# Consequences of Routine Work Schedule Instability for Worker Health and Wellbeing

The American labor market is increasingly unequal, with ever greater returns at the top of the market and growing insecurity for workers at the bottom. Much has been written about the economic face of rising precarity for low-wage workers, but this transformation has also involved a shift in the temporal dimension of work. Frontline service sector jobs are characterized, not only by stagnant wages and few fringe benefits, but by a lack of employee control over scheduled work days and times in the context of substantial schedule instability.[1]

Many service sector employers across the country rely on just-in-time and on-call scheduling practices designed to minimize labor costs by closely aligning staffing with consumer demand.[2] These practices, along with related economic insecurity, can introduce far-reaching instability into the lives of workers and their families.[3] A lack of data has limited our ability to understand the implications of just-in-time scheduling and routine work schedule instability for workers' health and wellbeing. However, newly available data from The Shift Project allow us to fill this gap.

Since 2016, The Shift Project has collected survey data from workers employed in food service and retail at large chain stores — firms that are the focus of recent labor regulation efforts in select cities and states around the country.[4] We ask these workers about their work schedules, household economic security, health, and wellbeing.

In a recent paper, we use Shift data to explore the relationship between exposure to routine schedule instability and measures of worker health and wellbeing — in particular, psychological distress, poor sleep quality, and unhappiness. We find that routine work schedule uncertainty is a strong predictor of worker health and wellbeing. What's more, the temporal dimension of low-

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wage work — the relative stability and predictability of work schedules — is even more strongly related to worker health and wellbeing than are hourly wages.

## The Data: Documenting Routine Work Schedule Instability

The Shift Project collects data using an ongoing national survey of service sector workers. The research presented here draws on data from 27,792 workers who completed surveys between June 2016 and October 2017. All of these respondents were hourly workers employed at one of 80 of the largest (by revenue) food service and retail companies in the United States. In our paper, we tabulate these surveys to describe the prevalence of unstable and unpredictable work schedules among service sector workers (these findings are summarized in Table 1, and some examples are highlighted below). The overall portrait of work in the service sector reveals that unstable and unpredictable work schedules are commonplace.

- About two-thirds of workers receive their work schedule with less than two weeks' advance notice, and about one-third receive their schedule with less than one week's notice.
- On-call (26%), cancelled (14%), and "clopening" (50%) shifts are a common occurrence.
- Only 1 in 5 workers report working a regular daytime schedule.
- In the month prior to being surveyed, workers experienced a 32% varation, on average, between the hours worked in the week with the most hours and that with the fewest.

## The Relationship Between Work Schedules and Worker Health and Wellbeing

We next consider the relationship between work schedules and worker health and wellbeing using three measures: workers' psychological distress, sleep quality, and happiness.[5]

### Psychological Distress

Routine uncertainty about when and how much an individual will work from day to day and week to week could lead to feelings of distress. Indeed, we find such a relationship in The Shift Project's survey data.

Half of service sector workers in our sample report at least a moderate amount of psychological distress. Distress is measured using a scale that combines reports of feeling depressed, nervous, restless, hopeless, that everything is an effort, and that difficulties are piling high. The 54% of workers we categorize as moderately distressed reported that they experienced these specific markers of distress, on average, somewhere between "a little of the time" and "some of the time." Notably, we find that workers who experience unstable and unpredictable scheduling are more distressed, on average. Workers who are exposed to multiple forms of unstable and unpredictable scheduling are the most distressed.

We also look at the relationship between exposure to particular scheduling practices and worker distress. We see that variation in the total number of hours worked from week to week is associated with psychological distress, as is working a variable or rotating schedule compared to working a regular day shift.

Short notice and lack of control is also distressing. Workers who receive less than one week's advance notice of their work schedules are more distressed than those with two or more weeks' notice, and workers exposed to cancelled shifts, on-call shifts, and clopening shifts are significantly more likely to experience psychological distress. For example, 64% of workers who have had shifts cancelled report psychological distress, compared with less than half of those who have not (see Figure 1).

### Sleep Quality

Unstable work schedules may also affect health by interfering with workers' quality of sleep. An irregular and unpredictable schedule could make it difficult to maintain routines, such as regular times for sleep and waking.

