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## **Schedule Flexibility and Unpredictability in Retail: Implications for Employee Work-Life Outcomes**

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### Abstract

Mounting concern over the growing precariousness of employment is fueling interest in understanding the job conditions that contribute to employment instability. This study examines work schedules as one source of employment precariousness. Drawing from survey data on a sample of retail workers employed across 21 stores of a U.S. retail apparel firm, the study investigates the relationship between work schedule unpredictability and flexibility and employees' work-to-family conflict, interferences with nonwork activities, and perceived stress. Schedule unpredictability is positively associated with work-family conflict, interferences with non-work activities, and perceived stress whereas schedule flexibility (employee input into schedules) is negatively related to each of the outcomes. Unpredictability is more strongly related to the outcomes than is schedule flexibility, and proves robust across several model specifications, including the inclusion of enabling factors such as supervisor support that may be thought to ameliorate the negative effects of unpredictability.

**Keywords:** Low income families, Work hours, Time use, Work family balance, Role theory

### **Schedule Flexibility and Unpredictability in Retail: Implications for Employee Work-Life Outcomes**

The current economic recession is increasing the vulnerability of workers at all levels of the U.S. labor market. Unemployment increased from 4.9 to 7.2 percent in 2008, continuing its rise to peak at 10.1 percent in October 2009. However, the destabilizing effects of the economic downturn are felt beyond those who lose their jobs. Those who remain employed face increasingly precarious work conditions. For example, involuntary part-time work has reached a 30-year high (8.8 million) and the length of the average workweek has fallen to a record low of under 34 hours.

Although the current recession has extended the reach of precarious work to a broader segment of workers, it did not give rise to these conditions. Jobs and employer-worker relations have become increasingly precarious over the past three decades, due to a combination of factors including macro-economic changes (shifts from manufacturing to service, for example), the decline in unionization, the growth of business strategies emphasizing cost containment, and the loosening of government labor standards (Blank, Danziger, & Schoeni, 2006; Kalleberg, 2009; Lambert, 2008). Precariousness has increased globally, although the focus of this paper is the United States where worker protections are particularly weak. The growth in employment instability underscores the importance of scrutinizing our understanding of the work-family interface for today's workers (Lambert, 1999; Rayman & Bookman, 1999).

Precariousness is evidenced by nonstandard employment arrangements, such as part-time, contingent, and temporary jobs, as well as the use of scheduling practices that allow employers to make quick adjustments to staffing levels in standard jobs, resulting in fluctuating, unpredictable, and reduced work hours that can introduce work-family conflicts, compromise job performance and limit earnings (Lambert, 2008; Henly, Shaefer, & Waxman, 2006).

At the same time that research demonstrates a growth in precarious employment, there is also increasing recognition of the value of schedule flexibility for workers. A recent report on workplace flexibility by the President's Council of Economic Advisors [CEA] (March, 2010) discusses the benefits of work schedules that provide employees some degree of control over when, where, and how they work. Employee control over the timing of their work schedules is a widely studied type of job flexibility that has been linked to enhanced worker productivity and employee and family well-being (Golden, 2005; Hill et al., 2008; Kossek, Lautsch, & Eaton, 2005; Pabayo, Critchley, & Bambra, 2010). Even though low-level hourly workers are arguably in greatest need of flexible work schedules, these workers are least likely to report having them (Golden, 2005; Swanberg, Pitt-Catsouphes, & Drescher-Burke, 2005).

Drawing from a survey of hourly employees in a national retail apparel chain, this study examines two dimensions of work schedules that are hypothesized to influence both behavioral and stress-related outcomes. The first dimension is *schedule unpredictability*, defined as the extent to which employees have limited advance notice of their work schedules and difficulty counting on or anticipating the days, shifts, and number of hours they will work each week. The second dimension is *schedule flexibility*, defined as *employee input* into the time, days, and hours worked. Net of other employment characteristics and personal and family circumstances, it is hypothesized that unpredictability will increase general work-to-family conflict, interfere with workers' ability to plan and structure nonwork time, and heighten levels of perceived stress. It is further hypothesized that schedule input will reduce work-to-family conflict, non-work interferences, and perceived stress. Building from Greenhaus and Beutell's (1985) now classic distinction between strain-based and time-based work-to-family conflict, schedule input is expected to compensate for an unpredictable schedule by reducing workers' stress but is not

expected to significantly reduce interferences with nonwork activities. The survey findings lend support to these hypotheses (with one exception) and are robust to several model specifications. The exception concerns the findings for schedule input and stress where input is not found to be more highly associated with stress than the other dependent variables, nor does it significantly reduce the association between schedule unpredictability and perceived stress.

## BACKGROUND

### *The Growing Precariousness of Work*

In his 2009 presidential address to the American Sociological Association, Arne Kalleberg spoke of the growing precariousness of work and increasing economic insecurity of workers. By precariousness, Kalleberg refers to “employment that is uncertain, unpredictable, and risky from the point of view of the worker” (p.2, 2009). He states:

*Creating insecurity for many people, [precarious work] has pervasive consequences not only for the nature of work, workplaces, and people’s work experiences, but also for many nonwork individual (e.g., stress, education), social (e.g., family, community), and political (e.g., stability, democratization) outcomes. It is thus important that we understand the new workplace arrangements that generate precarious work and insecurity.*

One source of precariousness results from labor flexibility practices that enable employers to control labor costs by closely matching employees’ work hours to variations in consumer demand. Lambert (2008) demonstrates several ways in which labor flexibility practices on the side of employers operate in workplaces—for example, through strategic use of work status categories and “just-in-time” scheduling practices—suggesting that employer-driven variation in work hours, rather than flexibility that benefits workers, is common in many

workplaces. Such employer practices shift risk from firms to workers, resulting in increased instability and insecurity in hours and income, and adding to problems with performance, such as heightened absenteeism and turnover (Appelbaum, Bailey, Berg, & Kalleberg, 2000; Appelbaum, Bernhardt, & Murnane, 2003; Baron & Bielby, 1980; Jacobs, 1994; Lambert, 2008).

### *Nonstandard Employment Status and Work Schedules*

Workers employed in hourly, non-management jobs are at particular risk of precarious employment. Research demonstrates that low-level workers disproportionately hold jobs with nonstandard status (e.g., part-time, contingent, or temporary status, see Herzenberg, Alic, & Wial, 1998; Tilly, 1996) and nonstandard schedules (Golden, 2005; Presser, 2003). Forty percent of the American workforce works the majority of their hours outside of daytime hours, and nonstandard schedules are common across occupations (Presser, 2003). Jobs in the retail sector, such as sales associate, epitomize nonstandard schedule jobs that require employees to work a mix of different shifts, including hours during evenings and weekends (Zeytinoglu, Lillevik, Seaton, Moruz, 2004; Henly et al., 2006). These occupations are also disproportionately part-time and heavily employ workers for whom precarious work schedules are likely to be most detrimental – for example, workers with limited education and skills, inadequate financial resources, minorities, and single parents (Presser & Cox, 1997; Presser, 2003).

