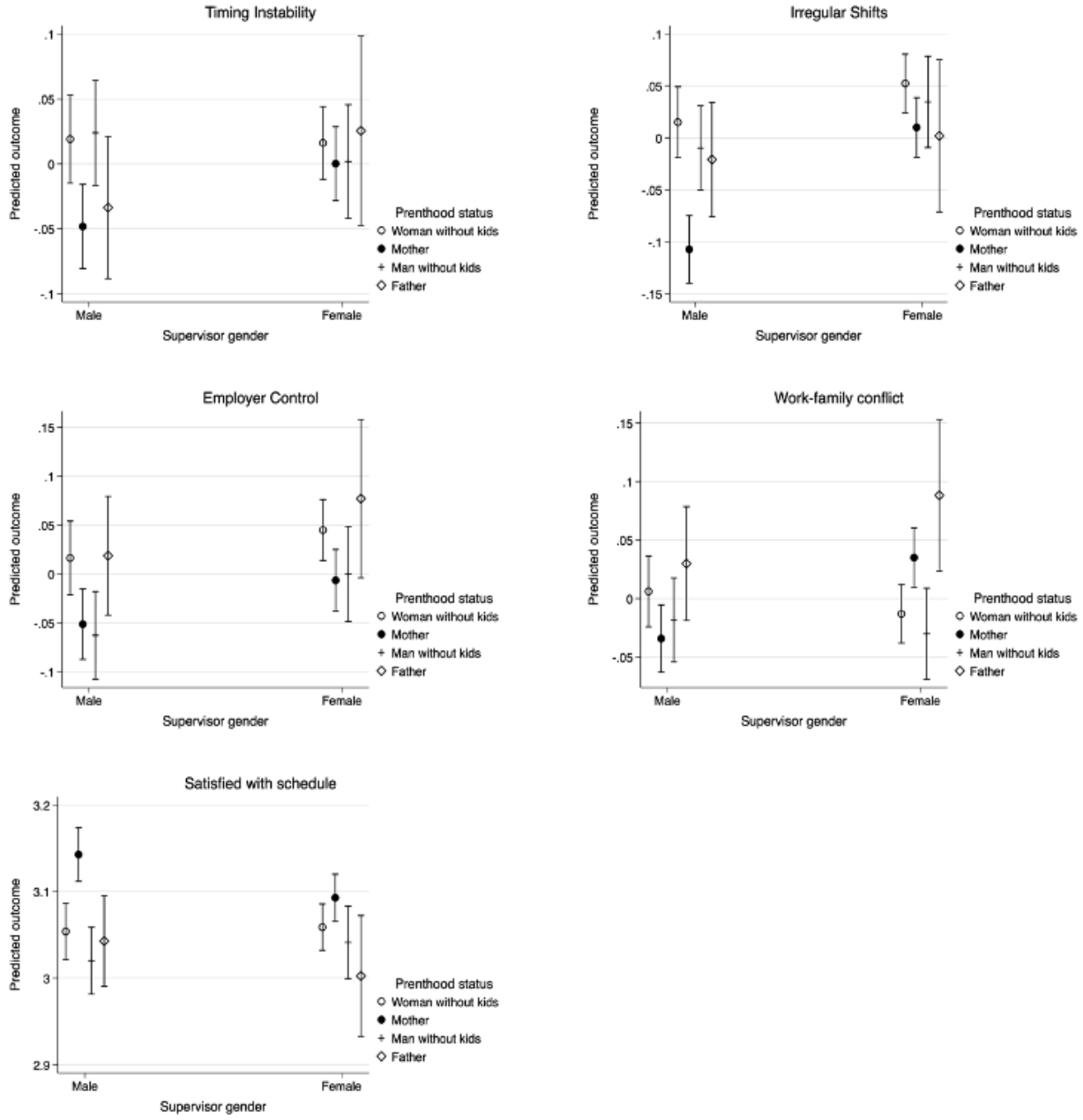
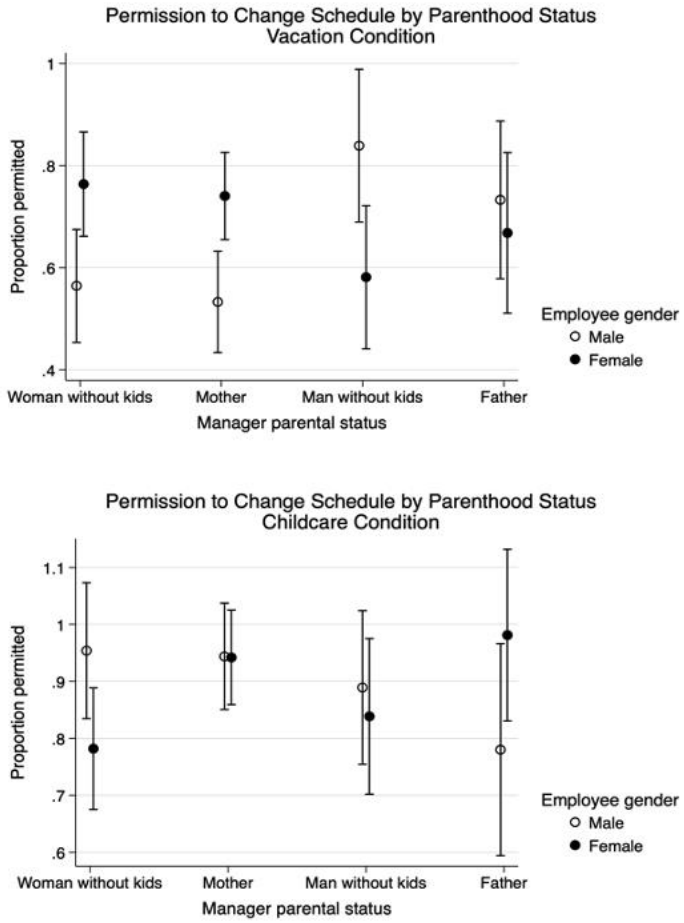