In fact, we see evidence of a negative relationship between schedule uncertainty and sleep quality: while three-quarters of the workers in our sample report fair or poor sleep quality, workers with unpredictable schedules report worse sleep quality than those who are not exposed to unpredictable scheduling practices. Furthermore, we find that overall exposure to multiple forms of instability raises the risk of fair or poor sleep, particularly among the nearly half of all workers who report exposure to three or more such practices.

Workers who experience greater hour variation also experience worse sleep quality than those whose hours vary less or not at all, as do those who work variable schedules as opposed to regular day shifts, and those who receive less advance notice of their work schedules.

Figure 1 highlights the association for workers who have experienced a cancelled shift: 82% of those workers report poor sleep quality, compared to 72% of those who have not had a shift cancelled. We see similar results for workers who have worked a clopening shift and those who work on-call.

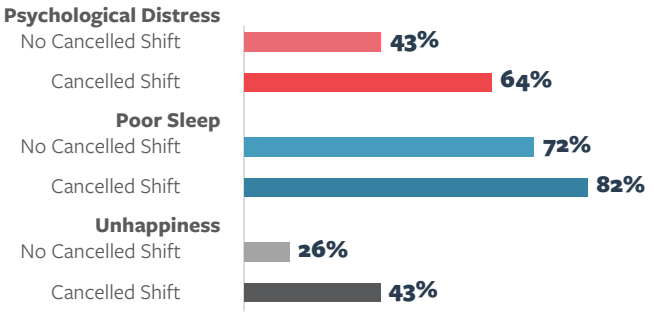
### Happiness

Unstable work schedules may also affect quality of life and workers' reports of their subjective wellbeing. To test this possibility, we compared reports of happiness from workers with more and less stable schedules.

More than a quarter of workers in our sample report feeling "not too happy" (as opposed to "very happy" or "pretty happy"), and workers in our sample who report experiencing unstable and unpredictable schedules are more likely to report greater unhappiness. We see that greater exposure to multiple unstable scheduling practices also increases workers' probability of feeling unhappy.

Respondents who work a variable schedule are less likely to report being "very" or "pretty happy" compared to those who work a regular day shift, and those with less than one week's advance notice are significantly less happy than those with at least one week's advance notice. There are also strong relationships between happiness and exposure to cancelled shifts, on-call shifts, clopening, and limited schedule control. For example, Figure 1 shows that workers who experienced a cancelled shift in the past month were much more unhappy overall (43%) compared to workers who did not have a shift cancelled (26%).

**Figure 1** Predicted Probability of Wellbeing Outcomes for Workers Exposed to Cancelled Shifts




## Regulating Schedules or Increasing Wages: Relative Impact on Wellbeing

Our analysis of schedule instability and workers' psychological distress, sleep quality, and happiness points to the human toll of unstable and unpredictable work scheduling in service sector jobs. To put these associations into a broader context, we can compare the relationship between work schedules and worker health with that of hourly wages and health.

In our paper, we use the Shift data to simulate how health and wellbeing outcomes may change in response to work scheduling laws or minimum wage increases. We compare these two labor regulation mechanisms in a series of policy-relevant scenarios, evaluating the impact of several common components of secure scheduling laws that have been implemented in recent years, such as increasing advance notice from 0-2 days to 3-6 days, one week, or two weeks (as mandated in New York City, Oregon, and Seattle and San Francisco, respectively); banning on-call shifts (as

mandated for retail workers in New York City); or eliminating clopening shifts (as mandated in Oregon, Seattle, and in New York City's fast-food industry).

We find that such changes to scheduling have a substantial impact on worker wellbeing.[6] For instance, in our predicted estimates, eliminating on-call shifts would reduce affected workers' psychological distress by 15 percentage points on average, improve sleep quality by 8 percentage points, and raise self-reported levels of happiness by 9 percentage points. Eliminating clopening shifts would have similar effects, and implementing advance notice restrictions by requiring 72 hours of notice would reduce affected workers' psychological distress by nearly 5 percentage points.

We then contrast these scenarios with increases to the federal minimum wage of $7.25, based on actual state and local increases that occurred between 2015 and 2018. We find that, while both wage increases and more stable schedules are associated with improvements in psychological distress, sleep quality, and happiness, there is a stronger association in the case of scheduling.

