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 otherwise similar 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 survey data and vignette experiments 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 this effect is driven by female managers without children, and it is only observed when female employees make scheduling requests specifically related to childcare. These results suggest that negative stereotypes associated with motherhood and unavailability to work may drive some female managers to constrain mothers' ability to obtain stable schedules.

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 employees to 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 is 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). Consistent with this conception of the ideal service sector worker, 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. 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 other demographic characteristics, 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.

Drawing on a large body of literature suggesting 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 shape 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 what Staines et al. (1974) termed 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 et al. 1974; Kanter 1977; Ellemers 2001;

Ellemers et al. 2004; Derks, Van Laar, 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 investigate 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. 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. 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 disappears under female supervisors. Results from a vignette experiment show that queen bee behavior is limited to female managers who do not have children. These managers are uniquely unaccommodating to female employees' requests for childcare-related scheduling adjustments and also grant similar requests from male employees at much higher rates. At the same time, women managers with and without children are much more likely to grant generic 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 work environment 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 allows 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 from firms 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 of mothers in the service sector

Just-in-time scheduling arrangements all but demand that mothers in these 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. 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 schedules 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. Following the previous literature on motherhood penalties in earnings and evaluations (Budig and England 2001; Correll et al. 2007; Budig and Hodges 2010, 2014; Killewald and Bearak 2014; England et al. 2016), I evaluate motherhood penalties in work scheduling primarily by comparing outcomes for mothers and women without children. Like previous studies, I also consider differences in outcomes between mothers and men with and without children. 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 that in the US service sector, employees who are mothers hold a scheduling advantage over female employees without children:

> *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.

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 premia are larger under female managers than under male managers.

But identification with mothers in the workplace may also harm female managers' status. Expectation states theory argues that gender is a salient categorical distinction or "status characteristic" in the workplace around which expectations, beliefs, and stereotypes regarding merit and competence are organized (Berger et al. 1977; Ridgeway 1997, 2011). Such beliefs generally disadvantage women, and particularly mothers. While men are stereotypically expected to occupy higher-status positions in organizations and to embody positive traits that correspond to conceptions of the ideal worker, women are often subject to stereotypes surrounding motherhood that are antithetical to ideal-worker expectations (Acker 1990; Williams 2000; Blair-Loy 2003; Chattopadhyay, Tluchowska, and George 2004). Service-sector employees are expected to be available to work at a moment's notice and tolerate last-minute changes to their work hours, and employers perceive mothers as 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 motherhood 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 in the face of negative stereotypes surrounding women and motherhood, female managers may exhibit "queen bee syndrome" (Staines et al. 1974). Queen bee theory is typically leveraged to understand female managers' role in maintaining or worsening gender inequality among their employees. In organizations

where stereotypically masculine traits are highly valued, female managers may achieve their personal career goals by simultaneously embodying stereotypically masculine behavior and actively depressing other women's status in the organization, thereby asserting themselves as valuable to the organization while distancing themselves from their low-status gender category (Staines et al. 1974; Kanter 1977; Ely 1994; Ibarra 1999; Chattopadhyay et al. 2004; Ellemers et al. 2004; Derks, Van Laar, et al. 2011; Derks et al. 2016). Derks et al. (2016) suggest that queen bee behavior typically manifests in three ways: 1) women leaders presenting themselves in more masculine ways, 2) women leaders distancing themselves from other women in their organization, and 3) women leaders endorsing and perpetuating gender hierarchies within their organization that favor men.