Figure 3. Vignette Responses by Parenthood Status and Employee Gender



Appendix 1. Construction of outcome variables

Schedule quality

Drawing on a conceptual framework and recommendations developed by Lambert and Fugiel (2023), these analyses use three empirically derived outcome measures that describe different dimensions of schedule quality. Most research on work scheduling operationalizes schedule instability and unpredictability using a set of individual measures of schedule quality. These may include measures of individuals' usual hours per week, the type of shift they typically work, how far in advance they know their schedule, how frequently their shifts are extended, cut short, or cancelled altogether, or how much input they have into their schedule. While each of these measures describes a specific scheduling outcome, they can also be understood as one component of a more general dimension of schedule quality like timing, control, variation, predictability, or other broad constructs.

I use factor analysis of 8 scheduling indicators to obtain three measures of schedule quality that I use as outcome variables. The individual scheduling indicators are described in Appendix 1 Table 1. Principal-component factor analysis is used to generate factors per Acock's (2016) recommendation to use principal components methods when developing a measure of a concept. An oblique rotation is implemented because dimensions of schedule quality are very unlikely to be uncorrelated. Predicted values for each factor are obtained by the regression method. Factor loadings are expressed as regression coefficients in Appendix 1 Table 2.

This procedure produces three factors that explain a meaningful proportion of the variance in the scheduling outcomes. The first factor is characterized by high loadings on exposure to on-call shifts, shift-cancellations, timing changes, short notice, and hour variation. This factor captures instability in timing within individual shifts. The second factor has high loadings on clopening shifts, irregular schedules, and short notice (negative). This broadly describes schedules where shifts routinely occur at different times during the day. The third factor has high loadings on schedule control, short notice, and hour variation (negative). This describes high levels of employer control.

