

# Seattle's Secure Scheduling Ordinance

## Year 2 Worker Impact Report

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Kristen Harknett, UC San Francisco

Daniel Schneider, Harvard University

Véronique Irwin, UC Berkeley



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## FOREWORD

### FROM THE SSO EVALUATION TEAM

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On July 1, 2017, Seattle implemented one of the nation's first laws mandating schedule predictability for a subset of workers. The Secure Scheduling Ordinance (SSO) covers hourly workers at retail and food service establishments with 500 or more employees worldwide and at full-service restaurants with at least 500 employees and at least 40 locations worldwide.

As mandated by the Ordinance, the Seattle Office of City Auditor engaged a team of researchers with expertise in working conditions to conduct an evaluation of the law's impacts in the first and second years of its implementation. The evaluation consists of two complementary parts:

- A Worker Impact Study evaluates the impacts of the Secure Scheduling Ordinance on the work schedules reported by covered workers.
- An Employer Implementation Study examines the implementation of the SSO as reported by frontline managers responsible for scheduling workers in covered worksites.

This report contains findings from the Year 2 Worker Impact Study. Findings from the Year 2 Employer Implementation Study are expected in mid-2021.

The [Year 1 Worker Impact Study](#) published in December 2019 had identified an increase in the share of covered workers who reported that they know when they will need to work at least 14 days in advance of the workweek and in the share of covered workers who received predictability pay when they experienced shift changes. Combined with information from the Year 1 study of frontline managers, the first-year evaluation suggested that although employers had made progress in implementing some of the law's provisions, they were still learning how to fully incorporate the SSO into their business practices.

This report on the Year 2 Worker Impact Study includes information on scheduling practices, as well as on workers' job satisfaction, well-being, and economic security. The findings show additional movement on some key scheduling practices, as well as measurable impacts on some of the broader measures of well-being and economic security. Specifically, the Year 2 study finds that the SSO has:

- increased the share of workers who know their schedule at least two weeks in advance,
- decreased the share of workers reporting last minute shift timing changes without pay,
- increased workers' satisfaction with their work schedule and their job,
- increased workers' overall happiness and sleep quality, and
- reduced workers' material hardship

These results show that the SSO led not only to positive changes in covered workers' schedule predictability and stability, but also to improvements in these workers' lives in the first two years of implementation.

#### *COVID-19 and the SSO*

While these findings are promising, it is important to note that they reflect working conditions prior to the COVID-19 pandemic. The lockdown and other restrictions required by the pandemic have affected the set of industries covered by the SSO in very different ways. Although grocery stores have remained open and are experiencing increased business, many retail and food service establishments have suffered temporary closings, curtailed customer demand, and restrictions on hours and some forms of customer service.

Changing public health guidelines and municipal edicts have created additional sources of uncertainty for businesses. The Employer Implementation Study team is in the field interviewing frontline managers in industries covered by the SSO; their report (expected in mid-2021) will speak to how local managers are navigating the pandemic and how these altered circumstances may be affecting their staffing and scheduling choices and the extent to which their practices align with SSO provisions.

#### *Other Developments*

Cities and states in addition to Seattle have adopted legislation to regulate scheduling practices and promote “fair workweek” practices. For example, San Francisco, New York City, Philadelphia, Chicago, and Oregon State, among others, have each passed and implemented such laws. While the types of workers and the specific scheduling regulations vary somewhat, these ordinances seek to provide workers with longer advance schedule notice, the ability to decline changes to their schedule, and modest compensation when hours are changed or cancelled on short notice. The most recent of these, Chicago’s Fair Workweek Ordinance, expanded coverage beyond retail and food service. The Chicago Ordinance covers workers earning up to \$50,000 per year or up to \$26 per hour in retail, restaurant, hotel, manufacturing, warehouse services, building services, and healthcare industries.

The SSO evaluation team includes scholars who are actively working to evaluate the impacts of fair workweek laws across the country. The team will remain available to share what they learn with the City as their findings are available.

#### **SSO Evaluation Team**

*Anna Haley, Rutgers University*

*Kristen Harknett, University of California – San Francisco*

*Susan Lambert, University of Chicago*

*Daniel Schneider, Harvard University*



# Seattle's Secure Scheduling Ordinance

## Year 2 Worker Impact Report

### YEAR 2 HIGHLIGHTS

Seattle's Secure Scheduling Ordinance (SSO) went into effect on July 1, 2017. The SSO was one of the nation's first laws regulating workers' schedule predictability. The SSO covers hourly workers at retail and fast food establishments with 500 or more employees worldwide and at full-service restaurants with at least 500 employees worldwide and at least 40 locations. The Ordinance called for an evaluation of the law's impacts in the first and second years after passage. The Office of City Auditor (OCA) engaged a team of researchers with expertise in working conditions to produce the evaluation.

The evaluation consists of two complementary parts:

- A Worker Impact Study evaluates the impacts of the Secure Scheduling Ordinance on the work schedules reported by Seattle covered workers.
- An Employer Implementation Study examines the implementation of the SSO as reported by frontline managers responsible for scheduling workers in covered worksites.

A prior Year 1 follow-up report documented the experiences of workers and employers in the first year following implementation. That report showed that the SSO increased the share of workers receiving at least two weeks' advance notice of their schedules and the share of workers who received compensation when their employer changed their schedule on short notice. During the first year of implementation, the SSO had not generated significant changes in reported work hours or in reports of "clopening" (closing and opening shifts that are spaced by less than 10 hours), on-call, or cancelled shifts.

The Year 1 follow-up report also contained results from the Employer Implementation Study, which revealed that covered employers had been changing their practices to align with the SSO. Many managers described practices that showed meaningful progress toward that goal. Even so, and as might be expected with any complex legislation, frontline managers were still learning how to integrate the SSO into daily business practice.

Building on and extending this earlier work, this Year 2 follow-up report presents the impacts of the SSO on workers over a longer, two-year follow-up period. In addition to estimating the effects of the SSO on workers' schedules, we also estimate effects of the SSO on workers' job satisfaction, well-being, and economic security. Further results from the Employer Implementation Study will be presented in a separate report.

This Year 2 report shows that the SSO continued to have positive effects on workers' schedule predictability and stability two years after the law went into effect and, in some areas, the effects grew stronger over time. In addition, the SSO led to increases in job satisfaction and workers' overall well-being and financial

security. In particular, the Secure Scheduling Ordinance had the following impacts for Seattle workers:

- increased work schedule stability and predictability,
- increased job satisfaction and satisfaction with work schedules,
- increased overall happiness and sleep quality, and
- reduced material hardship.

These results show that the SSO led not only to changes in workers' schedules, but also measurably improved workers' lives.



# Seattle's Secure Scheduling Ordinance: Year 2 Worker Impact Report

To evaluate the impacts of Seattle's Secure Scheduling legislation on Seattle workers, we surveyed a set of workers paid by the hour and employed at businesses covered by the Secure Scheduling Ordinance. We collected pre-implementation, baseline survey data from Seattle workers in the Spring of 2017, described in a baseline report.<sup>1</sup> At that point, the majority of Seattle workers reported some type of instability or unpredictability in their work schedules. For example, almost half of workers received fewer than 14 days of advance notice of their work schedules, and three-quarters of workers reported a last-minute change in the timing of their scheduled shifts. At that time, we found similar conditions in other cities that had not passed secure scheduling laws. These other cities serve as a comparison that represents how conditions would have changed in the absence of a law like the Secure Scheduling Ordinance.

The primary goal of the Worker Impact study was to determine whether the Secure Scheduling Ordinance changed these conditions, leading workers to receive more notice and stability in their work schedules. We reported on short-term impacts in a Year 1 follow-up report, and this report documents for the first time the impacts after two years. In this report, we also report on the effects of the SSO on workers' job satisfaction, well-being, and economic security.

After the Secure Scheduling Ordinance went into effect, we collected follow-up survey data from Seattle workers during the first and second years of implementation. To generate rigorous estimates of the impacts of the Secure Scheduling Ordinance on workers' reports of their work schedules and well-being outcomes, it is essential to understand how these outcomes might have changed over time even in the absence of the Secure Scheduling Ordinance. Therefore, we also collected survey data from workers employed by the same set of businesses in comparison cities that did not have any scheduling regulations in place. The data from comparison cities provides the best available gauge of whether and how conditions would have changed for workers in the absence of the Seattle ordinance, and allow us to isolate any effects of the law from general trends in work schedules unrelated to the law.

During the first year of implementation, we found that the SSO had increased the share of workers receiving at least two weeks' advanced notice of their work schedules and the share of workers receiving predictability pay as compensation for last-minute schedule changes initiated by their employers.<sup>2</sup>

Now, this report describes Year 2 impacts of the SSO on work schedule conditions and on measures of worker job satisfaction, well-being, and economic security. Prior research shows that unstable and unpredictable schedules interfere with workers' healthy sleep patterns<sup>3</sup> and mental health<sup>4</sup> and cause conflicts between

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1 Haley, Anna, Kristen Harknett, Susan Lambert, and Daniel Schneider. 2018. *The Evaluation of Seattle's Secure Scheduling Ordinance: Baseline Report and Considerations for the Year 1 Evaluation*. Seattle: University of Washington, West Coast Poverty Center report.

2 Haley, Anna, Kristen Harknett, Susan Lambert, and Daniel Schneider. 2019. *The Evaluation of Seattle's Secure Scheduling Ordinance: Year 1 Findings*. Seattle: University of Washington, West Coast Poverty Center report.

3 Harknett, Kristen, Daniel Schneider, and Rebecca Wolfe. 2020. "Losing Sleep over Work Scheduling?: The Relationship between Work Schedules and Sleep Quality for Service Sector Workers" *Social Science and Medicine - Population Health*.

Williams, Joan C., et al. 2019. *Stable Scheduling Study: Health Outcomes Report*.

