

The Effects of the Emeryville Fair Workweek Ordinance on the Daily Lives of Low-Wage Workers and Their Families



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Emeryville, California's Fair Workweek Ordinance (FWO) aimed to reduce service workers' schedule unpredictability by requiring large retail and food service employers to provide advanced notice of schedules and to compensate workers for last-minute schedule changes. From ninety-six workers with young children (N = 78 in longitudinal analyses; 58 percent working in regulated businesses at baseline), this study gathered daily reports of work schedule unpredictability and worker and family well-being over three waves before and after FWO implementation. The FWO decreased working parents' schedule unpredictability and improved their well-being relative to those in similar jobs at unregulated establishments. The FWO also decreased parents' days worked while increasing hours per work day, leaving total hours roughly unchanged. Finally, parent well-being improved and declines in sleep difficulty were significant.

Keywords: service workers, unpredictable work schedules, family well-being, work policies

Even before the COVID-19 pandemic, low-income families were grappling with a work landscape that had changed dramatically over the previous half century. Pressures of global-

ization and trade and automation led to job destruction in many industries, particularly those such as manufacturing that in the past led to stability for less-educated workers. In their

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place came service work, with lower wages and more unstable employment and hours (Autor, Dorn, and Hanson 2013). At the same time, earnings volatility increased across socioeconomic levels, most markedly among lower-income people (Gottschalk and Moffitt 2009; Dynan, Elmendorf, and Sichel 2012; Morduch and Schneider 2017). These characteristics of work left families with high and increasing levels of instability and unpredictability in work and earnings.

Even among stably employed service-sector workers, working parents faced additional forms of uncertainty. Managerial innovations have changed the daily operations of retail and food service firms such that service workers experience considerable daily uncertainty in both pay and hours. For example, the managerial tactic of on-call scheduling, in which employers facing variable customer demand minimize labor costs by requiring workers to be available for work but not compensating them for their availability if they are not needed, introduces significant unpredictability into workers' daily schedules. By increasing uncertainty, on-call scheduling practices as well as last-minute schedule changes and shift cancellations may increase parents' difficulties in balancing work and family demands. That type of schedule unpredictability is shown to be common among low-wage workers (Lambert, Fugiel, and Henly 2014; Schneider and Harknett 2019; Ananat and Gassman-Pines 2021). Research has also established that, conditional on family fixed effects, days with schedule unpredictability lead to worse worker health than days in which work schedules go as expected (Ananat and Gassman-Pines 2021).

Partially in response to concerns about the harms to workers and families from schedule unpredictability, over the last ten years, governments at various levels across the United States have begun considering new regulations to limit unpredictability and compensate workers when it occurs. This article, based on data collected before the pandemic, builds on the emerging research on the effects of such policy changes by examining the effects of the 2017 Fair Workweek Ordinance (FWO) in Emeryville, California, on working parents' work schedules and worker and family well-being. Although the

context of low-wage work has shifted in the wake of the pandemic, understanding the challenges families had previously faced can help us understand how to restructure employment policies going forward.

We focus on a highly policy-relevant group of workers, specifically, parents with young children. In so doing, this study is the first to provide evidence of the effects of a local policy aimed at deterring work schedule unpredictability on working parents' schedules and on worker and family well-being. To do so, the study used a novel sample recruitment strategy with an innovative survey data collection protocol, daily surveys using short message service (SMS) text messages, over three waves of data collection. The study is also the first to investigate this type of policy change in Emeryville, adding to ongoing work in Seattle and Oregon to build the base of knowledge about how schedule stability laws affect working families.

We recruited nearly one hundred Emeryville hourly service workers with young children, a 1-in-6 sample of the universe of affected workers, using venue-time sampling, and surveyed them daily for thirty days over each of three study waves, all prior to the onset of the pandemic (from 2017 to 2018). This approach allowed us to identify how the work and family experiences of affected workers changed after the FWO, relative both to their experiences at baseline and to the experiences of workers who were otherwise similar but worked for Emeryville businesses that fell below the FWO's size thresholds.

WORK SCHEDULE UNPREDICTABILITY

Recent surveys of U.S. workers underscore the ubiquity of several types of schedule precarity, including schedule instability and unpredictability, among low-wage workers. For example, using the National Longitudinal Survey of Youth (NLSY), researchers find that 41 percent of workers receive notice of their schedules only one week or less ahead of time (Lambert et al. 2014). Fluctuations in work hours are also substantial, almost 75 percent reporting fluctuations in the number of hours they worked per week over the previous month. Similarly, a survey of hourly workers in large retailers finds

that 60 percent of workers have variable hours, and that 60 percent also have less than two weeks' notice of their work schedules (Schneider and Harknett 2019). In Emeryville, the vast majority, 87 percent, of a representative sample of parents with young children reported some unanticipated work schedule change during a one-month period, 58 percent reporting at least one canceled shift (Ananat and Gassman-Pines 2021).

Estimates suggest that about one in six hourly workers has a young child (Schwartz et al. 2015), and research has established that schedule unpredictability is associated with worse worker and family well-being. Surveys of low-wage workers at a single point in time show that those with more unstable schedules report more psychological distress, worse sleep quality, and more parenting stress (Schneider and Harknett 2019). Unstable and unpredictable work schedules are also correlated with lower-quality parent-child interactions (Henly, Shaefer, and Waxman 2006) and increased work-life conflict (Luhr, Schneider, and Harknett 2022, this issue; Henly and Lambert 2014).

Research focusing on day-to-day variation in work schedules underscores the negative effects on workers and their families from unanticipated work schedule changes. In Emeryville, instances of work schedule unpredictability on any given day were related to worse daily mood and sleep quality for working parents (Ananat and Gassman-Pines 2021). Similarly, research shows that on days when parents are on call for work hours, they report increased daily negative mood (Bamberg et al. 2012, Dettmers et al. 2016) and worse daily sleep quality (Härmä et al. 2018; Sprajcer et al. 2018) than days when they are not on call.

Fewer studies focused on day-to-day variability in work schedules examine the effects of work schedule unpredictability on other aspects of daily family well-being beyond parent mood and sleep quality. However, related literature shows that daily parenting behaviors and child well-being were affected by daily nighttime work hours, such hours being related to less daily parent time spent together with adolescent children, and harsher interactions between parents and children in early childhood (Gassman-Pines 2011; Lee et al.

2017). Increased parental nighttime work also led to less positive daily child behavior among preschool-age children (Gassman-Pines 2011).

The findings from studies examining daily variation in work schedules are consistent with those from cross-sectional studies. Those examining daily variation, however, are able to use family fixed effects to control for all measured and unmeasured stable differences between families that might be related to both work schedule unpredictability and family well-being. Research focused on within-family variation from day to day cannot be biased by between-family differences, such as parental personality or motivation. Thus, taken together, the evidence suggests that schedule unpredictability not only is correlated with worse outcomes for workers and their families, but also actually causes worse well-being.

