



# Measuring Precarious Work Schedules\*

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# MEASURING PRECARIOUS WORK SCHEDULES

A WORKING PAPER OF THE EINet MEASUREMENT GROUP

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Studies of employer practices in different nations and industries reveal how the “just-in-time” scheduling practices that today’s employers use to contain outlays for labor often result in fluctuating and unpredictable work hours over which employees have little control (Carré & Tilly, 2008; Lambert, Haley-Lock, & Henly, 2012; McCrate, Lambert, & Henly, 2013). Complementary research on the experiences of workers provides evidence that fluctuating and unpredictable work hours contribute to job turnover, interfere with workers’ nonwork activities such as setting up healthcare appointments and securing reliable child care, and create work-to-family conflict and stress (Henly & Lambert, 2014; Henly, Shaefer, & Waxman, 2006; Perry-Jenkins, 2005; Zeytinoglu, Lillevik, Seaton, & Moruz, 2004). However, these studies of *precarious work schedules* are not based on nationally representative samples of workers, raising questions about the prevalence of problematic scheduling practices across the labor market. Moreover, without measures of multiple dimensions of precarious work schedules within the same national survey, it is impossible to examine the relationship between these multiple measures or to identify their unique contributions to a range of employment outcomes regularly examined by researchers.

In this working paper, we suggest new possibilities for measuring unpredictable and fluctuating hours, as well as two other dimensions of work schedules that research has already established hold critical implications for worker and family well-being, namely nonstandard work timing and employee control over work schedules (e.g., Golden, 2001; Kelly, Moen, & Tranby, 2011; Li et al., 2013; McCrate, 2012; Presser, 2003; Presser & Ward, 2011). Our recommendations reflect insights gained from analyzing a set of new and revised survey items that were included in a recent round (Round 15) of the National Longitudinal Survey of Youth 1997 Cohort (NLSY97) and that were designed to tap into each of these four dimensions of work schedules.<sup>1</sup> We also provide estimates of the validity of self-report data on some of these items from a mixed-methods study of retail workers, which allows us to compare workers’ self-reports of work hours to data from the firm’s payroll system.

We begin with an overview of some general concerns about the ways in which work schedules are measured in most existing national surveys. We then discuss the status of measurement on each of four dimensions of work schedules and, in each case, recommend a set of items that we believe would lead to advancement in knowledge about precarious work schedules.

<sup>1</sup>The NLSY97 is a panel study of a representative sample of US residents born between 1980 and 1984. Respondents were 26 to 32 years old when they responded to the items included in the survey. For more details on the sample and study see Lambert, Fugiel, & Henly, 2014.

## GENERAL CONCERNS WITH EXISTING MEASURES IN NATIONAL DATA SETS

Several national surveys include indicators of work hours and schedules. Especially common are survey items that address an individual's usual work schedule in terms of the number of work hours, the timing of work, and the degree of flexibility or control a worker has over her work schedule.<sup>2</sup> Many of these survey items originated at a time when full-time jobs with stable schedules were believed to be more normative than they are today. These survey items smooth variation in work hours by asking respondents to report a single estimate, commonly either their usual hours of work or the number of hours they worked last week. Many surveys also include items about whether respondents usually work a dayshift or at another time during the day. A focus on what is usual or typical facilitates the ability of researchers to present summary statistics about workers' schedules, especially the timing of work and the number of hours worked and, in the case of work hours, to also extrapolate earnings. However, without additional items that gather information on divergence from the "usual," these items make it impossible to examine fluctuations in work schedule timing and hours. Another issue of concern is that many existing items that address nonstandard timing and schedule control employ forced choice or yes/no response alternatives, making it difficult to assess the range and frequency of variations in the timing of work or the degree of control over a schedule that an employee has relative to her employer.

Moreover, many surveys do not include items that capture multiple dimensions of work schedules, and the items themselves sometimes confound dimensions in ways that make findings difficult to interpret. For example, dozens of studies use national data sets to examine the health and well-being of workers whose schedules require them to work nonstandard hours. However, the measures used often conflate unsocial timing (e.g., evenings and weekends) with hour fluctuations (e.g., variable hours). Several recent studies of low-income workers do examine multiple dimensions of work schedules; however, most of this research has been limited to particular sectors of the labor market and has not included comparisons to higher-income or salaried workers (Haley-Lock, 2011; Henly & Lambert, 2014; Luce & Fujita, 2012; Luce et al., 2014). The lack of attention in the national surveys to multiple dimensions of work schedules has constrained researchers' ability to consider the ramifications of a full range of work-hour configurations for workers and families across the labor market.

The two dimensions of work schedules that are most commonly included in national surveys address schedule control and nonstandard timing. Analyses of these items demonstrate the contributions to understanding gained by examining them in combination with one another and at different levels of the labor market. For example, Golden (2001) shows that working at night, but not in the evening, is associated with less work schedule control. Our initial analyses of the new items on work schedules from the NLSY97 similarly highlight the advantages of examining different combinations of work hour dimensions. In examining fluctuations in work hours in combination with employee control over timing, we find that variations in weekly work hours look more like desired flexibility at the top of the labor market, but more like unwanted instability at the other end. In general, the NLSY analyses suggest that precarious scheduling can take different forms in different jobs and for different workers, as some groups seem to be able to avoid one or more dimensions of problematic scheduling practices while remaining at higher risk along other dimensions (Lambert, Fugiel, & Henly, 2014).

<sup>2</sup>In preparing this working paper, we reviewed several national surveys, including the Panel Study of Income Dynamics (PSID), the Current Population Survey (CPS), the National Survey of Families and Households (NSFH), the National Longitudinal Survey of Youth 1979 and 1997 (NLSY79; NLSY97); the National Study of the Changing Workforce (NSCW), the Survey of Income and Public Program Participation (SIPP), the General Social Survey (GSS), the GSS Quality of Work Life (QWL) module and *International Social Survey Programme* (ISSP). In some cases, work schedule items are included as part of the core survey instrument, although in several cases work schedule items can be found in a separate module or supplement administered to a subsample of the core sample. It is not our intention to provide a systematic review of these data sets, and in this working paper we do not identify which survey waves, supplements, or modules within a survey the particular items of interest can be found. We refer to the surveys by their acronyms throughout the working paper.

We think that there is merit to developing measures that tap, as distinctly as possible, different dimensions of work schedules because the importance of each dimension for worker and family well-being may vary depending on workers' occupational conditions and personal circumstances. For example, McCrate (2012) shows that control over work schedule variability is more widely available to more advantaged workers, and Golden and Wiens-Tuers (2005) find that the implications of overtime work for perceived job satisfaction and job security depend on whether or not the overtime hours are voluntary. In order to examine the intersection of different dimensions of work schedules across the labor market, survey items will need to be written so that they are relevant to workers who vary in terms of occupational and personal characteristics such as education, race/ethnicity, gender, and caregiving status.