4 Schneider, Daniel and Kristen Harknett. 2019a. "Consequences of Routine Work-Schedule Instability for Worker Health and Well-Being" *American*

work and family responsibilities.<sup>5</sup> Routine instability in work schedules has also been linked with income volatility and material hardships.<sup>6</sup> In light of these connections between work schedules and workers' well-being, the Year 2 impact study addresses the impacts of the SSO not just on work schedule outcomes but also on measures of worker well-being.

This report describes the experiences of 759 Seattle workers before the Secure Scheduling Ordinance took effect as well as the experiences of 441 Seattle workers after the Secure Scheduling Ordinance was in place for two years. We compare the experiences of Seattle workers to those of 5,394 workers in comparison cities in the baseline period and 2,619 workers in comparison cities in the follow-up period. We use this survey data to estimate the impact that the Secure Scheduling Ordinance had on several dimensions of the work schedule experiences and well-being outcomes reported by the workers themselves.

Seattle's Secure Scheduling legislation aims to increase schedule predictability by requiring two weeks of advance notice, to increase stability of schedules by requiring employers to pay predictability pay for schedule changes, to increase the amount of rest in between shifts by requiring extra pay for closely spaced shifts, and to increase access to sufficient work hours by requiring existing workers to be offered more hours before new hires are made. Notably, to accomplish these aims required that employers and workers be aware of the law and its provisions. Seattle's Office of Labor Standards devoted significant resources to outreach and education efforts in the months before the law took effect, holding 40 in-person or webinar trainings for employers, 220 community information meetings, and providing informational posters in 17 languages to inform workers of their rights.<sup>7</sup> In spite of these efforts, many managers and workers reported being unaware of the ordinance just before it went into effect, and even up to one year after it had taken effect.<sup>8</sup> These earlier findings highlight the ongoing challenge of making sure employers and workers are aware of and understand the law.

In this report, we report the Year 2 impacts of the SSO on a set of scheduling outcomes that align with these provisions. We are also able to present evidence on how the law changed multiple dimensions of well-being for workers, including job satisfaction, happiness, sleep quality, mental health, and experience of material hardship.

## **Our findings over the Year 2 follow-up period include:**

### ***The Secure Scheduling Ordinance improved schedule stability and predictability***

For Seattle workers covered by the Ordinance, the share of workers receiving at least two weeks' advance notice of their work schedules increased by 10 percentage points (a 20 percent increase compared with baseline). The Secure Scheduling Ordinance also reduced schedule timing changes by 9 percentage points, and increased pay when those changes did occur by 4 percentage points. There was also some evidence to suggest that the SSO reduced on-call and clopening shifts without sufficient time to rest. These practices declined by 5 to 6 percentage points.

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*Sociological Review*. 84(1): 82-114.

5 Henly, Julia R., and Susan J. Lambert. 2014. "Unpredictable Work Timing in Retail Jobs: Implications for Employee Work-Life Conflict" *Industrial & Labor Relations Review*, 67(3): 986-1016

6 Schneider, Daniel, and Kristen Harknett. 2020. "Hard Times: Routine Schedule Unpredictability and Material Hardship among Service Sector Workers" *Social Forces*

Farrell, Diana, and Fiona Greig. 2016. *Paychecks, Paydays, and the Online Platform Economy: Big Data on Income Volatility*. Washington, DC: JP Morgan Chase & Co. Institute report.

7 Schneider, Daniel, and Kristen Harknett. 2019b. "Passing and Implementing Secure Scheduling in Seattle." In *Taking Action: Positioning Low-Income Workers to Succeed in a Changing Economy*. Baltimore: The Annie E. Casey Foundation.

8 Haley, Anna, Kristen Harknett, Susan Lambert, and Daniel Schneider. 2019. *The Evaluation of Seattle's Secure Scheduling Ordinance: Year 1 Findings*. Seattle: University of Washington, West Coast Poverty Center report.



### Box 1. Identifying Seattle Covered Worker and Comparison Workers

#### Definiton of Secure Scheduling Ordinance

##### Employee Coverage

Hourly employees who work, or report to work, and a fixed point of sale location in Seattle for 50% of the services provided to the employer.

##### Employer Coverage

Retail and food services establishments with 500+ employees worldwide and full service restaurants with 500+ employees and 40+ full-service restaurant locations worldwide.

#### Survey Measures

- What is the name of your main employer?
- Are you paid by the hour at [EMPLOYER NAME]?
- Is your [EMPLOYER NAME] workplace located in Seattle City Limits?

### ***The Secure Scheduling Ordinance increased workers' satisfaction with schedules and jobs***

Compared with the average worker in comparison cities, the SSO increased reports of being very satisfied with one's work schedule by 10 percentage points and of being very satisfied with one's job by 8 percentage points.

### ***The Secure Scheduling Ordinance increased workers' overall happiness and sleep quality***

We examined three measures of worker health and well-being that in theory could be subject to change in response to a change in work conditions. We see evidence that the SSO improved workers' happiness by 6 percentage points. Workers' reports of good sleep quality increased by 10 percentage points. The SSO did not affect a third measure of well-being - reports of psychological distress - on which Seattle workers looked similar to their counterparts in other cities without a scheduling law in place.

### ***The Secure Scheduling Ordinance reduced workers' reports of experiencing material hardship***

We asked workers whether they had experienced one of a number of material hardships over the prior year, including hunger, housing instability, or inability to pay for medical care. Comparing Seattle workers to those in other cities, we find that the Secure Schedule Ordinance reduced the experience of material hardship by 10 percentage points.

## **Data and Methods**

### **Data Collection**

As described in our baseline and Year 1 reports, no existing data sources contain the measures of work scheduling that are necessary to evaluate the Secure Scheduling Ordinance (which we will refer to as the "SSO"); therefore, it was necessary to collect new data. Because there was also no readily available contact list for covered workers from which to sample, we identified and recruited samples of covered workers before and after the SSO went into effect by first compiling a list of covered employers and then harnessing the advertising infrastructure of Facebook and Instagram to deliver targeted advertisements to workers at those employers. These advertisements invited workers to our online survey, which captured key scheduling outcomes as well as measures of workers' job satisfaction, sleep and mental health, and economic security.

Although the survey recruitment approach means we are unlikely to reach workers without any internet access, a recent study suggests that this share of workers is likely to be quite small. In particular, across City Council districts in Seattle between 93 and 97 percent of households have internet access and

between 92 and 95 percent of households have smartphones or mobile phones.<sup>9</sup> Details on the Facebook targeted advertising platform and process are explained in Appendix A and in further detail in Schneider and Harknett (2019c).

### ***Identifying Seattle Covered Workers and Comparison Workers***

We focus our data collection and limit our sample to workers paid by the hour and to workers employed by large retail or food service establishments that fall under the coverage of the SSO for any of their locations in Seattle city limits. We identify workers employed in Seattle city limits or in one of the designated comparison city locations through a combination of information collected from survey reports and a process of geocoding.

For survey respondents in Washington State, our survey instrument asked workers to self-report whether their workplace was within Seattle city limits. Those who responded affirmatively and whose employers were of the size and type that would be covered by the SSO were identified as covered by the SSO. We determine this coverage by cross-referencing the named employer against a list of covered employers assembled from City Business Records, Hoovers data, and data from the Reference U.S. Database.

As in our Year 1 impact report, our comparison group consists of workers who are paid hourly and employed at the same set of employers as the Seattle treatment group but live in a city other than Seattle. In Appendix D, we also present results for three other comparison groups (Appendix Tables D.1 and D.2), which are largely consistent with the result we present in the body of the report. For our comparison sample, we only include metropolitan areas with at least 1 million people, so we are comparing Seattle workers to other large urban areas. We also limit the comparison sample to large cities that have a minimum wage higher than the Federal minimum wage, as is the case in Seattle. In this way, we are comparing Seattle to cities with similarly progressive labor policy environments and we are comparing among workers who all have access to minimum wages higher than the Federal minimum wage. The comparison cities include Baltimore, Boston, Buffalo, Chicago, Cleveland, Columbus, Denver, Detroit, Hartford, Jacksonville, Las Vegas, Los Angeles, Miami, Minneapolis-St. Paul, Orlando, Phoenix, Portland, Providence, Riverside, Rochester, Sacramento, San Diego, St. Louis, Tampa, and Washington D.C. We intentionally do not include in the comparison sample any of the small number of cities that already had scheduling laws in place in 2017, 2018, or 2019.

Our three alternative comparison groups, described in Appendix D, include (1) workers in a set of large cities that have considered or passed scheduling legislation but had not yet enacted it, (2) workers in cities or states that have considered or passed scheduling legislation but had not yet enacted it, and (3) workers employed near Seattle but outside of Seattle city limits.

Our final analysis sample includes 759 covered workers in Seattle at baseline and 441 covered workers in Seattle two years after implementation. Our baseline sample size was larger than at follow-up because of the availability of supplementary funds at baseline. The sample characteristics and rate of response to survey recruitment advertisements were similar at baseline and the Year 2 follow-up.

Because rates of turnover in retail and food service sectors are high, our follow-up survey sample includes a combination of some workers who were surveyed at baseline and again in the short-term follow-up period, and some new workers who were only surveyed during the follow-up period. Of the 441 workers surveyed at follow-up, 182 were also surveyed at baseline or the one-year follow-up. Our comparison sample includes 5,394 workers at baseline and 2,619 workers following implementation. Of those, 104 were also interviewed at baseline or the one-year follow-up. Sample descriptives for survey respondents in Seattle and comparison cities are shown in Table 1.

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<sup>9</sup> City of Seattle. 2018. *Technology Access and Adoption Study*.

