



# HHS Public Access

Author manuscript

*Soc Forces*. Author manuscript; available in PMC 2021 April 09.

Published in final edited form as:

*Soc Forces*. 2020 March ; 98(3): 973–999. doi:10.1093/sf/soz032.

## Worker Power and Class Polarization in Intra-Year Work Hour Volatility

Joe LaBriola, Daniel Schneider

University of California, Berkeley

### Abstract

Precarious work, which has become more prevalent in the United States in recent decades, is disproportionately experienced by workers of lower socioeconomic classes, and research suggests that the erosion of worker power has contributed to this class polarization in precarity. One dimension of precarious work of growing interest to scholars and policymakers is instability faced by workers in the amount and regularity of their work hours. However, we know little about the magnitude of month-to-month or week-to-week (intra-year) volatility in hours worked, the extent of class-based polarization in this measure of job quality, and whether worker power moderates this polarization. In this paper, we make novel use of the panel nature of the nationally-representative Current Population Survey (CPS) to estimate intra-year volatility in the actual hours respondents report working in the previous week across four consecutive survey months. Using this new measure, we then show that, net of demographic characteristics and controls for occupation and industry, low-wage workers experience disproportionately greater work hour volatility. Finally, we find evidence that reductions in marketplace bargaining power—as measured by higher state-level unemployment rates—increase wage- and education-based polarization in work hour volatility, while increases in associational power—as measured by union coverage—reduce wage-based polarization in work hour volatility.

---

Precarious work is commonly thought to have become more prevalent in the United States since the 1970s. This precarity is multi-dimensional, characterized by low pay, few fringe benefits, short job tenure, and non-standard contractual relations (Kalleberg 2011). Job quality is also shaped by the timing, amount, and regularity of work hours. While attention to work hours has long focused on over-work (i.e., Schor 1992), on non-standard work hours (i.e., Presser 2003), or on employee flexibility (i.e., Galinsky, Sakai, and Wigton 2011), scholars have recently turned to documenting the prevalence of work hour volatility, in which the number of hours that employees are scheduled to work by their employers is inconsistent (e.g., Finnigan and Hale 2018; Henly and Lambert 2014).

This intra-year volatility appears to be the product of employer-driven unpredictable work scheduling practices such as limited advance notice, on-call scheduling, and shift cancellation (Schneider and Harknett 2019) that are the focus of public attention (e.g.,

---

Direct correspondence to Joe LaBriola, UC Berkeley Department of Sociology, 410 Barrows Hall, Berkeley, CA, 94720; joelabriola@berkeley.edu.

Supplementary Material

Supplementary material is available at *Social Forces* online.

Kantor 2014) and that have sparked recent local ordinances that regulate unstable and unpredictable work hours in cities such as Seattle, San Francisco, and New York (Wolfe, Jones, and Cooper 2018). Further, within-year variation in work hours is of concern because exposure to intra-year work hour volatility appears to have significant negative effects on the health and wellbeing of workers and their families in several ways. First, workers with volatile schedules experience increased stress and fatigue, and may additionally find it more difficult to access medical care (e.g., Ben-Ishai, Hammad, and Warden 2014). Second, volatility in hours worked leads to increased conflict between one's work and non-work lives more generally. Unpredictable schedules make it difficult to arrange non-work obligations in order to accommodate work schedules (e.g., Alexander and Haley-Lock 2015). This can lead to more work-family conflict (e.g., Henly and Lambert 2014) and increased difficulties in accessing childcare (e.g., Carrillo et al. 2017), transportation, and further education (e.g., Ben-Ishai, Hammad, and Warden 2014). Third, volatility in hours worked harms workers economically. Work-hour variability is an important cause of income volatility (e.g., Morduch and Schneider 2014), which can leave workers vulnerable to negative income shocks when work hours are low and prevent workers from budgeting for the future. These direct economic effects may be compounded by the effect that volatility in hours worked can have on eligibility for public benefits programs like TANF, SNAP, and CCDF, for which participation is contingent on working a certain number of hours in a week (e.g., Lambert, Haley-Lock, and Henly 2012).

However, our knowledge of the causes and contours of intra-year volatility in hours worked—that is, variation in work hours on a week-to-week or month-to-month basis—is incomplete. For one, while the broader literature on precarious work leads us to expect that work hour volatility is more likely to be experienced by workers with lower earnings and lower levels of educational attainment, we know little about whether the experience of intra-year work hour volatility is polarized by socio-economic class. Additionally, research in economic sociology on the structural causes of the spread of precarious work (see Kalleberg and Vallas (2018) for a review) suggests that forces that reduce worker power would lead not just to increased work hour volatility but also to increased polarization in work hour volatility by socio-economic class. While recent research has found that worker power, as measured by favorable state-level economic conditions (Finnigan 2018) and union membership (Finnigan and Hale 2018), is related to a lower likelihood of self-reporting varying working hours, we know less about whether worker power moderates the degree of class-based polarization in work hour volatility.

In this paper, we fill this gap by using a novel and improved measure of intra-year work hour volatility that relies on the Current Population Survey (CPS). The CPS has a rotating panel design in which households that newly enter the survey are interviewed for four consecutive months, ignored for eight months, and then interviewed for four consecutive months again. While most prior research using nationally representative surveys has relied on questions in the CPS and the Survey of Income and Program Participation (SIPP) about usual work hours, we instead link respondent interviews and examine respondent self-reports of actual hours worked in the week preceding each monthly interview to generate a measure of actual volatility in hours worked over each set of four consecutive interview months. This new measure has the benefit of providing greater quantitative detail about the

degree of intra-year work hour volatility that workers actually experience than has been available in previous measures. We first use this measure to characterize intra-year work hour volatility. Second, we test the expectation that work hour volatility is polarized by socio-economic class, as measured by the wages and educational attainment of workers. Finally, we examine how two different forms of worker power—marketplace bargaining power, as measured by the tightness of state-level labor markets, and associational power, as captured by union coverage—shapes polarization in intra-year work hour volatility.

We document that a majority of workers experience some intra-year work hour volatility, with a significant portion of workers experiencing quite substantial work hour volatility. We also show that less-educated and lower-earning workers are more likely to experience this volatility. Finally, we find that lower state-level unemployment rates and union coverage are associated with less class-based polarization in work hour volatility.

## Precarity and Polarization

By many measures, employment has become more precarious in the United States over the past several decades. Workers are now less likely to receive employer-provided health insurance (Mishel et al. 2009) and defined benefit pension plans (Shuey and O’Rand 2004), non-standard employment contracts are more common (Weil 2014), and many workers have non-standard (Presser 2003) and inflexible work schedules (Kelly and Moen 2007).

On the one hand, it is tempting to see precarity as the new normal, as the defining condition of contemporary capitalism (e.g., Bauman 2000; Giddens 1991). Yet, while work appears to have become more precarious generally over the past several decades, these transformations appear to have been particularly pronounced for workers of lower socio-economic status (Fligstein and Shin 2004; Kalleberg 2011). This polarization of the labor market is evident in the growing inequality of wages (e.g., McCall and Percheski 2010) as well as in widening gaps between more highly educated and less educated workers in terms of access to fringe benefits and paid time off (Farber and Levy 2000; Glynn, Boushey, and Berg 2016).

Research by economic sociologists and labor and managerial economists has identified several structural causes of increased work precarity for lower- and middle-class workers: financialization and the spread of the shareholder value conception of the corporation (e.g., Fligstein and Shin 2007; Lin and Tomaskovic-Devey 2013), globalization and the accelerated mobility of capital to low-wage countries (e.g., Bronfenbrenner and Luce 2004), the digital revolution (e.g., Brynjolfsson and McAfee 2014), slack labor markets (e.g., Wallace and Kwak 2018), and deunionization (e.g., Western and Rosenfeld 2011). One commonality across these factors is that each reduces the power that workers have in the employee-employer relationship.

Following Erik Olin Wright (2000:962), we can conceive of two forms of workers’ bargaining power. The first form, *structural power*, comes from workers’ position in the economic system. Within structural power, we focus in particular on *marketplace bargaining power*, which stems for workers operating in a tight labor market (Silver 2003). When workers lose marketplace bargaining power, as during an economic recession, employers

have more power to reduce wages and other measures of job quality, because the pool of replacement workers is larger during slack labor markets. The second form, *associational power*, results from workers' collective organization through unions or political parties. In the United States, the reduction of workers' associational power has chiefly come through deunionization, which has reduced the ability of workers to effectively bargain for better working conditions (Rosenfeld 2014). Together, the erosion of marketplace bargaining power or associational power may enable employers to effectively transfer risk from the firm to the household by adopting more precarious labor policies (Hacker 2006).

### Intra-Year Work Hour Volatility

Precarious employment is characterized by an economic dimension, evident in wages and fringe benefits, as well as a temporal dimension. While this temporal dimension is often captured with reference to workers' schedule control and to non-standard schedules, scheduling instability is also increasingly recognized as a key indicator of this aspect of precarious employment. In particular, scholars have also pointed to the importance of volatility in the number of hours that employees are scheduled to work from week to week or month to month (that is, intra-year).

