

# Work Schedule Flexibility: A Contributor to Happiness?

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## Abstract

*This article contributes to knowledge regarding determinants of happiness by examining the independent role played by having discretion over one's working time, using data pooled from two years of a nationally representative US survey. Controlling for a worker's income bracket and work hours duration, having work schedule flexibility in the form of an ability to take time off during the work day and, to a somewhat lesser extent, to vary starting and quitting times daily, are both associated with greater happiness, whereas an ability to refuse overtime work is weak at best. The associations are generally stronger among workers paid by the hour than by salary. Worker utility functions thus may be enhanced by including the timing and flexibility of working time. Policies and practices that promote more employee-centered flexible working time may not only help workers alleviate work-life time conflicts, but also promote worker well-being generally, especially among hourly-paid workers.*

**Keywords:** Subjective Well-Being, Work Schedules, Workplace Flexibility, Working Time, Economics of Happiness.

A growing body of literature on “happiness” explores empirically the complex influences of income, inequality, hours of work and non-work time on individual as well as national well-being.<sup>2</sup> The conventional work-leisure model of utility suggests that greater current income will be associated with higher levels of worker subjective well-being, even if produced by more hours of work; however, this proves to be nuanced. In the present study, we aim to bridge this interest among some economists in determinants of individual quality of life with parallel tracks in other social science disciplines, which more directly examine work and workplace sources of well-being.

With happiness now accepted in the realm of economics and discussions of national well-being, the coast has been cleared for labor economics to apply available measures of happiness, and study its relationship to various dimensions of working time (e.g., Di Tella & MacCulloch, 2006; Stiglitz, Sen & Fitoussi, 2009; Clark, Frijters & Shields, 2008; Graham, 2009; Krueger, 2009; MacKerron, 2011; Helliwell, Layard & Sachs, 2012).<sup>3</sup> Non-pecuniary dimensions of well-being

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<sup>3</sup> Happiness research is part of a wider literature concerning dimensions of subjective well-being. It considers both the experiential, affective state or daily life (hedonic) and the overall (global) life evaluation or appraisal varieties.

are considered important at the country level (Stiglitz, Sen & Fitoussi, 2009). A rich body of empirical research has documented the potentially adverse effects at the individual worker level of workplace inflexibility. Yet, discretion (i.e., employee-centered flexibility) heretofore has not been included in economic studies of happiness or subjective well-being. Thus, it is important to include not only the amount of work time or leisure (vacation or weekend) time (Kahneman & Krueger, 2006; Hamermesh & Lee, 2007; Easterlin, 2010; Harter & Arora, 2010; Aaker, Rudd & Mogilner, 2011), but also job and working conditions (Noll, 2011), such as the extent of workers' control over their timing of their work hours.

Our chief goal is to estimate empirically the relationship between a worker's self-reported happiness and his or her perceived discretion over the timing of work, controlling for both income and the duration of working hours. We extend the basic economics of happiness approach with elements of the job demand-control model (Karasek, 1979), by estimating the extent to which a greater extent of worker control over working time matters, and may offset the opposing negative effects of long work hours or lower income on worker well-being. We focus on the relative size effects, in particular, of indicators of work schedule discretion, with special attention to how relationships may vary for workers in hourly vis-à-vis salaried positions. This research analyzes data pooled from two years of a nationally representative US survey that permit observation of five indicators of working time – three assessing indicators of worker discretion over work timing, plus two indicators of work duration. Multinomial regressions and then Ordinary Least Squares regressions are conducted to test the extent to which an ability to take time off during the work day, to vary starting and quitting times daily, and to refuse mandatory overtime work are each associated with greater happiness, while controlling for the influences of a worker's income bracket and the hours duration of their work time per week (as well as various demographic and other job characteristics). The size effects of these variables are contrasted among hourly paid and salaried employees. Implications of the results for well-being, public policy, and organizational practices regarding work time are then briefly explored.

### **The Income-Hours-Happiness Nexus as Background**

Recent behavioral economics research tends to focus primarily on the issue of the amount of absolute or relative income earned or leisure consumed. Subjective well-being, when measured by self-reported happiness or life satisfaction, does not necessarily rise linearly nor proportionally with increased income, particularly at higher levels of income, although the estimated effects are mixed (Helliwell, 2003; Osberg & Sharpe, 2005; Kahnemann & Krueger, 2006; Binswanger, 2006; Clark, Frijters & Shields, 2008; Dolan, Peasgood & White, 2008; Powdthavee, 2010; Zuzanek, 2012). The effect of income tends to dissipate, as people adjust to their new absolute or relative income level, by adapting their aspirations or reference points (Hagerty & Veenhoven, 2003). When the (unequal) distribution of happiness is decomposed, for the US, there is a contributory role played by non-pecuniary factors in shaping it (Stevenson & Wolfers, 2008). Happiness tends to depend on one's family life experience, unemployment, healthiness, and life cycle stage.<sup>4</sup>

The role of working time, including long work hours and the timing of work, has been largely neglected in the happiness literature (Powdthavee, 2009; Spencer, 2011; van der Meer &

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The paradigm of quantifying happiness, particularly into a single measure, is not without its philosophical detractors (e.g., McCloskey, 2012), but also acceptors (e.g., Angner, 2010; Schubert, 2012; Hancock, 2013).

<sup>4</sup> Also the cultural context, see Easterlin (2006), Mogilner, Kamvar, & Aaker (2011), and Frijters & Beaton (2012) regarding the age and life-cycle patterns of happiness, and the legal context, see Huang (2010).