**Table 1: Weighted Descriptives, Seattle and Comparison Before and After SSO**

	Seattle		Comparison	
	Pre (Spr 2017)	Post (Spr 2019)	Pre (Spr 2017)	Post (Spr 2019)
18-19 years	16.4	21.3	23.6	18.7
20-29 years	37.0	32.3	37.0	31.8
30-39 years	20.5	20.6	21.2	18.1
40-49 years	14.6	11.3	13.1	13.9
50+ years	11.5	14.4	5.1	17.5
White	52.4	56.7	53.2	55.5
Black	3.8	3.2	3.9	3.8
Hispanic	15.3	17.4	20.6	18.4
Asian	15.1	11.7	9.5	9.5
Other or multi-racial	13.4	11.0	12.7	12.8
Female	54.2	57.6	55.2	57.3
High School or Less	33.5	33.3	35.8	36.5
Some college	38.3	45.7	43.3	40.0
BA+	28.2	21.1	20.9	23.5
Enrolled in school	29.9	29.3	40.3	33.5
Married	24.8	23.8	20.3	24.5
Living with partner	23.8	19.6	22.6	20.8
Not living with partner	51.4	56.5	57.0	54.7
Has kids	26.0	27.7	24.6	28.5
Is a manager	18.8	19.7	20.9	20.3
Apparel	14.4	11.8	5.5	11.7
Cafe	14.4	16.8	8.7	4.4
Casual Dining	5.3	1.4	4.7	0.4
Dept/Super Store	9.1	12.4	12.4	24.4
Fast Food	12.8	15.5	34.6	25.4
Grocery	31.3	26.0	16.1	7.8
Hardware/Paint	3.8	4.2	3.9	7.7
Health/Beauty	2.3	3.0	4.2	4.8
Misc. Retail	6.6	8.7	9.9	13.5
N	754	441	5,394	2,619

The data for this study are from a non-probability sample and as such may differ from the broader population of Seattle workers covered by the Secure Scheduling Ordinance. Similarly, the comparison sample may differ from the broader population of workers in those comparison cities. To address the possibility of systematic differences between the workers in our sample and the broader population on observed characteristics, we construct and apply survey weights that align the characteristics of our sample with the broader population of workers represented in the American Community Survey. We describe the construction of these weights in an Appendix B along with our approach for addressing missing values.

## **Measuring Secure Scheduling**

To design the survey questionnaire, we drew on, and when necessary adapted, measures from validated survey instruments. We also consulted with Seattle’s Office of Labor Standards and City Council members on our questionnaire before beginning our data collection in the Spring of 2017. After collecting baseline data and presenting our baseline report to stakeholders in Seattle, we made some additions to our questionnaire to capture whether workers reacted positively or negatively to scheduling changes.

The resulting survey questions are specifically tailored to align with the provisions of the SSO and phrased in such a way as to be easily understandable and reasonably easy to answer in terms of recall and specificity.

### **Advance Notice**

We ask respondents: “How far in advance do you usually know what days and hours you will need to work at [EMPLOYER NAME]?” and coded responses into categories of “received 2 or more weeks’ notice of work schedule”, or “received less than 2 weeks’ notice.”

### **On-Call Shift**

Workers were asked: “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.” Those workers who did work an on-call shift were then asked if they were called in for work and, if they were not, were asked whether or not they were compensated for their time. We use this information to code two separate outcomes: one measures whether a worker was asked to be on-call, and the other measures whether a worker was asked to be on-call but then did not work and did not get paid.

### **Cancelled Shift**

Workers were also asked: “In the past month or so, did your employer ever cancel one of your scheduled shifts at [EMPLOYER NAME]?”. Those that did were asked if they received compensation for the cancelled shift. We then analyze a three-category outcome: no shift cancellation, shift cancellation with pay, and shift cancellation without pay.

### **Cloping Shift Without Sufficient Time to Rest**

A cloping shift refers to a back-to-back closing then opening shift without sufficient time to rest in between. Workers were asked: “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 “cloping.”<sup>10</sup> Those that did were asked if they received compensation for this short duration between shifts. We examine whether workers ever worked a cloping shift in the prior month and whether they worked a cloping shift without receiving extra compensation for the closely spaced shifts.

### **Shift Timing Changes**

Workers were asked: “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.” Workers who had experienced such a change were then asked whether they received any extra compensation for the change. We analyze a three-category outcome: no change in the timing of shifts, shift changed with pay, and shift changed without pay.

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<sup>10</sup> Note the SSO requires extra pay when back-to-back closing and opening shifts are scheduled with less than 10 hours of rest inbetween. The Shift Project asked about shifts with less than 11 hours inbetween, because the survey is also being used to evaluate laws in locations with an 11 hour threshold.



## Box 2. Secure Scheduling Provisions and Survey Measures

Secure Scheduling Provisions	Survey Measures
<b>Advance notice of work schedule</b>	
Employers must post employees' work schedules 14 days in advance	How far in advance do you usually know what days and hours you will need to work at [EMPLOYER NAME]?
<b>Right to rest between work shifts</b>	
Employers cannot schedule a closing and opening shift (i.e. "clopening") separated by less than 10 hours unless an employee requests, or consents to, such hours	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 between your shifts at [EMPLOYER NAME]? This is sometimes called "clopening."
Regardless of request or consent, employers must always pay time-and-a-half for the hours separated by less than 10 hours.	<i>The last time this happened, how much were you paid for these shifts?</i>
<b>Compensation for work schedule change</b>	
Additional hours: if an employer adds hours to the employee's schedule after it is posted, the employer must pay the employee one additional hour of pay at the scheduled rate. For each employer-addition of less than one hour, the employer may pro-rate the additional compensation due.	In the past month or so, did your employer ever cancel one of your shifts at [EMPLOYER NAME]?  <i>The last time this happened, how far in advance did you find out about the shift being cancelled at [EMPLOYER NAME]?</i>  <i>The last time this happened, how much were you paid for the cancelled shift?</i>
Subtracted hours: if an employee is scheduled for a shift and then sent home early, the employer must pay the employee for half of the hours not worked.	In the past month or so, did your employer ever change the timing or 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 stay later than the hours you were originally scheduled for.
Grace period: additions or subtractions of less than fifteen minutes to not incur additional compensation.	<i>The last time this happened, how far in advance did you find out about your shift getting changed?</i>  <i>The last time this happened, how much were you paid?</i>
On-call protections: if an employee is scheduled for an on-call and is not called in, the employer must pay the employee for half of the hours not worked.	In the past month or so, have you ever been asked to be "on-call" for work at [EMPLOYER NAME], but then your employer did not need you to work?  <i>The last time this happened, how much were you paid for being "on-call"?</i>
<b>Access to hours for existing employees</b>	
Before hiring external employees, employers must offer additional hours of work to existing employees, subject to certain exceptions. Employers must post notice of additional hours for three days and allow existing employees two days to consider job offers	In the past month or so, has your employer hired any new employees to do work that is similar to the job you do at [EMPLOYER NAME]?  <i>Did your employer offer current employees more hours first, before hiring the new employee at [EMPLOYER NAME]?</i>

## **Part-Time Workers Offered More Hours before New Hires**

To capture potential impacts of the “access to hours” provision, workers were asked: “In the past month or so, has your employer hired any new employees to do work that is similar to the job you do at [EMPLOYER NAME]?”. Then, “Did your employer offer current employees more hours first, before hiring the new employee or employees at [EMPLOYER NAME]?”. We then examine an outcome measuring whether new workers were hired without offering hours to existing workers first.

## **Usual Weekly Hours**

Workers were asked to report on their usual weekly work hours: “How many hours per week do you usually work at [EMPLOYER NAME]?”. The SSO does not regulate usual weekly work hours, but some SSO provisions could have an indirect effect on usual weekly hours.

Box 2 summarizes the key provisions of the SSO and the survey measure designed to capture the worker experience related to each provision. As shown in the table, the provisions of the law were nuanced. Although the survey measures were aligned as closely as possible with the provisions, it was not possible to capture all the nuances and there were some slight differences between the survey measures and the provisions of the law. For clopening shifts, the SSO requires extra pay when back-to-back closing and opening shifts are scheduled with less than 10 hours of rest in between, but the survey measure asked about when these shifts occurred with less than 11 hours of rest in between. In a more nuanced example, the access to hours provision stipulates that available hours should be posted for a minimum of 3 days. The survey measure does not capture the number of days that available shifts were posted, because this level of detail would be difficult for workers to accurately report.

In addition to measures of work schedules, our survey also contained worker reports of their job satisfaction, sleep quality and mental health, and economic insecurity. These measures are described below.

## **Satisfaction With Work Schedule**

The survey asked workers: “All in all, how satisfied are you with your work schedule at [EMPLOYER NAME]?” We then examine worker reports of being “very” or “somewhat” satisfied with their work schedule as opposed to “not too satisfied” or “not at all satisfied”.

## **Satisfaction With Job**

The survey asked workers: “All in all, how satisfied would you say you are with your job at [EMPLOYER NAME]?” We then examine worker reports of being “very” or “somewhat” satisfied with their job as opposed to “not too satisfied” or “not at all satisfied”.

## **Happiness**

“Taken all together, how would you say things are these days? Would you say you are... very happy, pretty happy, or not too happy?” We analyze reports of “very happy” or “pretty happy” opposed to “not too happy.”

## **Sleep**

Workers’ sleep quality is gauged by a question that asks, “During the past month, how would you rate your sleep quality overall... very good, good, fair, or poor?” We examine reports of “very good” or “good sleep” as opposed to “fair” or “poor” sleep quality.

## **Psychological Distress**

We used a psychological distress scale that includes six items from the Kessler-6 index of non-specific psychological distress (namely, how often in the past month a respondent felt sad, restless, nervous, hopeless, that everything was an effort, or worthless). Respondents indicated feeling this way 0=none of

the time to 4=all of the time. Responses on the six items were summed to a scale ranging from 0=no distress to 24=feel all six types of distress all of the time. We analyze the average on the scale of psychological distress with higher values indicating greater distress.

### Material Hardship

Our measure of material hardship captures whether the worker experienced one or more types of material hardship in the prior year. These hardships included not having enough money for food, housing, medical care, or utilities. Workers who indicated that they had experienced at least one of these hardships are coded as having experienced material hardship.

### Ability to Cope with \$400 Expense

Workers were asked about their ability to cope with an expense shock, with the question: “How confident are you that you could come up with \$400 if an unexpected need arose within the next month?” We analyze responses of “definitely” or “probably” could come up with \$400 as opposed to “definitely” or “probably” could not.