Recent scholarship suggests that this within-job intra-year work hour volatility is caused in part by "just-in-time" human resource management practices, which firms have implemented in order to minimize labor costs and effectively transfer payroll risk once borne by the firm to individual economic risk borne by workers and their households (Hacker 2006; Houseman 2001; Schneider and Harknett 2019). As part of these scheduling practices, employers may ask employees to work on call, schedule workers for different numbers of hours each week, cancel their employees' scheduled work shifts in the hours before their shifts start or even after they have arrived at work, or ask employees to start earlier or stay later than initially scheduled (Alexander and Haley-Lock 2015; Halpin 2015; Lambert, Haley-Lock, and Henly 2012). These practices appear to result in substantial work hour variation for employees, even conditional on being consistently employed at the same employer and net of any employee-driven variability stemming from care or other personal obligations (Lambert, Fugiel, and Henly 2014; Schneider and Harknett 2019).

Prior quantitative research has primarily relied on three large-scale national data sets to examine intra-year work hour volatility. First, scholars have used the National Longitudinal Survey of Youth 1997 Cohort (NLSY97), a nationally representative survey of people born between 1980 and 1984 who were living in the United States as of 1997. Since 2011, the NLSY97 has asked respondents the greatest number of hours they have worked in a week in the previous month, as well as the fewest number of hours they have worked in a week in the previous month. Lambert, Fugiel, and Henly (2014) use these questions to estimate intra-year work hour volatility, and find that hourly part-time workers and workers in the occupations of food service, retail, home care, and arts and media experience the highest intra-year work hour volatility. However, the NLSY97 is not an ideal source to measure intra-year work hour volatility because the data are limited to those in the NLSY97 birth cohort (1980–84) and because we can only examine trends in the NLSY97 since 2011.

The second data source that researchers have used to study the national prevalence of intra-year volatility in hours worked is the CPS (e.g., Alexander and Haley-Lock 2015; Golden 2001). Since 1994, the CPS has allowed respondents to say that their usual weekly work hours (as distinct from actual hours in the previous week) varied, instead of providing a numerical estimate. The share of workers selecting this option was constant at about 6 percent from 1994 to 2002 (Kuhn and Lozano 2008), and Alexander and Haley-Lock (2015) report that the percentage of respondents who report that their usual work hours vary has remained relatively constant over the longer period 1994–2013, though the percentage of service workers who report that their usual hours vary has nearly doubled over this time (13 percent in 1994 as compared to 25 percent in 2013).

Third, scholars have also drawn upon the SIPP, a continuous series of national panel surveys of households that contains information on income and labor force participation. Each household selected to participate in the SIPP is interviewed once every four months for approximately four years. As with the CPS, since 2004, the SIPP has allowed employed respondents to choose an “hours vary” option in response to a question about their usual weekly work hours in the time since their last interview. Finnigan and Hale (2018) find that a slightly higher percentage of workers in the 2004 (7 percent) and 2008 (10 percent) panels of the SIPP report that their usual weekly hours vary than in the CPS, which they attribute to the SIPP having a clearly-defined reference period for this response (the previous four months of work) while the CPS does not.

While the “hours vary” response sheds some light on national trends in volatility in hours worked, this measure has several important limitations. First, most workers whose hours vary will not choose this response unless specifically prompted (Lambert, Fugiel, and Henly 2014; Lambert, Haley-Lock, and Henly 2012). Lambert, Fugiel, and Henly (2014) conducted an experiment in which retail employees were randomly assigned to receive either the question “How many hours do you typically work each week?” or one that continued with “or do your hours vary too much to say?”, and find that over twelve times as many retail workers will report that their hours vary under the second response. This suggests that the “hours vary” measure widely underestimates the percentage of workers who experience work hour volatility, because many respondents will not think to state that their hours vary in response to a question about usual work hours unless they are aware that this is an acceptable response. Second, it appears that reporting that usual “hours vary” is strongly positively associated with desirable schedule flexibility (Golden 2001), implying that the measure may capture a qualitatively different experience than the schedule volatility and lack of control discussed in the literature on precarious work. Finally, there is no way to quantify from this response alone exactly how much workers’ hours vary. In sum, previous measures of intra-year work hour volatility are lacking, either because they do not cover the entire population of U.S. workers and can only be calculated for a short period of time (as in the NLSY97), or because they rely on a discrete indicator that likely underestimates the percentage of workers who experience work hour volatility and fails to capture the degree to which workers have volatile schedules (as in the CPS and SIPP).

## Polarization in Work Hour Volatility

Just as prior research has shown evidence of polarization of many aspects of job quality, there is good reason to expect similar polarization in the experience of within-job intra-year work hour volatility. To the extent that dimensions of job quality within jobs tend to be positively correlated (Tilly 1997:269), class polarization in dimensions of job quality like wages and fringe benefits may imply that work hour volatility is increasingly likely to be experienced by workers with low levels of education and earnings.

Suggestive empirical evidence for such polarization comes from the observation that precarious scheduling practices appear common for lower-class workers (Henly and Lambert 2014; Schneider and Harknett 2019). Qualitative research has documented that low-wage workers in the fields of health care (Clawson and Gerstel 2014), catering (Halpin 2015), retail and fast food (Carrillo et al. 2017), general merchandise (Vargas 2017), and retail apparel (Misra and Walters 2016; Van Oort 2018) are subjected to practices that include, on the one hand, canceling shifts at the last minute or sending workers home early, and, on the other hand, asking workers to stay after their shifts or requiring workers to be “on-call” to come in when more workers are needed. In the world of catering, Halpin (2015:420) describes how management used last minute changes and over-scheduling to closely align staffing with demand, saving payroll costs for employers while leaving workers in “limbo with respect to their ability to predict hours of work.” In retail apparel, workers similarly contended with short-advance notice and variable hours, against a backdrop of low-wages and hours scarcity (Misra and Walters 2016). In a particularly clear example, Williams and Connell (2010:361) describe how one respondent experienced work hour fluctuation of 9–32 hours per week in the context of effectively “random scheduling”. Across these low-wage jobs, the clear driver of work hours volatility is employer scheduling practices.

However, while this research details precarious scheduling in low-wage sectors, it is, by sample design, largely silent on the question of work hour volatility in other quarters of the workforce and thus cannot inform an estimate of polarization in work hour volatility. While we may expect polarization on this dimension of job quality, it is also possible that we would not observe polarization in work hour volatility if workers in all socio-economic classes are experiencing unpredictable and unstable timing of work obligations, as firms, for instance, increasingly restructure their employment arrangements around work projects rather than permanent, stable jobs (Cornfield, Campbell, and McCammon 2001). Such a lack of polarization in work hour volatility could occur even through increasing access of salaried professional workers to desirable work hour flexibility in which workers retain autonomy and control over their schedules, which might be empirically indistinguishable from work-hour volatility that is employer driven (e.g., Galinsky, Sakai, and Wigton 2011). While several quantitative studies examine work hour variation in the broader work force (Alexander and Haley-Lock 2015; Finnigan 2018; Finnigan and Hale 2018; Golden 2001), these studies do not actually gauge the degree to which work hour volatility is polarized.



## Worker Power and Polarization in Work Hour Volatility

Some recent research has examined whether both of our measures of worker power of interest—marketplace bargaining power and associational power—affect work hour volatility. Finnigan (2018) compares reports of usual work hours varying between the 2004–2007 SIPP panel and the 2008–2012 SIPP Panel and finds an increase from 7 percent to 10 percent of hourly workers, an increase that was largely accounted for by deteriorating state-level macro-economic conditions. This suggests that marketplace bargaining power decreases work hour volatility. Similarly, Finnigan and Hale (2018) report that union members are less likely than non-union members to report varying working hours from week to week. Though Finnigan and Hale (2018) find that this difference is due to indirect benefits of unionization (i.e., higher wages, longer job tenure, and less part-time work), they also find that state-level unionization further reduces the likelihood of reporting varying working hours for union members. Overall, these results point towards the importance of associational power for restraining the prevalence of work hour volatility.

Yet, though the literature on the structural origins of precarious work suggests that the erosion of worker power is a central cause of increasing class-based polarization in job quality, no empirical work has tested whether marketplace bargaining power or associational power moderates intra-year work hour volatility. There is good reason to believe that marketplace bargaining power may affect polarization in work hour volatility. In slack labor markets, excess labor supply may allow employers to adopt precarious scheduling practices that reduce labor costs and transfer economic risks to their most marginal employees. This would be consistent with research showing that the Great Recession caused increases in the prevalence of highly precarious jobs (Wallace and Kwak 2018). But, slack labor markets may not necessarily lead to greater inequalities in intra-year work hour volatility between workers with higher and lower levels of education if they also lead to the educational “upskilling” of occupations (Okun 1973), such that highly-educated workers are forced down the occupational ladder into less appealing jobs characterized by greater within-job work hour volatility. It is also possible that slack labor markets have a similar impact on within-job work hour volatility at high-wage jobs as at low-wage jobs.

We may also expect that associational worker power may reduce polarization in work hour volatility by reducing volatility for lower- and middle-class workers. As Wright (2000:981) writes, “as working-class associational power within production increases, capitalists’ unilateral control over the labor process declines..[and] changes in the labor process need to be negotiated and bargained with representatives of workers rather than unilaterally imposed.” Thus, associational power may allow lower- and middle-class workers to bargain for less volatile work schedules, leading to lower polarization in work hour volatility. Even if unions work to provide consistent scheduling for all workers, not just lower- and middle-class workers, this would still reduce class-based polarization in work hour volatility if lower-class workers otherwise experience more work hour volatility.