POLICIES TO REGULATE SERVICE WORKERS' SCHEDULES

Regulation and legal standards played a large role in shaping today's workplaces, such as in establishing minimum wages and workplace safety requirements, and led to current U.S. norms around schedules, such as the eight-hour workday. In recent years, however, labor-market regulation has paid little attention to schedules, despite dramatic shifts in the nature of scheduling practices. Whereas earlier schedule regulations focused on preventing employers from extracting too much labor from workers, many workers today instead fear unpredictability in work and the instability in earnings that results. In response to research demonstrating links between unpredictable work schedules and harm to workers, and in response to concerted labor organizing efforts (Ananat, Gassman-Pines, and Truskinovsky 2021), policymakers in localities and states have passed new regulations related to service workers' schedules. These policies represent an innovative shift for local labor regulation and have been passed in Emeryville, California, Chicago, New York City, Philadelphia, San Francisco, Seattle, and the state of Oregon. Each of the policies are unique but largely have the same general features. In particular, they require large employers to provide advanced notice of work schedules to their hourly workers

and to compensate workers if schedules subsequently change.

Emeryville's Fair Workweek Ordinance

Passed in early 2017, the Emeryville Fair Workweek Ordinance aims to stabilize schedules of hourly retail and food service workers with several provisions. First, hourly workers must receive two weeks' notice of their schedules. Second, workers have the right to decline previously unscheduled hours without retaliation if they are given less than two weeks' notice of hours. Third, workers are eligible for compensation for schedule changes that occur within two weeks and, in particular, for what is called stability pay of up to four hours or half of a shift paid when a shift is canceled, the amount of pay increasing the closer to the shift the cancellation is made. Fourth, the FWO gives workers the right to decline hours if they are within eleven hours of the previous shift, and workers are to be paid time and a half for shifts that fall within eleven hours of each other (so-called clopenings).

The provisions of the Emeryville FWO apply to large retail and food service employers, defined as more than fifty-five employees globally for retail employers and both more than fifty-five employees globally and twenty or more employees in Emeryville for food service employers. These cutoffs mean some arbitrariness in which firms are treated: the large international sandwich chain Subway, for example, has fewer than twenty Emeryville employees and is untreated, yet some local, single-location stores and restaurants have more than total fifty-five employees and are treated.

The Emeryville FWO was implemented in two phases. Beginning on July 1, 2017, the ordinance officially became effective and the city initiated a so-called soft roll-out. During the soft roll-out, the city investigated complaints but did not impose fines against employers who were not compliant. They also held employer- and employee-focused forums to educate stakeholders on the ordinance's provisions and created and disseminated written educational materials. Beginning on January 1, 2018, the city began full enforcement of the ordinance, including fines for noncompliance. Enforcement is primarily conducted using an

employee-driven complaint system. If employers are found to have violated the ordinance, they can be fined up to \$500 per violation and \$1,000 for each employee retaliated against.

Preliminary Evidence on Effects of Scheduling Policies

Emerging research from Seattle and Oregon sheds light on the effects of such policies on workers as well as on the role of managers in policy implementation. An evaluation of workers with a range of family statuses showed significant changes in workers' schedules after the Seattle policy was implemented. In particular, in the first year, the policy increased the share of workers receiving notice of their work schedule and the share receiving predictability pay when their hours were changed (Harknett, Schneider, and Irwin 2019). In the second year, addition benefits were observed, including a reduction in last-minute schedule changes and improved worker well-being as measured by increases in overall happiness and self-reported sleep quality (Harknett, Schneider, and Irwin 2021). Consistent with the Seattle findings, an evaluation of the early implementation of Oregon's statewide policy also revealed that the majority of workers received notice of their schedule (Loustaunau et al. 2020).

These results generally align with studies that focus on frontline managers as the conduits for policy implementation on behalf of employers. One year after policy implementation, managers in Seattle, for example, largely reported giving workers the required fourteen days' notice of their shifts and following rules around shift cancellations, suggesting that implementing some of the provisions was relatively straightforward (Haley and Lambert 2021). Employers struggled, however, with implementing other aspects of the law. Managers reported lower levels of compliance with rules around extending shifts and offering additional hours to current employees before hiring new ones. Similar patterns were reported by managers in Oregon (Loustaunau et al. 2020). In Oregon, an additional provision enabling managers to maintain voluntary waitlists facilitated frequent last-minute changes, making implementation easier for the employer but reducing the law's reach from employees' per-

spectives. Although the full set of costs and benefits to employers of these types of scheduling regulations is not yet known, related research suggests that employers could expect to see improvements in worker productivity and sales. A randomized experiment of a schedule stability intervention in retail stores showed such improvements in productivity and sales (Williams et al. 2018; Kesavan et al. 2022). Other research also suggests that improved work hours predictability leads to increased productivity (Hashemian, Ton, and Rahmandad 2020).

THIS STUDY

Because only a limited set of localities have passed scheduling regulations, evaluations of policy change in each locality are crucial to building the base of knowledge about how such regulations affect workers and families. This study addresses this need by providing evidence on the effects of the scheduling regulations implemented in Emeryville and by focusing on a highly policy-relevant population that has not been the focus of work investigating the effects of scheduling regulations in other jurisdictions, parents of young children.

Identification

Our main identification strategy is a difference-in-difference approach that compares changes over time in outcomes for workers in treatment jobs—that is, jobs at businesses that meet the size requirements to be regulated under Emeryville’s Fair Workweek Ordinance—to changes in outcomes for workers employed at similar jobs in businesses that fall short of the size requirements. Difference-in-difference designs rely on the assumption of parallel trends: the identifying assumption of our approach is that in the absence of the FWO’s implementation, the over-time changes in outcomes of workers in treatment and control jobs would have moved in parallel, and therefore any deviation in treated workers’ outcome trends from trends for workers in control jobs can be attributed to the effects of the FWO. Workers can and do hold multiple jobs; for outcomes that are defined at the worker-day level, such as sleep quality and interactions with the focal child, we define a worker as treated if they held at least one treatment job, even if they also held

one or more control jobs. In robustness checks, we defined treatment continuously, based on the share of hours worked at baseline in a treatment job; results are substantially similar (results available on request).

A threat to the parallel trends assumption would occur if workers endogenously switch jobs in response to the FWO—that is, if treated jobs become more (or less) desirable because of regulation, then workers with more advantages, such as those with better mental health, might switch sectors in response. Under those circumstances, a simple difference-in-differences strategy, such as the type conducted using repeated cross-sectional surveys to evaluate policy changes, would inaccurately conflate compositional changes in the treated workforce due to the FWO with related changes in individual worker outcomes. However, our panel structure avoids this problem by allowing us to combine the strengths of a difference-in-differences identification strategy with the complementary strengths of an individual fixed-effects approach. Because we follow the same workers over time, we are able to include worker fixed effects and identify only changes in individual worker outcomes over time.

Another potential threat to the parallel trends assumption would occur if regulated versus unregulated businesses faced different shocks during the evaluation period, beyond those induced by the FWO. The somewhat arbitrary and complex size cutoff for regulation—which does not coincide with thresholds for other regulations in Emeryville or with other meaningful market distinctions—makes it relatively unlikely, however, that treated and untreated firms will face different shocks (for example, to consumer demand or to credit access) on other dimensions over the implementation period.