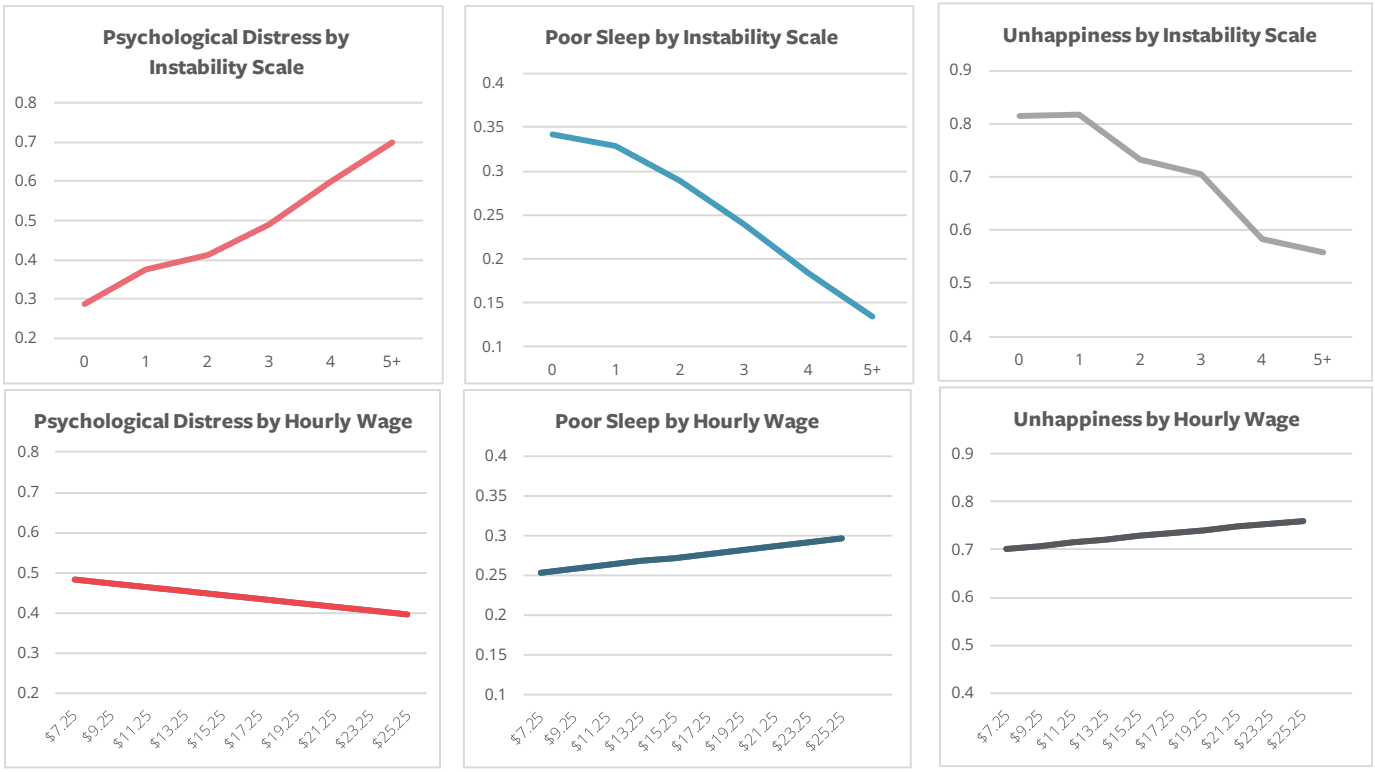
Figure 2 compares the magnitude of the relationship between schedule instability and health outcomes with that of wages and health. For all three outcomes — distress, sleep, and happiness — the associations with schedules are much stronger than those with wages.

## Discussion

The Shift data allow us to examine the associations between routine work schedule instability and worker health and wellbeing, providing consistent evidence connecting precarious scheduling practices to more psychological distress, worse sleep quality, and greater unhappiness.

The majority of research has focused on the economic dimension of precarious work — specifically, on wages. In this context, it is striking that exposure to unstable and unpredictable work schedules has substantively larger negative associations with distress, sleep, and happiness than do wages.

**Figure 2** Effect of Changes to Scheduling Practices on Wellbeing Measures for Service Sector Workers



Some states and cities are considering passing laws regulating scheduling practices for hourly service sector workers. We simulated the health outcome effects of possible changes to schedule and wage policies, and estimate much larger population-level benefits of changes to scheduling practices than to wages.