Finally, we present descriptive information on workers’ awareness of the SSO. We asked Seattle workers about their knowledge of the Secure Scheduling Ordinance before and after implementation. The question asked: “Have you heard anything about the following recent Seattle ordinances?” and included the “Secure Scheduling Ordinance.” Workers could respond “yes” or “no.”

## Analytic Methods

The data collection approach of surveying workers before and after the Ordinance took effect, in Seattle and in comparison places, allows us to estimate the Ordinance’s effects using a difference-in-differences approach. The difference-in-differences approach estimates the change over time experienced by Seattle covered workers, before and after the SSO took effect. But the approach goes a step farther, and also considers the change over time experienced by workers elsewhere – in comparison cities – over the same period. Then, by comparing the change experienced by Seattle workers to the change experienced by workers in comparison cities, the difference-in-differences method determines whether the Seattle covered workers experienced significantly greater changes in outcomes. *The difference between the change experienced by Seattle workers and the change experienced by workers in comparison cities is the estimate of the impact of the SSO.*



In assessing change and estimating impacts, the period before the ordinance took effect – Spring 2017 – serves as the baseline against which conditions in Spring 2019 are compared.

We estimate these difference-in-differences models using the common statistical approach of linear multivariate regression analysis. For our outcome variables that are dichotomous – such as received two weeks’ advance notice of work schedule (or not), experienced on-call work (or not), and worked a clopening shift (or not) – we estimate linear probability models. These models are recommended for regression models like ours that include interaction terms and also have an easier interpretation than

alternative approaches such as logit or probit models. For continuous outcome measures, such as usual weekly work hours, we use ordinary least squares (OLS) regression. For our outcomes that capture three separate categories – such as shift canceled with pay, shift canceled without pay, or shift not canceled – we use multinomial logistic regression models, then estimate predicted values for each group of workers.

As is conventional in regression analysis, we take into account and control for a set of demographic characteristics composed of age, race/ethnicity, gender, educational attainment, school enrollment, marital status, and presence of children in the household. We also control for managerial status and industry subsector (retail apparel, cafe, casual dining, department or big box store, fast food, grocery, hardware, health and beauty, and miscellaneous retail).

### ***Interpreting Impact Estimates***

Two technical details should be kept in mind when interpreting the impact estimates shown in figures and tables. First, the impacts marked with asterisks are “statistically significant,” which means we have a high degree of confidence that the Secure Scheduling Ordinance has an effect on these outcomes.<sup>11</sup> Impacts without any asterisks fall short of statistical significance, meaning that the magnitude of the impact falls within a margin of error and is more likely to have occurred by chance, and should therefore be interpreted with caution.

Second, the Secure Scheduling Ordinance can have impacts on work schedules and other outcomes in a few different ways. The impact estimates capture the difference that the Secure Scheduling Ordinance made for Seattle workers relative to any changes that would have occurred in the absence of the law, which are represented by the experiences of workers in comparison cities. These impact estimates are causal estimates and represent our best estimates of the changes in schedules and worker well-being that are attributable to the Secure Scheduling Ordinance. In some cases, conditions improved for Seattle workers but stayed the same for workers in other cities. In other cases, conditions improved for all workers but improved more for workers in Seattle than for workers in other cities. Finally, sometimes conditions got worse for workers in other cities but less so (or not at all) for workers in Seattle. All of these scenarios represent impacts or effects of the Secure Scheduling Ordinance, or, the difference that the SSO made above and beyond what would have happened in the absence of the ordinance. In the discussion of results below, we share the estimated impact of the ordinance, then unpack which of these scenarios led to the impact.

## **Results**

### ***Improvements in Schedule Predictability and Stability***

Figure 1 displays the impacts that the Secure Scheduling Ordinance had on a set of outcomes related to work schedule predictability and stability. The ordinance required employers to provide at least two weeks of advanced notice of schedules and required employers to compensate workers for such practices as on-call shifts, shift cancellations, and back-to-back closing then opening shifts, a requirement which could have served to discourage such practices. The results displayed in Figure 1 show that the law led to changes in these practices for workers. All of the estimated impacts go in the intended direction of more schedule predictability and stability.

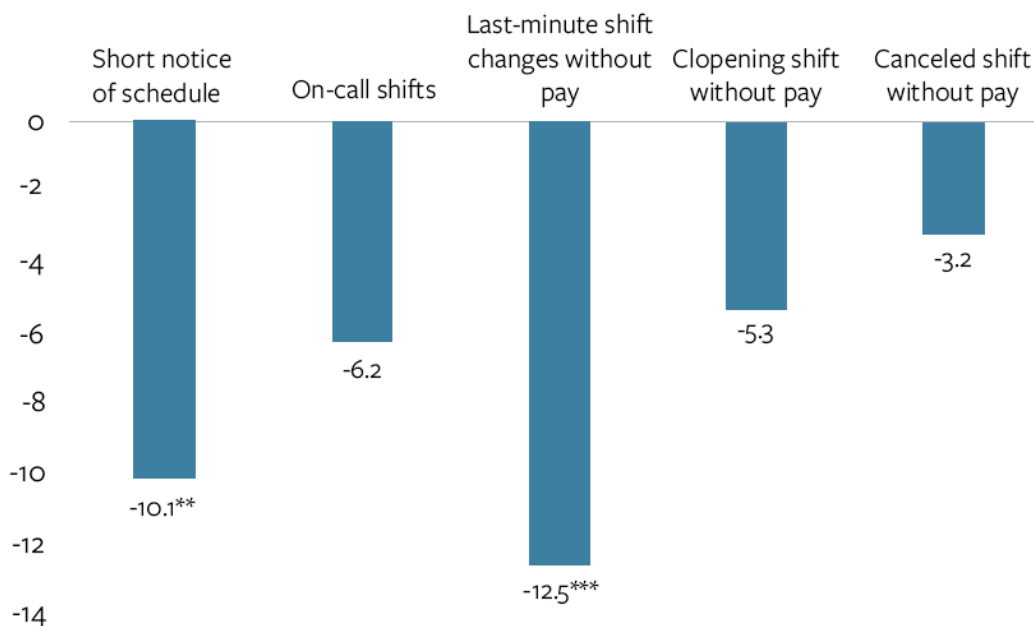
The first bar in Figure 1 shows that the Secure Scheduling Ordinance reduced the share of workers who received short advance notice of their work schedules (defined as less than two weeks) by 10 percentage points. Appendix Table C.1 provides more details on this impact estimate, showing that in Spring 2017 46% of Seattle workers received two weeks of notice before the Secure Scheduling Ordinance when into

<sup>11</sup> More precisely, a statistically significant impact means that we would be unlikely to observe an impact of this magnitude in our sample were there not an impact in the broader population covered by the law. We follow the convention of designating impacts as statistically significant when there is less than a 5 percent chance of observing an impact of this magnitude were there no impact in the broader population.



effect and subsequently that share rose to 57% in Spring 2019. Meanwhile, in comparison cities, the share who received two weeks' notice of their schedules remained about the same at 47% in both time periods. The difference between the change for Seattle workers and the change for workers in other cities is the 10 percentage-point impact estimate.

Figure 1. Two-Year Impacts of the Secure Scheduling Ordinance on Unpredictable Work Schedules



Notes: The impact estimates shown are the percentage point change in each scheduling practice that is attributable to the Secure Scheduling Ordinance. For example, the Secure Scheduling Ordinance led to a 10.1 percentage-point reduction in short (less than 14 days) notice of work schedules.

The asterisks in the Figure indicate that the impact estimate is statistically significant, meaning we would be unlikely to see a change this large if the law had not in fact had a positive impact on schedule notice.

+ =  $p < .10$ ; \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

The second bar in Figure 1 shows that the Secure Scheduling Ordinance reduced reports of on-call shifts by 6 percentage points for workers in Seattle compared with workers in other cities. Appendix Table C.2 shows that this impact came about because on-call shifts declined for Seattle workers and rose slightly for workers elsewhere. This impact was within our margin of error, so we interpret this improvement with caution.

Figure 1 next displays a large impact on last-minute shift changes without pay. We estimate that the Secure Scheduling Ordinance reduced last-minute shift changes without pay by 12.5 percentage points. Appendix Table C.3 provides some more detail, showing that this practice decreased by 20 percentage points for Seattle workers in 2019 compared with the period in 2017 before the law went into effect. However, over that same time period, this practice decreased by 7 percentage points for workers in other cities. When we take into account the decline that we presume would have occurred in the absence of the law, we can estimate more precisely that the net impact of the law was 12.5 percentage points (20 percentage points minus 7 percentage points). Appendix Table C.3 also shows that the decrease in shift changes without pay

came about through a combination of an 8.5 percentage point decrease in last-minute shift changes and a 4 percentage point increase in pay when these changes did occur.

Figure 1 also shows that the Secure Scheduling Ordinance was associated with modest declines in clopening shifts without pay and cancelled shifts without pay. Neither of these impacts was statistically significant, so they should be interpreted with caution. Both of these impacts came about because of slight improvements for Seattle workers accompanied by slight worsening of conditions for workers in comparison cities (Appendix Tables C.4 and C.5). In other words, the Seattle Secure Scheduling ordinance generated an impact by making things a little better for Seattle workers and preventing things from getting worse as they would have in the absence of legislative action.

#### *No Evidence of Increases in Access to Work Hours*

In addition to increasing schedule predictability and stability for Seattle workers, the Secure Schedule Ordinance also aimed to encourage employers to offer part-time workers additional hours before hiring new workers to do similar work. We did not find any evidence that this provision had its intended effects. If anything, Seattle employers were more likely to hire without first offering more hours to their part-time workers compared with employers in other cities. Seattle workers reported a slight increase in employers making new hires without first offering hours to the existing part-time staff, whereas workers in other cities reported a slight decrease in this practice. The estimated impact, then, goes in the opposite of the intended direction (Appendix Table C.6). The impact was modest in size and not statistically significant, so should be interpreted with caution. We also find that Seattle workers report working the same number of hours on average before and after the Secure Scheduling Ordinance went into effect (Appendix Table C.7). In this sense, while we do not find any evidence of the ordinance increasing workers' hours, we also do not find any evidence of unintended negative consequences for work hours.