METHOD

Individuals were eligible for this study if they worked in an hourly position in Emeryville and had a child between the ages of two and seven. Recruitment was done in May 2017, after the FWO passed but before it was enacted, using a venue-based sampling approach. For it, we secured from the City of Emeryville a complete list of retail and food service businesses in the

city. Using this list, we constructed a sampling frame of venue (business) day-time units (VDTs), randomly selected VDTs, and identified and recruited eligible individuals present in those VDTs (Muhib et al. 2001). We approached workers at each business, determined their eligibility, and asked those workers to direct us to any other currently present employee with a young child. Across VDTs, we entered each business in the area at least once, talking with more than six hundred workers, including at least one from each retail or food establishment in the city. We estimated, based on recent surveys of hourly retail and food service workers (Schwartz et al. 2015), that about 15 percent of the 3,743 Emeryville hourly retail and food service workers have a young child, suggesting an eligible population of 561 workers. Of these, we spoke with 170, an estimated 30 percent. We successfully recruited ninety-six, approximately 56 percent, of those we contacted. Our sample, although small in absolute size, reflects a substantial 1-in-6 sample of the universe of Emeryville retail and food workers with a young child. The initial sample was balanced across, first, retail and food firms that meet threshold local and global employment levels and are subject to regulation from the FWO and, second, otherwise similar control firms below those thresholds, which are exempt from the FWO.

Procedure and Analysis

At the beginning of the study, respondents were asked about their demographics, health and well-being, work history, each job's hourly wage and whether it is tipped, and reports on children. Then, every day for thirty consecutive days, respondents reported on that day's work and family experiences via text message. Daily survey completion rates among participants in the initial wave were high: 61 percent of participants completed 100 percent of the daily surveys and 89 percent completed the majority (more than fifteen), providing substantial within-person variation for analysis.

We contacted the sample again two times: in the fall of 2017 during the soft roll-out enforcement phase of FWO implementation (wave 2) and in the spring of 2018 during the full-enforcement phase (wave 3). Of the initial

ninety-six participants, seventy-six participated in wave 2 and seventy-one participated in wave 3. At each wave, we gathered information about changes in workers' jobs and job characteristics and again collected reports on the day's work and family experiences via SMS for thirty consecutive days. In wave 2, daily participation was higher than in wave 1. More precisely, 74 percent of participants completed 100 percent of the thirty daily surveys and 98 percent completed the majority of them. In wave 3, daily participation was higher than in wave 1 or wave 2, 80 percent completing all of the daily surveys and 99 percent completing the majority of them.

Participant compensation was structured to incentivize completion of all thirty daily surveys within each wave. In waves 1 and 2, participants received \$1 for each survey completed and were offered bonuses of \$7 and \$10 offered for each week with seven completed surveys, respectively. In wave 3, participants received \$1.20 for each survey completed and a bonus of \$12 for each week with seven completed surveys. An additional completion bonus for those who answered all thirty daily surveys was also offered: \$20 in wave 1, \$25 in wave 2, and \$30 in wave 3.

Our analysis sample included all individuals who participated in at least one of the post-FWO implementation follow-up waves ($N = 78$ parents; $N = \sim 6,000$ person-days for analysis). On average, the analysis sample provided eighty-six days of survey responses across the waves of data collection.

All survey materials were available in both English and Spanish. All aspects of the study were approved by the Duke University Institutional Review Board (protocol #2017-0053).

MEASURES

Daily schedule unpredictability was characterized along several dimensions. We asked a series of questions on as many as three jobs per respondent, based on the number of jobs reported at the initial interview for each wave. For each job, respondents were asked whether they worked that day, and if so when they started and stopped working and whether their hours worked were their originally scheduled hours. If not, they provided their originally scheduled

hours. Thus, for each day that a respondent worked a given job, *we measure whether their hours worked deviated from their originally scheduled hours at that job*. Further, if respondents did not work at a given job on a given day, they were asked whether they were originally scheduled to work. Thus, for each day we measure *whether a respondent had a shift cancelled at that job*. For both changes in work hours and shift cancellations, respondents were asked when they found out about the change: *less than one hour before the shift start time; more than one hour before the shift start time; on the day of the shift; the night before; or earlier*. Those who gave any response other than *earlier* about either a change in hours or a shift cancellation were coded as having a last-minute work schedule change at that job that day.

To find surprise shifts, we looked at responses to the question about originally scheduled hours. In that space, many respondents offered context, stating that they were not scheduled for that day, or stating that they were scheduled for a future day (for example, on Monday saying that they were scheduled to work Tuesday). We classified any of these cases as a surprise shift rather than a change in hours. Finally, surprise shifts, along with changes in hours and canceled shifts, were combined to create an additional measure that indicates whether the respondent had any kind of schedule change at that job on any given day.

Because information was provided about each job on each day, it was possible to examine work schedule unpredictability both by job and by day. For all outcomes discussed above, the unit of analysis was the person-job-day.

Daily family and child well-being outcomes were measured as follows. *Daily mood* was measured with an item that asked respondents how much of the time they felt fretful, angry, irritable, anxious, or depressed on a 3-point scale from *all of the time* to *none of the time*. This question was modified from a question with a four-week recall period from the Health Utilities Index (HUI) (Furlong et al. 2001; Horsman et al. 2003). The single item has been validated as a daily measure of negative mood as it is positively correlated with daily stressors, including daily food insecurity (Gassman-Pines and Schenck-Fontaine 2019) and daily work sched-

ule disruptions (Ananat and Gassman-Pines 2021). It increased substantially when COVID-19 restrictions were put into place (Gassman-Pines, Ananat, and Fitz-Henley II 2020). A dichotomous indicator was created equal to 1 for those who answered *Some of the time* or *All of the time* and 0 for those who answered *None of the time*.

Daily perceived negative sleep quality was measured with a single item used in other daily survey studies (George et al. 2019): “How well did you sleep last night?” Answers were on a 10-point scale from *Really badly* to *Really well*. We treat self-reported sleep quality as a measure of daily well-being, as perceived sleep quality is associated with daily affect (Bower et al. 2010). The sleep quality measure was reverse coded so that higher numbers indicated worse perceived sleep quality. This measure has been validated, given that it is correlated in expected directions with negative and positive daily mood, daily self-esteem (George et al. 2019), and daily work schedule disruptions, a daily stressor (Ananat and Gassman-Pines 2021).

Daily parent-child interactions was measured with two questions: “Did you punish your child today?” and “Did you lose your temper with your child today?” Dichotomous indicator variables were set equal to 1 if the parent responded *Yes* and 0 if the parent responded *No*. Both measures have been validated because they were both positively correlated with daily disruptions to school and care during the COVID-19 pandemic (Gassman-Pines et al. 2022).

Finally, *daily child behavior* was measured with two items. Daily child uncooperative behavior was measured with a single item: “How much was your child uncooperative today?” Answers on a 4-point scale included *Not at all*, *Just a little*, *Some*, and *A lot*. This question was modified from an item in the Inattention/Overactivity with Aggression Connors Rating Scale (Loney and Milich 1982), which asks parents to rate how much the adjective describes their child “at this time.” Daily child worry was measured with a single item: “How much did your child appear to be sad or worried today?” Answer choices on a 4-point scale included *Not at all*, *Just a little*, *Some*, and *A lot*. This question was modified from an item in the Preschool Behavior Questionnaire (Behar and Stringfield

1974), which asks parents to rate how much the child exhibits each behavior.