## Open Questions

We advance the existing literature on intra-year work hour variability in three respects. First, we utilize the panel nature of the CPS to develop a new measure of intra-year work hour variability that allows us to characterize intra-year volatility in work-hours over a longer period (1995–2017) than is measured in previous research using the SIPP (2004–2013) or the NLSY-97 (2011–2016). Our measure, which relies on reports of actual hours worked, also captures substantially more variability than the reports from SIPP and CPS that rely on respondents selecting an “hours vary” response. We are further able to focus on a subsample of workers who work at the same job, and whose work hours throughout the four consecutive CPS months are not affected by missing work for what the CPS terms “non-economic” reasons.

Second, we build on this improvement to test whether there are differences in the levels of intra-year work hour volatility experienced by workers of different socio-economic classes. Here, in line with research on polarization in job quality, we expect that:

**Hypothesis 1:** Low-wage and less-educated workers will experience greater within-job intra-year work hour volatility.

Third, we use these data to test whether class polarization in work hour volatility is affected by marketplace bargaining power, measured by state-level unemployment rates, and/or by associational power, measured by union coverage.

Here, we expect that higher rates of unemployment will function to undermine worker power and increase polarization in work hour volatility, while union coverage will buttress worker power and reduce polarization in work hour volatility.

**Hypothesis 2:** Higher state-level unemployment rates will be associated with greater wage- and education-based polarization in within-job intra- year work hour volatility.

**Hypothesis 3:** Union coverage will be associated with lower wage- and education-based polarization in within-job intra-year work hour volatility.

## Data

We measure volatility in hours worked using the CPS, a publicly available, nationally representative survey of households that is primarily designed to collect information about the United States’ labor force. We use data downloaded from the CPS-IPUMS database (Flood et al. 2018). Though most studies have treated the CPS like a cross-sectional survey, the CPS has a rotating panel design in which households that newly enter the survey are interviewed for four consecutive months, ignored for eight months, and then interviewed for four consecutive months again. We focus on work hour volatility over these four month periods, relying on a question to respondents about how many hours they worked in the previous week; this week, known as the “reference week,” is usually the calendar week containing the 12th day of the month. We use the IPUMS-created variable CPSIDP to link individuals across CPS samples following the method of Drew Rivera, Flood, and Warren



(2014). We further follow Madrian and Lefgren (2000) and validate these links based on values for age, sex, and race across consecutive survey months.

We focus our analysis on a subsample of CPS respondents who (a) are employed across four consecutive survey months, (b) do not change jobs across four consecutive survey months, and (c) who do not miss work or work part-time (less than 35 hours) in any survey reference week for reasons that the CPS labels “non-economic reasons”: performing kin care or other family obligations, having an illness or medical limitation, taking maternity/paternity leave, attending school or training, performing civic or military duty, or taking time off for holiday or vacation.<sup>1</sup> We include this last restriction in order to more closely capture employer-driven work hour volatility, instead of that caused by external obligations.

Finally, we delete observations in which labor force information is obtained by a proxy respondent in one of the four consecutive survey months (as measured by the IPUMS-created variable LFPROXY), since there are significant differences in self-reports and proxy reports of hours worked in the reference week in the CPS (e.g., Boehm 1989). The final sample stretches from December 1995 to March 2017 and consists of 471,205 observations.

### **Intra-Year Work Hour Volatility**

For each four-month period in which respondents are interviewed, we measure the within-job intra-year work hour volatility as the coefficient of variation (CV) of the hours the respondent reported working in the reference week. The CV is calculated as the corrected sample standard deviation of hours worked in each reference week, divided by the mean of hours worked in each reference week. This measure has been used in previous research on the prevalence of intra-year income volatility (Bania and Leete 2009; Morris et al. 2015), and has the benefit of being both scale invariant (that is, independent of the mean hours worked in each reference week) and directly proportionate to increases in the variation of hours worked.<sup>2</sup>

We test the construct validity of our measure of intra-year work hour volatility by comparing it to two other measures from the CPS: a binary measure from the 1997, 2001, and 2004 Work Schedules Supplements that indicates whether a worker reports that they have an irregular schedule arranged by their employer, and a binary variable indicating whether a worker reports that their “hours vary” in response to a question about their usual work hours. In Appendix Table 2, we report the results of two linear regressions that examine the relationship between the coefficient of variation of actual hours worked in four consecutive survey months and these other measures of work hour volatility, controlling for a categorical variable for year of the last survey month. These results show that the coefficient of variation is positively related to having an employer-set irregular schedule (though not significantly, likely due to the small sample size), and also significantly and substantively related to

---

<sup>1</sup>This subsample does include workers who are working part-time for economic reasons, which include: slack in the amount of available work, seasonal changes in demand, that part-time work was all that could be found, and that a full-time work week for the job is less than 35 hours of work.

<sup>2</sup>We also test the robustness of the results we find using the CV, which is a measure of work hour volatility that is relative to the number of hours worked, to using the standard deviation of hours worked, which is an absolute measure of work hour volatility. We find substantively similar results in both cases and focus on the CV in the rest of the paper. Appendix Table 1 contains the results of our models where the dependent variable is the standard deviation of hours worked.

reporting that their “hours vary”. Our new measure is thus consistent with these previous measures, while having the additional benefit of providing a more granular measure of work hour volatility than has been previously available.

We also test for the extent to which our measure of intra-year work hour volatility captures voluntary as opposed to involuntary work hour volatility using a question in the 1997, 2001, and 2004 Work Schedules Supplements that asks workers whether they can vary when they start and/or end work. About 30 percent of workers in these supplements reported that they are able to vary their starting and/or ending times, suggesting that, for a majority of workers, our measure of work hour volatility does not reflect voluntary scheduling flexibility. Appendix Table 3 compares our new measure of work hour volatility for workers in these supplements who are and are not able to vary when the timing of their work shifts. While we see that workers who are able to vary when they start and/or end work do experience more work hour volatility on average, these tables reveal a similar distribution of work hour volatility within each group and illustrate that there is much greater variation in work hour volatility within these groups than between them. These results suggest that our measure of intra-year work hour volatility is not primarily capturing voluntary work hour volatility.

### **Socio-economic Class**

We examine if intra-year work hour volatility differs by two measures of respondent socio-economic class. First, we estimate respondents’ hourly wages. CPS respondents who are paid hourly at the time of their fourth consecutive monthly interview report their hourly wages. For respondents who do not report their hourly wages, we estimate their hourly wages by dividing respondent reports from the same interview of how much they earn per week by how many hours they usually work per week. We then adjust these estimated hourly wages for inflation and categorize respondents in wage quartiles. Second, we measure respondent educational attainment and categorize respondents as having less than a high school diploma, having a high school degree or some college without having attained a four-year degree, or having a bachelor’s degree or more education.

### **Marketplace Bargaining Power**

We measure marketplace bargaining power at the state-level—the most detailed geographic area available for all CPS respondents—using the average of the monthly unemployment rate across the four consecutive months the respondent is surveyed. State-level unemployment rates are collected from the Bureau of Labor Statistics.

### **Associational Worker Power**

We measure associational worker power using a binary variable indicating whether or not a worker is covered by a union, regardless of whether or not they are a union member. We theorize that union coverage is more indicative of associational worker power than is union membership because workers who are covered by unions but not members are still likely to realize the benefits of their workplace union. However, we also test the robustness of our results to measuring associational worker power through union membership as well as through industry-specific regional union coverage, which may capture the presence of

prevailing norms of equity that shape workplace conditions in the industry (Western and Rosenfeld 2011). We describe the creation of this latter variable in Appendix A.

Figure 1 plots state-level unemployment rates (in green box plots, on the left axis) and national union coverage rates (in orange, on the right axis) between 1995 and 2017. Both series are collected from the Bureau of Labor Statistics. We observe significant variation in unemployment rates both across time as well as between states in the same year. Meanwhile, union coverage rates drop relatively steadily over the sampled time frame.

### Controls

We control for several demographic attributes in the CPS: age (<30, 30–39, 40–49, or 50+), race (White only, Black only, or other), sex (male or female), nativity (an indicator for being foreign-born), marital status (married or unmarried), and a categorical variable for the number of household children (0, 1, 2, or 3+). We also include indicators for broad industry and occupational classifications (reported in greater detail in Appendix A).

### Weights

We create weights for our analysis that are based on the CPS earnings weight (EARNWT), which is recommended for use in analyses involving respondents' hourly wage and/or weekly earnings. We then augment these weights to account for survey attrition between survey months, the likelihood of working at the same job and not missing work or working part-time for “non-economic reasons” across the four consecutive survey months, and self-reporting labor force information in all four consecutive monthly surveys. These final weights are used in all analyses. Appendix B describes the creation of these weights in greater detail.

### Analysis

We begin by reporting descriptive statistics for the coefficient of variation and by presenting a number of illustrative simulations that show how various constellations of work hour reports might generate CVs at the sample mean, as well as at the 25th, 50th, 75th, 90th, and 95th percentiles. For ease of comparison, each set of reported hours worked has a mean of 40 hours worked per week.