Indeed, there is substantial empirical evidence of queen bee behavior among successful female leaders in organizations that value stereotypically masculine traits. For example, studies across cohorts of academics and research scientists (Ellemers et al. 2004; Faniko, Ellemers, and Derks 2021) find that later-career female academics describe themselves in more masculine terms (e.g. self-confident, willing to take risks, willing to take initiative, and independent) than early-career academics. The authors interpret these findings as evidence that successful women emulate stereotypically male behavior in male-dominated work environments and do so to distance themselves from other women within their organization. These studies also find evidence that, compared to their male colleagues, later-career female academics have more negative perceptions of their female PhD students' career commitment, suggesting that successful women also perpetuate organizational cultures that are harmful towards women. Similar evidence of the queen bee phenomenon has been observed in other types of organizational settings, including among Dutch policewomen (Derks, Van Laar, et al. 2011),

across sectors in western Switzerland (Faniko, Ellemers, and Derks 2016), and among US law firms (Ely 1994). Most directly relevant to this research, some research suggests that the uptake of work-family policies is also shaped by 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 than mothers with male supervisors. Altogether, this body of evidence suggests that if female managers exhibit queen bee behavior, we should expect that female managers on average worsen mothers' scheduling outcomes:

> *H3: Motherhood scheduling premia are smaller under female managers than under male managers.*

To bee or not to bee?

Ellemers (2001) argues that women's decision to engage in queen bee behavior is highly dependent on their organizational environment. Rather than alternative formulations of queen bee theory that emphasize female managers' role in perpetuating gender discrimination, Ellemers contends that queen bee behavior is a consequence of, and response to, gender dynamics within organizations. Broadly, she argues that women in organizations where their gender is devalued face a threat to their social identity – the part of their self-image that is derived from the social categories to which they belong (Tajfel and Turner 1979, 1986; Ellemers 2001; Derks, Ellemers, et al. 2011). Facing a social identity threat, where an individual's status is diminished by their association with a marginalized group, women may enhance their own status either through "individual mobility" strategies that distance themselves from their gender category or by pursuing "collective mobility" strategies to enact social change that elevates the status all women in the organization (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, Van Laar, et al. 2011; Derks et al. 2016).

Female managers in the service sector may face a social identity threat where they risk being perceived as identifying with mothers, specifically. While queen bee theory is typically used to study workplace gender inequalities, an extension to explain inequalities based on motherhood is natural. Building on previous work on expectation states theory, Ridgeway and Correll (2004) argue that motherhood itself is a more salient status characteristic than gender when it comes to shaping expectations and evaluations of workplace performance. In the US service sector, conflict between ideal worker expectations and gender stereotypes largely revolves around the incompatibility between just-in-time scheduling and the time demands of motherhood.

As such, we might reasonably expect to see a cleavage between low- and high-identifying female managers that is strongly tied to managers' own motherhood status. Homophily and queen bee behavior may be understood as collective and individual mobility strategies, respectively, that female managers can pursue to advance their status within organizations. Female managers who are also mothers may more strongly identify with other mothers in the workplace due to their shared experience as mothers, including challenges reconciling their caregiving obligations with their job's time demands. They may also not be able to conceal their own motherhood status from other employees, and thus may face more difficulty distancing themselves from the negative stereotypes ascribed to mothers. Female managers who are themselves mothers therefore may be more likely to identify with other mothers in the workplace

and thus may pursue social change via homophily strategies that support other mothers. On the other hand, female managers who are not mothers may not strongly identify with the concerns and experiences of mothers in their workplace. Instead, these women may be better equipped to accommodate their workplace's just-in-time scheduling practices. Female managers without children may therefore find it more beneficial to pursue queen bee strategies to distance themselves from mothers in the workplace by negatively responding to mothers' scheduling needs.

If female managers who are mothers pursue homophily strategies when setting employees' work schedules and female managers who are not mothers pursue queen bee strategies, we should expect that mothers' scheduling advantages relative to women without children are larger under managers who are mothers than under female managers who are not mothers:

H4: Motherhood scheduling premia are larger under female managers who are mothers than under female managers without children

If mother and non-mother female managers set schedules in response to the gender- and motherhood-specific social identity threat mechanisms outlined above, we should only observe queen bee behavior in response to parenthood-related scheduling conflicts from female employees. While punishing mothers' deviation from ideal-worker norms surrounding scheduling serves to distance female managers from negative stereotypes about their own gender category, exhibiting similar behavior towards male employees would not elevate their own status in the workplace or improve the overall status of women in the workplace. As such, we should expect that while employees who are mothers fare worse under female managers who are not mothers than under female

managers who are mothers, employees who are fathers fare similarly under mother and non-mother female managers:

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 female managers face when setting employees' work schedules also varies with the extent to which exhibiting in-group favoritism may expose these managers to negative social perceptions. 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, Van Laar, 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 as opposed to other types of scheduling requests.