For both child behaviors, research has demonstrated the reliability and validity of multi-item scale versions adapted for measuring daily externalizing and internalizing behavior problems (Gassman-Pines 2015). In this study, single items were used to reduce respondent burden and attrition. Dichotomous indicator variables were set equal to 1 if the parent responded *Some* or *A lot* and 0 if *Not at all* or *Just a little*. These single-item measures have been validated because they were both positively correlated with daily disruptions to school and care during the COVID-19 pandemic (Gassman-Pines et al. 2022).

Job type (such as treatment versus control) was categorized as follows: for each of up to three jobs reported by a respondent, a job was coded as a treatment job if it was an hourly position at a venue listed by the City of Emeryville as regulated under the FWO. A job was coded as a control job if it was at a retail or food establishment in Emeryville listed by the city as not covered under the FWO, or if it was outside Emeryville or outside retail and food. Workers were categorized as in the treatment group if they had at least one treatment job; otherwise, they were classified as in the control group. All respondents had at least one hourly position in food service or retail in Emeryville, but respondents could also have additional jobs outside Emeryville, outside food or retail, or paid other than hourly.

Analytic Strategy

To evaluate the job-experience relationships of interest, that is, effects on schedule unpredictability, the following equation was used:

$$Y_{ijt} = \beta_0 + \beta_1 * Treat_{ij} * After_t + \beta_2 * After_t + \beta_3 * Treat_{ij} + \psi_{ij} + \tau_t + \varepsilon_{ijt}$$

for outcome Y for person i in job j on day t , where ψ represents a vector of individual-by-job fixed effects and τ is an indicator for whether day t falls on a weekend. Research shows that both work and home experiences differ dramatically between weekends and weekdays for workers in these types of jobs (Ryan, Bernstein, and Brown 2010; Shrout et al. 2010; Gassman-

Pines 2011; Gassman-Pines, Ananat, and Fitz-Henley II 2020; Ananat and Gassman-Pines 2021). Because of idiosyncratic variation in individual start days, respondents experience different numbers of weekend days, which would, if we simply averaged across days within person and wave, lead to greatly increased noise in our estimates.

$Treat_{ij}$ is an indicator variable equal to one if job j was at a treated firm subject to FWO regulations, and zero otherwise. We measure job-experience outcomes (hours changes, surprise shifts, and canceled shift) at the person-job-day level, rather than person-day, because the variation in those outcomes exists at the person-job-day level. For example, we measure canceled shifts at the person-job-day level because a worker with two jobs might have had a shift canceled at one job on a given day, while on the same day their shift at another job was not canceled. Because we are interested in whether the policy affects scheduling practices such as this, and because the policy can in some cases affect one of a respondent's jobs but not the other, examining job outcomes separately is scientifically appropriate. Most respondents, however, have only one job (table 1), so this has only a minor effect on our sample size.

$After_t$ is an indicator variable equal to one if day t falls after implementation, and zero otherwise. The definition of the post-implementation period is somewhat ambiguous because Emeryville began implementation with a soft roll-out, as discussed. To accommodate this ambiguity, our main results include three approaches to defining pre and post: first, base estimates only on pre-implementation (wave 1) and full-enforcement (wave 3) data, with full-enforcement wave 3 observations defined as post-implementation; second, include all observations and define both soft roll-out and full-enforcement observations as post-implementation; and, three, include all observations and estimate:

$$Y_{ijt} = \beta_0 + \beta_1 * Treat_{ij} * Wave2_t + \beta_2 * Wave2_t + \beta_3 * Treat_{ij} * Wave3_t + \beta_4 * Wave3_t + \beta_5 * Treat_{ij} + \psi_{ij} + \tau_t + \varepsilon_{ijt}$$

This specification allows us to estimate the effect of the FWO during the soft roll-out (rep-

Table 1. Sample Characteristics at Baseline

	Overall	No Treatment Job (C)	1+ Treatment Job (T)	Significant Difference Between T and C
Respondent characteristics				
Age (mean)	29.6	30.9	28.45	+
Female	86.2%	86.7%	85.4%	
Education (mean years)	11.7	12.2	11.4	
Twelve or more years of education	73.4%	76.9%	71.8%	
Age at first birth (mean)	23.5	23.8	23.1	
Ever married	28.2%	36.4%	20.0%	+
Race-ethnicity:				
Hispanic (of any race)	30.6%	31.8%	30.0%	
African American (non-Hispanic)	44.7%	43.2%	45.0%	
Caucasian (non-Hispanic)	8.2%	4.5%	12.5%	
Asian (non-Hispanic)	8.2%	11.4%	5.0%	
Native American (non-Hispanic)	1.2%	0.0%	2.5%	
Multiracial (non-Hispanic)	7.1%	9.1%	5.0%	
Household characteristics				
Number of children (mean)	1.80	1.84	1.77	
Respondent currently married or living with partner	58.3%	61.4%	56.4%	
Respondent lives with a parent	21.4%	23.3%	17.5%	
Focal child characteristics				
Age (mean)	3.6	4.0	3.2	
Female	54.4%	61.4%	44.1%	
Care arrangements				
enrolled in Head Start	35.4%	52.3%	11.8%	**
enrolled in daycare	50.0%	62.8%	32.4%	**
enrolled in afterschool	17.9%	20.9%	14.7%	
receives care from nonrespondent parent	46.8%	39.5%	55.9%	
receives care from other relative	40.0%	26.2%	59.4%	**
Total hours of nonrespondent care per week (mean)	38.2	30.0	47.8	**
Work situation				
at least one treatment job covered by FWO	57.7%	0.0%	100.0%	
# of jobs held by respondent (mean)	1.13	1.10	1.19	
Monthly household income (mean)	\$2,795	\$2,945	\$2,633	
Respondent mental health				
Often or always found it difficult to relax	26.3%	23.3%	31.3%	
Often or always felt downhearted or blue	10.5%	7.0%	15.6%	
Focal child mental health				
Often somewhat or very worried	21.5%	15.9%	29.4%	
Often somewhat or very unhappy, depressed, or tearful	10.1%	9.1%	11.8%	

Source: Authors' tabulations.

$N = 78$; + $p < .10$; ** $p < .01$.

resented by the estimated value of the coefficient β_1) separately from the effect of the FWO during full enforcement (represented by the estimated value of the coefficient β_3). We report the estimates for both effects in our main results.

Worker and family well-being (worker sleep quality and mood, parenting behaviors, and child behavior) exist only at the person-day level, evaluated using the equation

$$Y_{it} = \beta_0 + \beta_1 * Treat_i * After_t + \beta_2 * After_t + \beta_3 * Treat_i + \psi_i + \tau_t + \varepsilon_{it}$$

for outcome Y for person i on day t . $Treat_i$ is equal to one if person i had at least one treatment job, and equal to zero otherwise. All other variables are as defined, and a parallel specification shift was made to estimate our third approach to modeling soft roll-out and full-enforcement effects.