## MEASURING MULTIPLE DIMENSIONS OF WORK SCHEDULES

Below, we discuss approaches to the measurement of four dimensions of work schedules and make recommendations for new and revised survey items. The four dimensions include: number of hours (usual hours and work-hour fluctuations), timing of hours (starting and finishing times, days of week), predictability of hours (advance notice, last minute schedule changes), and schedule control (input into the number and timing of hours). A list of the survey items is included in Appendix A.

### 1. Number of hours

In order to increase researchers' capacity to study work hours as a dynamic rather than a static condition of work, we believe it is important that survey items on usual work hours be accompanied by items that capture hour fluctuations.

**Usual number of work hours.** In most national surveys respondents report their "usual" or "typical" hours of work per week, either for hours on multiple jobs (main, second) separately (NLSY 1979, 1997; National Survey of Families and Households [NSFH]; Survey of Income and Public Program Participation [SIPP]) or "at all jobs" combined (Current Population Survey [CPS]; Panel Study of Income Dynamics [PSID]). Instead of asking about usual hours, the General Social Survey (GSS) asks how many hours the respondent worked last week in order to minimize recall bias.<sup>3</sup>

The issue of the extent to which workers reliably report their work hours, usual and otherwise, is of basic concern to all researchers. As part of a mixed-methods case study of a retail apparel firm that we conducted, we are able to compare employees' self-reports of usual work hours via a telephone survey to their work hours as recorded by the firm's payroll system, which records the time each employee clocks in and out of work each day. This comparison allows us to provide an empirical estimate of the accuracy of workers' reports of their work hours.

Table 1 provides summary statistics on employees' responses to the survey questions on usual work hours. According to firm policy, full-time jobs provide between 32 and 40 hours of work. There are no guaranteed minimum number of hours for employees in jobs classified as part-time, and part-time employees can work up to 40 hours a week for sporadic periods of time without having their job reclassified. Employees' self-reports of usual work hours are consistent with these policies.

<sup>3</sup>A usual-hours question is asked of respondents who did not work last week but who say they normally work in paid employment.

**Table 1. Usual work hours from employee self-reports from survey**

	N	Mean	Median	S.D.
<b>Total sample</b>	252	25.34	25.00	12.37
<b>Full-time</b>	93	38.32	40	5.37
<b>Part-time</b>	159	17.75	18.00	8.3

Table 2 reports correlations between workers' self-reports of usual work hours and the average number of hours respondents worked as recorded by the firm's payroll system. The table provides correlations for different time periods in order to gain insight into the ability of self-report data to accurately reflect respondents' work hours over shorter and longer periods of time.<sup>4</sup> The table also breaks down the sample by seniority in order to assess whether more senior employees provide more accurate assessments of usual hours.

**Table 2: Correlations between workers' self-report of usual work hours and actual work hours from firm payroll records\***

	Work hours from payroll records				
	1 week prior**	4 weeks prior	12 weeks prior	24 weeks prior	All of 2012
<b>Total sample</b>	.893	.924	.938	.936	.930
<b>By seniority</b>					
>12 months (n=207)	.902	.930	.942	.939	.935
< 12 months (n=45)	.810	.876	.906	.908	.887
>24 months (n=157)	.928	.932	.947	.948	.944
<24 months (n=95)	.810	.896	.911	.899	.887
<b>Part-time</b>	.724	.794	.838	.828	.813

\*All correlations are statistically significant at  $p < .01$ . \*\*Prior to the date the respondent completed the telephone survey.

As Table 2 shows, the correlations between employees' self-reports of usual work hours and their work hours from the payroll system are strong, regardless of the length of the observation period. Although the correlations are slightly attenuated among employees with less seniority, the correlations between self-reported and payroll hours are still substantial (around .9 in most cases). Estimates of the accuracy of self-reports of usual work hours are somewhat lower when looking at part-time workers separately, especially when compared to payroll records for the prior month. But the correlations between self-reported usual hours and average number of weekly hours worked for longer periods of time exceed .8, providing additional evidence that workers can provide fairly accurate accounts of their usual work hours.

**Fluctuations in number of work hours.** Few surveys include measures that allow researchers to assess variability in work hours. If respondents report that they cannot answer the 'usual hours' questions because their hours vary too much to do so, some surveys allow for a variable hours code. For example, per the Census Bureau, "hours vary" is a default category that is only offered to respondents who volunteer that their hours vary too much for them to report usual work hours. The National Study of the Changing Workforce (NCSW) includes page-long instructions to interviewers of how to compel reluctant respondents to estimate their usual hours. Respondents may provide usual work hours in response to the survey question, no matter how often or how much their actual

<sup>4</sup>Data from the payroll system were used to first calculate number of hours worked during a day and then added up into weekly work hours for each separate week of 2012. The time periods presented in the table average weekly hours for the noted period, i.e., the week prior to the date the respondent completed the survey, and the 4, 12, and 24 weeks prior to the survey. "All of 2012" averages work hours across all of the weeks the respondent worked during the whole year. Some of these weeks occurred after the survey, which was fielded in May and June of 2012.

work hours vary from week to week. For example, only 2 percent of retail employees in our Work Scheduling Study (WSS; many of whom experienced large fluctuations in weekly work hours) randomly assigned to the question “How many hours do you typically work each week?” volunteered that their hours vary, whereas 25 percent of employees randomly assigned to a question that continued with “...or do your hours vary too much to say?” said their hours vary too much to estimate usual hours.

In the WSS, we also asked respondents about the greatest and fewest number of hours they worked a week as another indicator of work hour fluctuations:

Specifically, we asked:

*a. In the last month (past three months), what is the greatest number of hours you’ve worked in a week at this job? Please consider all hours, including any extra hours, overtime, work you did at home, and so forth.*

*b. In the last month (past three months), what is the fewest number of hours you’ve worked in a week at this job? Please do not include weeks in which you missed work because of illness or vacation.*

Drawing on these questions, we are able to compare sales associates’ reports of their greatest and fewest weekly work hours to the number of hours recorded by the firm’s payroll system. We embedded an experiment within the employee survey that randomly assigned respondents to a question about the greatest and fewest weekly work hours in either the last month or the past three months, enabling us to estimate the trade-off between accuracy of employees’ reports of work hours that might be gained by a shorter time-frame and the magnitude of the difference between greatest and fewest work hours that might be gained by a longer time-frame. Table 3 provides descriptive statistics for respondents’ self-reports of greatest and fewest weekly work hours. To gauge magnitude of fluctuations, the key statistic to examine is the mean (and median) of “greatest minus fewest” hours worked during the two time periods. As shown, hours varied on average by 10.29 hours over the course of a month and by 12.6 hours over the course of a three-month period. Thus, as expected, the magnitude of work-hour fluctuations is higher among the sample asked about work hours over the past three months than among the sample asked about work hours during the past month, although there is substantial variation even for the one-month timeframe.