### Polarization in Work Hour Volatility

Then, we graphically examine trends in intra-year work hour volatility from 1995 to 2017 by wage quartile and education, in order to see whether low-wage and less-educated workers experience more work hour volatility and whether class-based polarization in work hour volatility has changed over time. Appendix C describes the creation of these graphs in greater detail.

Next, we estimate linear regression equations that examine the relationship between respondent class and work hour volatility, net of the measures of worker power and of other controls. Formally, we predict the coefficient of variation of respondent  $i$  living in state  $s$  at time  $t$ :

$$CV_i = \beta_0 + \beta_1 Wage_i + \beta_2 Ed_i + \beta_3 Z_i + \gamma_s + \theta_t + \delta_t + \varepsilon_{ist}. \quad (1)$$

Here,  $CV_i$  is the coefficient of variation of the respondent's actual hours worked over the four consecutive survey months (standardized so that the mean CV in the final sample equals 100),  $Wage_i$  is a categorical variable for wage quartile (with the second wage quartile used as the reference group),  $Ed_i$  is a categorical variable for educational attainment (with a reference group of having a high school degree but not a bachelor's degree),  $Z_i$  is a vector of controls (including union coverage and state-level unemployment rate),  $\gamma_s$  is a set of state indicators, and  $\theta_t$  and  $\delta_t$  are sets of indicators for the year and month of the last CPS survey. If Hypothesis 1—that workers with low wages and low levels of education experience greater work hour volatility—is accurate, then we should see that  $\beta_1$  should be positive and significant for respondents in the bottom wage quartile, and  $\beta_2$  should be positive and significant for respondents with less than a HS degree.

### Worker Power and Polarization in Work Hour Volatility

Finally, we modify the above equation to test Hypothesis 2—that state-level unemployment rates exacerbate class gaps in work hour volatility:

$$CV_i = \beta_0 + \beta_1 Wage_i + \beta_2 Ed_i + \beta_3 UR_{st} + \beta_4 Wage_i * UR_{st} + \beta_5 Ed_i * UR_{st} + \beta_6 Z_i + \gamma_s + \theta_t + \delta_t + \varepsilon_{ist}, \quad (2)$$

and to test Hypothesis 3—that union coverage reduces class gaps in work hour volatility:

$$CV_i = \beta_0 + \beta_1 Wage_i + \beta_2 Ed_i + \beta_3 Union_i + \beta_4 Wage_i * Union_i + \beta_5 Ed_i * Union_i + \beta_6 Z_i + \gamma_s + \theta_t + \delta_t + \varepsilon_{ist}. \quad (3)$$

Here,  $UR_{st}$  is the average monthly unemployment rate in the respondent's state over the four survey months,  $Union_i$  indicates whether a respondent is covered by a union, and all other variables are defined as above. We follow the advice of Balli and Sorenson (2013) on interaction terms in fixed-effects models and demean the state-level unemployment rate, union coverage, wage quartile, and educational attainment variables before creating the interaction terms. If Hypothesis 2 is accurate, the estimates of  $\beta_4$  and  $\beta_5$  in Model 2 should be positive and significant for respondents with low wages and levels of education, respectively, and vice versa for respondents with high wages and levels of education. Conversely, if Hypothesis 3 is accurate, then the estimates of  $\beta_4$  and  $\beta_5$  in Model 3 should be negative and significant for respondents with low wages and levels of education, respectively, and vice versa.

In all regression models, we adjust standard errors for clustering both within states and within respondents, since respondents who are interviewed for all eight months in the CPS sample are observed twice in our data.<sup>3</sup>

<sup>3</sup>. We use the `reghdfe` package in Stata (Correia 2017) to implement two-way clustering.

## Results

### Intra-Year Work Hour Volatility

In order to give a sense of what intra-year work hour volatility looks like across the distribution of the CV, Table 1 displays the mean and 25th, 50th, 75th, 90th, and 95th percentiles of the CV among workers in our sample, along with hypothetical sets of reported hours worked in the previous week across four consecutive monthly surveys for each statistic. Each hypothetical set of reported weekly hours worked has a mean of 40 hours per week.

Roughly two-thirds of workers report some work hour volatility across four consecutive CPS survey months. The median worker in our sample has a CV of weekly hours worked that is similar to a full-time worker experiencing, roughly, a four-hour swing in weekly hours worked every week. Workers at the 75th percentile of intra-year work hour volatility experience over twice as much intra-year work hour volatility as those at the median, with workers at the 90th percentile experiencing nearly twice as much intra-year work hour volatility as those at the 75th percentile. In sum, while about a third of workers experience little to no work hour volatility, Table 1 suggests that a significant proportion of workers see quite substantial variation in weekly hours worked.

### Polarization in Intra-year Work Hour Volatility

We first present trends in within-job intra-year work hour volatility by wage quartile and educational attainment, as seen in Figures 2 and 3, respectively. These graphs show that workers with the lowest wages and lowest levels of education experience much more intra-year work hour volatility than do other workers. Workers in the top three wage quintiles appear to experience generally similar levels of work hour volatility, as do workers with a HS degree and workers with a bachelor's degree or higher. The widest class gaps in intra-year work hour volatility, then, are between low-wage and less-educated workers and all other workers.

Notably, Figures 2 and 3 suggest that class gaps in intra-year work hour volatility grew sharply during the Great Recession. While workers of all wages and levels of educational attainment experienced an increase in work hour volatility during the Great Recession, the largest increases in volatility were among low-wage and less-educated workers. While class gaps in work hour volatility appear to have decreased somewhat in the years since the Great Recession, they do not appear to have returned to their pre-Recession levels.

Figures 2 and 3, taken by themselves, seem to support Hypothesis 1—that low-wage and less-educated workers experience more work hour volatility—and also hint towards a relationship between marketplace bargaining power and class polarization in work hour volatility in the direction suggested by Hypothesis 2. However, these figures do not account for differences in the demographic composition of workers by class, provide statistical support for either hypothesis, or speak towards the validity of Hypothesis 3—that associational bargaining power reduces class-based polarization in work hour volatility.

The first column of Table 2 presents coefficients of interest from Model 1, which formally tests Hypothesis 1.<sup>4</sup> We find that respondents in the lowest wage quartile (compared to the second wage quartile) experience significantly more work hour volatility, controlling for all other factors, while workers above the second wage quartile experience less work hour volatility compared to workers in the workers in the second wage quartile. These wage-based gaps are substantively large. Because the dependent variable is scaled to 100, the regression coefficients imply that workers in the lowest wage quartile experience roughly 22 percent, 27 percent, and 23 percent more work hour volatility than workers in the second, third, and highest wage quartiles, respectively, holding all other factors constant.<sup>5</sup>

We also find that workers without a high school degree experience significantly more work hour volatility than workers with a high school degree but no bachelor's. Yet, the magnitude of this coefficient is relatively small in comparison to the coefficient on low-wage work. Further, we find that, controlling for other factors, college-educated workers also experience more work hour volatility than workers with a high school degree but no bachelor's. In sum, then, the results of Model 1 reveal partial support for Hypothesis 1. Low-wage workers experience significantly more work hour volatility than other workers. While workers without a high school degree experience relatively high work hour volatility, so do workers with a bachelor's degree.

Finally, we find that the state-level unemployment rate is positively associated with work hour volatility: a one percentage point increase in the unemployment rate is associated with roughly a one percent increase in the coefficient of variation. Somewhat surprisingly, we also find that workers who are covered by a union experience modestly higher levels of work hour volatility, net of other covariates.

### **Worker Power and Polarization in Work Hour Volatility**

We now turn towards our tests of the association between worker power and reduced class-based polarization in work hour volatility. Model 2 tests whether reductions in marketplace bargaining power—which we operationalize through the state-level unemployment rate—lead to greater polarization in work hour volatility. Examining the interactions between the unemployment rate and respondent's measures of socio-economic class, we find evidence of significantly wider wage-based and education-based gaps in work hour volatility with higher state-level unemployment rates, driven by increased volatility for low-wage and less-educated workers. Compared to workers in the second wage quartile, rising state-level unemployment rates are associated with relatively greater increases in work hour volatility for workers in the lowest wage quartile, but do not lead to greater polarization in work hour volatility at the top of the wage distribution. For low-wage workers, a one percentage point increase in the unemployment rate is associated with roughly a four percent increase in the coefficient of variation of weekly hours worked, compared to workers in the second wage quartile.

---

<sup>4</sup>.Appendix Table 4 contains the full results of models presented in Table 2.

<sup>5</sup>.Marginal effect estimates reveal virtually identical results.



We find similar, though smaller, effects of state-level unemployment rates on education-based gaps in work hour volatility. The coefficient on the interaction between unemployment rate and having less than a HS degree (as compared to the reference of the interaction between unemployment rate and having a HS degree) is positive and significant. Meanwhile, the coefficient on the interaction between unemployment rate and having a bachelor's degree (with the same reference group as above) is negative, but only marginally significant. In sum, there is strong evidence to support Hypothesis 2—that higher state-level unemployment rates are associated with greater class-based polarization in intra-year work hour volatility, with this association solely driven by gaps between low-wage and less-educated workers and all other workers.