In addition to fixed effects for each respondent, we cluster our standard errors at the person level to reflect that observations for a given respondent across jobs, days, and waves are not independent of one another. Clustering of standard errors relaxes the assumption that errors are independent and identically distributed and allows for errors within a cluster (in this case, a person) to instead be arbitrarily correlated. With seventy-eight respondents in our analytical sample, we have a large enough sample to estimate person-fixed effects, use our average of eighty-six observations per respondent to estimate standard errors clustered on person, and then to estimate effects of the policy.¹

RESULTS

Table 1 reports descriptive results at baseline for the analysis sample, overall and separately for the treatment and control groups (defined at wave 1). Respondents were, on average, thirty years old, had 11.7 years of education, and had their first child at age twenty-four. The majority, 86 percent, identified as female. Just under 30 percent had ever been married. They were

racially and ethnically diverse: 31 percent Hispanic (of any race); 45 percent non-Hispanic Black; 8 percent non-Hispanic White; 8 percent non-Hispanic Asian American; 1.2 percent non-Hispanic Native American; and 7.1 percent non-Hispanic multiracial. On average, they held 1.13 jobs. Respondents' household income averaged \$2,795 per month. The majority of respondents lived with at least one other adult: 58 percent lived with a romantic partner and 21 percent lived with a parent. On average, respondents had 1.8 children. Fifty-eight percent held at least one treatment job.

Financial strain was common among respondents. More than one in five reported generally not having enough money to make ends meet, with another half reporting generally having just enough. Nearly two-thirds of respondents doubted they could access funds to pay for a \$1,000 emergency. About the same number had to borrow from friends or family in the past year to make ends meet; 37 percent had applied for government assistance.

Not surprisingly, given all these stressors, respondents reported mental health challenges as well. More than one in four reported finding it "often or always" difficult to relax, and one in ten "often or always" felt downhearted or blue. Similarly, 21 percent of respondents reported that their focal child was often "somewhat or very" worried, and 10 percent that theirs was often "somewhat or very" unhappy, depressed, or tearful.

Across most characteristics, baseline characteristics were well balanced across treatment and control. Among twenty-four characteristics, two were significantly different between the groups, at the 10 percent level, consistent with chance. This balance suggests that, among hourly service workers with young children, selection is minimal on observables into treatment (larger firm) versus control (smaller firm) jobs.

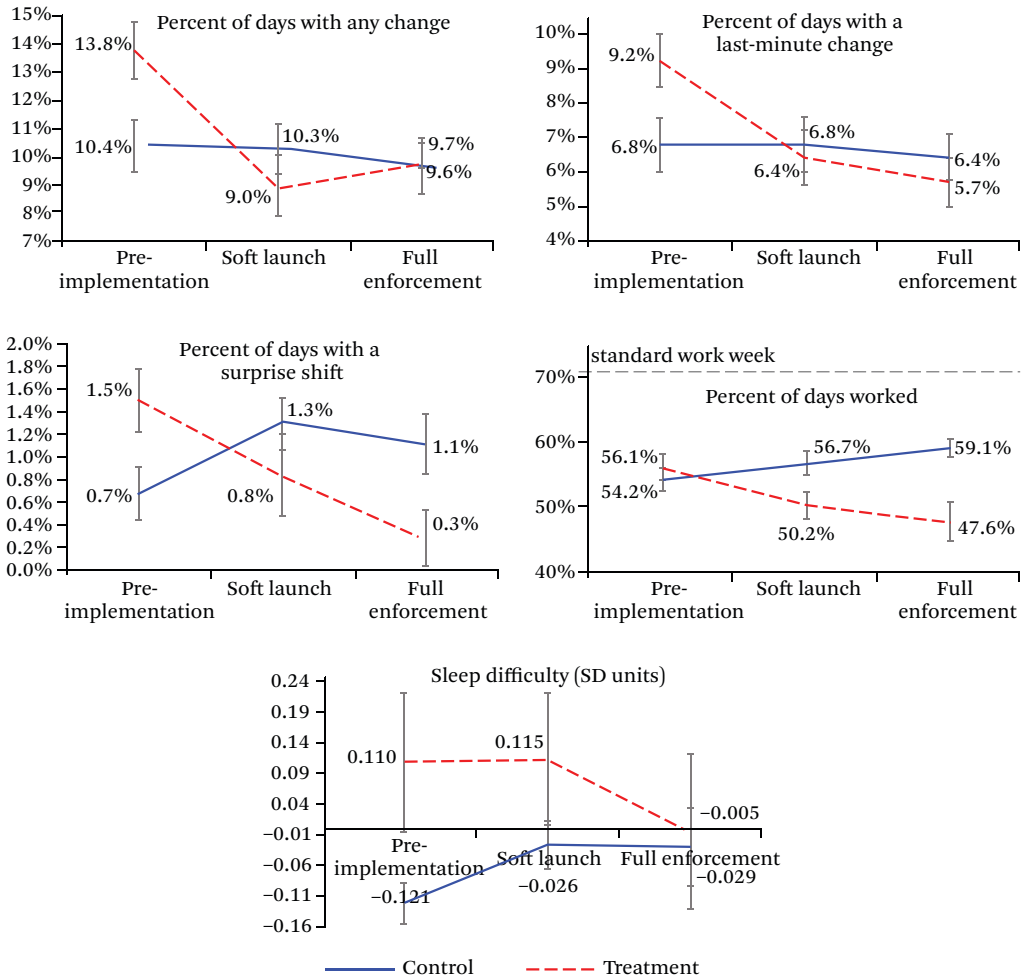
The exception to this balance was differences in childcare arrangements, those in treatment jobs less likely to access formal

1. Our highly racially diverse sample means, however, that we have a small number of respondents of each race-ethnic identity. Estimates with fixed effects and clustering, regardless of how large their total N , do not exhibit large-sample properties when they include only a small set of clusters (Angrist and Pischke 2009), meaning that our sample is unfortunately not adequate to estimate such models.

childcare and more likely to instead rely on relative care, and for more hours per week. We interpret these differences as a reflections of the jobs themselves rather than selection into them; as shown in figure 1, at baseline, treatment jobs were more unpredictable, which, as documented in other work (Luhr, Schneider, and Harknett 2022, this issue) makes use of formal childcare more challenging. However, even if the difference in childcare suggested imbalance on unobservables between the treatment and control groups, difference-in-difference designs do not require baseline equality between treatment and control; we instead rely on the much weaker assumption of parallel trends.

Table 2 summarizes all daily work and well-being outcomes across people, jobs, and waves. Because differences were significant in these measures across race, we report both overall means and means for non-Hispanic Blacks, non-Hispanic Whites, non-Hispanic Asian Americans, and Hispanics (of any race). Overall, some type of schedule change was made on nearly 11 percent of job-days, a significantly greater share of days with a change among Asian American respondents (17 percent) and a significantly lower share among White respondents (8 percent). The majority of schedule changes were last minute, with less than twenty-four hours' notice; White respondents were less likely to experience changes at the last

Figure 1. Effects of the Emeryville Fair Workweek Ordinance on Work and Sleep Outcomes



Source: Author's tabulations.