**Table 3: Self-reported greatest and fewest weekly work hours**

	1 month			3 months		
	Mean	Median	S.D.	Mean	Median	S.D.
<b>Greatest</b>	30.02	30.00	10.56	30.08	29.00	12.15
<b>Fewest</b>	19.73	16.00	11.99	17.47	15.00	12.39
<b>Greatest minus fewest</b>	<b>10.29</b>	9.00	6.2	<b>12.60</b>	12.00	6.89

Table 4 presents correlations between payroll records and employees’ self-reports of greatest and fewest hours for the two different retrospective periods. Like usual work hours, the correlations between respondents’ reports of work hours and work hours from the payroll system are strong. Again, the correlations are not as strong among the part-time sample, but even here the correlations are above .7, suggesting that it is feasible to ask about work hour fluctuations as part of survey protocols. Note that the correlations between self-reported and payroll hours are even stronger among those respondents who randomly received the items asking about greatest and fewest work hours over the past three months.

**Table 4: Correlations between workers’ self-report of and payroll records on the greatest (and fewest) weekly work hours during the relevant time period before the survey\***

	1 month (4 weeks prior*)	3 months (12 weeks prior*)
<b>Greatest hours</b>		
<b>Total sample</b>	.870	.903
<b>Part-time</b>	.778	.815
<b>Fewest hours</b>		
<b>Total sample</b>	.894	.920
<b>Part-time</b>	.746	.789

\*Correlations are significant at  $p < .01$ . \*\*Prior to the date the survey was conducted.

These findings suggest that researchers might not lose much accuracy if they go to a slightly longer time period than one month, should that timeframe fit better with other items included in the survey (e.g., “Thinking of the past three months, how often have you had problems sleeping?”).

**NLSY data on greatest and fewest weekly work hours.** The survey questions included in the WSS on greatest and fewest number of hours worked a week in the last month were also included in Round 15 of the NLSY97. Analyses of the NLSY97 data provide further support that the proportion of workers who experience fluctuating work hours is likely to be considerably higher than what is captured in most national surveys that only identify variable hours when survey respondents volunteer them in response to the usual hours question. Moreover, like the WSS data, analyses of the NLSY items suggest that the one-month time period is likely to provide high rates of fluctuating work hours of ample magnitude for analysis purposes. Specifically, an analysis of these items as included in the NLSY97 Round 15 reveals that the prevalence and magnitude of work-hour fluctuations are substantial among early-career workers across the labor market (see Tables 1, 2, and 3 in Appendix B). For example, approximately 74 percent of young-adult employees in both hourly and non-hourly jobs gave different answers to the questions pertaining to the greatest and fewest hours worked a week during the prior month, and the mean range is 10 hours among hourly workers and nearly 12 hours among non-hourly workers. Fully 85 percent of elite professionals gave different answers for greatest and fewest hours worked during a week in the prior month. As gauged by what we have termed an “instability ratio”  $[(\text{greatest} - \text{fewest}) \div \text{usual}]$ , the difference between the responses to the two questions amounts to 45 percent of what respondents reported as their usual work hours. Among workers in service occupations, 77 percent reported work-hour fluctuations, with the difference amounting to 53 percent of their usual work hours. Regardless of the respondents’ gender, race, and occupation, the range between the greatest and fewest weekly hours averaged to at least one conventional 8-hour workday.<sup>5</sup>

**Recommendation.** In order to study work hours as a dynamic rather than a static condition of work, we recommend that surveys that include a usual-hours question accompany it with questions that estimate fluctuations in the number of hours worked. The prevalence and magnitude of work-hour fluctuations found in both our small retail sample (the WSS) and the NLSY national survey of early-career workers provide evidence that a one-month timeframe is long enough to observe wide fluctuations in work

<sup>5</sup>The combination of usual, greatest, and fewest hours also enables researchers to identify which workers seem to be at risk of “flexing up” toward overwork and which experience hour reductions that increase risk of underemployment.

hours experienced by workers across the labor market. However, both samples are limited: the respondents for the NLSY97 were between 26 and 32 years old at the time of Round 15 and the sample in the WSS is comprised entirely of women sales associates working in a single firm. Thus, we propose further testing of these two time periods, and perhaps a one-year timeframe,<sup>6</sup> in a sample representative of the broader labor market and among a sample that includes workers older than 32.

*In the [last month, past three months, past year], what is the greatest number of hours you worked in a week, at all paid jobs? Please consider all hours, including any extra hours, overtime, work you did at home for your job, and time you spent on work that may not have been directly billable or compensated.*

*In the [last month, past three months, past year], what is the fewest number of hours you worked in a week, at all paid jobs? Please do not include weeks in which you missed some or all hours because of illness, vacation, or other personal obligations.*

## 2. Nonstandard work timing

Harriett Presser defines nonstandard timing as “working in the evening, at night, on a rotating shift, or during the weekend” at least half of the time (Presser, 2003, p.1). Based on 1997 CPS data, she (2003, p.1) estimates that “two-fifths of all employed Americans work mostly at nonstandard times.” Many researchers use a similar definition to Presser’s, although survey questions vary considerably across studies, as do the choices researchers make in how they construct indicators of nonstandard work from the survey items. According to a review of studies of nonstandard work schedules and their implications for child development, Li and colleagues (2013, p.15) conclude that “studies based on US national datasets typically define nonstandard schedules as hours worked outside 6am–6pm on the main job, with evening shifts sometimes defined as 2pm–9pm and night shifts as 9pm–8am” (e.g., Han, 2008; Han & Miller, 2009; Han, Miller, & Waldfogel, 2010).<sup>7</sup> Weekend work during daytime hours is inconsistently included in definitions of nonstandard work across studies.

Items on nonstandard work timing are available in most of the national data sets we have reviewed. These questions tend to be asked in one of two general ways. With the first approach, respondents are asked to identify the time they spent in paid work hours (and, depending on the survey, hours in nonwork activities as well) *for a particular target period*, such as the prior week or the preceding day. The researcher then constructs the nonstandard work variable based on this calendar of work hours. With the second approach, respondents are asked to classify themselves as a regular daytime worker or in some other category, for example as someone who regularly works the evening shift, night shift, rotating shift (one that changes regularly from days to evenings or nights), split shift (one consisting of two distinct periods each day), or an irregular schedule (one that changes from day to day).

**Researcher-determined classification based on hour calendar.** An example of the first approach can be found in the first wave of the NSFH, where respondents are asked to provide their complete work schedule “last week” on all jobs. The wording in this wave allows researchers to develop an especially comprehensive measure of schedule timing, at least for the most recent week worked. Presser’s extensive work on nonstandard work timing and its implications for marital quality, parent-child interactions, and child care has relied primarily on measures that she calculated based on these items in the NSFH. For example, in Presser’s 2003 book on nonstandard work

<sup>6</sup>The Canadian Workplace and Employee Survey from the early 2000s includes an item asking workers in nonstandard employment arrangements the greatest and fewest number of hours they have worked a week in the past year (McCrate, Lambert, & Henly, 2013).