Wielers, 2013). Incomes are likely to be positively correlated with working hours, time spent commuting to and from work and time spent away from family and friends. In contrast, time spent at work, commuting and away from family and social lives are factors negatively correlated with one's global evaluation of life satisfaction or net affect (Kahneman & Krueger, 2006).<sup>5</sup> Additional income from work, *ex poste*, may yield less than *ex ante* expected gains in utility, to the extent that health and family life contribute separately from the effects of income. Thus, omitting potential right-hand side variables may bias the estimated effect of income on life satisfaction (Powdthavee, 2010).

Nevertheless, the omission of work hours duration, which tends to correlate positively with income and negatively with elements of subjective well-being, does not seem to explain why rising income has not produced commensurately rising happiness. Hours have declined over time in advanced countries (other than in the US and Sweden), but without corresponding increases in levels of happiness (Clark, 2005). Thus, the inclusion of hours actually magnifies the puzzle of growing income without parallel rises in happiness (Clark, Frijters & Shields, 2008). Moreover, subjective well-being is influenced less by the number of work hours *per se* than the "mismatch" between workers' actual and preferred work time duration (Sousa-Poza & Henneberger, 2002; Bielinski, Bosch & Wagner, 2002; Tjstens, 2003; Van Emmerik & Sanders, 2005; Wooden, Warren & Drago, 2009; Drago, Wooden & Black, 2009). Curiously, many individuals could conceivably reduce their own work hours without corresponding reductions in their happiness, but they do not (Binswanger, 2006).<sup>6</sup>

Whatever the source, the income-happiness nexus is influenced by the income-work hours relationship. It may eliminate entirely the impact of additional labor income on happiness (Pouwels, Siegers & Vlaslom, 2008). The effect of longer hours may be more nuanced, however, because the additional income it produces may increase job satisfaction, particularly for workers with lower base income levels (Sousa-Poza & Sousa-Poza, 2000; Van Praag, Frijters & Ferrer-Carbonell, 2003). Thus, while life satisfaction or happiness is clearly positively associated with being employed, there may be an inverse-U relationship with hours duration. Longer work time exerts a marginal disutility particularly for workers whose hours are already long, e.g., the inverse association takes hold beyond 7 work hours per day (Knabe & Ratzel, 2010). Increasing rates of involuntary part-time employment in European nations suggest that shorter hours alone may not be a source of happiness for all workers (Mason & Salverda, 2009). Nevertheless, across 22 EU countries, workers with shorter or part-time hours are happier than full-timers, on average. Importantly, this is largely because shorter-hour jobs provide flexibility to improve current work-life balance.<sup>7</sup>

Much evidence collected from the fields of occupational health and organizational psychology, labor-employment relations and work-life research suggests workers who work long hours often experience reduced subjective well-being because they tend to experience added work stress, fatigue and/or time conflicts, and thus face an additional risk of illness, injury, burnout or work-to-family spillovers (e.g., Reynolds, 2003; Berg, Kalleberg & Appelbaum, 2003; White et al.,

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<sup>5</sup> For other externality effects of working time choices and scheduling, see Weiss (1996), Holzer (2005), Altman & Golden (2007), Hamermesh & Slemrod (2008), Boushey (2011).

<sup>6</sup> That may occur because individuals tend to underestimate the opportunity costs incurred with working for additional income, and overestimate both the happiness yielded from increased income provided by additional work hours and their future opportunities for time-saving (Binswanger, 2006).

<sup>7</sup> e.g., Booth & van Ours, 2009; Okulicz-Kozaryn, 2011; van der Meer & Wielers, 2013. This has been formalized in some countries' government programs that reduce the cost of reduced hours by supplementing job earnings, such as work-sharing policies and practices.

2003; Grönlund & Öun, 2010; Briscoe, Wardell & Sawyer, 2011).<sup>8</sup> However, the relationship is not always consistent between the volume of work hours *per se* and the subjective or objective measures of life satisfaction (Hamermesh & Lee, 2007) or job satisfaction (Sousa-Poza & Sousa-Poza, 2000; Green, 2004; Chongvilaivan & Powdthavee, 2012). Overtime work may involve less risk if workers face only moderate overtime, favorable work conditions or attractive jobs (Beckers et al. 2004), or if overtime is purely voluntary (Hamermesh, 1999; Friedman & Casner-Lotto, 2003; Golden & Wiens-Tuers, 2006). However, when facing some supervisory pressure to work overtime, the combination of involuntariness and working more than 50 hours a week has been shown to elevate the risks of work-family interference, injury, illness, somatic stress, depression and health complaints (Cornell Institute for Workplace Studies, 1999; Van Der Hulst & Geurts, 2001). When the length, timing or scheduling of overtime work is not under the control of the employee, any detrimental well-being effects of long hours of work tends to be compounded or exacerbated (Ala-Mursula et al., 2002; Berg et al., 2004; Heisz & LaRochelle-Côté, 2006; Beckers et al., 2008).

### **Discretion over Work Timing and Worker Well-Being**

It may well be the incongruity between the desired and actual schedule of work hours that affects one's well-being, not just its duration (Krausz, Sagie & Bidermann, 2000). If the scheduling of hours does not fit a worker's preferred timing, individual welfare tends to be diminished (Barnett, 2004). Moreover, more employee control over work time may moderate a negative relationship between work hours and adverse outcomes (Berg, Kalleberg & Appelbaum, 2003; Hughes & Parkes, 2007). For example, among those not permitted to change their own work schedules toward their preferred schedules, 45 percent experience symptoms of "overwork," three times the rate among those who are permitted (Galinsky, Bond & Hill, 2005).