Table 2. Daily Outcomes Across Waves

	Overall	Non-Hispanic Black	Non-Hispanic White	Non-Hispanic Asian American	Hispanic (any race)
Person-job-days					
Share with any schedule change	0.106 (0.004)	0.105 (0.006)	0.078 (0.011)	0.173 (0.015)	0.100 (0.007)
Share with last-minute change	0.700 (0.003)	0.073 (0.005)	0.047 (0.009)	0.086 (0.011)	0.076 (0.006)
Share with a change in work hours	0.055 (0.003)	0.051 (0.004)	0.054 (0.009)	0.103 (0.012)	0.051 (0.005)
Share with a canceled shift	0.041 (0.002)	0.043 (0.004)	0.017 (0.005)	0.064 (0.009)	0.040 (0.005)
Share with a surprise shift	0.010 (0.001)	0.012 (0.002)	0.007 (0.003)	0.006 (0.003)	0.010 (0.002)
Share worked today	0.547 (0.006)	0.509 (0.009)	0.503 (0.021)	0.613 (0.019)	0.603 (0.011)
Mean hours worked on work days	7.12	7.15	7.39	6.73	7.17
standard deviation	2.01 (0.03)	2.02 (0.05)	1.62 (0.10)	2.00 (0.10)	1.99 (0.06)
Mean hours worked including nonwork days	3.83	3.49	3.70	4.08	4.11
standard deviation	3.84 (0.05)	3.84 (0.07)	3.87 (0.16)	3.64 (0.14)	3.85 (0.09)
<i>N</i>	6,945	3,107	575	671	1,875
Person-days					
Share parent had negative mood	0.422 (0.006)	0.423 (0.010)	0.598 (0.020)	0.447 (0.020)	0.361 (0.012)
Raw sleep difficulty (1-10 scale) (mean)	2.9	2.8	3.8	2.6	2.8
standard deviation	2.21 (0.03)	2.2 (0.04)	1.92 (0.08)	1.45 (0.06)	2.48 (0.06)
Share lost temper	0.092 (0.004)	0.097 (0.006)	0.078 (0.011)	0.113 (0.013)	0.093 (0.007)
Share punished child	0.084 (0.004)	0.071 (0.005)	0.134 (0.014)	0.108 (0.013)	0.077 (0.007)
Share child was uncooperative most or all of the day	0.139 (0.004)	0.159 (0.007)	0.137 (0.014)	0.187 (0.016)	0.099 (0.007)
Share child was worried most/all of the day	0.054 (0.003)	0.063 (0.005)	0.045 (0.009)	0.087 (0.011)	0.032 (0.004)
<i>N</i>	6,059	2,610	575	611	1,653

Source: Authors' tabulation.
Standard errors in parentheses.

minute (4.7 percent of days versus 7.0 percent for the sample overall).

Among the types of schedule changes, a change in work hours was the most common, occurring on 5.4 percent of days on average but

at almost twice that frequency, 10.3 percent, among Asian Americans. Surprise shifts were the least common type of schedule change, occurring on less than 1 percent of days with no differences across groups. Across all waves, re-

spondents worked on about 55 percent of job-days; Asian Americans and Hispanic respondents were more likely than average to work on a given day. The average shift length on any given work day was 7.1 hours, but was higher for Whites, at 7.4 hours, and lower for Asian Americans, at 6.7 hours.

Finally, in terms of family well-being outcomes, negative mood was fairly common, with respondents overall reporting negative mood on 42 percent of days. White respondents reported significantly more days with negative mood (60 percent), and Hispanic respondents reported fewer (32 percent). Sleep difficulties were greater among Whites and lower among Asian Americans; harsh parenting behaviors were higher among Whites and Asian Americans than among the population overall. Black and Asian American parents reported more days with child uncooperativeness and child worry than the sample overall did. Child behavior problems were relatively infrequent across all groups.

Impacts of the Emeryville FWO

Table 3 reports effects of the FWO on schedule disruption outcomes; given small sample sizes, we were not able to separately estimate effects of the FWO by race and ethnicity, as discussed. Across all models, results showed that the FWO led to a decrease in any schedule change overall, point estimates ranging from 2.5 to 5.5 percentage points, though not all reached conventional levels of statistical significance. Results from model 3 suggest that decreases in schedule changes occurred right away, in the soft roll-out phase of enforcement. The estimates from our third model are also presented in figure 1, which shows that treatment jobs had more frequent schedule changes than control jobs in the pre-implementation period, but that rates of schedule changes for the treatment jobs declined to the same level as the control jobs once the FWO was implemented. As shown in table 3 and figure 1, the same pattern of results was found for last-minute changes: the FWO reduced last-minute schedule changes. Again, although not all estimates reached conventional levels of statistical significance, the pattern of findings is consistent with a decline in last-minute changes following FWO implementa-

tion for the treatment jobs relative to the control jobs.

Among the types of schedule disruptions considered, surprise shifts were most strongly affected by the FWO, whereas point estimates for changes in work hours follow a similar, but not statistically significant, pattern (table 3). Shift cancellations were not affected by the FWO. As shown in figure 1, treatment jobs had more frequent surprise shifts in the pre-implementation period but rates of surprise shifts for the treatment jobs declined once the FWO was implemented and were lower than rates in control jobs by the full-enforcement phase.

Table 4 reports effects of the FWO on daily work and hours outcomes. Results show that the FWO decreased the likelihood of working in a treatment job on any given day. The effect size was substantial, with decreases in wave 3 of about 12 percentage points. As shown in figure 1, the likelihood of working in a treatment or control job on any given day were similar before the FWO was implemented. During the post-implementation period, the likelihood of working in a control job on any given day increased slightly and the likelihood of working in a treatment job decreased.

At the same time, however, results also showed that the FWO increased the length of shifts on work days. By the full-enforcement phase, the increase in work hours was about 0.4 hours, on average. When combining the two effects by considering average work hours including zeroes for nonwork days, the FWO did not significantly affect hours worked within a job. Workers do not appear to have increased work in nonregulated firms in response to changes in their treatment jobs, given that average work hours across all jobs were also not significantly affected by the FWO.

Finally, table 5 reports effects of the FWO on parent and child outcomes. Considering parental well-being, the FWO decreased sleep difficulty (defined by reverse-coding and then normalizing the sleep quality responses that had been gathered using a 1–10 scale), though not all estimates reach conventional levels of statistical significance. In wave 3, sleep difficulty decreased by nearly 0.28 standard deviations for those in treatment jobs, relative to those in

Table 3. Effect of Emeryville Fair Workweek Ordinance on Daily Work Schedule Disruptions

	Wave 3 Only as Post	Waves 2 and 3 as Post	Waves 2 and 3 Unique Effects
Outcome: any schedule change			
Policy impact ^{a b}	-0.037 (0.029)	-.042 ⁺ (0.024)	-0.025 (0.028)
Wave 2 policy impact			-.055 [*] (0.025)
Outcome: last-minute schedule change			
Policy impact ^{a b}	-0.032 (0.022)	-.034 ⁺ (0.019)	-0.029 (0.021)
Wave 2 policy impact			-.039 ⁺ (0.020)
Outcome: change in work hours			
Policy impact ^{a b}	-0.031 (.022)	-0.027 (.021)	-0.021 (.024)
Wave 2 policy impact			-0.031 (.022)
Outcome: canceled shift			
Policy impact ^{a b}	0.012 (.015)	0.002 (.011)	0.014 (.014)
Wave 2 policy impact			-0.008 (.012)
Outcome: surprise shift			
Policy impact ^{a b}	-.019 [*] (.007)	-.017 [*] (.007)	-.019 [*] (.007)
Wave 2 policy impact			-.016 [*] (.008)

Source: Authors' tabulation.