#### *Improvements in Satisfaction and Well-being*

Although the central aims of the ordinance were related to work scheduling practices, by increasing schedule predictability and stability the ordinance could have positive effects on workers' well-being. Figure 2 displays impacts that the Secure Scheduling Ordinance had on a set of measures of workers' satisfaction and well-being. The results displayed in Figure 2 show that the law did lead to improvements in several measures of quality of life.

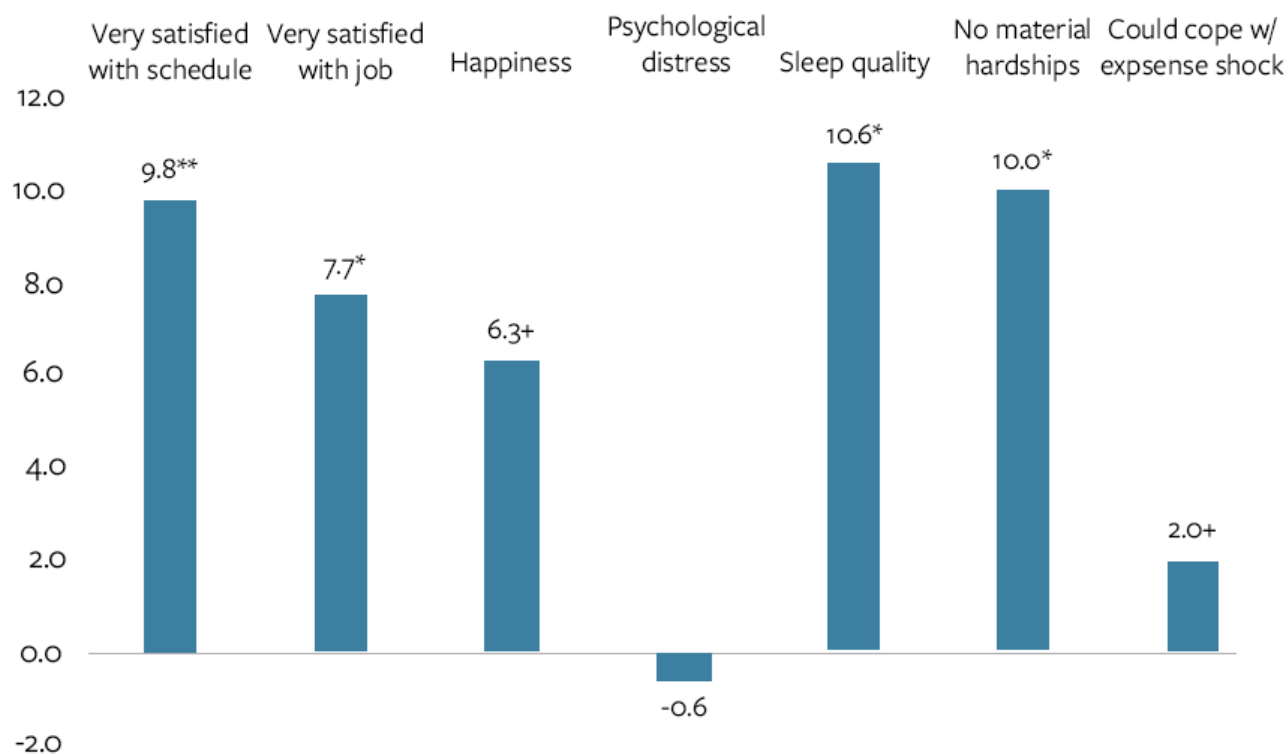
Figure 2 shows that the Secure Scheduling Ordinance increased worker reports of being "very satisfied" with their work schedule and being "very satisfied" with their job more generally. Work schedule satisfaction increased by almost 10 percentage points, and job satisfaction increased by almost 8 percentage points. These improvements in job satisfaction came about because satisfaction decreased in comparison cities but held steady or declined far more modestly for Seattle workers (Appendix Tables C.8 and C.9).

Next, Figure 2 shows that the Secure Scheduling Ordinance increased workers' reported happiness—in particular, worker reports of being "pretty happy" or "very happy" as opposed to "not too happy." This impact came about in large part because workers in other cities reported declines in happiness and the Secure Scheduling Ordinance seemed to protect Seattle workers from experiencing a similar decline (Appendix Table C.10).

The ordinance did not have much effect on worker reports of psychological distress. Workers in Seattle and comparison cities reported about the same levels of psychological distress before and after the ordinance went into effect (Appendix Table C.11).

Figure 2 next shows that the ordinance led to improvements in sleep quality for Seattle workers. The impact estimate was almost an 11 percentage-point increase in "good" or "very good" sleep quality as opposed to "fair" or "poor" sleep quality. This positive impact came about largely because reported sleep

Figure 2. Two-Year Impacts of the Secure Scheduling Ordinance on Wellbeing Outcomes



Notes: The impact estimates shown are the percentage point change in each well-being outcome that is attributable to the Secure Scheduling Ordinance. For example, the Secure Scheduling Ordinance led to a 9.8 percentage-point increase in workers' reports of being "very satisfied" with their work schedules.

The asterisks in the Figure indicate that the impact estimate is statistically significant, meaning we would be unlikely to see a change this large if the law had not in fact had a positive impact on well-being outcomes.

quality improved over time for Seattle workers while it stayed the same over time for workers in other cities (Appendix Table C.12).

Figure 2 also shows that the ordinance reduced worker reports of material hardship. The Secure Scheduling Ordinance led to a 10 percentage-point decrease in reports of any of a number of material hardships such as food or housing insecurity. In Figure 2 this is displayed as a 10 percentage point increase in not experiencing hardships. This improvement was driven by a reduction in hardships for Seattle workers and a small increase in hardship for workers in other cities (Appendix Table C.13). This finding aligns with prior research, documenting a strong relationship between precarious work schedules and material hardship.<sup>12</sup>

The ordinance had a more modest impact on worker reports of their ability to cope with a \$400 expense shock. The ordinance increased reports of being able to cope with such a shock by 2 percentage points.

#### *Room for Improvement in Work Schedules and Awareness of the Secure Schedule Ordinance*

Although the SSO led to a range of improvements in work schedule conditions, Seattle workers still reported a fair amount of schedule unpredictability and instability even two years after the Secure Scheduling Ordinance went into effect. Table 2 shows that 43 percent of Seattle workers reported that

<sup>12</sup> Schneider, Daniel, and Kristen Harknett. 2020. "Hard Times: Routine Schedule Unpredictability and Material Hardship among Service Sector Workers" *Social Forces*.

they receive less than two weeks of advanced notice of their schedule, and 21 percent worked at least one on-call shift in the past month. Half reported a last-minute change to their schedule, about one-third worked a clopening without sufficient time to rest, and 14 percent reported a shift cancellation without the extra pay that they are entitled to under the provisions of the ordinance.

**Table 2. Work and Wellbeing Outcomes for Workers in Seattle at Year 2, Spring 2019**

	Percent or mean
Short notice of schedule (%)	43
On-call shifts (%)	21
Last-minute shift changes (%)	61
Last-minute shift changes without pay (%)	50
Clopening shift (%)	36
Clopening shift without pay (%)	32
Canceled shift (%)	17
Canceled shift without pay (%)	14
Hired without offering hours first (%)	43
Number of usual weekly hours	32
Very satisfied with schedule (%)	30
Very satisfied with job (%)	31
Very or Pretty Happy (%)	77
Psychological distress (0 to 24=max)	10
Good sleep quality (%)	40
No material hardships (%)	47
Could cope w/ expense shock (%)	65
Had heard of Secure Scheduling Ordinance	
Overall (%)	45
For those with 1+ years job tenure (%)	37
For those with <1 year job tenure (%)	49
Among those aware of SSO, how they heard about it	
Manager (%)	44
Posting at work (%)	34
Co-worker (%)	14
Friend (%)	10
Media (%)	27
Seattle's Office of Labor Standards	17
Union (%)	14
Other (%)	3
N	441



The Year 1 report included a study of employers that documented some of the barriers to employer-scheduling practices fully aligning with the provisions of the ordinance.<sup>13</sup> One of these barriers was incomplete knowledge and understanding of what the law requires and when exceptions were permissible. The Year 1 report also documented a lack of awareness of the ordinance among more than half of workers.

At Year 2, many workers still reported being unaware of the ordinance. Our survey asked workers if they had heard of the Secure Scheduling Ordinance and overall 45 percent of workers reported that they had heard of it and 55 percent had not. Awareness of the ordinance was even more limited for recent hires, with just 37 percent of workers who had been hired within the past year reporting that they were aware of the ordinance. Among those who had heard of the ordinance, 44 percent reported learning about the ordinance from their manager, 34 percent from a posting at work, 27 percent through the media, 17 percent from Seattle’s Office of Labor Standards, 14 percent through a union, 14 percent from co-workers, and 10 percent from a friend. These descriptive findings point to the need for continued education of workers about their rights under the Secure Scheduling Ordinance. Given that enforcement relies on worker complaints, the lack of awareness of the ordinance could be a barrier to the provisions of the ordinance becoming widespread practice.

## Discussion

This Year 2 impact study shows that Seattle’s Secure Scheduling Ordinance led to more stable and more predictable schedules for Seattle workers who were employed in retail and food service and covered by the ordinance. Further, the ordinance led to improvements in workers’ job satisfaction, reported happiness and sleep quality, and led to declines in material hardship. These results show that the SSO led not only to changes in workers’ schedules, but also measurably improved workers’ lives.

The Secure Scheduling Ordinance made significant progress on many of its intended aims. At the same time, although schedule stability and predictability had improved for Seattle workers as a result of the law, some Seattle workers continued to report schedules that were assigned or changed with short notice. There has been progress, but there is a need for sustained effort to maintain and perhaps expand these improvements in work schedule conditions. It is a promising sign, however, that the positive effects of the ordinance grew larger with time, with larger impacts in the Year 2 follow-up than in the Year 1 follow-up.