Figure 4 shows marginal predictions from Model 2 of work hour volatility across various levels of unemployment rates, broken down by wage quartile and educational attainment, respectively. We see that the effect of negative economic conditions on work hour volatility is most stark for workers in the lowest wage quartile. At an unemployment rate of 6.1 percent, the average low-wage worker experiences roughly 20 percent more volatility than the sample average, while the average worker in other wage quartiles experiences slightly below-average volatility. However, as unemployment rises to two standard deviations above the mean (roughly 10.2 percent), the average low-wage worker experiences nearly 40 percent more volatility than the sample average, while the work hour volatility of other workers is not affected much. The educational gradient in the effect of unemployment rates on work hour volatility is less stark. The work hour volatility of those without a high school education is most strongly affected by rising unemployment; however, the confidence intervals overlap at all measured levels of unemployment.

Finally, we turn to Model 3, which tests whether increases in associational power—measured by whether a worker is covered by a union or not—reduce class-based polarization in work hour volatility. We find strong evidence that, compared to workers in the second wage quartile, low-wage workers who are covered by a union experience significantly less work hour volatility than those who are not. In contrast, there is no significant difference in the estimated effect being in a union on work hour volatility for workers in the third and fourth wage quartiles as compared to workers in the second wage quartile. We also find no evidence that union coverage affects educational polarization in work hour volatility. We thus find partial support for Hypothesis 3: union coverage significantly reduces gaps in work hour volatility between low-wage workers and all other workers, but it does not affect education-based gaps in work hour volatility.

Figure 5 shows marginal predictions from Model 3 of work hour volatility for those who are and are not covered by a union, again by wage quartile and educational attainment. Among workers who are not covered by a union, low-wage workers experience significantly more work hour volatility. However, this gap markedly narrows among workers covered by a union, to the point where the confidence intervals of the point estimate of work hour volatility overlap with the estimates of higher-wage workers. When looking by educational attainment, we see little evidence that union coverage moderates work hour volatility.

Appendix Table 5 reports results from regressions in which associational worker power is operationalized by union membership and by industry-specific regional union coverage. We find that higher levels of each variable are associated with reductions in wage-based polarization in work hour volatility. Along with the results of Model 3, this provides strong evidence that associational worker power moderates wage-based polarization in work hour volatility.

## Discussion

Unpredictability and instability in the timing and regularity of work hours is a dimension of precarious work that is of increased interest to social scientists as well as the public. There is good reason to expect that, as with other dimensions of precarious work, the experience of work hour volatility is stratified by class, and that forces that reduce worker power would increase class-based polarization in work hour volatility. However, with several notable exceptions, little previous research has used nationally-representative data to measure the degree of work hour volatility that workers experience, whether low-wage and/or less-educated workers experience greater work hour volatility, or whether the degree of worker power affects polarization in this dimension of precarious work.

In this paper, we use the Current Population Survey to develop a novel, more granular measure of intra-year work hour volatility based on respondents' self-reports of actual hours worked in the previous week across four consecutive survey months. We then use this measure to examine the hypothesis that work hour volatility is polarized by worker socio-economic class. Finally, we use two measures of worker power—state-level unemployment rates, which reflect market- place bargaining power, and union coverage, which reflects associational power—to test the hypothesis that reductions in worker power increase class-based polarization in work hour volatility.

We find that workers with low wages (though not workers with less education) experience higher levels of work hour volatility. Further, we find that wage- and education-based gaps in work hour volatility are wider when state-level unemployment rates are higher, and that wage-based gaps in work hour volatility are narrower among workers covered by unions. The effect of worker power on work hour volatility is thus most pronounced for low-wage workers. These results add to previous work that has shown that the employment of low-skilled workers is more sensitive to changing economic conditions (e.g., Blank 2009) and deunionization (e.g., Vidal 2013) than is the employment of higher-skilled workers. Here, we show that, even among workers who remain employed, diminished worker power disproportionately amplifies work hour volatility for low-SES workers.

These results also suggest a fruitful extension of Wright's (2000) model of the forms of workers' bargaining power. In this model, worker power stems from collective organization or tight labor markets, as well as from workers' strategic location within key industrial sectors. While this model does not consider the effect of workers' wage or education on the strength of worker power, we find that worker power appears to improve work hour volatility most for low-wage and less-educated workers. This finding accords more generally with the work of economic sociologists and labor economists who have shown that forces that reduce

worker power have made work broadly more precarious for lower- and middle-class workers. Thus, we suggest that workers' wage and education may be theorized as key *moderating* forces which shape the effect of workers' bargaining power on job quality.

Our analysis reveals three other notable findings. First, as seen in Figure 1, is that the effect that the Great Recession had on widening class gaps in within-job intra-year work hour volatility appears to have persisted long after the end of the recession. This is consistent with other research that suggests that the Great Recession led to structural changes in the labor market that disproportionately affected workers with low human capital (Rothstein 2017). In this way, our research helps to answer the call of Redbird and Grusky (2016) to fill the gap in sociological knowledge on the distributional effects of the Great Recession.

Second is that the overall increase in intra-year work hour volatility was mostly confined to the period of the Great Recession. This is consistent with recent research that shows that the Great Recession led to an increase in the number of jobs characterized by high precarity (Wallace and Kwak 2018). However, we do not find evidence that work hour volatility has substantially increased over the full observation period, which parallels recent work by Bernhardt (2014) that finds limited evidence of an increase in non-standard work arrangements over time. We do not necessarily find this to be incompatible with other work that has documented a broader long-run increase in the precarious work (e.g., Kalleberg 2011). It is possible that work is becoming generally less precarious in the dimension of work hour volatility while becoming more precarious in other dimensions: pay, prospects of advancement within companies, job tenure, and workplace benefits.

Third, the full results of our regression models, presented in Appendix Table 4, show how work hour volatility varies by employment in various occupational and industry categories, net of other covariates. We use reference categories ("production" for occupation, and "transportation" for industry) in which work hour volatility is nearest the mean for the sample. Notably, we find that workers in the occupational categories of "personal care and service" and "food preparation and service" experience relatively higher work hour volatility, consistent with previous research documenting precarious scheduling practices in these occupations (Carrillo et al. 2017; Halpin 2015). However, in spite of other research describing inconsistent scheduling in retail jobs (Misra and Walters 2016; Van Oort 2018; Vargas 2017), we do not find significantly higher work hour volatility in the occupation of "sales", net of other factors.

Our findings are subject to some important limitations. Perhaps most important is that we do not directly measure week-to-week volatility in hours worked, since we only observe one week per month. However, our measure does capture the sort of volatility in hours worked that would come from random weekly changes in a worker's schedule—similar to that which might come from the use of "just-in-time" scheduling with especially variable customer demand. Further, our measure is more likely to capture discrete changes in weekly work hours that employers make in response to seasonal changes in demand than would a method that captures weekly volatility over a smaller time period.

Second, though Appendix Table 3 suggests that our measure of work hour volatility does not primarily capture voluntary work hour volatility, we do not directly observe the degree to which work hour volatility is voluntary and/or desirable as opposed to involuntary and/or undesirable. In general, we believe our finding that our measure of work hour volatility is higher—disproportionately so for low-wage and less-educated workers—when state-level unemployment rates are higher suggests that our measure of work hour volatility mainly reflects involuntary work hour volatility. This would be consistent with previous research suggesting that, in response to slack labor markets, employers (low-wage employers in particular) are more able to implement practices associated with precarious work (e.g., Wallace and Kwak 2018). In contrast, it is less clear that workers would be more likely to voluntarily vary their weekly work hours when state-level unemployment rates rise.

Third, and related to the second point, the CPS does not contain questions that allow us to specifically examine the relationship between employer-driven unpredictable work scheduling and our measure of work hour volatility. While there is good reason to suggest that employer-driven unpredictable work schedules is a key driver of the work hour volatility we observe in the CPS, future work would benefit from the collection of nationally-representative data that allows us to more accurately understand the relationship between the unpredictability of work schedules, workers' own desires for scheduling stability (or flexibility), and the experience of work hour volatility.

Despite these limitations, our methodology opens the doors to more detailed investigations into intra-year work hour volatility and precarious work more generally. For example, our measure of intra-year work hour volatility could be used to estimate the impact of future state-level laws that give workers more scheduling stability. Further, future research could concretely investigate the relationship between different facets of worker power and the prevalence of, and/or polarization in, other forms of precarious work. Finally, researchers could use data from the 2014 SIPP panels, which asks respondents what days of the week they work and when they start and end work, to investigate within-week (instead of between-week) work hour volatility. Such work could investigate whether within-week work hour volatility is also polarized by class, and whether measures of worker power moderate the degree of class polarization in within-week work hour volatility.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgments

The authors thank Ryan Finnigan, Kristen Harknett, Lonnie Golden, seminar audiences at the University of California, Berkeley, and four anonymous Social Forces reviewers for helpful feedback. They are also grateful to Sarah Flood and Jose Pacas for providing clarifying information about longitudinal weights created by IPUMS to link individuals across CPS survey months. A previous version of this manuscript was presented at the 2018 American Sociological Association Annual Meeting. LaBriola thanks the National Science Foundation Graduate Research Fellowship Program (Award No. 1752814) and NICHD grant T32-HD007275 for research support.

## About the Authors

**Joe LaBriola** is a Ph.D. candidate in Sociology at the University of California, Berkeley. He studies social stratification in the United States, with interests in the sociology of work, family demography, economic sociology, and urban sociology. His recent publications examine the relationship between increasing income inequality and increasing class divides in parental investment, and the determinants of risk-taking at large commercial banks. His dissertation examines how local land use regulations contribute to individual-, household-, and neighbor- hood-level inequality.