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. 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. 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.

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 2019a, 2019b), 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.

Defining a motherhood penalty or premium

An analysis of motherhood penalties or premia requires defining the effect of motherhood relative to *what*. The most common approach in the motherhood penalty literature is to compare outcomes for mothers and women without children, adjusted for potential confounders (Budig and England 2001; Correll et al. 2007; Budig and Hodges 2010, 2014; Killewald and Bearak 2014; England et al. 2016). Many foundational papers in the motherhood penalty literature also make secondary comparisons between mothers' outcomes and those of fathers and men without children. I follow this convention in the following analyses. I am primarily concerned with managers' role in moderating the effect of motherhood on work scheduling outcomes among women, though I will also discuss how mothers' scheduling outcomes compare to those of fathers and men without children.

Observational study of non-managers

I test Hypotheses 1-3 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* (mother, woman without kids, father, man without kids), *supervisor gender* (male, female), and their interaction. I am primarily interested in motherhood penalties defined as differences in outcomes between mothers and women without children, though I will also discuss differences between mothers and men with and without children.

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 construction of the outcome variables is discussed in greater detail in Appendix 1.

The ordinary least squares regression models 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 five outcomes and X_i represents a vector of covariates. All analyses control for age. Controls for other 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 (Hypotheses 4-6). 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 a middle-class person 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. The childcare condition is meant to evoke a salient conflict between the negative status beliefs surrounding motherhood and ideal worker norms in the US service sector. The vacation condition is meant to evoke a status-neutral conflict with ideal worker norms. 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 consider two measures of the motherhood scheduling premium. First, I evaluate how managers respond differently to female employees' requests for a day off due to childcare falling through versus requests for a vacation day. The difference in managers' responses to the childcare and vacation conditions for female employees is meant to capture the unique premium or penalty that managers afford female employees when scheduling conflicts arise due to the time demands of motherhood, specifically. I use this measure of the motherhood scheduling premium to test Hypothesis 4:

$$\begin{aligned} \textit{Motherhood premium (H4)} \\ &= \Pr(\textit{permit change} \mid \textit{reason=childcare, employee=female}) \\ &- \Pr(\textit{permit change} \mid \textit{reason=vacation, employee=female}) \end{aligned} \tag{2}$$

To test Hypothesis 5, I examine how managers respond differently to childcare-related scheduling requests from male and female employees:

$$\textit{Motherhood premium } (H_5) = Pr(\text{permit change} \mid \text{reason}=\text{childcare}, \text{employee}=\text{male}) - Pr(\text{permit change} \mid \text{reason}=\text{childcare}, \text{employee}=\text{female}) \quad (3)$$

I test Hypothesis 6 by comparing managers' responses to vacation day requests from male and female employees:

$$\textit{Motherhood premium } (H_6) = Pr(\text{permit change} \mid \text{reason}=\text{vacation}, \text{employee}=\text{male}) - Pr(\text{permit change} \mid \text{reason}=\text{vacation}, \text{employee}=\text{female}) \quad (4)$$

Results presented in the main analyses reflect differences in raw proportions. Regression adjusted analyses are presented in Appendix 2.

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)[1]. 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 at least 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 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.