The Secure Schedule Ordinance also aimed to combat involuntary part-time employment, through an “access to hours” provision. This provision required that employers offer hours to existing workers before hiring more part-time workers. Two years after the Secure Schedule Ordinance took effect, the access to hours provision had not led to noticeable changes in work hours or in workers’ reports of being offered extra hours before their employer hired more part-time workers. In the Year 1 report on employer practices, Lambert and Haley document wide variation in Seattle managers’ approach to implementing this provision (pp. 56-59). For example, although some managers reported practices closely aligned with this provision, others explained how corporate policies capping the number of full-time positions and the number of hours of part-time employees limited their ability to offer newly-available hours to existing employees.

Schedule instability and unpredictability is known to have negative effects on workers’ sleep and mental health and to create strain from conflicting work and family responsibilities. Therefore, the Year 2 impact study examined whether the SSO, by reducing scheduling instability and unpredictability, led to improvements in worker well-being. In fact, the law did lead to improvements in workers’ reports of

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<sup>13</sup> Haley, Anna, Kristen Harknett, Susan Lambert, and Daniel Schneider. 2019. *The Evaluation of Seattle’s Secure Scheduling Ordinance: Year 1 Findings*. Seattle: University of Washington, West Coast Poverty Center report.

job satisfaction, happiness, sleep, and averting material hardships. These findings are significant, given that fair workweek laws have not been rigorously evaluated previously. We now have evidence that these laws can have a positive effect for workers, not only in terms of work schedule conditions but also in their quality of life.

These evaluation results are based on positive changes for Seattle workers that were observed as of the Spring of 2019. Since that time, the retail and food service sectors have experienced an enormous shock as the coronavirus outbreak upended life and commerce in Seattle and across the United States. Business and working conditions have changed fundamentally since 2019. Some restaurants and retail businesses closed temporarily or permanently, and many workers have experienced layoffs.

For those workers who have managed to remain employed during 2020, work schedule stability and predictability may take on heightened importance as other aspects of home life have become more complex, for instance because of closures of many in-person schools and care settings. The stress that comes along with schedule uncertainty may be exacerbated in the context of day-to-day uncertainty and stress related to the pandemic and the economy.

Although the coronavirus outbreak has taken a heavy toll on workers in the retail and food service sector, one silver lining is a growing appreciation that service sector work is essential for meeting our basic needs. As many workplaces were required to close down for safety reasons and only essential business could remain open, grocery store workers and those employed in pharmacy and delivery sectors took their place alongside health care workers as part of the essential workforce. With this heightened appreciation may come a reassessment of job conditions in the service sector, for which the evaluation of the Secure Scheduling Ordinance in Seattle can be instructive. Fair workweek legislation like the Secure Scheduling Ordinance can be effective in increasing schedule stability and improving worker well-being.

## **Authors**

Kristen Harknett, UC San Francisco, [kristen.harknett@ucsf.edu](mailto:kristen.harknett@ucsf.edu)

Daniel Schneider, Harvard University, [dschneider@hks.harvard.edu](mailto:dschneider@hks.harvard.edu)

Véronique Irwin, UC Berkeley, [virwin@berkeley.edu](mailto:virwin@berkeley.edu)

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## Appendix

### Appendix A. Data Collection Methodology

The lack of existing research on the set of work scheduling practices regulated by Seattle's Secure Scheduling Ordinance stems from a lack of available data. First, large-scale existing data sets do not generally measure schedule instability (e.g., the Panel Study of Income Dynamics, American Community Survey, Current Population Survey, National Longitudinal Survey of Youth 1979).

Second, the few data sets that measure scheduling (National Longitudinal Survey of Youth 1997 for 2014-2018 and the General Social Survey in 2016-2018) have limited sample sizes for studying conditions for retail workers in particular, let alone those in a particular city such as Seattle. Finally, administrative data, such as unemployment insurance records, which are sufficiently large to permit focusing on affected workers in particular cities, lack data on scheduling and outcomes of interest.

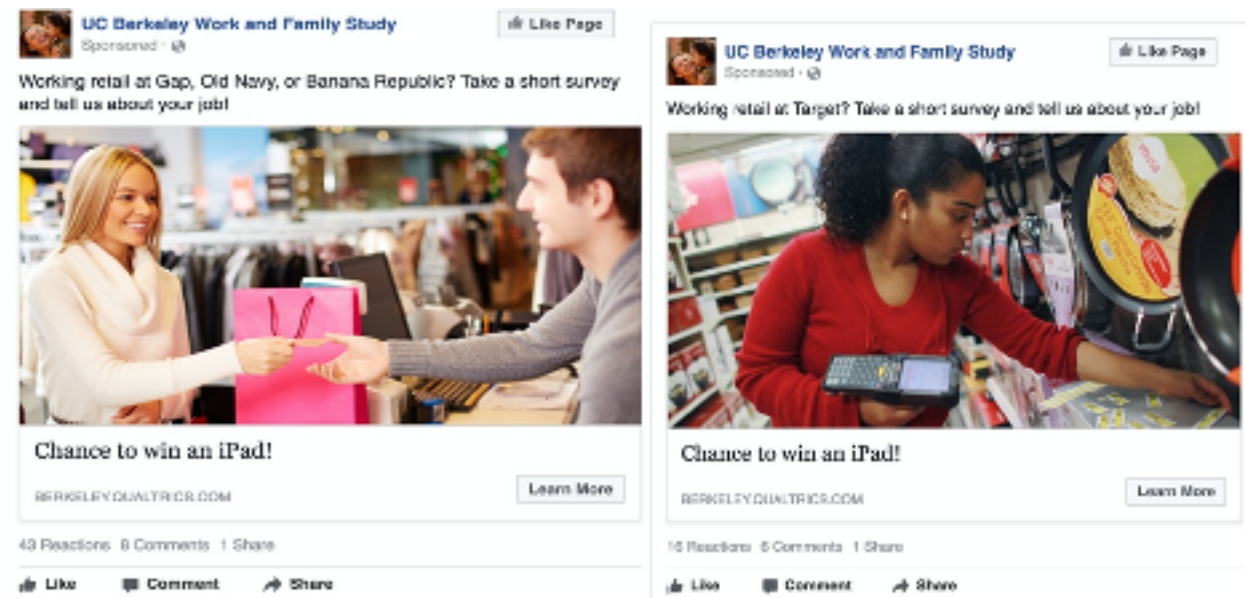
To address this gap in existing data, we use an innovative method of collecting web-based surveys from a population of low-wage service-sector workers. Our insight is that service sector workers can be effectively recruited to surveys through audience-targeted advertising on Facebook. Acting as an "advertiser," we purchase and place ads in the newsfeeds of Facebook users who report working at the large retail and food establishments covered by the Ordinance, both in Seattle and in comparison cities. We used this approach to collect baseline and two-year follow-up data in Seattle and comparison cities. Our project leverages the tools of "big data" to collect low-cost web-based surveys.

Using Facebook to collect survey data departs from traditional probability sampling and some have raised reasonable questions about such approaches (Groves, 2011; Smith, 2013). One potential concern arises from the sampling frame of Facebook users. In the recent past, both internet access and Facebook use has been confined to relatively narrow subgroups of the population, which tended to have relatively high socioeconomic status. However, internet access is now widespread in the United States among working aged adults. Recent estimates from the American Community Survey find that between 90-94% of working aged adults have a computer at home and 80-84% have broadband internet access at home (Ryan and Lewis, 2017). Among those who use the internet, the very large majority are active on Facebook – 79% overall and 86% of those 18-49 (Greenwood et al., 2016). The result is that 81% of Americans age 18-49 are now active on Facebook, far in excess of the percent of this population with landlines. Further, although people of color and low-income strata are less likely to have home computers and broadband access (Ryan and Lewis, 2017), Facebook use is nevertheless not especially stratified by demographic characteristics (Greenwood et al., 2016). In addition, unlike some online platforms, Facebook goes to some length to verify that each user account is associated with a unique identifiable person (Facebook, 2017).

Facebook has two other important advantages over both phone and address-based sampling. First, unlike phone and address based sampling, the Facebook profile is a portable and durable means of contact. Respondents can be reached by Facebook for survey recruitment whether at home or work, whether they have moved or have a long residential tenure, whether they change phone numbers or lose service. This represents a distinct advantage over conventional sampling frames.

Second, Facebook collects detailed data on the attributes of users that can be used by advertisers to target their campaigns quite precisely. Indeed, this capability is at the heart of Facebook's business model. These attributes include standard demographics such as age and gender, locational attributes, interests, as well as information on schooling and employment. This last field permits us to deliver advertisements





that are targeted to users who work at specific firms. Given the goal of assembling a data set that includes large samples of workers at each of a large number of firms, this targeting capability is very valuable. Acting as an “advertiser,” we use Facebook’s audience targeting tools to purchase and place survey recruitment advertisements in the newsfeeds of Facebook users who work at specific companies. Each advertisement was targeted to employees of a specific company (or family of consumer-facing brands) who were 18 years of age or older and located in the United States. The availability of targeting by employer name was a key feature that made this data collection approach viable for our research purposes.

A key advantage of this approach is that we cast a wide net in recruiting covered workers and comparison workers to our survey. Our sample is not selected on the basis of having existing relationships with community, business, or advocacy groups. We also avoid the potential for bias that might arise from recruiting workers in or near their place of employment where either the sample composition could be biased or reports could be biased by concerns over employer knowledge of participation.

Facebook provides several options for the “marketing objective” of the campaign. Our default approach, selected after consultation with advertising specialists at Facebook, is to set the campaign objective as “traffic,” which equates with the goal of having Facebook users click the link embedded in the advertisement that takes them to our online survey.

Advertisements appearing on Facebook must follow a fairly standardized design, but there are options within that framework. For instance, while every advertisement must link to a Facebook page, include a headline and advertisement text, an image, and may include a link to an external webpage, advertisers have substantial discretion in crafting the advertising text, in choosing the content of the image, and in using a single image as opposed to a carousel, a video, a slideshow, or a collection.