**Daniel Schneider** is an Assistant Professor of Sociology at the University of California, Berkeley. His research focuses on social demography, inequality, and precarious work. His recently published work examines the effects of the Great Recession on non-marital fertility, the relationship between rising income inequality and both class-gaps in parental investment and class divides in women's housework time, and the effects of unstable and unpredictable work schedules on mental health. He is a W.T. Grant Foundation Faculty Scholar.

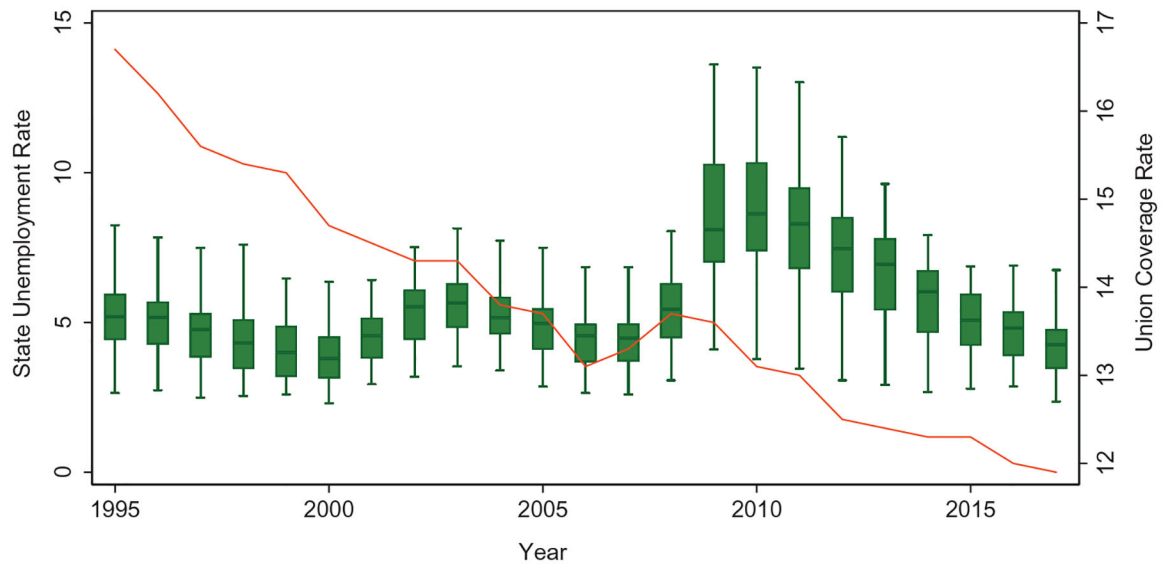
## References

- Alexander Charlotte, and Anna Haley-Lock. 2015. "Underwork, Work-Hour Insecurity, and A New Approach to Wage and Hour Regulation." *Industrial Relations* 54(4):695–716.
- Balli Hatice, and Sorenson Brent. 2013. "Interaction Effects in Econometrics." *Empirical Economics* 45(1): 583–603.
- Bania Neil, and Leete Laura. 2009. "Monthly household income volatility in the U.S., 1991/92 vs. 2002/03." *Economics Bulletin* 29(3):2100–12.
- Bauman Zygmunt. 2000. *Liquid Modernity*. Cambridge: Polity Press.
- Ben-Ishai Liz, Hammad Sasha, and Warden Christina. 2014. "Tackling Unstable and Unpredictable Work Schedules." Center for Law and Social Policy, Retail Action Project, and Women Employed.
- Bernhardt Annette. 2014. "Labor Standards and the Reorganization of Work: Gaps in Data and Research." IRLE Working Paper No. 100–14.
- Blank Rebecca M. 2009. "Economic Change and the Structure of Opportunity for Less-Skilled Workers." In *Changing Poverty, Changing Policies*, edited by Cancian Maria, and Danziger Sheldon, P.63–91. New York: Russell Sage Foundation.
- Boehm Lawrence E. 1989. "Reliability of Proxy Response in the Current Population Survey." *Proceedings of the Survey Research Methods Section, American Statistical Association*. 486–489.
- Bronfenbrenner Kate, and Luce Stephanie. 2004. *The changing nature of global corporate restructuring: The impact of production shifts on jobs in the US, China, and around the globe*. Washington, DC: US/China Economic and Security Review Commission.
- Brynjolfsson Erik, and Andrew McAfee. 2014. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York, NY: W.W. Norton & Company.
- Carrillo Dani, Harknett Kristen, Logan Allison, Luhr Sigrid, and Schneider Daniel. 2017. "Instability of Work and Care: How Work Schedules Shape Child-Care Arrangements for Parents Working in the Service Sector." *Social Service Review* 91(3):422–455.
- Clawson Dan, and Gerstel Naomi. 2014. *Unequal Time: Gender, Class, and Family in Employment Schedules*. New York, NY: Russell Sage Foundation.
- Cornfield Daniel, Campbell Karen, and McCammon Holly. 2001. "Working in Restructured Workplaces: An Introduction." P. xi–xxii in *Working in Restructured Workplaces: Challenges and New Directions for the Sociology of Work*. Thousand Oaks, CA: SAGE Publications.
- Correia Sergio. 2017. "reghdfe: Stata module for linear and instrumental-variable/GMM regression absorbing multiple levels of fixed effects." *Statistical Software Components s457874*, Boston College Department of Economics.

- Rivera Drew, Julia A, Flood Sarah, and Warren John Robert. 2014. "Making full use of the longitudinal design of the Current Population Survey: Methods for linking records across 16 months." *Journal of Economic and Social Measurement* 39(3):121–44. [PubMed: 26113770]
- Farber Henry S., and Levy Helen. 2000. "Recent trends in employer-sponsored health insurance coverage: are bad jobs getting worse?" *Journal of Health Economics* 19(1):93–119. [PubMed: 10947573]
- Finnigan Ryan. 2018. "Varying weekly work hours and earnings instability in the Great Recession." *Social Science Research* 74:96–107. [PubMed: 29961492]
- Finnigan Ryan, and Jo Mhairi Hale. 2018. "Working 9 to 5? Union Membership and Work Hours and Schedules." *Social Forces* 96(4):1541–68.
- Fligstein Neil, and Shin Taek-jin. 2004. "The Shareholder Value Society: A Review of the Changes in Working Conditions and Inequality in the United States, 1976 to 2000." In *Social Inequality*, edited by Kathryn Neckerman, p.401–432. New York: Russell Sage Foundation.
- Fligstein Neil, and Shin Taek-jin. 2007. "Shareholder Value and the Transformation of the U.S. Economy, 1984–2000." *Sociological Forum* 22(4):399–424.
- Flood Sarah, King Miriam, Rodgers Renae, Ruggles Steven, and Warren J. Robert. 2015. *Integrated Public Use Microdata Series, Current Population Survey: Version 6.0 [dataset]*. Minneapolis, MN: IPUMS.
- Galinsky Ellen, Sakai Kelly, and Wigton Tyler. 2011. "Workplace flexibility: from research to action." *The Future of Children* 21(2):141–61. [PubMed: 22013632]
- Giddens Anthony. 1991. *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Stanford, CA: Stanford University Press.
- Glynn Sarah Jane, Boushey Heather, and Berg Peter. 2016. "Who Gets Time Off? Predicting Access to Paid Leave and Workplace Flexibility." Report for the Center for American Progress.
- Golden Lonnie. 2001. "Flexible Work Schedules: Which Workers Get Them?" *American Behavioral Scientist* 44(7):1157–78.
- Hacker Jacob S. 2006. *The Great Risk Shift: The New Economic Insecurity and the Decline of the American Dream*. Oxford: Oxford University Press.
- Halpin Brian W. 2015. "Subject to Change Without Notice: Mock Schedules and Flexible Employment in the United States." *Social Problems* 62(3):419–38.
- Henly Julia R., and Lambert Susan J.. 2014. "Unpredictable Work Timing in Retail Jobs: Implications for Employee Work-Life Conflict." *Industrial & Labor Relations Review* 67(3):986–1016.
- Houseman Susan N. 2001. "Why Employers Use Flexible Staffing Arrangements: Evidence from an Establishment Survey." *Industrial & Labor Relations Review* 55(1):149–70.
- Kalleberg Arne L. 2011. *Good Jobs, Bad Jobs*. New York: Russell Sage Foundation.
- Kalleberg Arne L., and Vallas Steven P.. 2018. "Probing Precarious Work: Theory, Research, and Politics." In *Precarious Work (Research in the Sociology of Work)*, edited by Kalleberg Arne L. and Vallas Steven P., Vol. 31, Pp.1–31. Emerald Publishing.
- Kantor Jodi. 2014. "Working Anything but 9 to 5." *The New York Times*. August 13.
- Kelly Erin L., and Moen Phyllis. 2007. "Rethinking the Clockwork of Work: Why Schedule Control May Pay Off at Work and at Home." *Advances in Developing Human Resources* 9(4):487–506. [PubMed: 25598711]
- Kuhn Peter, and Lozano Fernando. 2008. "The Expanding Workweek? Understanding Trends in Long Work Hours among U.S. Men, 1979–2006." *Journal of Labor Economics* 26(2):311–43.
- Lambert Susan J., Fugiel Peter J., and Henly Julia R.. 2014. "Precarious Work Schedules among Early-Career Employees in the US: A National Snapshot." EINet research brief.
- Lambert Susan J., Haley-Lock Anna, and Henly Julia R.. 2012. "Schedule flexibility in hourly jobs: unanticipated consequences and promising directions." *Community, Work, and Family* 15(3):293–315.
- Ken-Hou Lin, and Tomaskovic-Devey Donald. 2013. "Financialization and U.S. Income Inequality, 1970–2008." *American Journal of Sociology* 118(5):1284–1329.