Schedule unpredictability – distinct from the timing of work hours – is an understudied dimension of precarious work that holds implications for workers and their families. Recent comparative research suggests that unpredictable schedules in low-level hourly jobs are widespread. Lambert's study of low-level jobs across four industrial sectors found that unpredictable scheduling practices (limited advance notice and frequent last-minute changes to schedules) were a typical employer strategy for managing fluctuations in consumer demand

(Lambert & Waxman, 2005). In Henly's companion study of low-income mothers employed in six of the retail settings studied by Lambert, the majority of participants reported having less than one week's notice regarding the following week's schedule, changes to schedules were often made after the schedule was posted, and workers were regularly called in for unscheduled, "last-minute" hours, sent home early, or pressed to stay later than a shift's scheduled end-time (Henly et al., 2006).

### *Job Flexibility: Input into Work Schedules*

Another key dimension of work schedules is the flexibility that employees have over the hours, days, and shifts they work. Schedule predictability can turn into rigidity if workers have limited schedule input or if posted schedules are not amenable to change. Thus, the benefits of a predictable schedule may be attenuated in situations where schedules are not sufficiently flexible to accommodate nonwork-related responsibilities.

Flexible work is often heralded as a critical workplace benefit that has the capacity to deliver workers greater control over how, where, and when they carry out their work, thereby easing the integration of work with family (and other nonwork) roles (Hill et al., 2008; Kossek, Lautsch, & Eaton 2005; CEA, 2010). Employee control over work schedules may make it possible to arrange work hours around a child's school schedule or allow workers to accommodate unanticipated events such as illness or transportation problems. Employee surveys consistently demonstrate that workers desire flexible work arrangements, believe flexibility would improve their quality of life, and would even trade other forms of work opportunity for flexibility (Golden, 2005). Yet, research based on national samples of workers indicates that employee-driven flexibility in work hours is rare among low-level workers, and flexible work schedules are distributed according to predictable stratification statuses: men more than women,

whites more than nonwhites, and those with higher education over lesser education benefit disproportionately from flexible work schedules (Golden, 2005; Galinsky, Hughes, & David, 1990; Swanberg, Pitt-Catsouphes, & Drescher-Burke, 2005; Zeytinoglu et al., 2009). Moreover, for low-level workers in particular, flexibility comes primarily through informal negotiation rather than through formal policy (Henly et al, 2006). Thus, measurement efforts that focus on formal flexibility policies may miss the informal flexibility practices that operate in many workplaces.

#### *Relationship of Schedule Unpredictability and Flexibility to Work-life Outcomes*

Work-family scholars have long been interested in the various ways that work conditions interact with nonwork domains. Much of this literature has focused on professional, white collar employment (and middle- and upper-class two-parent families), although there have been notable exceptions (e.g., Grzywacz, Almeida, & McDonald, 2002; Lambert, 1990; 1999; Perry-Jenkins, 2005; Swanberg, 2005). Several recent studies of the low-wage labor market that examine the characteristics of low-level jobs (Acs & Loprest, 2008; Kalleberg, Reskin, & Hudson, 2000), firm-level practices (Lambert et al, 2010; Hacker, 2006) and work and family life among low-income and working class families (e.g., Lein, Benjamin, McManus, & Roy, 2005; Perry-Jenkins, 2005; Heymann, 2000) suggest that key concepts in the work-family field may benefit from greater attention to the conditions of work experienced by workers with limited economic means.

Toward this end, the current study investigates whether schedule unpredictability and flexibility are related to both behavioral and stress outcomes in a sample of workers holding low-wage hourly retail jobs that require work during nonstandard times (weekends, evenings, a mix of shifts). We consider whether the *unpredictability* of employees' work schedules and the



amount of *input* employees have into the time, days, and hours they work contribute to general work-to-family conflict and perceived stress and interfere with workers' ability to plan and structure nonwork time.

The study's conceptual framework joins literature on firm practices in the low-wage labor market (as discussed above) with the work-family literature on work-family conflict. Work-to-family conflict is conceptualized as "a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (p.77, Greenhaus & Beutell, 1985). The sources of work-to-family conflict can be *time-based*, in which the time pressures of one role interfere with the time demands of another role, or *strain-based*, in which the strain symptoms produced by one role interfere with one's ability to carry out another role. Work-family conflict is conceptualized in the literature as bidirectional (e.g., Voydanoff, 2005; Kelloway, Gottlieb, & Barham, 1999; Frone, Yardley, & Markel, 1997; Greenhaus & Beutell, 1985), however because the current study is specifically examining the behavioral and stress implications of work schedules, its focus is unidirectional – from work to family.

According to Greenhaus & Beutell (1985), *job demands* are sources of time-based and strain-based work-to-family conflict that "compete for a person's time" (Greenhaus & Beutell, 1985), draining resources and complicating temporal work-family patterns that would otherwise facilitate the fulfillment of family obligations and activities. Whereas much research is concerned with nonstandard timing or *excessive* job demands (e.g., too much work) (see Golden, Lambert, Henly, & Wiens-Tuers, forthcoming; Major, Klein, & Ehrhart, 2002; Pleck, Staines, & Lang, 1980), the current study is focused on the demands of *unpredictable* schedules.

*Time-based sources of work-to-family conflict*

We know of no large scale studies that examine the relationship between schedule unpredictability and time-based work-to-family conflict. However, other aspects of work schedules, such as excessive work hours, nonstandard work-timing and irregular work hours are associated with time-based work-to-family conflict (Major, Klein, & Ehrhart, 2002; Pleck, Staines, & Lang, 1980; Fenwick & Tausig, 2005), and nonstandard work schedules show demonstrated associations with the organization and conduct of family life (Almeida & McDonald, 2005; Presser, 2003; Heymann, 2000). Although there is some evidence that greater control over work schedules can reduce time-based conflict (Fenwick & Tausig, 2005; Kossek, 2005), the degree of employee control may need to be substantial for it to matter in any meaningful way (Greenhaus & Beutell, 1985; Bohlen & Viveros-Long, 1981).

Whether the work conditions of low-level hourly workers, who often have trouble getting enough hours and whose hours are unpredictable, create time-based work-to-family conflict has not been sufficiently studied. A few qualitative studies do suggest that the precariousness of schedules in low-wage jobs, including the unpredictability and instability of hours, interferes with workers' ability to manage family life (Roy, Tubbs, & Burton, 2004; Henly & Lambert, 2005; Scott et al., 2005). The current study considers whether unpredictable work demands that create ambiguities around the timing of work have behavioral consequences for workers. Unpredictable work schedules are hypothesized to interfere with the planning of nonwork activities such as doctor's appointments, social outings, or arranging other family activities. It is posited that unpredictability is a source of time-based conflict and that even when employees have input into their schedules, schedule unpredictability will interfere with nonwork activities.

*Strain-based sources of work-to-family conflict*

A stress model underlies much of the work-family literature (see Eckenrode & Gore, 1990; Edwards & Rothbard, 2005). Over the past quarter century, a substantial list of work stressors with demonstrated relationships to many strain symptoms and stress-related outcomes has accumulated. For example, different measures of work demands have been associated with depression (Frone, Russell, & Barnes, 1996; Googins, 1991), fatigue (Pleck et al., 1980; Googins, 1991), irritability (Pleck et al., 1980), somatic complaints (Burke, 1988), general well-being (Grant-Vallone & Donaldson, 2001), heavy alcohol use (Frone et al., 1996), psychological distress (Matthews, Conger, & Wickrama, 1996) and problematic marital relationships (Matthews et al., 1996).