*Flexitime* work schedules, involving some employee input or discretion, often facilitate better outcomes than traditional fixed-hour schedules. High-performance workplace practices and long work hours, however, have interacted to trump positive effects of formal, work-life supports (White et al., 2003). This may be in part because workers that have more flexible daily schedules are also more likely to be working very long hours, perhaps as an act of reciprocation or exchange (e.g., see Golden, 2009; Kelliher & Anderson, 2010). Moreover, when combined with employee participation, schedule flexibility moderates adverse effects of longer hours, such as work-life conflict (Wang, 2011). Having scheduling flexibility can sometimes be a double-edged sword -- fixed work schedules might also offer workers a greater sense of predictability and regularity (Schieman & Young, 2010; Lambert, Haley-Lock, & Henly, 2012).<sup>9</sup> Nevertheless, more flexible arrangements may improve employee attitudes and happiness, which in turn increases worker performance (Atkinson & Hall, 2011). For example, greater scheduling flexibility promotes lower sickness-absence, retention and customer satisfaction perhaps because these workers are easier to work with and are happier (Robertson & Cooper, 2011).<sup>10</sup> Control

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<sup>8</sup> Long hours of work per day or per week may undermine well-being not only through physical health (Brenner, Fairris & Ruser, 2004; Dong, 2005; Beckers et al., 2008; Kattenbach, Demerouti & Nachreiner, 2010; Golden et al., 2011), but also mental health (Virtanen, et al. 2012).

<sup>9</sup> Having "flexibility" in the timing of one's job is not necessarily equivalent to having "control" over one's flow of work (MacDermid & Tang, 2009).

<sup>10</sup> In addition, flexible scheduling facilitates better coordination of daily work and life responsibilities (White et al., 2003; Berg et al., 2004; Kelly, Moen & Tranby, 2011; Glauber, 2011; Kossek & Michel, 2011). Greater workplace flexibility may indirectly promote worker productivity by improving workers' health and healthy behaviors (Galinsky, Bond & Hill, 2005; Grzywycz, Carlson & Shulkin, 2008; Loh, 2009).

over work schedules, including days off, is associated with reduced fatigue, sleep problems and depression, which also promotes employee performance (Takahashi et al., 2011).<sup>11</sup>

In direct contrast to employee-centered flexibility, there are a myriad of reasons and motivations for employers to make work hours more differentiated or variable to suit their own needs for work hours and schedule adjustments (Bosch, 1999; Rubery et al., 2005; Bacon, Blyton & Dastmalchian, 2005; Messenger, 2011; Lambert 2008). Greater variability in working time, presumably due to employer-initiated adjustments, tends to reduce workers' well-being (Askenazy, 2004), especially when it is irregular or unpredictable, and particularly at lower incomes (Lambert, 2008). Conversely, lower variability in work hours is as important as higher flexibility as a positive influence on meeting family and social commitments (Heisz & LaRochelle-Cote, 2006; Costa, Sartori & Akerstedt, 2006; Olsen & Dahl, 2010). In sum, whether framed as “discretion,” “control,” or “employee-centered flexibility” regarding the scheduling of working time, there is reason to believe that its influence may extend beyond the domain of work-life integration and into workers' overall well-being and happiness.

### **Theoretical Foundation and Model**

If work schedule flexibility over the timing contributes to worker well-being, including happiness, then a standard utility (U) function ought to be amended with an additional argument, beyond the conventional terms of income (Y) and leisure (L) time, – the degree of scheduling discretion. This is captured by a coefficient ( $\gamma$ ), in the expanded utility function expression:<sup>12</sup>

$$U = U [ Y , L ; \gamma ]$$

*assuming  $dU/dY, dU/dL, dU/d\gamma > 0$ .*

Ultimately, or at least initially, it is employers that set work schedules (with the possible exception of self-employment). Suppose there is an employer-set daily working time interval (I) to which a given worker is scheduled. This may deviate from the worker's preferred shift time slot (denoted by  $I^*$ ). Worker well-being is improved with any increase in the degree of responsiveness of their work schedules to changes in their preferred daily timing or interval ( $I^*$ ) of work. Suboptimal utility occurs anytime actual schedules are slow to adjust toward (either temporary or permanent) changes in a worker's desired  $I^*$ ,<sup>13</sup> as reflected by the term,  $\gamma$ . Synchronization between a schedule required by employers, I, and the  $I^*$  desired by employees occurs only if the employer provides employees with a wider range of work schedule intervals from which to choose, or an opportunity to self-adjust their own timing of work. Thus, even if a worker is scheduled for his or her preferred duration of working time (e.g., an 8-hour workday), the timing of the shift might create conflicts with other desired activities, such as caregiving or

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<sup>11</sup> Because at least some employees are prepared to accept in return for flexible work arrangements and place a negative compensating differential, such as sacrificing a raise, bonus or alternative benefit (McCrate, 2005; Weeden, 2005; Heywood, Siebert & Wei, 2007; Winder, 2009; Felfe, 2012), they often carry a positive wage premium, attributable probably to employee-centered flexible work facilitating a gain in productivity. Flexible timing of work appears to boost average labor productivity and thus perhaps profitability in enterprises and industries (Shepard, Clifton & Kruse, 1996; Gavin & Mason, 2004; Ortega, 2009; Lee & DeVoe, 2012) and perhaps also a consequent improvement in technical efficiency for firms (Wolf & Beblo, 2004).