Our research provides evidence consistent with the notion that requiring 72 hours of advance notice would be beneficial to workers, that requiring a week of advance notice would be better still, and that in some contexts, two weeks of advance notice would be best of all. Our estimates are also consistent with the idea that reducing on-call and clopening shifts would improve the lives of retail workers by improving workers' mental health, sleep quality, and happiness.

The results presented in this brief point to the central importance of the temporal dimension of precarious work and call for a reorientation in how we think about precarious employment and job quality. Although the economic dimension of precarity is of clear importance, the temporal dimension is arguably even more important and deserves more serious and concentrated attention.

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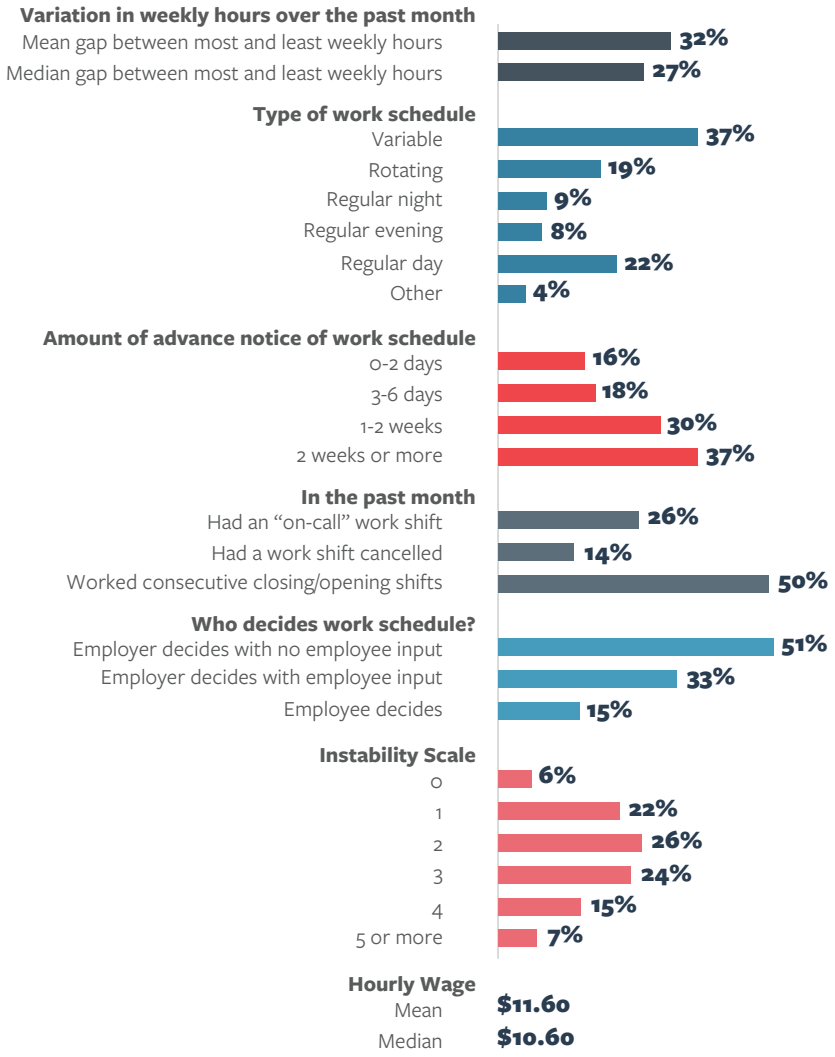
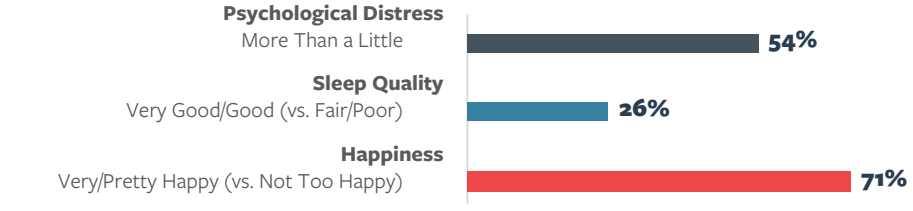
**Table 1** Job and Work Schedule Characteristics for Service Sector Workers