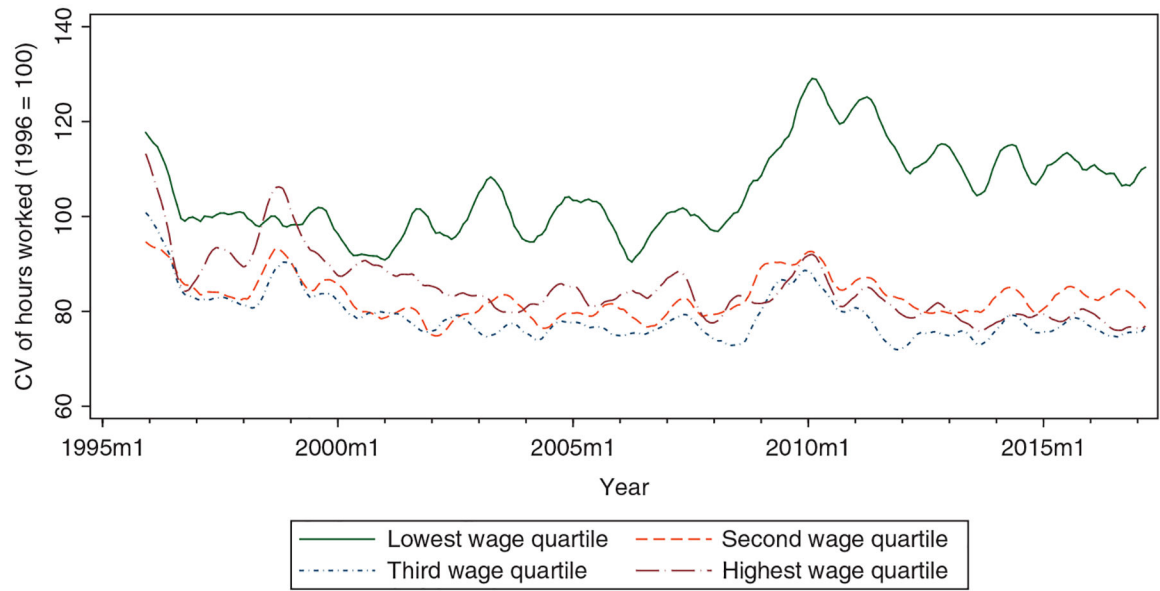


- Madrian Brigitte C., and Lars John Lefgren. 2000. "An Approach to Longitudinally Matching Current Population Survey (CPS) Respondents." *Journal of Economic and Social Measurement* 26(1):31–62.
- McCall Leslie, and Percheski Christine. 2010. "Income Inequality: New Trends and Research Directions." *Annual Review of Sociology* 36:329–47.
- Mishel Lawrence, Bernstein Jared, and Shierholz Heidi. 2009. *The State of Working America 2008/2009*. Ithaca, NY: ILR Press.
- Misra Joya, and Walters Kyla. 2016. "All Fun and Cool Clothes? Youth Workers' Consumer Identity in Clothing Retail." *Work and Occupations* 43(3):294–325.
- Morduch Jonathan, and Schneider Rachel. 2014. "Spikes and Dips: How Income Uncertainty Affects Households." *U.S. Financial Diaries*.
- Morris Pamela A., Heather D. Hill, Gennetian Lisa A., Rodrigues Chris, and Wolf Sharon. 2015. "Income Volatility in U.S. Households with Children: Another Growing Disparity between the Rich and Poor?" Institute for Research on Poverty Discussion Paper No. 1429–15.
- Okun Arthur. 1973. "Upward Mobility in a High-Pressure Economy." *Brookings Papers on Economic Activity* 4(1):207–52.
- Presser Harriet B. 2003. *Working in a 24/7 Economy: Challenges for American Families*. New York, NY: Russell Sage Foundation.
- Redbird Beth, and Grusky David B.. 2016. "Distributional Effects of the Great Recession: Where Has All the Sociology Gone?" *Annual Review of Sociology* 42:185–215.
- Rosenfeld Jake. 2014. *What Unions No Longer Do*. Cambridge, MA: Harvard University Press.
- Rothstein Jesse. 2017. "The Great Recession and Its Aftermath: What Role for Structural Changes?" *RSF: The Russell Sage Foundation Journal of the Social Sciences* 3(3):22–49.
- Schneider Daniel, and Harknett Kristen. 2019. "Consequences of Routine Work-Schedule Instability for Worker Health and Well-Being." *American Sociological Review* 84(1):82–114. [PubMed: 33311716]
- Schor Juliet. 1992. *The Overworked American: The Unexpected Decline of Leisure*. New York, NY: Basic Books.
- Shuey Kim M., and O'Rand Angela M.. 2004. "New Risks for Workers: Pensions, Labor Markets, and Gender." *Annual Review of Sociology* 30:453–477.
- Silver Beverly J. 2003. *Forces of Labor: Workers' Movements and Globalization Since 1870*. Cambridge, UK: Cambridge University Press.
- Tilly Charles. 1997. *Durable Inequality*. Berkeley, CA: University of California Press.
- Van Oort Madison. 2018. "The Emotional Labor of Surveillance: Digital Control in Fast Fashion Retail." *Critical Sociology*. Online First.
- Vargas Tracy. 2017. "Employees or Suspects? Surveillance and Scrutinization of Low-Wage Service Workers in U.S. Dollar Stores." *Journal of Labor and Society* 20:207–230.
- Vidal Matt. 2013. "Inequality and the Growth of Bad Jobs." *Contexts* 12(4):70–72.
- Wallace Michael, and Kwak Joonghyun. 2018. "Bad Jobs in a Troubled Economy: The Impact of the Great Recession in America's Major Metropolitan Areas." In *Precarious Work (Research in the Sociology of Work, Volume 31)*, edited by Kalleberg Arne L. and Vallas Steven P., Pp.125–155. Emerald Publishing.
- Weil David. 2014. *The Fissured Workplace: Why Work Became So Bad for So Many and What Can Be Done to Improve It*. Cambridge, MA: Harvard University Press.
- Western Bruce, and Rosenfeld Jake. 2011. "Unions, Norms, and the Rise in US Wage Inequality." *American Sociological Review* 76(4):513–537.
- Williams Christine L., and Connell Catherine. 2010. "'Looking Good and Sounding Right': Aesthetic Labor and Social Inequality in the Retail Industry." *Work and Occupations* 37(3):349–377.
- Wolfe Julia, Jones Janelle, and Cooper David. 2018. "Fair workweek" Laws Help more than 1.8 Million Workers. Washington D.C.: Economic Policy Institute report.
- Wright Erin Olik. 2000. "Working-Class Power, Capitalist-Class Interests, and Class Compromise." *American Journal of Sociology* 105(4):957–1002.



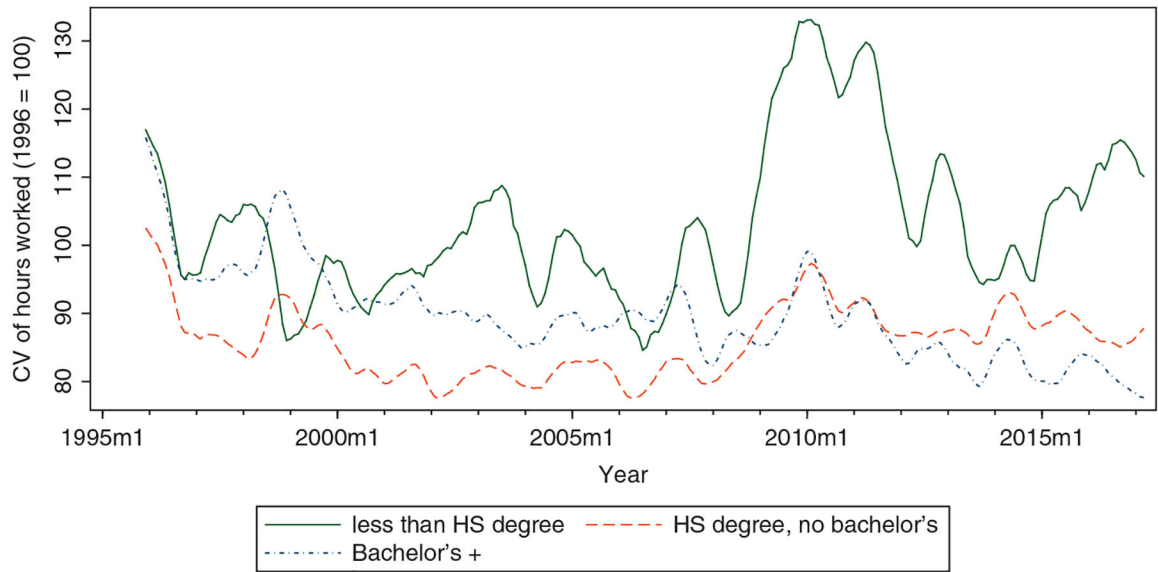
**Figure 1. State-Level Unemployment Rates and Union Coverage, by Year (1995–2017).**

**Note:** The green box plots show within-year variation in state-level unemployment rates, measured on the left axis; the orange line shows the national percentage of individuals who are covered by unions at their work, measured on the right axis. Box plots exclude outside values.