Greenhaus & Beutell (1985) point out that although some work stressors that induce strain are independent of time-based work demands (for example, role ambiguity, role conflict and boundary spanning activities), other work stressors such as extensive time involvement can produce both time-based and strain-based conflict. This study extends Greenhaus and Beutell's argument to schedule unpredictability, which is hypothesized to contribute to both time-based symptoms, as explained above, and also strain-based symptoms. Staines and Pleck (1983) provide some preliminary support for this view. They find that atypical work hours and days, as well as variable hours, are significantly related to work-family role strain. Similarly, in a qualitative study of retail trade jobs, Zetinoglu and colleagues (2004) describe the stress induced by unpredictable and variable work schedules. Schedule flexibility may reduce stress (Fenwick & Tausig, 2005) and may mediate the relationship between nonstandard timing and strain (Campbell and Moen, 1992). In this study, it is thus hypothesized that the expected positive

relationship between unpredictable schedules and stress will be reduced for workers who have more flexibility as measured by greater input into their schedules.

### *Vulnerability to Employment Precariousness*

Certain workers may be particularly vulnerable to precarious work conditions, stress, and work-family conflict (Gottschalk & Danziger, 2005; Grzywacz, Almeida, & McDonald, 2002; Padavic & Reskin, 2002). Demographic variables such as education, age, race and ethnicity, marital status, and health status have been shown to be associated with job characteristics as well as work-family conflict and stress (Frone, Yardley, & Markel, 1997; Grzywacz, et al., 2002; McLoyd, Toyokawa, & Kaplan, 2008; Moen & Yu, 1999; Presser, 2003). The availability of a partner to share living expenses and caregiving may further influence workers' experiences of precarious employment as well as stress and work-to-family conflict. Finally, workplace variables such as supervisor emotional support may act as a resource that can reduce the unpredictability of employees' work schedules and ease work-to-family conflict (Hammer, Kossek, Yragui, Bodner, & Hanson, 2008; O'Driscoll, Poelmans, Spector, Kalliath, Allen, Cooper, & Sanchez, 2003; Allen, 2000). This study includes demographic and work indicators as controls in the multivariate analyses in order to assess the independent associations of schedule unpredictability and input with the dependent variables of interest.

### *Study Hypotheses*

Based on the findings reviewed above from the work-family literature, this study advances both a behavioral and a stress model to develop hypothesized relationships between the two dimensions of work schedules under study – schedule unpredictability and schedule input– and three dependent variables: general work-to-family conflict, time-based conflict (interferences with planning nonwork activities), and perceived stress. Overall, we expect unpredictability to

be positively related (Hypothesis 1) and input to be negatively related (Hypothesis 2) to the three outcomes. We do not expect input into schedules to be sufficient to fully compensate for the interferences in nonwork activities that unpredictability can cause; thus, we hypothesize that schedule unpredictability will have a robust relationship to the behavioral measure that taps into interferences with nonwork activities, even after schedule input has been considered in the model (Hypothesis 3). However, we do expect that input into work hours can significantly reduce the stress of unpredictable schedules, and hypothesize that the association between unpredictability and stress will be attenuated when both schedule dimensions are considered together in the same model (Hypothesis 4). We do not advance an a priori hypothesis regarding whether the coefficients for unpredictability and input will remain significantly related to the general work-to-family conflict measure when they are both included together in the model because the work-to-family conflict measure is a general indicator that includes dimensions of both time-based and strain-based work-to-family conflict.

## METHOD

### *Data and Study Site*

Analyses are based on data from the *Retail Employee Scheduling Survey (RESS)*, a 45-minute telephone survey conducted at 2 points in time in 2008 (approximately 6 months apart) with retail workers employed across 21 Midwestern stores. The survey data were originally collected as part of a workplace intervention; this paper reports on nonexperimental survey findings and does not assess the results of the intervention. All stores belong to the same large, national women's apparel retailer. Stores are small, with an average staff of 10, and located mostly in suburban strip malls. The survey targeted all employees in the 21 stores; however for

the current analyses, the sample is restricted to hourly workers (sales associates and assistant managers).

### *Sampling Strategy*

Prior to recruitment, the research team was provided the names of all employees in the 21 selected stores but not their contact information. To gather addresses and telephone numbers, a letter requesting contact information was provided by the research team to the store manager, who distributed them to store employees. Several follow-up attempts were made including in-person store recruitment visits. Employees were provided with a \$10 gift card for supplying contact information. The first stage of recruitment for Wave 1 yielded a response rate of 68 percent—172 of 253 eligible store employees provided contact information.

Of the 253 employees eligible for participation in Wave 1, 215 were eligible in Wave 2. Individuals were only deemed ineligible for Wave 2 if we had no way to contact them because they did not return contact information at Wave 1 and they no longer worked in one of the 21 participating stores. Individuals who had left the firm but had provided contact information at Wave 1 were eligible for Wave 2. An additional 41 individuals became eligible in Wave 2 because they had been hired into one of the 21 stores since recruitment took place for Wave 1, resulting in 256 eligible Wave 2 participants. For Wave 2, a similar process was followed to Wave 1 to collect updated (or new) contact information. Wave 2 contact information was received from 190 of 256 (74.2%) eligible participants.

The University of Wisconsin Survey Center was responsible for calling employees who had provided contact information, conducting informed consent, and administering the survey. All survey respondents received a \$25 check for participation at Wave 1 and a \$50 check for participation at Wave 2. At Wave 1, 136 of the 172 employees who returned response cards

participated in the survey (79.1%; or 53.8% of all 253 eligible store employees). At Wave 2, 156 out of 190 employees who returned response cards participated (82.1%; or 60.9% of all 256 eligible store employees). Eighty-eight percent of Wave 1 respondents were successfully re-interviewed in Wave 2. An analysis of Wave 2 response rate bias reveal no significant difference between store employees who provided contact information and those who did not; however, of those who completed the survey, Wave 2 respondents were significantly older ( $p < .03$ ) and significantly more likely to be White ( $p < .04$ ). Store managers were also more likely than sales associates and assistant managers to complete the survey, however because store managers are not included in the current analyses, this difference does not affect study results.

Store managers and respondents who were no longer working at the retail establishment at Wave 2 were excluded from the analyses reported herein, resulting in a Wave 2 sample of 120 respondents. For analyses that include both Waves 1 and 2 data, this subsample of 120 is further narrowed to the 92 respondents who completed both Wave 1 and Wave 2 surveys.

### *Measures*

The majority of variables were constructed from responses to self-report survey questions (see Appendix A for specific items). Three control variables (race, age, and full/part-time status) come from the personnel records of the corporation that were obtained as part of the broader workplace experiment.

### *Independent Variables*

*Schedule unpredictability* is a composite measure that combines responses assessing amount of advance schedule notice with responses to 3 items ( $\alpha = .65$ ) assessing the extent to which respondents agreed or disagreed that they can anticipate and/or count on the number and timing of hours that they will be working week-to-week. Based on these two measures (*advance*

*schedule notice and anticipation index*), a measure of *schedule unpredictability* was constructed that has three possible values: *Most Predictable* (more than one week notice of work schedule and a score in the top half of the median split of the 3-item *anticipation index*, coded as 1), *Somewhat Predictable* (one week or less notice of work schedule and a score in the top half of the median split of the 3-item *anticipation index*, coded as 2) and *Unpredictable* (one week or less notice of work schedule and in the bottom half of the median split of the 3-item *anticipation index*, coded as 3). *Schedule Unpredictability* is treated as a continuous variable in the multivariate analyses reported here (with higher scores indicating greater unpredictability); results are unchanged when *Schedule Unpredictability* is considered categorically, with *Most Predictable* serving as the excluded category.