^aTreatment x wave 3 for models 1 and 3

^bTreatment x post (waves 2 and 3) for model 2

⁺ $p < .10$; ^{*} $p < .05$

control jobs. As shown in figure 1, those in treatment jobs experienced more sleep difficulty than those in control jobs before implementation of the FWO, with sleep difficulty decreasing substantially during the full-enforcement phase. Effects on daily parental negative mood were also in the negative direction, but did not reach statistical significance. We did not find any effects of the FWO on either parenting behaviors or child behavior.

Robustness Checks

We conducted a variety of robustness checks (all results available on request). First, we ran

all models on a balanced panel of participants who participated in all waves, rather than only in at least one post-implementation wave. Results were substantially similar to those reported here. Second, we ran all models using initial treatment status at the person-level only. Results were in the same direction and of similar magnitude to those described here but were less precisely estimated. Third, we ran all models using a continuous definition of treatment status defined by the share of total work hours worked at a treatment job at baseline; results were substantially similar. Fourth, we ran models of hours worked dropping observa-

Table 4. Effect of Emeryville Fair Workweek Ordinance on Daily Work and Work Hours

	Model 1: Wave 3 Only as Post	Model 2: Waves 2 and 3 as Post	Model 3: Waves 2 and 3 Unique Effects
Outcome: worked today			
Policy impact ^{a b}	-.128*	-.098*	-.118+
	(.064)	(.048)	(.058)
Wave 2 policy impact			-0.082
			(.052)
Outcome: hours worked on work days			
Policy impact ^{a b}	.509*	0.185	.393+
	(.250)	(.254)	(.233)
Wave 2 policy impact			0.009
			(.316)
Outcome: hours worked including nonworkdays			
Policy impact ^{a b}	-0.474	-0.433	-0.381
	(.515)	(.401)	(.479)
Wave 2 policy impact			-0.475
			(.437)
Outcome: hours worked across all jobs (including nonwork days)			
Policy impact ^{a b}	-0.698	0.441	-0.623
	(.743)	(.666)	(.734)
Wave 2 policy impact			1.372+
			(.818)

Source: Authors' tabulation.

^aTreatment x wave 3 for models 1 and 3

^bTreatment x post (waves 2 and 3) for model 2

+*p* < .10; **p* < .05

tions for which hours information was incomplete and had to be imputed; results were substantially similar. Fifth, we estimated all models for demographic subgroups defined by race, ethnicity, gender, and education; unfortunately, sample sizes became too small for interpretation.

DISCUSSION

Low-income families in the twenty-first century, especially those working in the service sector, faced high levels of unpredictability in work hours and pay even before the COVID-19 pandemic and its disruptions to the labor market. Anecdotally, the possibility is minimal that the pandemic and its related economic dislocations have improved predictability. Local regulations aimed at reducing unpredictability in work schedules are an innovation in labor pol-

icy that was gaining traction in many localities, and one state, in the United States before the pandemic, but little is known about such policies' effects and therefore whether predictability for low-income families will be improved by encouraging more localities to adopt them going forward. Emeryville is one of only a handful of localities that has passed such an ordinance. This article thus addresses a gap in the literature by being the first to examine the effect of Emeryville's Fair Workweek Ordinance on working parents and their families.

We find that the Fair Workweek Ordinance succeeded in reducing schedule unpredictability for workers with young children, particularly changes in start and end times of shifts and surprise shifts. The FWO also decreased the number of workdays significantly for treated workers in our sample, increased the

Table 5. Effect of Emeryville Fair Workweek Ordinance on Daily Family Well-Being

	Wave 3 Only as Post	Waves 2 and 3 as Post	Waves 2 and 3 Unique Effects	Wave 3 Only as Post	Waves 2 and 3 as Post	Waves 2 and 3 Unique Effects
Parental well-being						
Policy impact ^{a,b}	-3.740 (5.397)	Outcome: parent negative mood -0.869 (4.172)	-3.839 (5.228)	-281* (0.137)	Outcome: parent sleep difficulty -0.196 (0.124)	-282* (0.136)
Wave 2 policy impact			1.738 (3.991)			-0.118 (0.142)
Parenting behaviors						
Policy impact ^{a,b}	-2.306 (1.976)	Outcome: lost temper -1.693 (1.684)	-2.564 (1.886)	2.507 (2.319)	Outcome: punished child 1.820 (1.846)	1.864 (2.269)
Wave 2 policy impact			-1.031 (2.216)			1.699 (1.999)
Child well-being						
Policy impact ^{a,b}	-1.328 (4.319)	Outcome: child uncooperative -2.168 (3.242)	-2.014 (4.161)	0.893 (2.383)	Outcome: child worried 0.087 (1.878)	0.211 (2.355)
Wave 2 policy impact			-2.539 (3.166)			-0.147 (1.811)

Source: Authors' tabulation.

^aTreatment x wave 3 for models 1 and 3

^bTreatment x post (waves 2 and 3) for model 2

* $p < .05$

hours worked on workdays, and left total work hours insignificantly affected. It is possible that these changes were concentrated among those, like our sample, with caregiving responsibilities, and represent a reassignment by employers of short, unpredictable, or otherwise difficult shifts from such workers to workers without caregiving responsibilities, for whom such marginal shifts are less costly. Future work should examine effects of schedule predictability legislation on different populations of workers.

The regulatory success of the FWO translated into some health benefits for workers in regulated jobs, in particular, improved sleep quality. Thus, even with a relatively small sample size, this article presents important initial evidence that this type of policy change can affect work schedule unpredictability among working parents, and by affecting individual workers rather than merely by shifting sector composition.

These findings are notable in the context of the remarkable changes in work in the last half century, characterized by increasing instability and unpredictability in employment, hours, and pay, especially for workers with less access to formal higher education. Historically, regulations played a large role in shaping today's workplaces, such as through minimum wage and antidiscrimination policy, and created the current U.S. norms around scheduling, including the eight-hour workday and the weekend. In recent years, however, regulation of the labor market has focused little attention on scheduling, even though the nature of work schedules has shifted dramatically. In particular, whereas the earlier generation of scheduling regulation concentrated on preventing employers from extracting too much labor from workers, many of today's workers fear instead too much variability and unpredictability in work and pay. That is, recent concerns focus on employers shifting the risk of variable customer demand from themselves to their employees, by giving workers neither hours nor pay when demand is unexpectedly low. Indeed, the Emeryville ordinance was passed in response to such concerns.