Work-family conflict

The work-family conflict scale is constructed by summing each item, with scores on items reversed if they are negatively correlated with the underlying construct, and standardizing to a mean 0 and variance 1. Cronbach's alpha describes the reliability of the scale. The work-family conflict scale has an $\alpha = 0.81$, which is just above conventional thresholds for reliability.

Schedule satisfaction

Schedule satisfaction is measured using a 4-level Likert scale.

References

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Lambert, Susan, and Peter J. Fugiel. 2023. "Updating Measures of Work Schedules in Federal Surveys."

Appendix 1 Tables

A1.1 Descriptions of variables used to create outcome measures

Variable	Description
Schedule instability factors	
Hour variation	Greatest hours - fewest hours Greatest hours: In the last month, what is the greatest number of hours you've worked in a week at [EMPLOYER NAME]? (Please consider all hours, including any extra hours, overtime, work you did at home, and so forth). Fewest hours: In the last month, what is the fewest hours you've worked in a week at [EMPLOYER NAME]? (Please do not include weeks in which you missed work because of illness or vacation.)
On-call	In the past month or so, have you ever been asked to be "on-call" for work at [EMPLOYER NAME]? By "on-call", we mean you have to be available to work, and you find out if you are needed to work just a few hours before your shift.
Cancelled shift	In the past month or so, did your employer ever cancel one of your scheduled shifts at [EMPLOYER NAME]?
Timing change	In the past month or so, did your employer ever change the timing or the length of your scheduled shift at [EMPLOYER NAME]? For example, your employer asked you to come in early or late, or asked you to leave early or to stay later than the hours you were originally scheduled for.
Clopening	In the past month or so, have you ever worked a closing shift and then worked the very next opening shift with less than 11 hours off in between your shifts at [EMPLOYER NAME]? This is sometimes called "clopening."
Short notice	How far in advance do you usually know what days and hours you will need to work at [EMPLOYER NAME]? 0) 2+ weeks 1) Less than 2 weeks
No control	Which of the following statements best describes how the times you start and finish work are decided at [EMPLOYER NAME]? 0) Employee decides or employer decides with employee input 1) Starting and finishing times are decided by my employer and I cannot change them on my own.
Irregular schedule	Which of the following best describes your work schedule at [EMPLOYER NAME]? 0) Regular daytime schedule/regular evening shift/regular night shift 1) Variable schedule (changes day to day)/rotating shift/split shift/other
Work-family conflict scale	Standardized scale using 4 measures of work-family conflict (alpha=0.81)
Get time off	It is easy to get time off from [EMPLOYER NAME] when I need it 1) Strongly agree 2) Agree 3) Disagree 4) Strongly disagree
Shift causes family stress	My shift and work schedule at [EMPLOYER] cause extra stress for me and my family 1) Always true 2) Often true 3) Sometimes true 4) Never true
Flexibility to handle family matters	In my work schedule at [EMPLOYER], I have enough flexibility to handle family needs 1) Never true 2) Sometimes true 3) Often true 4) Always true
Hard to caregive	My shift and work schedule at [EMPLOYER NAME] make it hard for me to provide caregiving for my family or relatives. 1) Always true 2) Often true 3) Sometimes true 4) Never true
Schedule satisfaction	In all, how satisfied are you with your work schedule at [EMPLOYER]? 1) Not at all satisfied 2) Not too satisfied 3) Somewhat satisfied 4) Very satisfied

A1.2 Factor loadings as regression coefficients

	Timing instability	Shift irregularity	Employer control
On-call	0.390	-0.022	-0.016
Cancelled shift	0.317	0.041	0.123
Timing change	0.309	0.187	0.001
Clopening	0.058	0.497	0.034
Short notice	0.368	-0.332	0.358
No control	-0.008	0.022	0.839
Irregular schedule	-0.058	0.548	0.003
Hour variation	0.364	0.108	-0.335