<sup>7</sup>Han also reviews studies that use Canadian data sets (e.g., the Canadian National Longitudinal Study of Children and Youth [NLSCY]) and Australian data sets (e.g., the Household, Income, and Labour Dynamics in Australia Survey [HILDA]), where nonstandard work is defined somewhat differently.

timing, she calculates how working at different times (in the evening, on weekends, or overnights) is related to various family-related outcomes. She also calculates an indicator of whether the majority of hours worked in the last week are outside of regular daytime, weekday hours and examines the relationship between that measure and the outcomes of interest. In some analyses, she also calculates whether any hours extend beyond usual daytime, weekday hours and the specific percentage of hours that are worked outside of a standard-hour timeframe.

The American Time Use Survey (ATUS) offers a similar approach to the NSFH, but instead of enumerating hours of paid work across a sample week, the focus is on a 24-hour period. Specifically, respondents are asked to recall in detail their activities from 4 a.m. the prior day through 4 a.m. the day of the telephone survey, providing researchers with a set of variables detailing more than 300 activities in terms of whether and when each occurred. Researchers interested in the timing of work hours can then identify the specific time in the 24-hour day that was spent in paid employment based on these enumerated activities, and may compare it to time spent on other activities such as transportation to and from work, caregiving, recreation, and so forth. Researchers using ATUS to identify nonstandard work hours typically follow a classification approach similar to Presser's definition; that is, they require that the majority of paid work hours occur outside of daytime (usually defined as 8 a.m. to 4 p.m.) hours (see Wight et al., 2008; Connelly & Kimmel, 2011), although the data themselves do not limit the researcher to this "majority hours" definition.

As is described above, the approach taken in the NSFH and ATUS to measuring work timing provides the researcher a great deal of latitude in measuring nonstandard timing; however, because it is limited to a single sample period (a week or a day), this approach does not capture variations in timing from week to week (or over the week, in the case of ATUS). In addition, asking about a particular day poses a challenge because, depending on the day that the telephone interview takes place, information may only be collected for a weekday or a weekend day's activities. Although weekend days are oversampled to compensate for their lower occurrence during the week, each respondent is only asked about one day, making it impossible to determine participation in weekend work hours for a respondent whose recall task concerns a weekday, or vice versa.

**Recommendation.** We find several advantages to collecting information on the timing of paid work hours using a calendar or diary format because of the flexibility such an approach provides for constructing diverse measures of nonstandard timing. Therefore, we would recommend surveys adopt approaches similar to ATUS and NSFH, but also include items about variations in work timing, some of which we propose after our discussion of the self-reported classification approach below.

**Self-reported classification approach based on typical shift or starting/ending times.** Several data sets such as the General Social Survey (GSS) Quality of Work Life (QWL) module, the NLSY 1979, 1997, and the CPS Work Schedules and Work at Home Supplement employ the second approach to classifying work timing. The wording of shift options provided to respondents varies slightly across data sets and sometimes across waves within the same survey. Although most surveys do ask about irregular and rotating shifts as well as regular, evening, and night work, they do not ask specifically about variable hours or weekend work. We suspect that respondents who work variable hours are likely to report either "irregular shifts" or "rotating shifts," although this cannot be determined from the data nor is there a way to determine if respondents typically work during weekend hours. Importantly, the national surveys that follow this approach to measuring work timing always present the response alternatives as mutually exclusive categories. Thus, unless a respondent self-identifies his/her schedule as "other" (an option in some surveys), she is required to choose the one option that best fits her usual work schedule.

When a nonstandard timing question is asked as part of a panel study, such as the NLSY, it is possible to examine nonstandard work timing over time (e.g., Miller & Han, 2008; Presser & Ward, 2011). For example, Miller and Han constructed a cumulative nonstandard work timing variable that indicates the number of years an individual (a mother in this case, per their study question) worked a nonstandard shift (anything other than a day shift) in the first 14 years of her children's lives.

Another approach similar to asking about typical shifts is to ask about usual starting and ending times of work. The NLSY 1979, 1997, the CPS 2001 Work Schedules and Work at Home Supplement, NSFH, and the SIPP 2004 Work Schedule Module all include measures of work timing that get at the “usual” time that work starts and ends (or when it starts “most days,” CPS). Respondents can volunteer that their starting and ending times vary, but the question does not explicitly ask about variability in timing, resulting in estimates that most likely underestimate true variability in timing.

**Recommendation.** Many jobs today do not fall neatly into categories of regular day shift versus afternoon shift versus on-call/irregular and so forth. As with number of hours worked, we think it would be useful to capture not only usual start and end times but also fluctuations in start and end times. The specific wording of these questions and the timeframe in which they are asked require further testing in national samples, as they have not been asked as far as we know. We propose the following items to address starting and ending times:

*Over the past (month, 3 months, year), what time do you usually start this job?*

*Over the past (month, 3 months, year), what is the earliest time you’ve started work on this job, either on a weekday or weekend?*

*Over the past (month, 3 months, year), what time do you usually stop working on this job?*

*Over the past (month, 3 months, year), what is the latest time you’ve stopped working on this job?*

In addition, we propose that instead of forcing respondents to characterize their usual shift by selecting one shift type from a list (daytime, evening, overnight, rotating, etc.), respondents could be asked whether they work each kind of shift, either as a dichotomous yes/no response or as a 4- or 5-point frequency scale. By asking about each kind of shift, researchers can observe the different combinations of shifts a respondent works and can construct cumulative measures that indicate the number of different types of shifts the respondent works.

Finally, we think there is merit in researchers experimenting with different time periods to characterize daytime, evening, and overnight hours. Work that is between 6 a.m. and 8 a.m., for example, is counted as part of daytime work in most surveys but may pose serious challenges to caregiving for respondents who must find child care for children before school hours or before a child care provider is open for the day. Thus, it might be fruitful to differentiate early morning hours from daytime hours beginning at 8 a.m. or later. We further think it is important to include weekend work in addition to early morning, daytime, evening, and overnight shifts when asking about timing. A possible set of items to test might be:

*Please answer yes or no to each of the following. Do you usually work: [Or, Please say whether you usually, sometimes, rarely, or never work...]*

*Some daytime hours between 8 a.m. and 6 p.m.*

*Some evening hours after 6 p.m.*

*Some overnight hours between midnight and 8 a.m.*

*Some early morning hours before 8 a.m.*

*Some rotating shifts*

*Some weekend hours*

### 3. Predictability

Predictability is concerned with the extent to which work hours and timing can be anticipated by employees. It may be defined in terms of the length of advance notice given to workers regarding their work schedules, how often schedules change at the last minute, and workers' perceptions of how easy it is to anticipate their hours of work.

**Advance notice.** Round 15 of the NLSY97 provides the first US estimates of advance notice in a nationally representative sample of 26 to 32 years olds. The following item was included in the survey:

*How far in advance do you usually know what days and hours you will need to work?*

- *One week or less*
- *Between 1 and 2 weeks*
- *Between 3 and 4 weeks*
- *4 weeks or more*

As shown in Table 5, the distribution on the categories used in the question show substantial bifurcation of the workforce. For example, 41 percent of hourly employees reported that they know when they will need to work one week or less in advance and another 39 percent reported that they know their work schedule 4 or more weeks in advance. In general, only a small proportion of workers chose the categories between these two extremes.