We used a simple template for all of our advertisements. Every advertisement included a single image drawn from licensed stock photography available at no charge on the Facebook advertising page. We selected images that seemed to most closely approximate an employee of the target company at work, matching on store environment and color and style of employees’ uniforms. Every advertisement linked to an “[Author’s University] Work & Family Study” Facebook page that itself included very little additional content. For the data reported on in our main analysis, every advertisement used the “headline” field to offer users the opportunity to enter a drawing for an Apple iPad or to receive an electronic gift card of

a modest incentive amount. Finally, again for the data in our main analysis, every advertisement used the advertisement text field to include a standard recruitment message. This message took the form of “Working at <targeted employer>? Take a short survey and tell us about your job!”

Finally, Facebook offers various options for advertisement placement. Advertisers may opt to have their advertisements appear on Facebook (in the newsfeed and/or in the right-hand column on desktop), on Instagram, or on partner networks. All of our campaigns were placed on Facebook in the newsfeed and on Instagram. In essence, Facebook serves as both the sampling frame and the recruitment channel.

Figure A.1 presents some sample advertisements we have used to recruit workers to our survey. Users who click on the advertisement are routed to an electronic survey hosted by the firm Qualtrics. The survey can be accessed on desktop or mobile. Users are asked to consent and then begin the survey. Survey incentives include a drawing for an iPad, and \$5, \$10, and \$15 gift cards. These were updated in progressive order to attract respondents who were not recruited through prior advertisements.

To collect re-interview data, we sent follow-up survey invitations to those who had responded to our baseline survey in Seattle and in comparison cities and who had provided valid email or phone contact information.

These re-interview invitations offered the baseline respondents a \$5 gift card for completing a follow-up survey. Workers who did not respond to the initial invitation were sent reminders, and then were later offered incentives of \$10 or \$15 for completing a follow-up survey if they had not yet responded. Those invited to re-interview were given the option to opt-out of future text or email contacts, and anyone who opted-out was removed from the contact list.

The re-interview survey instrument asked workers if they were still working for the same employer. If they were, the survey collected updated information about their work schedules and work conditions. If they were no longer working for the same employer, the survey collected an update on the current employment status, and, when relevant, on their new job. Because not all prior survey respondents provided valid contact information and only a portion of those invited to re-interview accepted the invitation, only about 40% of our follow-up sample in Seattle was previously interviewed. The rest were new respondents. For the comparison sample, only a small share of about 4% were re-interviews and the remainder were new respondents.

## Appendix B. Survey Weighting Methodology and Missing Data Imputation

Our approach to survey data collection departs from traditional probability sampling methods. One possible source of bias arises from our sampling frame of Facebook users. However, recent estimates show that approximately 80% of Americans age 18-50 are active on Facebook (Perrin, 2015). Thus, the sampling frame is now on par with coverage of telephone-based methods (Christian et al., 2010).

A second source of bias arises from non-random non-response to the recruitment advertisement. To correct, we use a set of existing post-stratification and weighting methods. An emerging body of work in statistics and computational social science has demonstrated that nonprobability samples drawn from non-traditional platforms, in combination with statistical adjustment, yield similar distributions of outcomes and estimates of relationships as probability-based samples. This work has drawn data from Xbox users (Wang et al., 2015), Mechanical Turk (Goel et al., 2016; Mullinix et al., 2016), and Pollfish (Goel et al., 2016).

We use a similar approach to re-weight our data to recover the demographic characteristics of the employees covered by the SSO. We know of no data set that provides detailed demographic characteristics of workers at the specifically covered firms who work within Seattle city limits. The American Community Survey does permit us to home in on the population of employees in the covered industries and who work on an hourly basis. In addition to the large firms covered by the SSO, this population also includes those at smaller firms. The more significant problem is that publicly available Census products do not allow us to identify ACS respondents who work in Seattle City limits, only in the larger entity of King County. We overcome this problem by purchasing a custom Census tabulation that provides the demographic characteristics of workers in covered industries and occupations whose place of work is within Seattle City limits.

We use these tabulations from the American Community Survey to construct survey weights. When we apply these weights to our survey data, the attributes of our survey sample closely resemble those of the broader population of Seattle workers. Appendix Table B.1 presents the characteristics of Seattle workers derived from ACS custom tabulations alongside descriptives of our Seattle survey sample with and without survey weights applied.

We also apply these weights to each of our comparison groups. This ensures similarity on these relevant demographic characteristics between the two populations. Further, by weighting both the pre-treatment (baseline) and post-treatment (follow-up) samples to the same demographic benchmark, we reduce the potential for changes in the demographic composition of workers over time to bias the estimates.

The construction of survey weights was performed using the *calibrate* package in R. The descriptive statistics shown in Appendix Table B.2 show that once the weights are applied, the demographic characteristics of Seattle and the Comparison samples are closely aligned.

In a 2019 article in *Sociological Methods and Research* we describe a set of additional tests we performed to assess data validity, including comparisons of our non-probability survey data with probability samples collected by the Current Population Survey and the National Longitudinal Survey of Youth. These comparisons show that our survey data is more similar to either of these data sources than these two sources are to one another. This article also describes test of bias on unobservables that did not reveal evidence of bias (Schneider and Harknett 2019c).

Because our survey was self-administered, some respondents break off before the end of the survey. We organized our survey instrument so that the module on work scheduling outcomes was near the start of the survey to minimize missing data on scheduling experiences. Imputations were run using all observations of respondents who were in the Seattle sample or comparison groups at baseline or at follow-up. Missing variables were imputed both for questions that were seen but skipped and for questions that were unanswered due to survey attrition. Ten imputed data sets were generated using the ‘Amelia’ package in R (Honaker, King, and Blackwell 2011).

Appendix Table B.1. American Community Survey (ACS) and Unweighted and Weighted Sample Descriptives for Seattle Workers

	ACS	Seattle Unweighted	Weighted
18-29	44.8	58.6	53.2
30-39	24.5	18.1	21.2
40-49	15.6	11.1	13.2
50-65	15.0	12.2	12.4
White*	57.9	59.3	55.5
Black	4.3	3.1	3.7
Hispanic	16.2	12.9	15.5
Asian	14.0	8.6	13.3
Other or multi-racial	7.7	16.2	12.1
Female	45.4	66.0	55.5
High School or Less	33.0	31.8	32.5
Some college	39.2	45.0	41.3
BA+	27.8	23.2	26.3
Enrolled in school		32.4	31.0
Married		22.5	23.6
Living with partner		24.2	22.7
Not living with partner		53.3	53.6
Has kids	18.4	28.9	26.3
Apparel		14.2	13.8
Cafe		14.9	13.7
Casual Dining		3.6	3.5
Dept/Super Store		11.4	11.5
Fast Food		13.6	13.9
Grocery		28.9	29.4
Misc. Retail		13.4	14.1
English Second Language**	29.1	20.5	29.1
Speaks English less than 'well'	8.6		
N	49,980	1,943	1,943

\* ACS single race categories are mutually exclusive; Shift single race categories are not (totals sum to more than 100%)

\*\* Refers to ACS category "speaks a language other than English" (but does not necessarily imply limited proficiency)

Appendix Table B.2. Descriptives

	Seattle Baseline Sample		Seattle 2yr Sample		Comparison City Baseline Sample		Comparison City 2yr Sample	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
18-19	19.2	16.4	22.9	21.3	25.8	23.6	20.3	18.7
20-29	40.3	37.0	34.6	32.3	38.6	37.0	33.2	31.8
30-39	17.8	20.5	17.7	20.6	17.6	21.2	15.3	18.1
40-49	11.8	14.6	10.4	11.3	12.4	13.1	12.7	13.9
50+	10.9	11.5	14.5	14.4	5.6	5.1	18.4	17.5
High School or Less	33.2	33.5	31.5	33.3	39.3	35.8	40.1	36.5
Some college	41.8	38.3	50.9	45.7	45.8	43.3	43.0	40.0
BA+	25.0	28.2	17.7	21.1	14.9	20.9	16.8	23.5
No kids	72.0	74.0	67.9	72.3	69.4	75.4	63.6	71.5
Kids younger than 15*	8.6	8.8	11.1	9.9	12.4	10.2	9.5	7.5
White	56.7	52.4	60.7	56.7	55.9	53.2	58.6	55.5
Black	3.1	3.8	2.5	3.2	3.6	3.9	3.4	3.8
Hispanic	12.8	15.3	14.9	17.4	20.6	20.6	18.5	18.4
Asian	9.3	15.1	7.5	11.7	3.3	9.5	3.0	9.5
Male	35.2	45.8	32.1	42.4	33.4	44.8	30.8	42.7
Female	64.8	54.2	67.9	57.6	66.6	55.2	69.2	57.3

\* Child age is not imputed



## Appendix C. Difference-in-Differences Impact Estimate Tables

Figures 1 and 2 summarize the impact estimates. Appendix Tables C.1 through C.14 contain the mean estimates for each outcome for Seattle workers and Comparison workers before and after the Secure Scheduling Ordinance went into effect.