Our results show that the Emeryville FWO decreased schedule changes and, in particular,

last-minute schedule changes. These impacts are notable because these are the dimensions of schedule changes that our research indicates is particularly costly for working parents and their families, in terms of reduced parental well-being (Ananat and Gassman-Pines 2021). These findings are also consistent with those from an evaluation of Seattle's secure scheduling law that examined all workers (rather than focusing on parents) and found that Seattle's law also decreased last-minute schedule changes (Harknett, Schneider, and Irwin 2021). This convergent evidence suggests that local schedule regulations can be a fruitful way to address unpredictability in work schedules for low-income families. We observe these changes immediately after the law was passed, during the soft roll-out phase of enforcement. Although the city began fining noncompliant businesses only during full enforcement, our results suggest that simply having a law go into effect is a powerful change that leads at least some firms to comply, even if they are not at risk of being fined or penalized.

We also find that changing scheduling practices through this local ordinance leads employers in covered firms to reduce the number of shifts that employees work. However, the FWO leads to increased hours for parents on the days when they do work, leaving no significant changes in average hours worked. Given the fixed costs of working on a given day, including making childcare arrangements and commuting, it is plausible that on net these scheduling changes made workers better off. Consistent with this possibility, the net effect of the Emeryville FWO was to improve workers' well-being as proxied by subjective sleep quality. Working parents, in particular, are likely to place a high value on the stability of work schedules because stable work schedules make balancing the demands of work and family easier (Henly 2004; Henly and Lambert 2014).

The evidence related to the effects of scheduling regulation on worker sleep quality is notable for several reasons. First, these results are highly similar to those found in the Seattle evaluation; Seattle's ordinance also improved subjective sleep quality (Harknett, Schneider, and Irwin 2021). This converging evidence under-

scores the role for scheduling regulation in improving workers' sleep quality. Second, service-sector workers emphasize sleep disruptions and poor sleep as consequences of schedule unpredictability (Human Impact Partners and Center for Popular Democracy 2016), and our own work in Emeryville showed these effects on a daily level (Ananat and Gassman-Pines 2021). Reductions in work schedule unpredictability may improve sleep quality for a number of reasons, including by helping stabilize daily routines; facilitating circadian rhythms, which can be disrupted by unstable and unpredictable work schedules; and reducing job strain, each of which has been linked to sleep quality (Eriksen et al. 2008; Moss et al. 2015; Kecklund and Axelsson 2016). Other aspects of work life, such as commute time, may also play a role in exacerbating links between unpredictable work schedules and worse sleep quality, as longer commutes themselves are associated with worse sleep (Petrov et al. 2018); the shift to longer work hours on fewer days may have thus contributed to better sleep by reducing total commute time.

Finally, subjective sleep quality is also a marker of well-being and an important input into both physical and mental health (Bower et al. 2010). Worse sleep quality, for example, is related to both heart disease in the adult population (Cappuccio et al. 2011) and depression among parents (Park, Meltzer-Brody, and Stickgold 2013). Poor sleep quality is associated with more harsh parenting behavior (Kelly et al. 2021), and worse daily sleep quality has been found to exacerbate the effects of chronic and daily stressors on daily negative parental mood (da Estrela et al. 2018; Lillis et al. 2018; Mihaila and Hartley 2018). Thus, improvements in sleep quality may have the potential to lead to longer-term improvements in family functioning and child well-being, such as more positive parent-child interactions, reduced parental stress, and improved child behavior. Future research should investigate the mechanisms connecting unpredictable work schedules to worse sleep quality, the family well-being consequences of improved sleep quality, and moderation by other aspects of work, such as commute time. Although the small population of Emeryville means we were

underpowered to detect downstream effects on children's well-being even in a 1-in-6 probability sample, the implications are conceptually clear, as children are influenced and constrained by their parents' experiences in the labor market (Ananat et al. 2017). Links between parental well-being and child adjustment are well established (Cummings and Davies 1994; Cummings, Keller, and Davies 2005; Cummings, Davies, and Campbell 2020). Parents who are experiencing psychological distress tend to have more difficulty acting as sensitive caregivers, which can lead to increased behavior problems and other difficulties for children (Dix et al. 2004).

Our sample included only working parents with young children, a group that is particularly strongly affected by work schedule unpredictability but not representative of all workers in the treatment firms. It is possible, for example, that workers without young children (the majority of workers) may have experienced an increase in work shifts due to the Emeryville FWO if they were willing to add shifts on short notice. Our results are not meant to generalize to all Emeryville retail and fast-food employees, but only to employees with young children, a group of concern given both their vulnerability and their relevance to public policy.

Our methodological approach, pioneered in this study, has several strengths that enhance the contribution of this work. First, our use of a venue-time sampling strategy resulted in a sample that, although small, is representative of Emeryville workers in retail or food service with a child between the ages of two and seven. Given that such a population is unrostered and difficult to enumerate, implementing a representative sampling strategy was a major innovation. Second, we followed our sample longitudinally, which avoids bias from compositional changes in the workforces of firms after they become regulated. Our results therefore cannot be explained by, for example, covered businesses becoming more attractive to workers with better mental health after FWO implementation. Finally, work schedule disruptions were measured by daily surveys, which avoids recall bias, a problem we have shown in previous work to be sizable in reporting the fre-

quency of schedule changes (Ananat and Gassman-Pines 2021).

However, despite our ability to follow the same representative sample longitudinally, it is still possible that endogenous sector-switching in response to time-varying worker characteristics could be driving some results. For example, if employment in covered businesses became more attractive after implementation, and therefore workers who experienced changes (such as becoming newly partnered and therefore better able to manage childcare) that made them more desirable employees became more likely to switch into the covered sector than in the absence of the FWO, that could threaten the validity of our findings if the same changes also had direct impacts on worker well-being. The waves, however, were fielded only a few months apart, so any changes in employee characteristics, subsequent changes in employee desirability, and resulting changes in employment would have had to unfold quite quickly.

Additionally, our small overall sample size prevented us from examining subgroup effects. Understanding the heterogeneity in effects of schedule regulations for workers with different characteristics is important for future study, and will be facilitated by research with larger sample sizes. Finally, examining effects on employers was outside the scope of this study. Emerging literature would suggest that employers likely faced some challenges in implementing the law's provisions, but also that they may have benefited in terms of enhanced worker productivity and sales. Additional research should investigate effects on employers to understand the comprehensive impacts of scheduling regulations.

SUMMARY AND CONCLUSION

To summarize, the Emeryville Fair Workweek Ordinance reduced schedule unpredictability for working parents of young children, a group that has particular difficulty balancing work and family and is of policy concern. The FWO also decreased the number of work shifts, but increased shift length, leaving total work hours unchanged. It improved one measure of well-being, however: sleep quality. This is important initial evidence that secure scheduling policy

changes can affect work schedule unpredictability among working parents, and, ultimately, these parents' well-being.

Parents working in the service sector face a myriad of challenges in balancing their work and family demands, which have plausibly only worsened in the wake of the COVID-19 pandemic. Work schedule unpredictability is a particularly salient and ongoing challenge highlighted by workers, labor organizers, and social science scholars. Emeryville's law improved schedule predictability and well-being for working parents, suggesting that such laws are a potentially fruitful pathway to increasing predictability for low-income families.

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