**Table 5: Advance notice (percent of hourly, non-hourly, and combined total)\***

	1 week or less (%)			Between 1 and 2 (%)			Between 3 and 4 (%)			4 or more (%)		
	Hrly	Non	Tot	Hrly	Non	Tot	Hrly	Non	Tot	Hrly	Non	Tot
<b>All employees</b>	41	33	38	13	9	12	6	4	5	39	54	45
<b>Full-time (35+)</b>	39	29	35	12	8	11	5	4	5	44	58	50
<b>Part-time</b>	47	52	48	17	15	16	10	4	8	27	29	28
<b>Men</b>	48	41	45	12	11	12	4	4	4	35	45	39
<b>Women</b>	34	25	31	14	8	12	8	5	7	43	63	51
<b>White</b>	39	30	35	12	8	11	7	4	6	42	57	48
<b>Black</b>	49	33	44	15	13	15	5	5	5	31	50	36
<b>Hispanic</b>	46	43	45	15	8	13	4	4	4	35	45	38

\*Estimated proportion of employed cohort population overall and by pay type.

**Recommendation.** We think it would be useful to develop response categories that unpack the responses at both ends of the distribution, given the relatively large percentage of respondents who selected those two categories. We recommend the following categories:

*How far in advance do you usually know what days and hours you will need to work?*

- *1 day or less in advance*
- *2 to 3 days in advance*
- *4 days to 7 days in advance*
- *Between 1 and 2 weeks*
- *Between 3 and 4 weeks*
- *4 weeks or more*
- *My schedule never changes<sup>8</sup>*

<sup>8</sup>The BLS has included this response option of “my schedule never changes” in Round 16 of the NLSY based on the fielding of the item in Round 15.

**Last-minute changes and anticipation of work hours.** The NSFH included two indicators of last minute adjustments to schedules to assess unexpected increases in hours:

*Do you ever have to go to work unexpectedly (on your main job) at times when you are not scheduled to work?*

*[If answered yes] How many times has this happened in the last 30 days?*

*Do you sometimes unexpectedly have to work (on your main job) more than an hour later than you are scheduled to work?*

*[If answered yes] How many times has this happened in the last 30 days?*

These items are some of the only measures of schedule unpredictability available in a national US sample. A disadvantage of these measures, however, is that they only address unpredictability when it involves increases in work hours. Our research suggests that for many low-level workers, unpredictability also involves unexpected reductions in work hours (e.g., getting sent home early from a shift) which can have negative effects on overall earnings. Thus, we would recommend adding a question on last-minute reductions of hours. Here are some possibilities:

*Are you ever sent home early from a scheduled shift?*

*Are you ever told not to come into work even though you were originally scheduled to work?*

*Are your work hours ever cut unexpectedly, such as by being sent home early or told not to come in to work?*

*[If answered yes to the above] How many times has this happened in the last 30 days?*

Alternatively, a Likert-type frequency scale could be used in place of the two-part *yes-no/how many times* approach by rewording these questions to read “*How often are you...*” and using an “*often, sometimes, rarely, never*” or similar ordinal response scale.

In addition to the above possibilities, we included in the WSS an item that asks respondents how often last-minute adjustments are made to their schedule and also a question that captures the extent to which respondents perceive their schedules to be predictable, both with a 4-point ordinal scale of agreement (strongly agree, agree, disagree, strongly disagree):

*Last minute adjustments are often made to your schedule.*

*You can easily anticipate what days and times you'll be working week-to-week.*

**Recommendation.** The items on perceived predictability have worked well in studies of retail workers,<sup>9</sup> but we do not know whether they would be useful for capturing predictability among a broader cross section of workers. We think it would be useful to test such items in other samples.

<sup>9</sup>In addition to our Work Scheduling Study, the Retail Action Project has used these in their face-to-face surveys of retail workers in Manhattan (Luce & Fujita 2012; Luce, Hammad, & Sipe, 2014).

#### 4. Schedule control

Schedule flexibility as it is defined in much of the work-family literature is concerned with the degree to which employees work the schedules they do out of their own volition and whether they control certain aspects of their schedules. Researchers' interest in schedule control seems to be fueled by concerns over involuntary overtime mostly in production jobs held by men and by concerns about adequate flexibility for women in managerial and professional positions characterized by long hours and rigid start and end times. In most cases, survey items address control over the timing of work hours rather than the number of hours worked. In this section, we summarize different approaches to measuring schedule control and highlight items that we think hold the most promise for national surveys.<sup>10</sup>

**Employer- vs. employee-driven schedule timing and number of hours.** A useful conceptual distinction is whether schedule control is employer- or employee-driven. Whereas employee control over work hours may be a marker of desired job flexibility for workers, employer-driven control can signal unwanted instability (e.g., Kelly, Moen, & Tranby, 2011; Lambert et al., 2012; Lyness, Gornick, Stone, & Grotto, 2012; Henly, Shaefer, & Waxman, 2006). Some survey questions take an explicit approach to this distinction by asking respondents to gauge the extent to which they or their employer decides their work schedule. For example, the following items are included in the *International Social Survey Programme* (ISSP) complement to the GSS and in earlier rounds of the NLSY97:

*Which of the following statements best describes how your working hours are decided? By working hours we mean the time you start and finish work, and not the total hours you work per week or month.*

- *Starting and finishing times are decided by my employer and I cannot change them on my own.*
- *I can decide the time I start and finish work, within certain limits.*
- *I am entirely free to decide when I start and finish work.*

The NLSY97 Round 15 has expanded the response categories:

*Which of the following statements best describes how your working hours are decided? By working hours we mean the time you start and finish work, and not the total hours you work per week or month.*

- *Starting and finishing times are decided by my employer and I cannot change them on my own.*
- *Starting and finishing times are decided by my employer but with my input.*
- *I can decide the time I start and finish work, within certain limits.*
- *I am entirely free to decide when I start and finish work.*
- *When I start and finish work depends on things outside of my control and outside of my employer's control.*

The different response categories across the two items above are noteworthy. The Bureau of Labor Statistics (BLS) design team added the response category of “starting and finishing times are decided by my employer but with my input” because our prior research had suggested that although few workers, especially in low-level hourly jobs, may decide the timing of their work even “within limits,” some have employers who nevertheless take their input into consideration. Thus, we reasoned that there may be more variation in control than is captured by conventional survey questions and that adding this category could help

<sup>10</sup>Not covered in this paper are items on control over overtime hours per se because this is addressed in the EINet working paper “Measuring Long, Overtime and Un-Preferred Hours of Work” by Lonnie Golden. Also not covered are survey items asking respondents why they work the hours they do or their preferences for more or fewer hours, which have been used by some researchers as markers of schedule flexibility (e.g., Boushey, 2008). Please see the EINet working paper “Work Hour Fluctuations and Work Hour Mismatches” by Jeremy Reynolds for a discussion of approaches to measuring work-hour preferences.

to unpack variation in the voluntary/involuntary nature of workers' schedules. The BLS added the fifth response category, "When I start and finish work depends on things outside of my control and outside of my employer's control," based on the comments of respondents during cognitive testing. This development is interesting conceptually because it suggests that in some jobs, it may be incorrect to assume that if work hours are not under the control of the employee, they are under the control of the employer.