Appendix Table C.1. Percent Reporting Two Weeks' Notice of Work Schedule

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
Seattle Workers	46.3	57.0	10.7
Workers employed in Comparison Cities with Minimum Wage Ordinances	46.7	47.3	0.6
Estimated Impact of Secure Scheduling Ordinance			<b>10.1</b> **

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.2. Percent Reporting On-Call Shifts and On-Call Shifts without Work or Pay

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
<u>On-call shift</u>			
Seattle Workers	25.2	21.2	-4.1
Workers employed in Comparison Cities with Minimum Wage Ordinances	27.3	29.4	2.1
Estimated Impact of Secure Scheduling Ordinance			<b>-6.2</b>
<u>On-call shift and not called or paid</u>			
Seattle Workers	8.3	7.0	-1.3
Workers employed in Comparison Cities with Minimum Wage Ordinances	9.2	10.0	0.8
Estimated Impact of Secure Scheduling Ordinance			<b>-2.0</b>

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.3. Percent Reporting Shift Timing Change with and without Extra pay

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
<u>No shift timing change</u>			
Seattle Workers	24.5	39.2	14.7
Workers employed in Comparison Cities with Minimum Wage Ordinances	26.6	32.9	6.2
Estimated Impact of Secure Scheduling Ordinance			<b>8.5</b> *
<u>Shift timing change with pay</u>			
Seattle Workers	6.0	11.2	5.2
Workers employed in Comparison Cities with Minimum Wage Ordinances	5.9	7.0	1.1
Estimated Impact of Secure Scheduling Ordinance			<b>4.0</b> +
<u>Shift timing change without pay</u>			
Seattle Workers	69.5	49.6	-19.9
Workers employed in Comparison Cities with Minimum Wage Ordinances	67.5	60.1	-7.4
Estimated Impact of Secure Scheduling Ordinance			<b>-12.5</b> ***

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.4. Percent Reporting Clopening Shift and Clopening Shift without Extra Pay

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
<u>Cloping shift without Sufficient Time to Rest</u>			
Seattle Workers	37.0	35.6	-1.5
Workers employed in Comparison Cities with Minimum Wage Ordinances	43.9	47.8	3.9
Estimated Impact of Secure Scheduling Ordinance			<b>-5.4</b>
<u>Cloping shift without extra pay</u>			
Seattle Workers	33.4	31.7	-1.7
Workers employed in Comparison Cities with Minimum Wage Ordinances	41.2	44.9	3.6
Estimated Impact of Secure Scheduling Ordinance			<b>-5.3</b>

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and

Appendix Table C.5. Percent Reporting Shift Cancellation with and without Extra pay

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
<u>No canceled shift</u>			
Seattle Workers	84.6	82.7	-1.9
Workers employed in Comparison Cities with Minimum Wage Ordinances	82.6	80.2	-2.5
Estimated Impact of Secure Scheduling Ordinance			<b>0.5</b>
<u>Canceled shift with pay</u>			
Seattle Workers	0.9	3.6	2.7
Workers employed in Comparison Cities with Minimum Wage Ordinances	0.9	0.9	0.1
Estimated Impact of Secure Scheduling Ordinance			<b>2.7</b> *
<u>Canceled shift without pay</u>			
Seattle Workers	14.5	13.7	-0.8



Appendix Table C.6. Percent Reporting Employer Hired Part-Time Workers without Offering Hours to Existing Part Time Workers

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
<u>Hired without Offering Hours</u>			
Seattle Workers	40.3	42.7	2.5
Workers employed in Comparison Cities with Minimum Wage Ordinances	39.4	38.3	-1.1
Estimated Impact of Secure Scheduling Ordinance			<b>3.6</b>

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.7. Number of Usual Weekly Work Hours

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
Seattle Workers	31.3	31.8	0.5
Workers employed in Comparison Cities with Minimum Wage Ordinances	31.0	31.2	0.2
Estimated Impact of Secure Scheduling Ordinance			<b>0.3</b>

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.8. Percent Satisfied with Work Schedule

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
<u>Very Satisfied</u>			
Seattle Workers	30.4	30.0	-0.4
Workers employed in Comparison Cities with Minimum Wage Ordinances	34.9	24.7	-10.2
Estimated Impact of Secure Scheduling Ordinance			<b>9.8</b> **
<u>Somewhat Satisfied</u>			
Seattle Workers	51.3	51.5	0.2
Workers employed in Comparison Cities with Minimum Wage Ordinances	45.5	48.3	2.8
Estimated Impact of Secure Scheduling Ordinance			<b>-2.6</b>

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Reference category is "not at all" or "not too satisfied." Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school

Appendix Table C.9. Percent Satisfied with Job

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
<u>Very Satisfied</u>			
Seattle Workers	34.4	31.1	-3.2
Workers employed in Comparison Cities with Minimum Wage Ordinances	37.5	26.6	-11.0
Estimated Impact of Secure Scheduling Ordinance			7.7 *
<u>Somewhat Satisfied</u>			
Seattle Workers	44.6	49.5	4.9
Workers employed in Comparison Cities with Minimum Wage Ordinances	38.3	42.3	4.0
Estimated Impact of Secure Scheduling Ordinance			0.9

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Reference category is "not at all" or "not too satisfied." Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.10. Percent Reporting Being Very or Pretty Happy

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
Seattle Workers	76.7	77.4	0.7
Workers employed in Comparison Cities with Minimum Wage Ordinances	75.1	69.6	-5.5
Estimated Impact of Secure Scheduling Ordinance			6.3 +

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.11. Psychological Distress scale  
(0=no distress to 24=distress in all areas all the time)

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
Seattle Workers	10.1	10.4	0.3
Workers employed in Comparison Cities with Minimum Wage Ordinances	9.9	10.8	0.9
Estimated Impact of Secure Scheduling Ordinance			<b>-0.6</b>

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.12. Percent with Very Good or Good Quality Sleep

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
Seattle Workers	30.3	40.5	10.1
Workers employed in Comparison Cities with Minimum Wage Ordinances	32.7	32.3	-0.5
Estimated Impact of Secure Scheduling Ordinance			<b>10.6</b> *

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.13. Percent Experiencing Material Hardship

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
Seattle Workers	59.0	52.5	-6.5
Workers employed in Comparison Cities with Minimum Wage Ordinances	57.7	61.3	3.6
Estimated Impact of Secure Scheduling Ordinance			<b>-10.0</b> *

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.

Appendix Table C.14. Percent Reporting They Could Probably or Definitely Cope with a \$400 Expense Shock

	Pre-SSO (Spring 2017)	Post-SSO (Spring 2019)	Post-Pre Difference
Seattle Workers	65.7	65.1	-0.6
Workers employed in Comparison Cities with Minimum Wage Ordinances	66.8	64.1	-2.6
Estimated Impact of Secure Scheduling Ordinance			<b>2.0</b> +

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Pre-SSO and Post-SSO columns display adjusted mean values derived from difference-in-differences regression models that control for age, race/ethnicity, gender, education, school enrollment, parental status, managerial status, and industry subsector.



## Appendix D. Results for Alternative Comparison Groups

In our main results, as described above, our comparison group is comprised of large U.S. cities that have a minimum wage that is higher than the Federal minimum wage. We also estimate impacts for three alternative comparison groups and find results consistent with those we presented. Supplemental Tables D.1 and D.2 present results for four separate comparison groups:

1. Minimum Wage is the comparison group presented in the report, consisting of large cities with a minimum wage higher than the Federal minimum.
2. Scheduling Cities includes hourly workers who were surveyed in metropolitan areas of at least 1 million people that are either soon to consider work scheduling legislation or who have recently considered such legislation, but narrowly failed to pass it. We discern this information from correspondence with city legislators and other actors in the policy space. We argue that these cities constitute an important comparison group because they likely share some of the same unobservables that select Seattle into passing scheduling legislation, but have not yet enacted the treatment. These CBSAs are Chicago, Philadelphia, Los Angeles, Minneapolis, and Washington DC.
3. Scheduling Cities or States expands the group of Scheduling Cities to also include metropolitan areas in states that are either soon to consider state-level scheduling legislation or who have recently considered such legislation, but narrowly failed to pass it. These cities are Chicago, Philadelphia, Los Angeles, Minneapolis, and Washington DC, Portland, San Diego, Boston, Sacramento, and Hartford.
4. Near Seattle includes hourly workers who were surveyed in the Seattle CBSA, are employed at the same set of retail and food establishments as the Seattle treatment group, but work outside of Seattle city limits and thus are not covered by the Ordinance.

In Appendix Tables D.1 and D.2, we first reproduce the DiD estimate summarized in Figures 1 and 2. We then show the same estimate when using each of the alternative three comparison groups in the subsequent columns. Overall, the impact estimates are largely consistent across comparison groups.

Appendix Table D.1. Year 2 Impacts of SSO with Alternative Comparison Groups

	Minimum Wage	Scheduling Cities	Scheduling Cities or States	Near Seattle
Two Weeks' Notice	10.1 **	11.2 **	10.8 **	8.4 +
No On-Call Shifts	6.2	5.9	5.7	4.7
On-Call without Work or Pay	-2.0	-1.8	-1.5	-0.7
No Shift Timing Change	8.5 *	8.7 *	8.4 *	9.6 *
Shift Change with Pay	4.0 +	4.0 +	3.1	4.0
Shift Change without Pay	-12.5 ***	-12.6 **	-11.5 **	-13.5 **
No Clopening Shift	5.4	3.5	3.9	3.6
Cloping without Extra Pay	-5.3	-3.1	-3.5	-4.7
No Cancelled Shift	0.5	1.5	0.7	-0.4
Canceled Shift with Pay	2.7 *	2.9 *	2.8 *	2.0
Canceled Shift without Pay	-3.2	-4.4	-3.5	-1.6
Hires without offering additional hours	3.6	2.8	3.5	6.4
Usual hours	0.271	0.125	0.296	0.277
N	17,689	9,618	12,877	5,786

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Estimates from difference-in-differences regression models. Impacts are the interaction between Seattle treatment group and post-SSO period.

Appendix Table D.2. Year 2 Impacts of SSO with Alternative Comparison Groups

	Minimum Wage	Scheduling Cities	Scheduling Cities or States	Near Seattle
Very satisfied with schedule	9.8 **	6.8 +	5.6	5.1
Very satisfied with job	7.7 *	4.3	4.4	2.3
Happiness	6.3 +	7.0 +	6.8 +	3.7
Psychological distress	-0.6	-0.6	-0.5	-0.1
Sleep quality	10.6 *	12.3 *	11.2 **	5.0
No material hardships	10.0 *	-11.7 *	-10.7 **	-7.9 +
Could cope w/ expense shock	2.0 +	2.3	2.5	4.8
N	17,689	9,618	12,877	5,786

Notes: +p<.10; \*p<.05; \*\* p<0.01; \*\*\*p<.001. Estimates from difference-in-differences regression models. Impacts are the interaction between Seattle treatment group and post-SSO period.

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