*Schedule Input* is a 4-item index ( $\alpha=.82$ ) that assesses flexibility, i.e., the amount of input into the number of hours respondents report working each week, the days worked each week, the days off, and starting and ending times. Higher scores indicate greater input into schedules.

#### *Dependent variables*

*General Work-to-Family Conflict* is a 5-item index adapted from Netemeyer, Boles, and McMurrian (1996) that combines both time- and strain-based items ( $\alpha=.87$ ). Workers rated how often the demands of their work interfere with their personal or family time, create strain that makes it difficult to fulfill personal or family responsibilities, and cause them to adjust their personal plans. *Work Interferences in Nonwork Activities* is a 4-item index of questions that asked workers whether they have “more than enough time, just enough time, or not enough time” to, for example, schedule doctor’s appointments, plan activities with friends or family, and arrange to cook a meal at home ( $\alpha=.84$ ). *Perceived Stress* is an 8-item scale adopted from the



14-item scaled developed by Cohen, Kamarck, and Mermelstein (1983). The items asked workers to report how often in the prior month they experienced, for example, feelings of anxiety, personal control, and confidence in their coping skills ( $\alpha=.82$ ). Higher scores on the three measures indicate greater conflict, more interferences, and higher stress respectively.

### *Control variables*

We include several measures of vulnerability as control variables in the multivariate regressions. Personnel records provided information to construct *Age*, a continuous variable calculated from the workers' birthdate, *Race*, a dichotomous variable that differentiates workers who are recorded as White (coded 1) in the company's personnel records from other workers (coded 0), and *Part-time*, a dichotomous variable that identifies workers who hold part-time (coded 1) rather than full-time (coded 0) positions at the retail firm.

A series of additional dichotomous variables are constructed from workers' survey responses: *High School Education* identifies workers who reported having no more than a high school degree (coded 1) from workers who reported additional education (coded 0); *Caregiving responsibilities* is a dichotomous measure that distinguishes workers with (coded 1) and without (coded 0) caregiving responsibilities for a child under 18 living in their home and/or the routine care of another child or an elderly or disabled adult; *Respondent has Other Job* indicates whether respondent reports a job in addition to the target retail job (coded 1) or does not (coded 0). To capture both marital status and employment status of partner, a trichotomous measure that includes *Does Not Have Partner* (coded as 1), *Has Partner Who Does Not Work or Works Part-Time* (coded as 2), and *Has Partner Who Works Full-Time* (coded as 3) was constructed. *Subjective Health* is a one-item question asking respondents to rate their health as excellent, very

good, good, fair, or poor. Given the distribution on the measure, it was dichotomized to indicate excellent or very good health (coded as 0) or good, fair, or poor (coded as 1).

*Supervisor Support* is a 4-item emotional-support subscale developed by Hammer and colleagues (2008) that assesses the extent to which workers agree that their immediate supervisor is willing to talk about and is interested in their work and nonwork conflicts. (Higher scores indicate greater support.) This variable is used in Model 5 and Model 5b to estimate the robustness of our hypotheses to alternative model specifications.

Controls are included for whether the respondent worked in an experimental or control store, although the intervention itself is not evaluated in this study. A variable indicating the length of time between Waves 1 and 2 surveys is included in regressions that use both waves of data.

#### *Analytic Plan*

Confirmatory factor analyses are first conducted to establish that key constructs (schedule unpredictability and input) are unidimensional and empirically distinguishable from one another. Then descriptive statistics of the control, independent, and dependent variables at Wave 2 are presented. Wave 2 cross-sectional data are then used to estimate five multiple regression models for each of the three dependent variables. The models assess the relationship between each dependent variable and a set of controls (Model 1), the unpredictable schedule variable net of control variables (Model 2, Hypothesis 1), the input variable net of control variables (Model 3, Hypothesis 2), and the two independent variables entered simultaneously (unpredictable schedules and input into schedules) with the set of controls (Model 4). Model 4 assesses hypotheses 3 and 4, which are concerned with the independent associations of unpredictability and input net of the other, and whether input into schedules compensates for the stress induced

by unpredictable schedules (Hypothesis 4) but not for the time-related conflicts (nonwork interferences) (Hypothesis 3). The fifth model includes supervisor emotional support in the full model as a robustness check to determine if the associations observed with the independent variables remain once level of supervisor emotional support is considered (Model 5).

The five models are presented together for each dependent variable in Table 3 (General Work-to-Family Conflict), Table 4 (Interferences with Nonwork Activities), and Table 5 (Perceived Stress). In interpreting the tables, note that the independent and dependent variables are scaled such that positive coefficients on unpredictability and negative coefficients on input are consistent with the central study hypotheses (i.e., more unpredictability and less input is related to higher work-to-family conflict, greater interferences with nonwork activities, and higher perceived stress). Because the respondents were drawn from 21 stores, and hence the data are not independent, the standard errors are adjusted in all models to account for the clustering of employees by store to obtain a robust variance estimate (Williams, 2000; Rogers, 1993).

The possibility of reverse causation cannot be ruled out either conceptually or empirically in this study. It is possible, for example, that workers with high levels of stress or high work-family conflict make last-minute scheduling demands that add to the unpredictability of their work hours. We attempt to deal with the problem of reverse causation by re-estimating the models reported in Tables 3 through 5, controlling for prior measures of the dependent variables at Wave 1 (Table 6). This approach does not eliminate the possibility that reverse causality can at least partially account for the results. However, by removing the association between the independent variables and prior measures of the dependent variables when estimating Wave 2 relationships, these regressions help take potential reverse causation into account, offering a more conservative assessment of the hypotheses.

More specifically, in the second stage of the analyses, the five models are rerun for each dependent variable with the addition of the Wave 1 value of the dependent variable as a control along with the prior control variables and a control for the time that elapsed between the Wave 1 and Wave 2 interviews. The standard errors are again adjusted to account for nonindependence (i.e., clustering). We label these models, 1b, 2b, 3b, 4b, and 5b to differentiate them from the core Wave 2 analyses and present the results on Table 6. To conserve space, Model 1b (the model with only control variables) is not presented on Table 6 nor are the coefficients for the control variables for Models 2b through 5b. All models and their full set of coefficients are available upon request of authors.

## RESULTS

### *Confirmatory Factor Analysis*

Confirmatory factor analyses using AMOS 7.0 were conducted to establish that the loadings of items on the multiple-item indices included in the analyses were significant and empirically distinct from one another. These include the three-item *anticipation* index used to construct schedule unpredictability, the 4-item *input* index, and the 4-item *supervisor support* index. Factor loadings for the individual items comprising each of these indices were statistically significant and model fit indices provided support of construct validity. Following procedures suggested by Anderson and Gerbing (1988), the divergent validity of the composite unpredictability measure and the input measure was estimated by comparing the fit of a measurement model in which the correlation between these indices was constrained to 1 and a measurement model in which the correlation was freely estimated. Model fit indices indicated poor fit for the former model (e.g., CFI Wave 1=.81; Wave 2=.80) and good fit for the latter (e.g., CFI Wave 1= .96; Wave 2= .96), thus providing empirical support that the measures of

unpredictability and input are empirically distinct. Results also indicate that supervisor support is distinct from both unpredictability and input.