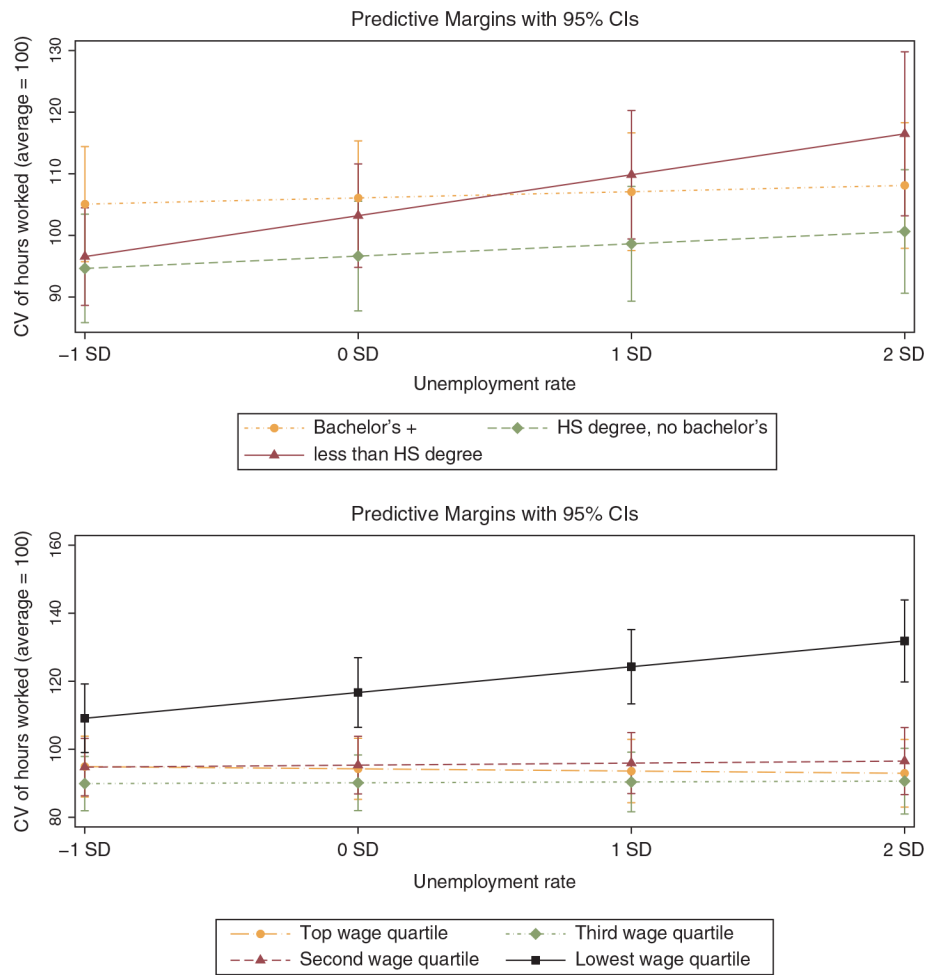
**Figure 2. Trends in the CV of Weekly Hours Worked, by Wage Quartile (1995–2017).**

**Note:** Time series are seasonally adjusted and smoothed using an Epanechnikov kernel with bandwidth equal to six months. See Appendix C for more details.

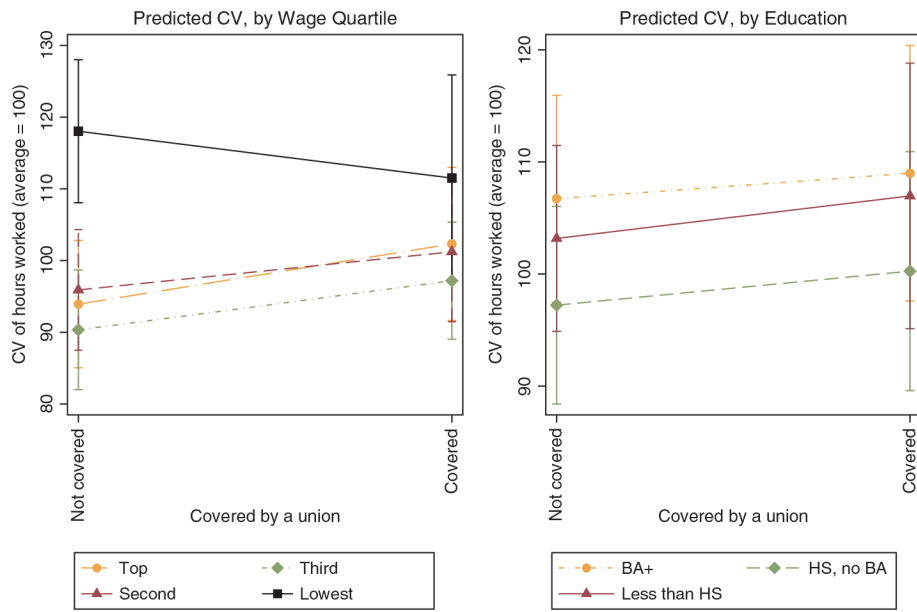


**Figure 3. Trends in the CV of Weekly Hours Worked, by Education (1995–2017).**

**Note:** Time series are seasonally adjusted and smoothed using an Epanechnikov kernel with bandwidth equal to six months. See Appendix C for more details.



**Figure 4. Predicted Class Gaps in Work Hour Volatility by State-Level Unemployment Rate.**  
**Note:** The unemployment rate is centered at the sample mean of 6.1 percent. One standard deviation in the unemployment rate in the sample is equal to 2.04 percentage points. The coefficient of variation in hours worked is scaled to have a mean of 100.



**Figure 5. Predicted Class Gaps in Work Hour Volatility by Union Coverage.**

**Note:** The coefficient of variation in hours worked is scaled to have a mean of 100.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript



**Table 1.**

Distribution of the CV of Hours Worked

	Hypothetical Weekly Hours Worked				
	CV	Month 1	Month 2	Month 3	Month 4
Mean	.086	37	43	37	43
25th percentile	0	40	40	40	40
50th percentile	.058	38	42	38	42
75th percentile	.119	43	35	45	37
90th percentile	.214	28	43.5	40.5	48
95th percentile	.288	48	25	50	37

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

**Table 2.**

Regression Results from Models Predicting the CV of Hours Worked

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Lowest wage quartile	21.58 <sup>***</sup>	21.65 <sup>***</sup>	20.95 <sup>***</sup>
	(1.66)	(1.66)	(1.69)
Second wage quartile	ref.	ref.	ref.
Third wage quartile	-5.23 <sup>***</sup>	-5.21 <sup>***</sup>	-5.39 <sup>***</sup>
	(0.85)	(0.86)	(0.84)
Highest wage quartile	-1.27	-1.11	-1.64
	(1.16)	(1.15)	(1.16)
Less than HS	6.15 <sup>**</sup>	6.65 <sup>***</sup>	6.13 <sup>**</sup>
	(1.75)	(1.74)	(1.80)
HS, no BA	ref.	ref.	ref.
BA or higher	9.45 <sup>***</sup>	9.54 <sup>***</sup>	9.51 <sup>***</sup>
	(0.83)	(0.83)	(0.84)
Unemployment rate	1.20 <sup>*</sup>	1.23 <sup>*</sup>	1.20 <sup>*</sup>
	(0.48)	(0.48)	(0.48)
Unemployment rate × lowest wage quartile		3.86 <sup>***</sup>	
		(0.57)	
Unemployment rate × second wage quartile		ref.	
Unemployment rate × third wage quartile		-0.19	
		(0.33)	
Unemployment rate × highest wage quartile		-0.69	
		(0.44)	
Unemployment rate × less than HS		2.56 <sup>*</sup>	
		(1.07)	
Unemployment rate × HS, no BA		ref.	
Unemployment rate × BA or higher		-0.54 <sup>†</sup>	
		(0.32)	
Covered by a union	4.71 <sup>**</sup>	4.56 <sup>**</sup>	3.02 <sup>†</sup>
	(1.69)	(1.68)	(1.76)
Covered by a union × lowest wage quartile			-12.44 <sup>***</sup>
			(2.95)
Covered by a union × second wage quartile			ref.
Covered by a union × third wage quartile			1.60
			(2.25)
Covered by a union × highest wage quartile			3.27
			(2.29)

	Model 1	Model 2	Model 3
Covered by a union × less than HS			0.80
			(4.97)
Covered by a union × HS, no BA			ref.
Covered by a union × BA or higher			-0.80
			(2.26)
Demographic Controls	Yes	Yes	Yes
Job Controls	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Year and Month FE	Yes	Yes	Yes
Observations	471205	471205	471205

Standard errors in parentheses.

<sup>+</sup> p < .1

\* p < .05,

\*\* p < .01,

\*\*\* p < .001.