[1] This sample is similar in racial composition (81 percent White) to national averages in retail sales (77.6 percent White) food service (73.4 percent White), but it skews more female (74 percent) than the national average in these industries (49.2 percent and 53.9 percent, respectively) (Bureau of Labor Statistics 2023)

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. Mothers are the base category for the parenthood status variable. Of primary interest is the coefficient on "women without kids", which reflects the difference in scheduling outcomes between mothers and women without children, net of controls. This coefficient corresponds to the standard definition of a motherhood penalty and is used to test Hypotheses 1-3.

Consistent with the motherhood advantage in work scheduling (Hypothesis 1), after adjusting for all controls, mothers score 0.0375 SD lower on the timing instability scale, 0.0755 SD lower on shift irregularity, and 0.0578 SD lower on employer control than women without children. On average, mothers' face less exposure to last-minute adjustments to the timing of their shifts, day-to-day variation in the times that they work, and have greater input into their work schedules than otherwise similar women without children. Mothers also report higher 0.0569 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 men. Fathers fare the same or worse than mothers, women without children, and men without children on each outcome.

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 employees' parenthood status, supervisor gender, and their interaction. The main effect of parenthood status reflects differences in average scheduling outcomes under male managers between mothers and women without children, fathers, and men without children, net of controls. The coefficient on supervisor gender represents the effect of female managers on mothers' scheduling outcomes. The coefficients on the interaction between parenthood status and supervisor gender describes differences between the effect of female managers on mothers and the effect of female managers on non-mothers. Figure 2 depicts predicted scheduling outcomes from fully adjusted models for mothers and for women without children to visualize how the motherhood scheduling advantage differs under male and female managers.

Mothers clearly have better scheduling outcomes than women without children under male managers. Net of all controls, mothers score about 0.0673 SD lower on timing instability, 0.122 SD lower on shift irregularity, 0.0677 SD lower on employer control, 0.05 SD (0.0403 points) lower on work-family conflict ($p<0.10$) and 0.0889 points out of 4 higher on schedule

satisfaction. The positive coefficients on supervisor gender for timing instability, shift irregularity, employer control, and work-family conflict, as well as the negative coefficient for schedule satisfaction, all indicate that mothers' scheduling outcomes are significantly worse under female managers than under male managers.

Do female managers amplify or reduce the motherhood advantage in work scheduling? Hypothesis 2 predicts that motherhood scheduling advantages are larger under female managers than under male managers (homophily) while Hypothesis 3 predicts that female managers shrink motherhood scheduling advantages (queen bee). These hypotheses are tested by examining the coefficients on the interaction between "women without kids" and supervisor gender, which describe differences between the effect of female managers on scheduling outcomes for mothers and for women without children. Contradicting theories of homophily and consistent with queen bee theory, motherhood advantages in timing instability ($p<0.10$), shift irregularity, work-family conflict, and schedule satisfaction all shrink under female managers by 0.05 to 0.10 SD. Predicted scheduling outcomes in Figure 2 make it clear that reduced motherhood scheduling advantages under female managers are driven by their disproportionately negative effect on mothers' schedules. While women without children experience no difference in average scheduling outcomes under male or female managers, mothers experience significantly worse outcomes under female managers than male managers, leading to a reduction in the motherhood scheduling advantage. 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 and who do not have children, 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[2]. 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 6 and Figure 3 present the proportion of managers who permit female employees in the vignette to change their schedule by manager parenthood status and reason for requesting a schedule adjustment. Differences in permission rates for female employees under the childcare and vacation conditions are meant to reflect a motherhood premium or penalty in work scheduling. Hypothesis 4 predicts that this motherhood scheduling premium will shrink under female managers without children. I find strong evidence in favor of this hypothesis. Managers who are mothers, fathers, or men without children are between 22 and 35 percentage points more likely to grant scheduling accommodations to female employees experiencing a childcare conflict than to female employees requesting a vacation day. This motherhood premium

[2] This sample is a somewhat higher proportion White (84.2 percent) than the national average for first-line supervisors in food service (75.6 percent) and retail sales (78.6 percent), and it skews more female (69.9 percent) than those industries (53.5 percent and 44.6 percent, respectively) (Bureau of Labor Statistics 2023).

disappears under female managers without children, who grant female employees' scheduling requests at similar rates regardless of the reason for the request. Consistent with queen bee theories, this reduction in the motherhood scheduling premium is driven by female managers without children's particularly low likelihood of granting childcare-related scheduling requests to female employees. Female managers without children grant such scheduling requests at rates 16 percentage points lower than managers who are mothers, 18 percentage points lower than managers who are fathers, and 4 percentage points lower than men without children.