### *Descriptives*

Descriptive statistics for the sample of retail employees are provided in Tables 1 and 2. The sample is exclusively female, over three-fourths are non-Hispanic white, and just under one-third have regular caregiving responsibilities. The sample is relatively diverse by age, with approximately one-fifth 35 years of age or younger and thirty percent 55 years of age or older. Just over 40% have more than a high school degree, and 56 percent reported excellent or very good health. About 40 percent of respondents are neither married nor living with a partner, about 42 percent are married or living with a partner who works full time, and the remainder are married or living with a partner who is either unemployed or working part time. Wages for respondents are above the legal minimum, but arguably low at \$9.20. The average wages of full-time employees are approximately four dollars higher than part-time employees. Almost three-fourths of respondents work part-time at this retail firm, however well over one-third (40%) also hold a job at another place of employment.

Table 2 reports the mean, standard deviation, and range of the key independent variables (unpredictable work schedules and input), supervisor emotional support which is included in model 5 only, and the three dependent variables. Although the sample includes workers from a single retail chain, there is sufficient variation on the work variables (unpredictability, input, and supervisor emotional support) to address the study hypotheses. For example, the three-item unpredictability measure shows about one-fourth of the sample in the highest and one-fourth in the lowest predictability range. For input, respondents are distributed across the entire four-point scale, with one-third of the sample scoring between 3 and 4. The distribution is similar for

supervisor support. The schedule unpredictability, input, and supervisor emotional support measures show modest correlation with one another, although not so much as to pose multicollinearity concerns in the regression models (all correlations at .4 or below).

### *Multivariate Analyses*

General work-to-family conflict. Table 3 reports the results of the five models for *general work-to-family conflict*. Model 1 indicates that respondents with more than one job report significantly more work-to-family conflict than those with only one job and part-time employees compared to fulltime employees report significantly less work-to-family conflict. These results remain significant across models. Although age is not significant in Model 1, it becomes so when schedule unpredictability is taken into account together with the other variables (Models 2, 4, and 5) such that younger respondents report more work-to-family conflict. Somewhat surprisingly, respondents with caregiving responsibilities report less work-to-family conflict, at least in the context of controlling for the other vulnerability measures.

Net of the measures of vulnerability, we find that unpredictable schedules (Model 2) and input into schedules (Model 3) are both related to general work-to-family conflict in the expected directions. Both variables remain significant in Model 4 (when schedule unpredictability and input are considered together). These findings lend support to the first two study hypotheses that schedule unpredictability is related to greater work-to-family conflict and input into schedules is related to less work-to-family conflict. Model 5 considers the possibility that supervisor emotional support acts as a resource that can reduce general work-to-family conflict. The results lend support to this hypothesis as respondents who report less agreement with the supervisor support items report significantly more work-to-family conflict. Moreover, taking supervisor support into account diminishes to nonsignificance the relationship between input and work-to-

family conflict and reduces, but not to nonsignificance, the relationship between unpredictability and work-to-family conflict. Thus, these results suggest that for the general work-to-family conflict measure, which includes aspects of both time-based and strain-based conflict, having supervisor support reduces the importance of schedule input and somewhat ameliorates the challenges posed by unpredictable schedules, although it does not fully compensate for unpredictable schedules.

Interferences with nonwork activities. Table 4 reports the results of the five models for *interferences with nonwork activities*. We hypothesized that the time-based conflict induced by unpredictable schedules (Hypothesis 1) and limited employee control (Hypothesis 2) would be positively associated with interferences with nonwork activities, and that greater input into schedules would be insufficient to eliminate the time-based conflicts posed by unpredictability (Hypothesis 3). These hypotheses were supported.

Model 1 indicates that, with the exception of health and caregiving, none of the vulnerability variables are significantly related to the interference measure. This lack of association is constant across the models. Similar to the results for general work-to-family conflict, better health is related to fewer work interferences in the first two models, although the effect is reduced to marginal significance in the remaining models, and in Models 1 and 2, caregiving responsibilities are again negatively related to nonwork interferences.

As with general work-to-family conflict, we find that unpredictable schedules (Model 2) and lack of input into schedules (Model 3) are both significantly related to interferences with nonwork activities. The coefficient for both variables dissipates somewhat in Model 4, when input into schedules is considered together with unpredictability, although both unpredictability and input remain significant. Thus, consistent with hypothesis 3, the results suggest that although

input into schedules can reduce nonwork interferences, it cannot completely compensate for the challenges created by unpredictable schedules that contribute to nonwork interferences. In Model 5, when supervisor emotional support is considered together with unpredictability and input, the coefficients of both input and unpredictability are somewhat reduced. Importantly, schedule unpredictability, but not input, remains significantly related to interferences with nonwork activities, and the supervisor support variable itself is not significant. Thus, these results do not provide strong evidence that supervisor support mediates the relationship between precarious schedules and interferences with nonwork activities.

Perceived stress. Table 5 reports the results of the five models for perceived stress. We hypothesized that unpredictable schedules (Hypothesis 1) and limited input into schedules (Hypothesis 2) would pose strain-based challenges that contribute to perceived stress. We further hypothesized that unlike time-based conflicts, the strain-based conflict resulting from unpredictable work schedules could be ameliorated for workers with significant input over their schedules (Hypothesis 4). As elaborated below, our first two hypotheses were confirmed. However, we do not find support for our hypothesis that having input into schedules reduces the association between time-based conflict and perceived stress.

As reported on Table 5, respondents with poorer health report significantly more perceived stress in Models 1 and 2 (the relationship is marginally significant in the other models), and respondents with less education report significantly lower levels of perceived stress across the models. Although having another job is not significant in Model 1, it becomes significant or marginally significant in the other models such that respondents with more than one job report more perceived stress. Respondents who are not married or cohabiting report less



stress than those who are married or cohabiting to a full-time employed partner, in all models except Model 1.

As hypothesized, having an unpredictable work schedule (Model 2) is related to significantly higher levels of perceived stress and having input into work schedules (Model 3) is related to significantly lower levels of perceived stress. However, contrary to our hypothesis, we do not find evidence that having input into one's schedule reduces the association between unpredictable schedules and perceived stress. To the contrary, although the strength of the schedule unpredictability coefficient is slightly reduced in Model 4, the coefficient for schedule unpredictability remains significant, whereas the coefficient for input is reduced to nonsignificance. Adding supervisor emotional support to the model together with schedule unpredictability and schedule input (Model 5) does not change the size or significance level of the coefficient for unpredictability and input remains nonsignificant. Moreover, there is no significant relationship between supervisor support and perceived stress.

Alternative model specifications. Table 6 summarizes the results of the regression analyses that replicate Models 1 – 5 (here referred to as Models 1b – 5b), with the addition of the Wave 1 measure of the dependent variable included as a control variable. The results are presented on Table 6 as three horizontal panels, one for each dependent variable. As with Tables 3 - 5, the models are represented as columns in Table 6, although we have excluded Model 1b (the vulnerability model without work schedule measures).