<sup>12</sup> Tradeoffs between these three arguments may be subject to the usual concavity assumption.

<sup>13</sup> For example, a worker might prefer an  $I^*$  that starts at time (0) and finishes at time (n), e.g., 9am to 5pm or 7am to 3pm (under the simplifying assumption that workers prefer a single, continuous rather than split shift).

student work, or one's natural circadian rhythms. An assumption of concavity suggests that those individuals most deprived of work schedule discretion may gain relatively more from a given increase in flexibility than a worker that already has much discretion. Similarly, workers whose earnings are linked directly to the hours they work may gain the most from having schedule discretion, because it may allow them to adjust the timing of their hours without reducing the number of their hours and also their earnings. An employer will presumably grant an employee more scheduling discretion if the added short run cost of adopting flexible work scheduling is exceeded by longer run labor cost savings or improved performance achieved by better matching of actual to preferred schedules (Altman & Golden, 2007; Ortega, 2009; Lee & DeVoe, 2012).<sup>14</sup>

## Study Hypotheses

In light of the existing literature and the implications of the above model, we postulate the following four hypotheses regarding the relationship between happiness and aspects of hours duration and work schedule discretion:

*Hypothesis 1:* When controlling for the potentially nuanced effects of higher income level,<sup>15</sup> and workers' demographic characteristics, a longer duration of work hours (average weekly hours or extra days of work per month) will have an ambiguous association with happiness.<sup>16</sup> – It may be negatively related to happiness because of adverse work to life spillovers and lost leisure time, but also potentially positive to the extent that extra work brings additional current income (or expected future reward) or non-pecuniary benefits.<sup>17</sup>

*Hypothesis 2:* Controlling for income, demographics, and duration of work hours, having greater daily working time discretion will be unambiguously positively associated with happiness.<sup>18</sup>

*Hypothesis 3:* While all types of daily working time discretion contribute to well-being positively, it is possible that some may have greater impact than others.

*Hypothesis 4:* For hourly paid and salaried workers, the association of happiness with work schedule discretion may be similar in magnitude, unless hourly workers benefit marginally more, because of their relatively more deprived endowment of flexibility and need to directly forego current income to attain it.

## Methods

### Data and Sample

Data are drawn from the pooled 2002 and 2006 US General Social Survey (GSS), a biannual, nationally representative, personal interview survey of U.S. households conducted by the National Opinion Research Center, and its appended Quality of Worklife (QWL) module (n=4500). The module includes 76 items related to work organization issues including unique questions regarding working time dimensions. The 2002 sample contains responses from 1,796 employed persons and the identical 2006 another 1,734. Of the entire sample of total employed, 36 percent are salaried, 52 percent are paid by the hour (and the remaining 12% are in

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<sup>14</sup> See Appendix 3 for a more formal model. Cost savings also may accrue from improved employee health, but insufficiently to induce all firms to adopt flexible scheduling for all employees (Butler et al., 2009).

<sup>15</sup> The association of income with happiness may be relatively stronger for hourly paid workers and at relatively lower levels of income than at the highest level (see DeVoe & Pfeffer, 2009).

<sup>16</sup> For support, see Golden & Wiens-Tuers (2006) and van den Meer & Wielers (2013).

<sup>17</sup> In addition, certain jobs or work may provide procedural utility, and thus less disutility, even at long hours.

<sup>18</sup> The positive effects may be at least partly negated by the potential jeopardy or backlash perceived when an employee actually chooses a flexible scheduling option, particularly one that is formally available but is not supported by supervisors or peers (Galinsky, Bond & Hill, 2005). Bi-directional causality cannot be ruled out here.

independent contract and temporary positions).

## Measures

Appendix 1 defines the variables used from the Quality of Worklife (QWL) module data. The key outcome of interest is contained in the GSS sample—the *happiness level* item (answered by  $n = 2610$ , 1625 of whom are employed) which asks, “Taken all together, how would you say things are these days... that you are: *very happy*, *pretty happy*, or *not too happy*?”<sup>19</sup> The mean is 1.8, meaning there are more people in the first than last category. Although it is not known with certainty that the happiness choice of respondents captures their global happiness rather than net affect being experienced in the particular moment of the survey taking (see Kahneman & Krueger, 2006), the preface of the question suggests it is more the former.<sup>20</sup>

By annual income level, frequency distributions show that in the median income category, 62 percent are “pretty happy,” whereas 32 percent are “very happy” and 8 percent “not too happy.” In contrast, only 4 percent are “not too happy” and 43 percent are “very happy” in the over \$75k, highest category, while in the lowest (two) income categories, only 26 percent are “very happy” and over 12 percent are “not too happy.”

Work hours duration is indicated by two questions, the first being the number of hours worked last week, at all jobs, and the second, by having one or more days per month where extra hours were worked beyond one’s usual schedule. The average weekly hours worked last week, among full-time workers in the GSS (2002) sample was 45.9 and 22.6 among part-time workers. The number of days worked extra per month was 5.5 (5 days among workers with no mandatory overtime, 9 days among those with mandatory overtime).