Table 7 and Figure 4 compare the proportions of managers who granted scheduling requests to female and male vignette employees for each type of scheduling request. Hypotheses 5a and 5b focus on the childcare condition. I predict that female managers without children will be less accommodating of mothers' childcare-related scheduling requests than fathers' requests, while managers who are mothers will be equally accommodating of mothers' and fathers' childcare-related scheduling requests. Consistent with Hypothesis 5a, managers who are women without children are about 17 percentage points less likely to grant childcare-related scheduling accommodations to female employees than they are to grant the same requests to male employees. In line with Hypothesis 5b, managers who are mothers, as well as managers who are father or men without children, all grant childcare-related scheduling accommodations to female and male employees at similar rates. Results from tests of Hypotheses 4 and 5a-b provide strong evidence that female managers without children engage in queen bee behavior when setting employees' schedules through their uniquely and disproportionately harsh responses to female employees' childcare-related scheduling requests.

Finally, because queen bee behavior in scheduling is predicted to be a response to status threats associated with motherhood, Hypothesis 6 predicts that female managers with and

without children will both favor female employees' requests for vacation days over those from male employees. Managers who are mothers and women without children respond nearly identically to female and male employees' requests for vacation days (Table 7, Figure 4). Mothers are 18.2 percentage points more likely to grant female employees' requests for a vacation day than male employees' requests, while women without children favor female employees by 17.7 percentage points. These results are consistent with the notion that without facing a status threat from motherhood, mothers and women without children will both exhibit homophily when setting schedules.

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, labor market experience, occupational sorting, or selection into different firms. Instead, I demonstrate that mothers tend to secure more stable and predictable schedules than otherwise similar women without children working the same jobs in the same firms.

This research bridges on two strands of research on the social psychological, relational, and organizational foundations of gender and motherhood inequalities to advance sociological theorizing of gendered inequalities at work. Ridgeway, Correll, and colleagues leverage expectation states theory to show how motherhood penalties in hiring and earnings are undergirded by managers' negative assessments and stereotyping of mothers' commitment to work, competence, and qualification to hold positions of authority (Ridgeway and Correll 2004; Correll et al. 2007; Benard and Correll 2010). Drawing on this work, I argue that the negative status beliefs surrounding motherhood present a sharp and salient contrast with ideal worker expectations in the US service sector that could also lead to substantial negative biases against mothers in work scheduling.

I build on this perspective to consider how managers might vary in the extent to which they translate negative status beliefs surrounding motherhood into motherhood inequalities in work scheduling. I draw on queen bee theory to argue that this variation is organized around managers' own gender, motherhood status, and the salience of negative status beliefs surrounding motherhood. Previous research on queen bee behavior is largely focused on explaining how inequality between male and female employees differs under male and female managers (Staines et al. 1974; Ellemers 2001; Ellemers et al. 2004; Derks, Ellemers, et al. 2011; Derks, Van Laar, et al. 2011). I extend this perspective by demonstrating how motherhood is a salient status characteristic that organizes differentiation among female managers and their female employees and strongly influences female managers' pursuit of collective or individual mobility strategies. Because motherhood evokes status beliefs that are more directly in conflict with ideal worker norms than gender on its own (Ridgeway and Correll 2004), I argue that managers who are women without children will pursue individual mobility strategies to distance

themselves from mothers and thereby produce substantial motherhood penalties among their employees while managers who are mothers will pursue collective mobility strategies that elevate the status of mothers and reduce motherhood penalties.