As the first row of each panel indicates, and as would be expected, the Wave 1 indicator of the outcome is strongly and significantly related to the Wave 2 indicator of the outcome such that Wave 1 general work-to-family conflict is associated to Wave 2 general work-to-family conflict, Wave 1 interferences with nonwork activities is associated to Wave 2 interferences with

nonwork activities, and so on. Net of those associations, schedule unpredictability continues to be significantly associated with each of the Wave 2 dependent measures (Model 2b), and the significant association remains in each of the models even when input and supervisor support are considered together with unpredictability (Models 4b & 5b).

The scheduling input measure proves less robust. Although in the earlier models input into schedules was found to be positively related to general work-to-family conflict, interferences with nonwork activities, and perceived stress, this relationship only holds for perceived stress in the lagged dependent variable model, and the association is only statistically significant in Model 3b. That is, when Wave 1 indicators of perceived stress are controlled, input at Wave 2 is significantly related to Wave 2 perceived stress. This relationship diminishes when unpredictability alone (Model 4b) or in combination with supervisor emotional support (Model 5b) is included in the model. Overall, schedule unpredictability but not schedule input proves to be robust across the different model specifications and across different outcomes, suggesting its salience as a contributor to both time-based and strain-based work-family challenges.

## DISCUSSION

Mounting concern over the growing precariousness of employment is fueling interest in the changing nature of work and the everyday job conditions that structure instability into employment and in turn, the lives of workers and their families. In low-level hourly jobs, work schedules can be an important source of employment precariousness. The overarching research questions guiding the study concern how schedule unpredictability matters for a set of work-life outcomes and whether having input into one's hours of work can attenuate the potentially deleterious effects of an unpredictable schedule. To date, schedule unpredictability, defined here as little advance schedule notice and difficulty anticipating work timing, has received limited

empirical investigation, even though it is a defining characteristic of work schedules in many hourly jobs. Flexibility has received considerably more empirical attention, although most research has focused on workers in professional and managerial occupations. Because schedule flexibility in low-level hourly jobs rarely takes the form of out-right employee control over work, it was defined modestly in this study as the extent to which employees have input into the number, days, and times they work.

We examined the contributions of both schedule unpredictability and input to a set of work-family outcomes among a sample of hourly retail employees in a national retail firm. Net of individual, family, and other work characteristics, the findings indicate that both schedule unpredictability and schedule input are related to each of the outcomes, suggesting that precarious work schedules are an important source of time-based and strain-based work-to-family conflict and that flexibility as measured by input into work hours may reduce these forms of conflict. We further find that, as hypothesized, having input into one's schedule is not enough to overcome the association between having an unpredictable schedule and interferences with nonwork activities. The findings suggest that input into scheduling also does little to compensate for an unpredictable schedule in terms of reducing workers' perceived stress, a finding counter to what was hypothesized. Supplemental analyses (not reported here) find no significant interaction of unpredictable schedules and schedule input in explaining these outcomes, providing further evidence that time-based conflicts created by unpredictable work schedules disrupt nonwork spheres even when employees have some input into the timing of their work. Moreover, the results suggest that the disruptions themselves are stressful even in the context of relatively more input into work hours.

The central findings are robust to several model specifications. In particular, the general pattern of results holds net of controls which take into account personal and family vulnerabilities among the sample, and net of supervisor support which has been shown to affect a host of work-family-related outcomes in previous research (Frye & Breugh, 2004; Warren & Johnson, 1995). The results for schedule unpredictability are robust to an even more conservative test of the hypotheses, as the lagged dependent variable model demonstrates in Table 6. Schedule input proved less robust in these models that account for earlier measures of the dependent variable, maintaining a significant relationship only to perceived stress and only when the unpredictability measure was not included in the model. In another robustness test, not shown but available from the authors by request, the same general pattern of results are found, albeit somewhat less stably, when Wave 2 dependent variables are regressed on Wave 1 measures of the predictor variables. The robustness of the results across these various model specifications is especially noteworthy given the study's limited power due to a relatively small sample, the large number of control variables included in the models, and the tendency for lagged dependent variable models to dramatically reduce the coefficients of substantive predictor variables (see Maddala, 1973; Achen, 2001).

These analyses represent an initial attempt to examine the role that unpredictable work schedules play in the lives of low-level hourly workers and the extent to which having input into work hours can overcome the effects of not being able to anticipate the number and timing of one's hours from week to week. We have explored the relationships of interest within the constraints imposed by a small sample and through the use of self-report measures that give rise to concerns about common method bias (see Doty & Glick, 1998). Although we considered several model specifications in an effort to limit the biases inherent in correlational research

designs, concerns over omitted variable bias and the possibility of reverse causality should not be dismissed. Thus, we remain cautious regarding our interpretation of the observed relationships, and it is important to consider the results in light of several endogeneity concerns. For example, although the conceptual model is concerned with pathways emanating from work to other domains, the Wave 2 cross-sectional results do not rule out the possibility that “outcomes” are themselves contributing to precarious work schedules. For example, respondents who are under significant stress and whose households operate with limited predictability in routines may experience less predictable schedules *because* their nonwork lives preclude them from holding a more regular schedule. Moreover, higher levels of perceived stress (wherever it originates) may influence the level of input into scheduling that managers offer employees. Indeed, managers may consider input into schedules a reward for employees to earn (Henly et al. 2006); if so, then employees who are under stress or otherwise not performing up to manager standards may be given fewer opportunities to provide input into their schedules. We respond to these alternative interpretation issues by including Wave 1 indicators of each of the dependent variables in the second set of analyses, but of course these controls do not eliminate the possibility that Wave 2 outcomes operate on Wave 2 predictors.

We suspect that employee input into schedules is indeed an important source of job flexibility for hourly workers. However, these results suggest that, at least in this sample, input alone is not sufficient to overcome the effects of having an unpredictable work schedule. It may be that employee input into work hours needs to be much more substantial than what is available to these workers for it to meaningfully influence employee well-being.

Overall, the results reported in this paper suggest that unpredictable schedules have negative consequences for individual and family life. Precarious scheduling practices are not

isolated within a few organizations but rather reflect growing national and international trends that have profound implications for individual and family economic security (Kalleberg, 2009). Models for understanding work-life and work-family linkages must thus take into account the increasing precariousness of employment conditions and the changing nature of employer-worker relationships if they are to be useful explanatory tools.