Scheduling discretion is measured by three items.<sup>21</sup> The first measure, “change start/end time”, assesses the ability of the respondent to adjust their starting and ending times of work. About 48 percent of the GSS sample feels that they have the ability to often, if not always, adjust their own starting and ending times, whereas the other half rarely or never do. The distribution of such perceived daily schedule flexibility is skewed by whether the worker is paid hourly or on salary. For example 27 percent of salaried but 41 percent of hourly paid workers “never” are allowed to vary their starting and ending times of work. There are gender differences but only slight—in hourly jobs, men are slightly more represented in both tails of “never” and “often” in the frequency of being able to alter their daily start and end times. In contrast, in salaried jobs, men are more represented than women in being “often” and less so in “never.”

The second measure of schedule discretion, “time off,” reflects the difficulty respondents feel they have taking time off during the work day to take care of personal or family matters. Almost

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<sup>19</sup> The GSS contains several questions of this structure, where the responses are excellent, good, fair, etc., or alternatively, very often, somewhat often, rarely or never.

<sup>20</sup> The happiness variable has been criticized by some who feel that it may reflect experiential or ephemeral factors, which may be even more salient than work-related factors, such as changes in family or social relationships. Also, the time frame of the question, “these days,” may be interpreted rather openly, so that a respondent might be considering this day, week or even the past year. In addition, happiness is but one of many potential components in one’s subjective well-being, albeit a potentially dominant one. Finally, future GSS instruments will move to 7-point scales, which may allow for greater variation in responses. For the time being, virtually all previous happiness empirical research using US data have utilized this 3-point scale.

<sup>21</sup> The International Social Survey Program also attached a module, Work Orientations III, to the same GSS in 2006, included a question, “Who sets your work schedule?” For context, this found that about 45 percent in the US responded that “starting and finishing times are decided by my employer and I cannot change them on my own,” whereas only 15 percent felt “entirely free to decide when I start and finish work.” The remaining 40 percent, “can decide the time ... start and finish work, within certain limits.”

three-quarters of the US workforce perceive that it is not very difficult to take time off during the work day for such matters. Among salaried workers, 53 percent of men and 42 percent of women consider it “not hard at all” to take time off during the work day. Among hourly workers, the level is lower for men but slightly higher for women, 47 and 45 percent, respectively. Among men, 24 percent of salaried and 22 percent of hourly workers find it somewhat or very hard to take such time off. Among women, the rate is 28 percent for both types of employees.

The third measure of worker discretion is an indicator of whether the respondent reports that they have the ability to refuse working beyond their usual weekly hours, i.e., that overtime work is mandatory. Almost 27 percent of workers regard any work beyond their usual weekly hours as mandatory, required by their employers-- 28 percent of full time and 16 percent of part time workers. There is virtually no difference between the salaried and hourly work force.

In addition to discretion and duration measures, we include three additional job-related variables in our regression models. Specifically, the three measures indicate if the respondent works a day or evening, split or rotating shift, or irregular/on-call shift (day shift is the omitted referent). The latter may reflect work hours variability. As control variables, we include if a worker is employed in the non-profit sector or a unionized job. Several demographic control variables (e.g., age, gender, marital status, number of children) are also included in the model. Table 1 provides descriptive statistics for all variables in the model.<sup>22</sup>

**Table 1: Descriptive Characteristics of the Sample**

	<b>All Workers</b>	<b>N</b>	<b>Salaried Workers</b>	<b>N</b>	<b>Hourly Workers</b>	<b>N</b>	<b>T-test</b>
<b>Demographic Controls</b>							
Male (%)	50.8	2,610	51.8	924	53.3	1,378	1.02
Age (Mean, s.d.)	41.9 (13.0)	2,601	43.1 (11.7)	920	40.2 (13.3)	1,374	5.33**
Married (%)	48.2	2,609	55.8	923	42.8	1,378	6.12**
White (%)	76.4	2,610	80.4	924	71.6	1,378	4.84**
The number of a child (Mean, s.d.)	1.57 (1.47)	2,608	1.48 (1.39)	924	1.60 (1.50)	1,376	1.86+
Survey Year 2002 (%)	34.1	2,610	32.5	924	35.1	1,376	1.28
Income (%)		2,205		819		1,147	23.2**
less than \$20,000	28.4		9.4		40.2		
\$20,000-\$29,999	16.7		11.1		21.9		
\$30,000-\$39,999	15.5		17.3		15.3		
\$40,000-\$49,999	12.3		16.4		10.2		
over \$ 50,000	27.1		45.8		12.4		
<b>Work related variables</b>							
Working hours (Mean,	41.0 (16.1)	2,596	44.5 (15.0)	918	38.3 (15.3)	1,375	9.50**

<sup>22</sup> Appendix 2 illustrates some descriptive bivariate findings related to our key variables--Figure 1a shows that the ease of taking time off tends to be associated with somewhat greater happiness levels, for both types of workers, although not always with a perfectly smooth gradation. Figure 1b shows a smoother gradation when examining happiness levels among the hourly paid, more so than among salaried workers, regarding being able to alter starting or ending times of work. The pattern of happiness levels by whether or not one’s overtime work is mandatory, in Figure 1c, appears to be more uniform.