Leveraging findings from analyses of survey data and experimental vignettes, I find consistent and compelling evidence supporting this extension of queen bee and expectation states theories to motherhood penalties in work scheduling. I show that motherhood scheduling inequalities vary substantially with managers' own gender and parenthood status. I observe significant motherhood advantages in scheduling across measures of schedule quality and schedule satisfaction. These advantages are only observed under male managers, who comprise roughly half of frontline managers in the service sector. Motherhood advantages in timing instability, shift irregularity, work-family conflict, and schedule satisfaction all disappear under female managers.

Results from the vignette experiment suggest that the absence of a motherhood advantage under female managers is largely driven by female managers without children. 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. As predicted, queen bee behavior was only exhibited by female managers without children. Results from the vignette experiments reveal two related dynamics underlying this queen bee behavior. First, queen bee behavior is only exhibited in contexts where negative status beliefs surrounding motherhood are explicitly evoked by the employee. Female managers who are not mothers tend to pursue individual mobility strategies and reject female employees' last-minute childcare-related scheduling accommodations at the same rate as their

last-minute requests for a vacation day. On the other hand, female managers who are mothers and male managers with and without children all grant female employees' childcare-related scheduling accommodations at much higher rates. Second, the vignette experiments demonstrate that female managers likely do not experience the same status threat from male employees evoking status beliefs surrounding fatherhood. All managers grant fathers' childcare-related scheduling requests at similarly high rates. Managers who are mothers, fathers, and men without children also grant female employees' childcare-related requests at a similar rate. Only female managers without children grant female employees' childcare-related scheduling requests at a significantly lower rate. These results suggest that the status threat from parenthood is gendered – treating fathers favorably appears to pose no threat to female managers' own status.

Finally, 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.

Practically, these analyses combine to demonstrate that while mothers in the service sector are on average able to secure relatively stable schedules, this advantage is not stable across or within firms. Rather, mothers' chances of securing stable schedules depends on matching with an understanding and accommodating manager. While managers vary in their willingness to accommodate mothers' scheduling needs, mothers are more likely to receive scheduling

accommodations from the majority of service sector managers who are either men or mothers themselves.

There is ongoing and unresolved debate regarding 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). Moving beyond this dichotomy, I argue that 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 social relational level, the above analyses suggest that managers' bias in accommodating work scheduling requests varies with how employees' requests activate negative status beliefs 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. Due to the sample's relatively high proportion of female respondents and somewhat higher proportion of White respondents, results from these analyses may differ slightly from population-level associations.

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 an unaccommodating female manager. Such mobility may drive changes in wages, job quality, and labor force participation. It is also possible that mothers trade off between schedule stability and other benefits such as wages, hours, or promotions. Future work may be interested in evaluating mothers' work schedules through a compensating differentials framework.