Our initial analyses of the NLSY97 suggest that the new response category allowing respondents to indicate that they have some input into their starting and finishing times resonates with a good share of workers today, at least early-career adults between 26 and 32 years old. About a third of hourly workers (32 percent) and a quarter of non-hourly workers reported that although their employer decides the timing of their work, they have some input. This response category seems especially important in capturing the semi-voluntary nature of work schedules among workers in service and production occupations. As shown in Table 6, although 44 percent of workers in service occupations say that their employer decides their start and finishing times and they cannot change them on their own, 36 percent say that they at least have some input into the timing of their hours.

**Table 6. Schedule control by occupation (percent of hourly and non-hourly combined)**

	Employer decides (%)	Employer decides with some input (%)	Employee decides within limits (%)	Employee decides freely (%)
<b>Elite professionals</b>	18	21	38	16
<b>Business staff</b>	23	27	38	9
<b>Technical and research staff</b>	25	25	42	7
<b>Arts and media occupations</b>	28	22	33	9
<b>Office clerks</b>	42	30	23	4
<b>Social functionaries</b>	59	24	11	3
<b>Service supervisors</b>	27	40	24	6
<b>Service workers</b>	44	36	12	4
<b>Production supervisors</b>	37	33	25	0
<b>Skilled trades</b>	55	27	11	1
<b>Production workers</b>	65	20	9	2

Still, the proportion of workers who say they have no input into the timing of their work is quite high: 50 percent of hourly workers and 35 percent of non-hourly workers chose the statement that their employer decides when they start and finish work and that they cannot change these times on their own. It may be useful to think about ways to further assess variation in this category. As found in other surveys, only a small proportion of workers in any occupation report that they freely decide the timing of their work. Also, less than 5 percent of respondents chose the response "When I start and finish work depends on things outside of my control and outside of my employer's control." (Table 4 in Appendix B presents the distribution of responses to this item by personal characteristics and by hourly/non-hourly status.)

A strength of the response categories on schedule control included in the NLSY97 is that they differentiate who decides work hours, which allows researchers to differentiate employer-driven from employee-driven timing. A limit is that it is a single item that only addresses the voluntary or involuntary nature of starting and ending times and not whether the number of hours worked, or the degree of hour fluctuations, is decided by the employee or employer. Including items to assess the volition of both timing and number of

work hours would allow researchers to understand the relationship between the two. Our prior research shows that in some jobs, workers face a trade-off between having input into the timing of their work and working the number of hours they would like. For example, retail sales associates who put constraints on the timing of their hours were scheduled for fewer hours than their more available coworkers, regardless of their preferences for additional hours of work (Lambert, Haley-Lock, & Henly, 2012).

**Recommendation.** Our recommendation is to include items that capture employee and employer involvement in decisions related to both the timing of hours and the number of hours. Below is suggested wording for a question about who decides the number of hours a respondent works. It incorporates a further refinement to the first response category to ease interpretation, i.e., "...and I cannot change the number I work on my own" is replaced with "...with little or no input from me."

*Which of the following statements best describes how your working hours are decided? In this question, working hours refers to the total number of hours you work each week, not the time you start and finish work each day.*

- *The total number of hours I work each week is decided by my employer with little or no input from me.*
- *The total number of hours I work each work is decided by my employer but with my input.*
- *I can decide how many hours I work each week, within certain limits.*
- *I am entirely free to decide how many hours I work each week.*
- *How many hours I work a week depends on things outside of my control and outside of my employer's control.*

**Schedule input.** Rather than directly asking who decides work hours, a more implicit approach is to ask respondents to judge how much input they have into their schedule. For example, the National Study of the Changing Workforce (NSCW) asks respondents one general question about the amount of control they have over scheduling their work hours on a 5-point ordinal scale from none to complete control; this item does not appear in other national surveys to our knowledge. In our survey of retail workers (WSS), we expanded a common survey question about input into timing of hours to differentiate four different aspects of work schedule input, including number of hours worked. The items have been estimated to be reliably related to one another in a composite index ( $\alpha = 0.82$ ).

*Next, I have some questions about how much input you have into your work schedule at [name of employer/your main job]. For each item, please tell me whether you feel you have a lot of input, some input, a little input, or no input at all. How much input do you feel you have into:*

- *The days you have off each week*
- *The days you work each week*
- *When you begin and end each workday*
- *The total number of hours you work each week*

**Flexibility in work timing.** Another approach to capturing schedule control is to ask workers about their ability to adjust the times they usually work. For example, in the CPS May supplement, respondents are first asked when they usually begin and end their work days (see nonstandard timing section of this paper) and then are asked whether these times are flexible. The actual item is a dichotomous yes/no question that asks: "Do you have flexible work hours that allow you to vary or make changes in the time you begin and end work?" Similarly, the GSS asks, "How often are you allowed to change your starting and quitting times on a daily basis?" using a Likert-type 4-point scale (*often, sometimes, rarely, never*). These items do not differentiate flexibility that is due to formal policies versus informal employer practices, although the CPS also includes a question about formal workplace policies designed to provide flexibility.

**Recommendation.** The usefulness of an approach that follows questions about usual timing with questions about the ability to change it is enhanced when there is variation on the response scales (e.g., a Likert-type response scales rather than yes/no). Here is a possibility for new response categories for the CPS item:

*Would you say it is not at all hard, not too hard, somewhat hard, or very hard to adjust the time you begin and end work?*

**Within-workday flexibility.** In addition to control over the total number of hours worked and the time work starts and end, some surveys (GSS, ISSP) also include a measure of the ability of workers to take time off during the workday. Recent research we have conducted with Lonnie Golden (Golden, Henly, & Lambert, 2013) suggests that this type of flexibility is especially important to the subjective well-being of workers paid by the hour. Thus, we think there may be value in more surveys adopting the GSS item that addresses difficulty taking time off during the day and also in considering whether there are other aspects of within-workday schedule control that researchers are missing.

*How difficult is it to take time off during your work to take care of personal or family matters?  
[Not at all hard; Not too hard; Somewhat hard; Very hard]*

## 5. Additional measures: Pay-status

Measures that accurately capture the pay status of the worker are critical to understanding the implications and nature of work schedules, especially the number of hours worked. The earnings of workers paid by the hour are a direct result of the number of hours worked, which is not the case for workers paid with a salary. Moreover, employers tend to manage labor costs in hourly and salaried jobs differently (Lambert et al. 2012). In our initial analyses of the NLSY97, hourly workers appear at a higher risk than non-hourly workers of fluctuating work hours, lack of control over the timing of work hours, and limited advance notice. Similarly, analyses we have conducted using data from the QWL module in the GSS show different patterns of relationships between measures of schedule flexibility and worker well-being for hourly and salaried workers (Golden et al. 2013).