s.d.)							
Time off during day(%)		2,600		919		1,375	2.03*
very hard	11.2		9.7		11.8		
somewhat hard	15.6		15.2		16.2		
not too hard	29.4		30.0		30.6		
not at all hard	43.8		45.1		41.4		
Change start/end time (%)		2,597		919		1,374	13.4**
never	31.5		22.9		41.4		
rarely	14.6		11.9		18.3		
sometimes	19.8		21.2		20.4		
often	34.1		44.0		19.9		
More days (Mean, s.d.)	5.8 (7.8)	2,563	8.0 (8.6)	908	4.4 (6.7)	1,364	11.1**
Mandatory extra work (%)	26.2	2,574	26.3	917	27.3	1,358	.51
Work schedule (%)		2,602		919		1,378	X <sup>2</sup> = 111.9**
day shift	73.3		85.0		68.6		
evening shift	10.4		3.5		16.1		
irregular or oncall shift	9.0		6.6		6.3		
split or rotating shift	7.3		4.9		9.0		
Belong to Union (%)	14.4	1,749	14.7	631	16.2	912	.79
Work for government or non-profit (%)	24.2	2,603	36.5	924	7.9	1,374	9.12**
<b>Outcome variable</b>							
Happy (%)		2,610		924		1,378	6.64**
not too happy	10.1		7.1		12.3		
pretty happy	58.9		54.9		61.6		
very happy	31.0		38.0		26.1		

Notes: \*\*  $p < 0.01$ , \*  $p < 0.05$ , +  $p < 0.1$ .

### Methods and Econometric Analysis: Happiness and Discretion in Work Timing

Econometric analysis is useful in isolating the effect of work schedule discretion on happiness, holding constant the range of various personal and job characteristics of workers that might affect happiness uni-directionally. The model estimated is the true frequency of a subjective well-being outcome given by:

$$H_j = a + \beta_1 Y_j + \beta_2 h + \beta_3 X_j + \beta_4 Flex_j + \beta_5 Z_j + u_j$$

The dependent variable happiness ( $H_j$ ) is reported as ordered categories. The independent variables are the reported income range ( $Y$ ), measures of the duration of working hours ( $h$ ), a vector of control variables ( $X$ ) including demographics such as gender, marital status, number of children, age (and age squared), and a vector ( $Z$ ) capturing other characteristics of their job or employment arrangement. The focus is on the measured effects of the key independent variables,

which indicate the extent of work schedule discretion, or flexibility (*Flex*), on the scaled responses of individuals. Ordinary least squares (OLS) regression models are estimated with the same set of explanatory and control variables. The constant ( $a$ ) and also the error term  $u_j$  account for other exogenous potential determinants of happiness, for each individual. The size of the coefficients in the OLS regression results is simply the effect of a unit change in work hours or degree or frequency of the flexibility indicator reported on the scale of the reported level of happiness.

In addition to the OLS models, multinomial logistic regression (MLR) estimates are also conducted for “Very Happy” and “Pretty Happy,” in contrast to “Not Too Happy,” as the omitted referent group. The estimation results will illustrate the size and statistical significance of the bivariate that an individual possesses or does not possess a type of flexibility, all else constant, including the independent effects of income and length of work hours. The regressions all include controls for the individual’s demographic factors, and some work and related job factors observable in the GSS. The most basic model is amended sequentially, eventually adding each flexibility indicator of interest. The last model estimated includes all forms of flexibility together.

### **Data Limitations**

Several limitations and complications associated with these data must be acknowledged. First, the indicators are self-rated perceptions which are more prone to potential errors than are objective measures. In addition, with cross sectional data, indicators of supposed outcomes are likely to be partly endogenous with the predictor variables, working extra hours and having discretion. Self-selection may be present and unavoidable if generally happier individuals are drawn to jobs that feature more flexibility in the timing of work rather than fixed daily work schedules. Similarly, it is inherently difficult to disentangle the simultaneity if individual self-reports of happiness are responding to the effects of work conditions or being in less desirable jobs generally, of which inflexible scheduling is only a reflection.

### **Results: Work Hours, Worker Scheduling Discretion and Worker Happiness**

Table 2 contains the coefficient ( $\beta$ ) estimates and z-statistics from the multinomial regressions of the association between the income gradient and reported happiness level (not too happy relative to pretty happy and very happy), unadjusted for the control variables and key employment variables. The middle income category is the referent group. The results are reported for the full sample, followed by subgroups of respondents who indicate they are paid hourly and those paid a salary.<sup>23</sup> The results show that the highest level of income (above \$50k for an individual respondent) is associated with the greatest happiness, with no other variable controlled. There is a relatively smooth gradient by income level both above and below the median income group. The size effect appears highest for the highest income bracket. Importantly, comparing the results of the multinomial regressions for the split sample, there is a striking difference between salaried and hourly paid workers and the smoothness of the income gradient disappears for salaried workers. Salaried workers’ happiness bears no statistically significant association with higher income. Hourly workers’ happiness, in contrast, is strongly positively associated with being in the highest income bracket. Specifically, hourly workers in the highest income bracket are more likely than those in the middle income to report being pretty happy and to report being

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<sup>23</sup> The “other” subgroup, who are not on a payroll, such as independent contract workers, amount to just over 11 percent of the GSS sample and are omitted in all hourly/salaried subgroup analyses.

very happy (compared to not too happy), whereas these associations are not significant for any of the other income brackets for hourly workers.<sup>24</sup>

**Table 2: Multinomial Logistic Regressions, Happiness and Income (unadjusted coefficients) – All Workers, and by Salaried and Hourly Paid. Unstandardized Coefficients (Standard Errors in Parentheses)**