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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 or more	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=mother)								
Woman without kids	-0.0600**	-0.0676***	-0.0177	0.0375*	0.215***	0.147***	0.109***	0.0755***
Father	-0.118***	-0.0929***	-0.0470+	0.00872	-0.0487+	-0.0600*	-0.0117	0.0351
Man without kids	-0.125***	-0.137***	-0.0710**	0.0357+	0.106***	0.0523*	0.0532*	0.0537*
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=mother)								
Woman without kids	-0.0598**	0.00683	0.0233	0.0578**	-0.0187	-0.00557	-0.0164	-0.0116
Father	0.0730**	0.0861**	0.0727**	0.0701*	0.0897***	0.0863***	0.0455*	0.0467*
Man without kids	-0.0871***	-0.0442+	-0.0388+	-0.00656	-0.0151	-0.000700	-0.0338+	-0.0276
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=mother)				
Woman without kids	-0.0871***	-0.0725***	-0.0595***	-0.0569**
Father	-0.0685**	-0.0710**	-0.0821***	-0.0866***
Man without kids	-0.0919***	-0.0777***	-0.0828***	-0.0856***
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=mother)								
Woman without kids	-0.0291	-0.0348	-0.00374	0.0673**	0.236***	0.170***	0.139***	0.122***
Father	-0.0859**	-0.0597+	-0.0350	0.0145	0.0483	0.0380	0.0521	0.0864**
Man without kids	-0.0645*	-0.0718*	-0.0145	0.0721**	0.186***	0.132***	0.107***	0.0975***
Supervisor gender								
Female	0.128***	0.126***	0.0955***	0.0484*	0.174***	0.177***	0.122***	0.117***
Parenthood X supervisor gender								
Woman without kids X female	-0.0555+	-0.0580+	-0.0261	-0.0514+	-0.0423	-0.0442	-0.0543+	-0.0800**
Father X female	0.000196	-0.00618	0.0216	0.0107	-0.162**	-0.163**	-0.115*	-0.0946+
Man without kids X female	-0.0932*	-0.103**	-0.0995**	-0.0704*	-0.120**	-0.117**	-0.0839*	-0.0730*
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=mother)								
Woman without kids	-0.0445	0.0163	0.0325	0.0677*	0.0303	0.0394+	0.0335	0.0403+
Father	0.0759*	0.0872**	0.0779*	0.0700*	0.124***	0.120***	0.0738**	0.0641*
Man without kids	-0.0873**	-0.0478	-0.0386	-0.0114	0.0331	0.0455+	0.0133	0.0160
Supervisor gender								
Female	0.0263	0.0231	0.0404+	0.0448*	0.0694***	0.0689***	0.0835***	0.0693***
Parenthood X supervisor gender								
Woman without kids X female	-0.0253	-0.0155	-0.0155	-0.0163	-0.0831**	-0.0767**	-0.0850**	-0.0884***
Father X female	0.0113	0.0137	0.00555	0.0135	-0.0498	-0.0506	-0.0312	-0.0109
Man without kids X female	0.0101	0.0170	0.0111	0.0178	-0.0874**	-0.0827**	-0.0829**	-0.0811**
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=mother)								
Woman without kids	-0.110***	-0.0938***	-0.0856***	-0.0889***				
Father	-0.106***	-0.110***	-0.105***	-0.1000***				
Man without kids	-0.143***	-0.128***	-0.122***	-0.123***				
Supervisor gender								
Female	-0.0859***	-0.0861***	-0.0630**	-0.0500*				
Parenthood X supervisor gender								
Woman without kids X female	0.0418	0.0385	0.0452	0.0550*				
Father X female	0.0498	0.0542	0.0285	0.00966				
Man without kids X female	0.0862*	0.0832*	0.0695*	0.0712*				
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 or more	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. Proportion of managers granting permission to change schedule, female employees

Employee gender	Female		
Experimental condition	Childcare	Vacation	Difference
Manager parenthood status			
Mother	0.944	0.720	0.224***
Woman without kids	0.786	0.754	0.032
Father	0.967	0.615	0.352**
Man without kids	0.824	0.594	0.230*

N=768; +p<0.10 *p<0.05 **p<0.01 ***p<0.001

Table 7. Proportion of managers granting permission to change schedule by condition

Experimental condition	Childcare			Vacation		
Employee gender	Female	Male	Difference	Female	Male	Difference
Manager parenthood status						
Mother	0.944	0.946	-0.002	0.720	0.538	0.182*
Woman without kids	0.786	0.957	-0.171*	0.754	0.577	0.177*
Father	0.967	0.842	0.125	0.731	0.876	-0.145
Man without kids	0.824	0.914	-0.09	0.594	0.862	-0.268*

N=768; +p<0.10 *p<0.05 **p<0.01 ***p<0.001

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

Acock, Alan C. 2016. *A Gentle Introduction to Stata, Fifth Edition*. 5th edition. College Station, Texas: Stata Press.