The items researchers rely on to categorize whether workers are paid by the hour, by the salary, or in other ways varies in the national surveys. For example, in the NLSY97 (and in the GSS core), researchers are left to infer pay status from the time unit respondents use to report their job earnings: “For your job with [employer name], what is the easiest way for you to report your total earnings before taxes or other deductions: hourly, weekly, annually, or on some other basis?” Although the NLSY97 includes an internal check in which all non-hourly employees are asked whether they are paid by the hour, most surveys taking this approach do not ask for any further clarification. Researchers interested in differentiating members of the hourly and salaried workforce have to make inferences beyond the data at hand. Other surveys (the QWL module, CPS, PSID) ask respondents directly how they are paid.

**Recommendation.** Establishing pay-status is critical to understanding the ramifications of work schedules for worker well-being and family economic security. A basic item that serves this purpose well is:

*[In this job/in your main job,] are you salaried, paid by the hour, or paid some other way (please specify)?  
[If you have more than one job, think of the job in which you spend the most hours working each week.]*

Given the changing nature of work, it may be prudent to develop items that allow for a fuller range of possibilities. Here is an item that was used in the 1998 GSS Job Experience Supplement that might be modified for use today:

*As of last week, did your main job pay an hourly wage, daily wage, weekly wage, monthly salary, annual salary, or other pay rate (e.g. piece rate, commission, wage + tips, and other mixed payment methods), irrespective of the time between payrolls and the use of bonuses or profit-sharing?*

## **Conclusion**

Understanding the structure and nature of working time and its ramifications for workers, families, and society continues to be of keen intellectual and practical interest to scholars and policy makers. In order to produce useful knowledge on the nature and ramifications of working time, measures need to fit the realities facing today's workers and incorporate recent conceptual and empirical advances. Mounting evidence suggests that employer scheduling practices are a growing source of precariousness in today's labor market, but much work remains to develop measures that provide an accurate picture of the prevalence and distribution of different dimensions of work schedules and that allow rigorous examination of their relationship to worker well-being and family economic security. In this working paper, we have suggested possibilities for measuring four aspects of work schedules for which there is growing evidence of their ramifications for worker and family well-being and economic security: usual and fluctuating hours, nonstandard working time, schedule predictability, and employee schedule control/input. These dimension may be best understood in the context of one another as well as other job qualities such as pay status. Therefore, future surveys might benefit from including a rich set of indicators that allow researchers to explore the relationship between each scheduling dimension for both salaried and hourly workers across a variety of jobs.

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## APPENDIX A

### POSSIBLE MEASURES OF PRECARIOUS WORK SCHEDULES

#### 1. WORK HOURS

##### *A. Usual work hours*

How many hours a week do you usually work for pay [in this job/at all jobs/in your main job]?

##### *B. Work-hour fluctuations (greatest and fewest hours worked)*

- In the [last month, past three months, past year], what is the greatest number of hours you worked in a week, at all paid jobs? Please consider all hours, including any extra hours, overtime, work you did at home for your job, and time you spent on work that may not have been directly billable or compensated.
- In the [last month, past three months, past year], what is the fewest number of hours you worked in a week, at all paid jobs? Please do not include weeks in which you missed some or all hours because of illness, vacation, or other personal obligations.
- What is the greatest number of hours you've worked in a week, at all jobs? Please consider all hours, including any extra hours, overtime, work you did at home, and so forth.

## 2. NONSTANDARD TIMING

### *A. See section on calendar approaches (pp. 13–16)*

### *B. Start and end time: Usual and fluctuating*

- Over the past (month, 3 months, year), what time do you usually start this job?
- Over the past (month, 3 months, year), what is the earliest time you've started work on this job, either on a weekday or weekend?
- Over the past (month, 3 months, year), what time do you usually stop working on this job?
- Over the past (month, 3 months, year), what is the latest time you've stopped working on this job?

### *C. Types of work shifts*

Please answer yes or no to each of the following. Do you usually work:  
[Or, please say whether you usually, sometimes, rarely, or never work...]

- Some daytime hours between 8 a.m. and 6 p.m.
- Some evening hours after 6 p.m.
- Some overnight hours between midnight and 8 a.m.
- Some early morning hours before 8 a.m.
- Some rotating shifts
- Some weekend hours

## PREDICTABILITY

### *A. Advance notice*

How far in advance do you usually know what days and hours you will need to work?

- One day or less in advance
- 2 to 3 days in advance
- 4 to 7 days in advance
- Between 1 and 2 weeks in advance
- Between 3 and 4 weeks in advance
- More than 4 weeks in advance
- My schedule never changes

### *B. Last-minute changes*

- Do you ever have to go to work unexpectedly (on your main job) at times when you are not scheduled to work?  
[If answered yes] How many times has this happened in the last 30 days?
- Do you sometimes unexpectedly have to work (on your main job) more than an hour later than you are scheduled to work?  
[If answered yes] How many times has this happened in the last 30 days?
- Are you ever sent home early from a scheduled shift?  
[If answered yes] How many times has this happened in the last 30 days?

- Are you ever told not to come into work even though you were originally scheduled to work?  
[If answered yes] How many times has this happened in the last 30 days?
- Are your work hours ever cut unexpectedly, such as by being sent home early or told not to come in to work?  
[If answered yes] How many times has this happened in the last 30 days?
- Last minute adjustments are often made to my schedule  
(strongly agree, agree, disagree, strongly disagree)

***C. Perceived predictability: Anticipation of work hours***

You can easily anticipate what days and times you'll be working week-to-week.  
(strongly agree, agree, disagree, strongly disagree)

**4. SCHEDULE CONTROL**

***A. Employer v. employee control: Who decides?***

Which of the following statements best describes how your working hours are decided? By working hours we mean **the time you start and finish work**, and not the total hours you work per week or month.

- Starting and finishing times are decided by my employer and I cannot change them on my own.
- Starting and finishing times are decided by my employer but with my input.
- I can decide the the time I start and finish work, within certain limits.
- I am entirely free to decide when I start and finish work.
- When I start and finish work depends on things outside of my control and outside of my employer's control.

Which of the following statements best describes how your working hours are decided? In this question, working hours refers to the **total number of hours you work each week**, not the time you start and finish work each day.

- The total number of hours I work each week is decided by my employer and I cannot change the number I work on my own.
- I can decide how many hours I work each week, within certain limits.
- I am entirely free to decide how many hours I work each week.
- How many hours I work a week depends on things outside of my control and outside of my employer's control.