	All workers			
	Pretty happy		Very happy	
	Coef.	z	Coef.	z
<\$20,000	-.045 (.172)	-.26	-.269 (.187)	-1.44
\$20-29,999	-.012 (.204)	-.06	-.174 (.220)	-.79
\$40-49,999	.461+ (.260)	1.77	.313 (.276)	1.13
\$50,000+	.573** (.210)	2.72	.785** (.218)	3.60
<i>Observations</i>		2610		
<i>Pseudo R2</i>		0.007		
	Salaried workers			
	Pretty happy		Very happy	
	Coef.	z	Coef.	z
<\$20,000	-.875* (.443)	-1.97	-.617 (.455)	-1.36
\$20-29,999	.362 (.582)	.62	.481 (.593)	.81
\$40-49,999	-.142 (.427)	.33	-.168 (.442)	-.38
\$50,000+	.143 (.336)	-.43	.030 (.345)	.09
<i>Observations</i>		924		
<i>Pseudo R2</i>		0.008		
	Hourly workers			
	Pretty happy		Very happy	
	Coef.	z	Coef.	z

<sup>24</sup> For the unreported, “other” classification, the income coefficient estimates and z-statistic significance lie somewhere in the middle between the hourly and salaried (see, Donnelly, 2010 for possible explanation).

<\$20,000	.268	1.29	-.141	-.61
	(.207)		(.230)	
\$20-29,999	.053	.22	-.311	-1.18
	(.235)		(.265)	
\$40-49,999	.811*	2.13	.338	.81
	(.381)		(.417)	
\$50,000+	.871*	2.29	.892*	2.24
	(.380)		(.398)	
<i>Observations</i>		1378		
<i>Pseudo R2</i>		0.008		

Notes: \*\* p<0.01, \* p<0.05, + p<0.1  
 “Not Too Happy” is the omitted category.

To conserve space, the table does not report  $\chi^2$  or Log likelihood statistics, which are available upon request from authors.

Results above combine bottom two categories of income (under \$10,000 and \$10-20,000) and the top two categories (\$50-75,000 and 75,000+) due to small cell sizes (particularly for the “not too happy” category for hourly workers in the highest income category and being “very happy” for salaried workers in the lowest income level). When treated separately, results are replicated but the coefficient is strongest positive for \$75,000 and over, while only marginally significant in the second highest income category.

Table 3 reports the coefficient ( $\beta$ ) estimates and z-statistics from the multinomial regressions of the association between the three key job discretion variables and reported happiness level (not too happy relative to pretty happy and very happy), adjusted for income and demographic variables (statistics for income and demographic variables not shown on the table to conserve space). Each job discretion variable is entered in a separate model, first with “time off during day”, then with “change start/end time” and then with “mandatory extra work”. Table 3 includes the coefficients when the models are run on the full sample, as well as when the sample is split by whether the respondents report being on salary or paid by the hour.

Regarding “time off during day,” Table 3 shows that workers’ subjective well-being benefits from an ability to take time off from work during the workday to respond to personal or family matters. The coefficients for both “pretty happy” and “very happy” are statistically significant for the full sample. In addition, when the sample is split, there is a notably stronger positive association between the ability to take time off and happiness among hourly than among salaried workers. Thus, for hourly workers in particular, it appears that flexibility to leave work during a workday may be a highly valued feature of working time. Of course, it is unclear if this greater appreciation among hourly workers stems from a generally lower incidence, access or expectation of such flexibility in hourly paid jobs, a greater need for this kind of flexibility because of fewer nonwork resources to attend to personal or family matters, or if generally happier people value such flexibility relatively more than others or sort themselves into jobs that provide it. Nevertheless, the association is remarkably strong and on the order of moving up from the median to second highest income bracket in terms of boosting happiness levels.

Table 3 also shows that workers subjective happiness is greater if they report possessing some degree of control over the timing of their daily start and end times of work. The coefficients are statistically significant for the sample as a whole, and in particular for hourly workers. As with “change time,” the coefficients are reduced for the salaried worker subgroup alone. Moreover, it is evident that the coefficients for control over daily start and end times are somewhat smaller

than those for an ability to take time off during the workday. Again, endogeneity or self-sorting are a possible reason for these associations that cannot be ruled out. Finally, Table 3 shows no significant relationship between a lack of control over working extra hours (mandatory overtime, the third job discretion variable) and happiness. Only for hourly workers, it is found that being required by an employer to work extra time is negatively related to being “pretty happy” relative to not happy, although only at a marginally statistically significant level. Thus, the results from the multinomial logistic regressions reported in Table 3 provide evidence that after controlling for income and several demographic and work variables, two of the three measures of job discretion – taking time off during the day to address personal or family matters and discretion over start and end times – are associated with subjective well-being as measured by the happiness indicator, especially for workers paid by the hour.