Table 1

Wave 2 Sample Descriptives (n = 120)

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Race	
Black (%)	12.50
White (%)	80.00
Latina or Hispanic (%)	6.67
Caregiving Responsibilities (%)	31.67
Age: mean (sd)	47.8 (13.58)
% 35 or under	19.17
% 55 or over	30.00
More than high school education (%)	42.50
Rates health as excellent or very good (%)	55.83
Family Structure	
Not married or cohabitating (%)	41.67
Married or cohabiting, partner does not have a full-time job (either not working or working part-time) (%)	15.83
Married or cohabiting, partner has a full-time job (%)	42.50
Hourly wage: mean (sd)	\$9.20 (2.18)
Part-time at target job (%)	73.33
Additional job (%)	40.00

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Table 2: Wave 2 Descriptives of Key Variables (n = 120)

Variables	<i>M</i>	<i>SD</i>	Range
Unpredictable work schedule	2.03	0.71	1 - 3
Input over schedule	2.78	0.80	1 - 4
Emotional support from supervisor	1.94	0.65	1 – 3.7
(Model 5 only)			
Work-family conflict	2.27	0.82	1 – 4.6
Interference with nonwork activities	1.70	0.63	1 - 3
Perceived stress scale	2.26	0.66	1 – 4.4



Table 3: Dependent Variable: General Work-to-Family Conflict, Models 1 – 5, Wave 2

VARIABLES	Model 1 (controls)	Model 2 Mod 1 + unpredictability	Model 3 Mod 1 + input	Model 4 Mod 1 + 2 + 3	Model 5 1 + 2 + 3 + supervisor support
Health is good, fair, or poor	0.3112 (0.1811)	0.2960+ (0.1627)	0.2164 (0.1818)	0.2336 (0.1651)	0.2381 (0.1566)
Age	-0.0043 (0.0036)	-0.0079* (0.0034)	-0.0037 (0.0032)	-0.0069* (0.0031)	-0.0091* (0.0033)
Race (white vs others)	0.3631+ (0.1901)	0.2526 (0.1870)	0.2595 (0.1821)	0.1989 (0.1829)	0.2520 (0.1865)
Education [mt HS (0) vs no mt HS (1)]	-0.1972 (0.1558)	-0.1788 (0.1389)	-0.2327 (0.1519)	-0.2056 (0.1354)	-0.1528 (0.1258)
Caregiving Responsibilities	-0.3745** (0.1278)	-0.3971** (0.1293)	-0.2156 (0.1657)	-0.2827+ (0.1556)	-0.3311* (0.1516)
Partner is full-time	-0.0139 (0.1219)	-0.1048 (0.1364)	-0.0599 (0.1314)	-0.1223 (0.1377)	-0.1379 (0.1453)
Partner is unemployed or part-time	0.0340 (0.1848)	-0.0095 (0.1782)	0.0725 (0.1779)	0.0201 (0.1758)	-0.0126 (0.1530)
Has other job	0.5634** (0.1657)	0.6023** (0.1631)	0.7118** (0.1639)	0.7005** (0.1586)	0.6713** (0.1654)
Part-time at retail job	-0.4811* (0.1764)	-0.4482* (0.1729)	-0.5092* (0.1866)	-0.4696* (0.1792)	-0.4561* (0.1784)
Schedule unpredictability		0.3900** (0.0938)		0.3219** (0.0977)	0.2416* (0.1018)
Input			-0.3226** (0.1095)	-0.2291* (0.1002)	-0.1515 (0.1051)
Supervisor emotional support					0.2609* (0.1250)
Observations	120	119	120	119	119
R-squared	0.269	0.377	0.345	0.412	0.441

Beta coefficients are unstandardized; Robust standard errors in parentheses. \*\*p<0.01, \*p<0.05, +p<0.1.

Note: All models adjusted for intervention condition

Table 4: Dependent Variable: Interferences with Nonwork Activities, Models 1 – 5, Wave 2

VARIABLES	Model 1 (controls)	Model 2 Mod 1 + unpredictability	Model 3 Mod 1 + input	Model 4 Mod 1 + 2 + 3	Model 5 1 + 2 + 3 + supervisor support
Health is good, fair, or poor	0.2758* (0.1160)	0.2213* (0.0949)	0.1970+ (0.1095)	0.1672+ (0.0925)	0.1701+ (0.0959)
Age	0.0018 (0.0041)	-0.0006 (0.0036)	0.0023 (0.0037)	0.0003 (0.0034)	-0.0012 (0.0035)
Race (white vs others)	0.0626 (0.1528)	-0.0461 (0.1661)	-0.0235 (0.1454)	-0.0928 (0.1586)	-0.0578 (0.1643)
Education [mt HS (0) vs no mt HS (1)]	-0.0792 (0.0986)	-0.0912 (0.0893)	-0.1087 (0.1026)	-0.1144 (0.0902)	-0.0797 (0.0943)
Caregiving Responsibilities	-0.3154* (0.1327)	-0.2941* (0.1397)	-0.1833 (0.1091)	-0.1948 (0.1236)	-0.2266+ (0.1142)
Partner is full-time	0.0790 (0.1033)	0.0110 (0.1161)	0.0408 (0.1020)	-0.0043 (0.1104)	-0.0145 (0.1122)
Partner is unemployed or part-time	0.0247 (0.1395)	0.0805 (0.1456)	0.0567 (0.1383)	0.1062 (0.1422)	0.0847 (0.1318)
Has other job	-0.1814 (0.1316)	-0.1404 (0.1325)	-0.0581 (0.1193)	-0.0552 (0.1250)	-0.0744 (0.1244)
Part-time at retail job	0.0064 (0.1508)	-0.0402 (0.1383)	-0.0169 (0.1441)	-0.0588 (0.1366)	-0.0499 (0.1415)
Schedule unpredictability		0.3528** (0.0672)		0.2936** (0.0617)	0.2409* (0.0853)
Input			-0.2681* (0.1027)	-0.1987* (0.0935)	-0.1477 (0.0971)
Supervisor emotional support					0.1715 (0.1030)
Observations	120	119	120	119	119
R-squared	0.147	0.279	0.235	0.324	0.345

Beta coefficients are unstandardized; Robust standard errors in parentheses. \*\*p<0.01, \*p<0.05, +p<0.1. Note: All models adjusted for intervention condition

Table 5: Dependent Variable: Perceived Stress, Models 1 – 5, Wave 2

VARIABLES	Model 1 (controls)	Model 2 Mod 1 + unpredictabi lity	Model 3 Mod 1 + input	Model 4 Mod 1 + 2 + 3	Model 5 1 + 2 + 3 + supervisor support
Health is good, fair, or poor	0.3539* (0.1687)	0.3280* (0.1496)	0.2934+ (0.1618)	0.2879+ (0.1499)	0.2880+ (0.1516)
Age	-0.0003 (0.0032)	-0.0025 (0.0033)	0.0000 (0.0029)	-0.0018 (0.0030)	-0.0019 (0.0031)
Race (white vs others)	0.0953 (0.1761)	0.0166 (0.1793)	0.0292 (0.1639)	-0.0180 (0.1722)	-0.0170 (0.1752)
Education [mt HS (0) vs no mt HS (1)]	-0.2462* (0.1161)	-0.2444* (0.1105)	-0.2688* (0.1057)	-0.2617* (0.1009)	-0.2607* (0.1011)
Caregiving Responsibilities	-0.0560 (0.0895)	-0.0556 (0.1117)	0.0454 (0.0947)	0.0180 (0.1049)	0.0171 (0.1055)
Partner is full-time	-0.1787 (0.1147)	-0.2353+ (0.1202)	-0.2080+ (0.1118)	-0.2466* (0.1176)	-0.2469* (0.1174)
Partner is unemployed or part-time	-0.0746 (0.1394)	-0.0683 (0.1490)	-0.0501 (0.1577)	-0.0492 (0.1635)	-0.0498 (0.1649)
Has other job	0.2162 (0.1336)	0.2449+ (0.1370)	0.3108* (0.1469)	0.3081* (0.1468)	0.3076+ (0.1486)
Part-time at retail job	-0.1227 (0.1385)	-0.1292 (0.1398)	-0.1405 (0.1415)	-0.1429 (0.1430)	-0.1427 (0.1445)
Schedule unpredictability		0.2662** (0.0793)		0.2224** (0.0757)	0.2209* (0.0869)
Input			-0.2058* (0.0832)	-0.1473 (0.0856)	-0.1459 (0.0893)
Supervisor emotional support					0.0046 (0.1107)
Observations	120	119	120	119	119
R-squared	0.164	0.233	0.211	0.256	0.256