Which of the following statements best describes how your working hours are decided? In this question, working hours refers to the **total number of hours you work** each week, not the time you start and finish work each day.

- The total number of hours I work each week is decided by my employer with little or no input from me.
- The total number of hours I work each week is decided by my employer but with my input.
- I can decide how many hours I work each week, within certain limits.
- I am entirely free to decide how many hours I work each week.
- How many hours I work a week depends on things outside of my control and outside of my employer's control.

### ***B. Schedule input***

Next, I have some questions about how much input you have into your work schedule at [name of employer/your main job]. For each item, please tell me whether you feel you have a lot of input, some input, a little input, or no input at all. How much input do you feel you have into:

- The days you have off each week
- The days you work each week
- When you begin and end each workday
- The total number of hours you work each week

### ***C. Control over starting and ending times***

Would you say it is not at all hard, not too hard, somewhat hard, or very hard to adjust the time you begin and end work?

### ***D. Within-workday flexibility***

How difficult is it to take time off during your work to take care of personal or family matters? [not at all hard; not too hard; somewhat hard; very hard]

- I start and finish work, within certain limits.
- I am entirely free to decide when I start and finish work.
- When I start and finish work depends on things outside of my control and outside of my employer's control.

## **5. PAY-STATUS**

[In this job/in your main job,] are you salaried, paid by the hour, or paid some other way (please specify)? [If you have more than one job, think of the job in which you spend the most hours working each week.]

As of last week, did your main job pay an hourly wage, daily wage, weekly wage, monthly salary, annual salary, or other pay rate (e.g. piece rate, commission, wage + tips, and other mixed payment methods), irrespective of the time between payrolls and the use of bonuses or profit-sharing?

**APPENDIX B**  
**SUPPORTING TABLES**

For additional tables from the NLSY97 see: [https://ssascholars.uchicago.edu/sites/default/files/work-scheduling-study/files/lambert.fugiel.henly\\_precarious\\_work\\_schedules.august2014\\_0.pdf](https://ssascholars.uchicago.edu/sites/default/files/work-scheduling-study/files/lambert.fugiel.henly_precarious_work_schedules.august2014_0.pdf)

**Appendix B. Table 1: Hour fluctuations (hourly only)**

	Work hour instability*			Weekly hours worked in prior month (means)			
	Any fluctuation	Instability ratio (overall)	Instability ratio (if hrs vary)	Fewest	Usual	Greatest	Hour range
<b>All employees</b>	74%	0.37	0.49	31	37	41	10
<b>Full-time (35+)</b>	70%	0.22	0.32	37	43	47	10
<b>Part-time</b>	83%	0.72	0.87	17	22	28	11
<b>Men</b>	78%	0.36	0.46	33	40	46	12
<b>Women</b>	70%	0.37	0.53	29	33	37	8
<b>White</b>	74%	0.38	0.51	31	36	41	10
<b>Black</b>	73%	0.33	0.45	31	38	42	11
<b>Hispanic</b>	73%	0.35	0.48	33	39	43	10

\*Any fluctuation = share of employees for whom greatest hours > fewest hours. Instability ratio = (greatest – fewest) ÷ usual, or 0 if greatest = fewest. “Overall” refers to the estimated mean among all employees in each group; “if hrs vary” refers to the mean conditional on any fluctuation.

**Appendix B. Table 2: Hour fluctuations (non-hourly only)**

	Work hour instability*			Weekly hours worked in prior month (means)			
	Any fluctuation	Instability ratio (overall)	Instability ratio (if hrs vary)	Fewest	Usual	Greatest	Hour range
<b>All employees</b>	74%	0.32	0.43	37	42	48	12
<b>Full-time (35+)</b>	73%	0.24	0.33	40	46	52	12
<b>Part-time</b>	79%	0.75	0.95	15	20	25	11
<b>Men</b>	76%	0.35	0.45	38	45	52	14
<b>Women</b>	71%	0.29	0.40	35	40	45	10
<b>White</b>	76%	0.32	0.42	37	43	49	12
<b>Black</b>	68%	0.34	0.51	34	40	45	11
<b>Hispanic</b>	60%	0.28	0.46	36	41	46	10

\*Any fluctuation = share of employees for whom greatest hours > fewest hours. Instability ratio = (greatest – fewest) ÷ usual, or 0 if greatest = fewest. “Overall” refers to the estimated mean among all employees in each group; “if hrs vary” refers to the mean conditional on any fluctuation.

**Appendix B. Table 3: Hour fluctuations by occupational groups (hourly and non-hourly combined)**

	Work hour instability*			Weekly hours worked in month (means)			
	Any fluctuation	Instability ratio (overall)	Instability ratio (if hrs vary)	Fewest	Usual	Greatest	Hour range
<b>Elite professionals</b>	85%	0.39	0.45	37	45	53	17
<b>Business staff</b>	74%	0.28	0.37	38	42	48	10
<b>Technical and research staff</b>	76%	0.27	0.36	38	42	48	10
<b>Arts and media occupations</b>	81%	0.52	0.65	26	31	36	11
<b>Office clerks</b>	58%	0.30	0.52	34	38	41	7
<b>Social functionaries</b>	68%	0.30	0.44	34	39	43	9
<b>Service supervisors</b>	79%	0.24	0.31	37	42	47	10
<b>Service workers</b>	77%	0.41	0.53	28	34	39	11
<b>Production supervisors</b>	65%	0.30	0.47	38	47	51	13
<b>Skilled trades</b>	78%	0.39	0.50	36	45	52	16
<b>Production workers</b>	79%	0.35	0.44	34	41	46	v

\*Any fluctuation = share of employees for whom greatest hours > fewest hours. Instability ratio = (greatest – fewest) ÷ usual, or 0 if greatest = fewest. “Overall” refers to the estimated mean among all employees in each group; “if hrs vary” refers to the mean conditional on any fluctuation.

**Appendix B. Table 4. Schedule control\* (percent of hourly, non-hourly, and combined total)**

	Employer decides (%)			Employer decides with some input (%)			Employee decides within limits (%)			Employee decides freely (%)		
	Hrly	Non	Tot	Hrly	Non	Tot	Hrly	Non	Tot	Hrly	Non	Tot
<b>All employees</b>	50	35	44	32	25	29	13	29	19	3	7	5
<b>Full-time (35+)</b>	55	36	47	29	24	27	13	29	20	1	6	3
<b>Part-time</b>	39	25	36	37	31	36	13	26	17	7	13	8
<b>Men</b>	54	33	46	29	24	27	12	29	19	2	9	5
<b>Women</b>	46	36	42	34	26	31	13	29	19	4	5	5
<b>White</b>	47	34	42	32	25	29	15	29	21	3	8	5
<b>Black</b>	55	42	51	30	26	29	9	21	13	3	6	4
<b>Hispanic</b>	58	42	53	29	26	28	8	24	13	2	6	3

\*The response category “When I start and finish work depends on things outside of my control and outside of my employer’s control” is not included in the table. Less than 5 percent of workers in these groups chose this response.