Source: Shift survey of 27,792 service sector workers in the United States

**Table 2** Wellbeing Measures for Service Sector Workers




Source: Shift survey of 27,792 service sector workers in the United States

# Endnotes


1. Lambert, S. J. 2008. "Passing the Buck: Labor Flexibility Practices that Transfer Risk onto Hourly Workers." *Human Relations* 61(9): 1203-1227.
2. Golden, L. 2015. "Irregular Work Scheduling and Its Consequences." Briefing Paper #394. Economic Policy Institute; Appelbaum, E., A. Bernhardt, and R. J. Murnane. (Eds.). 2003. *Low-Wage America: How Employers are Reshaping Opportunity in the Workplace*. New York: Russell Sage Foundation; Clawson, D., and N. Gerstel. 2015. *Unequal Time: Gender, Class, and Family in Employment Schedules*. New York: Russell Sage Foundation.
3. Lambert, S.J., P. Fugiel, and J. R. Henly. 2014. *Precarious Work Schedules among Early-Career Employees in the US: A National Snapshot*. University of Chicago.
4. Further details about our data collection and methodology are presented in an Appendix at the end of this brief.
5. The presented findings are based on "regression analysis," a widely-used analytic technique in the social sciences, which is designed to isolate the effects of unpredictable work schedules while holding constant other influences. In this case, the reported relationships between having an unpredictable work schedule and health and hardship outcomes are "net of" statistical controls for worker age, race, gender, educational attainment, marital status, school enrollment, children in household, hourly wage, household income, average weekly work hours, employment tenure, managerial status, as well as year and month fixed effects.
6. In our analysis of the relative associations between job characteristics and worker wellbeing, we use estimates of changes in predicted values of psychological distress, sleep quality, and happiness from a policy-relevant change in scheduling or wages. All models include controls for race, age, gender, educational attainment, marital status, school enrollment, hourly wage, average weekly work hours, employment tenure, managerial status, and living with children as well as month and year fixed effects.



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# Methodological Appendix

This brief presents data from 27,792 Shift Project survey respondents employed at 80 large retail and food service companies across the United States. Data was collected between June 2016 and October 2017. The Shift Project recruits survey respondents using online Facebook advertisements, targeted to workers employed at large retail and food service employers.

Those who responded to the Shift survey invitation were automatically routed to a survey landing page where they were asked to consent to participate in the study, then began the online self-administered survey using the Qualtrics platform. As an incentive, those who completed the survey and provided contact information were entered into a lottery for an Apple iPad. The survey included modules on job characteristics, work schedules, demographics, economic stability, health, parenting, and child outcomes. To screen out invalid survey responses, we used an attention filter (a question that instructed respondents to select a particular response category to verify the accuracy of their responses) as well as a speed filter (discarding data for surveys that were completed too hastily). To address occasional missing data owing to item non-response, we use multiple imputation.

In the results we present in this brief, we have applied weights that adjust our sample to reflect the universe of service sector workers in nationally. These weights are constructed in two stages. First, we construct survey weights to adjust the demographic characteristics of the Shift survey sample to match the demographic characteristics of service sector workers in the American Community Survey (ACS) for the years 2011-2015. We align the ACS sample with the Shift sample by selecting workers in the ACS who are employed in the same occupations and industries as the Shift sample. As a sensitivity check, we constructed similar alternative weights using data from the Current Population Survey and from the universe of service sector workers on Facebook to whom we targeted our ads and found that choice of weight had little influence on our estimates.

Second, to ensure that our sample accurately reflects the distribution of employment types among large retail and food service employers, we use data from the Reference USA database of U.S. establishments. The RefUSA database contains a detailed listing of all retail and food establishments nationally and contains the size of the workforce for each establishment, which we aggregate up to the industry level. Then, using the aggregated RefUSA industry data, we weight our Shift survey sample to match the distribution of retail apparel, food service, grocery, and other industries, nationally. All of the results we present in this report apply these ACS demographic and RefUSA industry weights.

Additional information about the sample and methodology are available in the paper on which this brief is based. The published paper is available at https://journals.sagepub.com/home/asr, and an open-access version is available at https://equitablegrowth.org/working-papers/schedule-instability-and-unpredictability/.