Beta coefficients are unstandardized; Robust standard errors in parentheses. \*\*p<0.01, \*p<0.05, +p<0.1.  
Note: All models adjusted for intervention condition

Table 6: Wave 2 Regressions Controlling for Wave 1 Outcome Levels, All Dependent Variables

General Work-to-Family Conflict				
	Model 2b	Model 3b	Model 4b	Model 5b
Wave 1 General work-to-family conflict	0.3962** (0.0952)	0.4438** (0.0953)	0.3892** (0.0936)	0.3745** (0.0918)
Schedule unpredictability	0.2963** (0.0813)		0.2823** (0.0836)	0.2108* (0.0788)
Input		-0.1256 (0.1189)	-0.0436 (0.0991)	0.0015 (0.1148)
Supervisor emotional support				0.1937 (0.1101)
Observations	92	92	92	92
R-squared	0.584	0.534	0.585	0.604
Interferences with Nonwork Activities				
	Model 2b	Model 3b	Model 4b	Model 5b
Wave 1 Interferences with Nonwork Activities	0.4199** (0.0851)	0.4968** (0.0927)	0.4459** (0.0875)	0.4316** (0.0897)
Schedule unpredictability	0.2778** (0.0752)		0.2918** (0.0759)	0.2530* (0.0969)
Input		-0.0213 (0.1242)	0.0567 (0.1032)	0.0773 (0.1089)
Supervisor emotional support				0.1050 (0.1144)
Observations	92	92	92	92
R-squared	0.439	0.365	0.442	0.450
Perceived Stress				
	Model 2b	Model 3b	Model 4b	Model 5b
Wave 1 Perceived stress	0.6740** (0.0832)	0.7050** (0.0977)	0.6646** (0.0924)	0.6859** (0.0927)
Schedule unpredictability	0.2058** (0.0735)		0.1767* (0.0684)	0.2080** (0.0747)
Input		-0.1392* (0.0633)	-0.0858 (0.0640)	-0.1067+ (0.0570)
Supervisor emotional support				-0.0925 (0.1036)
Observations	92	92	92	92
R-squared	0.612	0.593	0.619	0.624

Beta coefficients are unstandardized; Robust standard errors in parentheses

\*\*p<0.01, \*p<0.05, +p<0.1

Note: All regressions adjusted for experimental condition, time between survey waves, health status, age, race, education, kids, partner job, respondent other job, and part-time retail job. Sample includes only those employees who were working at the store at both waves of the survey.

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## Appendix A

### Indices from Employee Survey

#### **Schedule Unpredictability**

*Schedule unpredictability* is constructed by combining responses to an item about the number of days of advance notice respondents receive regarding their work schedule and respondents' scores on an index of hours/timing predictability. The measure of advance notice asks: "Usually, how many days in advance do you know your schedule?" Answers were provided by respondents in days, and then recorded by interviewer as "0-3 days", "4-7 days", "8-14 days", "15-21 days", "more than 21 days". These responses were collapsed into a dichotomous indicator, one week or less versus more than one week. The measure of hours/timing predictability is based on a three-item anticipation index ( $\alpha = 0.65$ ) that captures the extent to which respondents agreed or disagreed that they can anticipate and/or count on the number and timing of hours that they will be working week-to-week. The respondents are asked how much they agree (*strongly agree, agree, disagree, or strongly disagree?*) with the following three statements: (1) *You can easily anticipate what days and times you'll be working week-to-week;* (2) *Most weeks, you can count on getting the number of hours you want;* (3) *Most weeks, you can count on working the days and shifts you want.* Based on these two measures, a measure of *schedule unpredictability* was constructed that has three possible values including (1) more than one week notice of work schedule and a score in the top half of the median split of the 3-item *anticipation* index, (2) one week or less notice of work schedule and a score in the top half of the median split of the 3-item *anticipation* index, and (3) one week or less notice of work schedule and in the bottom half of the median split of the 3-item *anticipation* index.

#### **Scheduling Input** ( $\alpha = 0.82$ )

Responses to 4 items are reversed scored such that higher numbers indicate more input, and then a mean is calculated. *For each of the following, please tell me whether you feel you have a lot of input, some input, a little input, or no input at all.* (1) *The days you have off each week;* (2) *The days you work each week;* (3) *When you begin and end each work day;* (4) *The total number of hours you work each week.*

#### **General Work-to-Family Conflict** ( $\alpha = 0.87$ ) (Adapted from Netermeyer, et al, 1996).

A mean of the following 5 items: *Would you say [this] happens all of the time, most of the time, some of the time, hardly any of the time, or none of the time?* (1) *The demands of your work interfere with you personal or family time;* (2) *Your work schedule makes it difficult to fulfill your personal or family responsibilities;* (3) *Things at home do not get done because of the demands of your job;* (4) *Your work produces strain that makes it difficult to fulfill personal or family duties;* (5) *You have to make changes to your plans due to work related duties.*

#### **Work Interferences in Nonwork Activities** ( $\alpha = 0.84$ )

A mean of the following 4 items: *Given how far in advance you generally know your upcoming work schedule, please tell me whether you feel you have more than enough time, just enough time, or not enough time to organize each of the following.* (1) *Scheduling a doctor's appointment for yourself, a child or someone else;* (2) *Planning activities with your friends;* (3) *Planning a family outing;* (4) *Arranging to cook a meal at home.*

**Perceived Stress** (alpha = 0.82) (Adapted from the 14-item Perceived Stress Scale, Cohen, et al, 1983)

A mean of the following eight items: *For each question, please tell me how often you have felt or thought this way over the course of the last month (very often, fairly often, sometimes, almost never, or never). (1) How often have you been upset because of something that happened unexpectedly? (2) How often have you felt that you were unable to control the important things in your life? (3) How often have you felt nervous and stressed? (4) How often have you felt confident about your ability to handle your personal problems? (5) How often have you found that you could not cope with all of the things that you had to do? (6) How often have you felt that you were on top of things? (7) How often have you been able to control the way that you spend your time? (8) How often have you felt difficulties were piling up so high that you could not overcome them?*

**Supervisor Support** (emotional support subscale) (ALPHA = 0.83), Hammer et al, (2009).

A mean of the following 4 items: *With each of the following statements, would you strongly agree, agree, disagree, or strongly disagree? (1) My supervisor is willing to listen to my problems in juggling work and nonwork life; (2) My supervisor takes the time to learn about my personal needs; (3) My supervisor makes me feel comfortable talking to him/her about my conflicts between work and nonwork; (4) My supervisor and I can talk effectively to solve conflicts between work and nonwork issues.*