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

Appendix 2. Regression-adjusted vignette experiment predicted probabilities

The main analyses of the vignette experiments present differences in raw proportions of managers who permit employee to make last-minute changes to their schedule. Experimental treatments were randomly assigned, thus alleviating concerns about confounding by selection into treatment conditions. To check the robustness of these results, I also use linear probability models to estimate adjusted probabilities that managers will permit employees to change their schedules under different vignette conditions. The models are specified as:

$$
\begin{aligned}
Y_i = \beta_0 + \beta_1(\text{parenthood status})_i + \ & \beta_2(\text{vignette worker gender}) + \beta_3(\text{schedule conflict}) \\
& + \beta_4(\text{parenthood status X vignette worker gender}) \\
& + \ \beta_5(\text{parenthood status X schedule conflict}) \\
& + \ \beta_6(\text{vignette worker gender X schedule conflict}) \\
& + \beta_7(\text{parenthood status X vignette worker gender X schedule conflict }) + \gamma \text{age}_i \\
& + \delta\eta_i + \epsilon_i
\end{aligned}
\qquad (1)
$$

where η_i represents firm fixed effects to account for heterogeneity in managers' scheduling environments. Full three-way interactions between manager parenthood status, vignette worker gender, and vignette schedule condition are required to obtain the predicted probabilities that correspond to the above measures of the motherhood scheduling premium.

Regression results are presented in Table A2.1. Predicted probabilities (Table A2.2) are obtained using Stata's -margins- command. A Wald test is used to test differences in predicted probabilities.

Regression-adjusted results generate the same qualitative findings for female managers, the primary focus of these analyses. Managers who are mothers favor female employees' childcare requests over vacation requests, while managers who are women without children grant both types of requests at the same relatively low rate. Managers who are mothers also grant female and male employees' requests for childcare-related schedule accommodations at the same rate, while managers who are women without children penalize female employees' childcare-related requests. Like the analyses of raw proportions, male managers are favor female employees' requests for childcare-related scheduling accommodations over vacation requests. Unlike the analyses of raw proportions, favor women over men in the childcare condition and men over women in the vacation condition, while there are no significant differences for men without children.

A2.1 Linear probability model of permission to change schedule

	Permission to change schedule
Parenthood status (base=mother)	
Woman without kids	0.0316
Father	0.200*
Man without kids	0.306***
Vignette worker gender	
Female	0.208**
Parenthood status X vignette worker gender	
Woman without kids X female	-0.00842
Father X female	-0.272*
Man without kids X female	-0.465***
Experimental condition	
Childcare	0.411***
Parenthood status X experimental condition	
Woman without kids X childcare	-0.0216
Father X childcare	-0.364*
Man without kids X childcare	-0.361**
Vignette worker gender X experimental condition	
Female X childcare	-0.209*
Parenthood X worker gender X condition	
Woman without kids X female X childcare	-0.162
Father X female X childcare	0.475*
Man without kids X female X childcare	0.416*
Age	Yes
Employer fixed effects	Yes

A2.2 Proportion of managers granting permission to change schedule, female employees

Employee gender	Female		
Experimental condition	Childcare	Vacation	Difference
Manager parenthood status			
Mother	0.942	0.740	0.202***
Woman without kids	0.782	0.764	0.018
Father	0.981	0.668	0.313**
Man without kids	0.839	0.581	0.258**

N=768; +p<0.10 *p<0.05 **p<0.01 ***p<0.001

A2.3. Proportion of managers granting permission to change schedule by condition

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	0.207***
Woman without kids	0.782	0.954	-0.172*	0.764	0.564	0.200**
Father	0.981	0.780	0.201+	0.668	0.733	-0.0650*
Man without kids	0.839	0.889	-0.050	0.581	0.839	-0.258

N=768; +p<0.10 *p<0.05 **p<0.01 ***p<0.001