**Table 3: Multinomial Logistic Regressions—Happiness and Employee Discretion Over Work Time (adjusted coefficients) —All workers, Salaried and Hourly Paid**

	All workers			
	Pretty happy		Very happy	
	Coef.	z	Coef.	z
<i>Time off during day</i>	.199**	3.15	0.372**	5.25
	(.063)		(.071)	
<i>Observations</i>		2590		
<i>Pseudo R2</i>		0.060		
<i>Change start/end time</i>	.131*	2.31	.249**	4.01
	(.057)		(.062)	
<i>Observations</i>		2587		
<i>Pseudo R2</i>		0.057		
<i>Mandatory extra work</i>	-.220	-1.44	-.113	-.68
	(.153)		(.167)	
<i>Observations</i>		2564		
<i>Pseudo R2</i>		0.053		
	Salaried workers			
	Pretty happy		Very happy	
	Coef.	z	Coef.	z

<i>Time off during day</i>	.147	1.14	.322*	2.35
	(.128)		(.137)	
<i>Observations</i>		916		
<i>Pseudo R2</i>		0.0751		
<i>Change start/end time</i>	.086	.76	.221+	1.86
	(.113)		(.119)	
<i>Observations</i>		916		
<i>Pseudo R2</i>		0.074		
<i>Mandatory extra work</i>	.075	.24	-.071	-.22
	(.314)		(.329)	
<i>Observations</i>		914		
<i>Pseudo R2</i>		0.071		
	Hourly workers			
	Pretty happy		Very happy	
	Coef.	z	Coef.	z
<i>Time off during day</i>	.289**	3.56	.479**	5.05
	(.081)		(.095)	
<i>Observations</i>		1369		
<i>Pseudo R2</i>		0.057		
<i>Change start/end time</i>	.167*	2.12	.263**	3.01
	(.079)		(.087)	
<i>Observations</i>		1368		
<i>Pseudo R2</i>		0.051		
<i>Mandatory extra work</i>	-.374+	-1.95	-.139	-.65
	(.192)		(.215)	
<i>Observations</i>		1352		
<i>Pseudo R2</i>		0.049		

Notes: \*\* p<0.01, \* p<0.05, + p<0.1 “Not Too Happy” is the omitted category.

Each separate model was adjusted for the survey year, income, and demographic variables. To conserve space, the table does not report  $Prob > \chi^2$  or Log likelihood statistics, which are available upon request from authors.

Tables 4, 5 and 6 undertake a series of five OLS sequential regressions, treating happiness as a continuous rather than categorical variable as was presented in Tables 2 and 3. The first model includes just the income, demographic, and the year dummy variables. Given that the relative importance of income appeared to be concentrated in the upper income category (\$50,000 and over) in the first set of analyses reported in Table 2, we further distinguish income at the higher end in these models, splitting the \$50,000 and over category into two categories: \$50,000 to \$75,000 and \$75,000 and over. For hourly workers, however, the single \$50,000 and over category is maintained given low frequency of \$75,000 plus incomes among hourly workers. Then, in three separate regressions (models 2, 3, and 4), two measures of work duration (“hours” and “more days”) plus each of the three job discretion variables entered separately for each model are included together with the model 1 variables. Finally, in the full model (model 5), the

three job discretion variables are entered simultaneously, together with three additional work controls (nonstandard shift timing, union membership<sup>25</sup>, and whether the job is in the government or nonprofit sector), and the income, demographic, and work duration variables previously included. Conducting this series of tests will reveal (1) the extent to which the association between income and happiness is affected by the inclusion of job discretion variables (and other work-related variables), and, importantly, (2) whether the association between the key job discretion variables and happiness that proved important in the multinomial regressions reported in Table 3 remain important when taking into account the duration of work hours (models 2, 3, and 4) and a broader set of work variables (model 5). Because model 5 includes each of the three job discretion variables, it is a particularly strict test of the relationship between these distinct measures of job discretion and happiness. Table 4 provides results for all workers combined, Table 5 just for the salaried workers, and Table 6 just for hourly workers.

**Table 4:** OLS Regressions for Full Sample, Sequential Models 1 through 5 Predicting Happiness. Unstandardized Coefficients (Standard Errors in Parentheses)

	1	2	3	4	5
< \$20,000	-0.059+	-0.047	-0.043	-0.042	-0.041
	(0.032)	(0.033)	(0.033)	(0.033)	(0.033)
\$20-29,999	-0.050	-0.049	-0.045	-0.054	-0.053
	(0.037)	(0.037)	(0.037)	(0.038)	(0.038)
\$40-49,999	0.010	0.012	0.013	0.009	0.008
	(0.042)	(0.042)	(0.042)	(0.042)	(0.042)
\$50-74,999	0.042	0.035	0.032	0.031	0.029
	(0.038)	(0.039)	(0.039)	(0.039)	(0.039)
\$75,000+	0.145**	0.125**	0.109*	0.135**	0.110*
	(0.044)	(0.045)	(0.045)	(0.045)	(0.045)
Year2002	0.009	0.008	0.009	0.007	0.007
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Age	-0.018**	-0.022**	-0.022**	-0.021**	-0.022**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
Age2	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.008	-0.021	-0.018	-0.011	-0.015
	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)
White	0.028	0.031	0.020	0.029	0.022
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
Married	0.335**	0.328**	0.330**	0.333**	0.328**
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
One kid	-0.106**	-0.100**	-0.098**	-0.105**	-0.097**
	(0.035)	(0.035)	(0.036)	(0.036)	(0.036)
Two kids	-0.048	-0.047	-0.048	-0.049	-0.055
	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)
Three+ kids	-0.022	-0.017	-0.013	-0.022	-0.019

<sup>25</sup> Missing data on the “union” variable reduces the sample size for Model 5.

	(0.034)	(0.034)	(0.035)	(0.035)	(0.035)
<i>Time off during day</i>	—	0.065**	—	—	0.056**
	—	(0.011)	—	—	(0.012)
<i>Change start/end time</i>	—	—	0.038**	—	0.024*
	—	—	(0.010)	—	(0.010)
<i>Mandatory extra work</i>	—	—	—	-0.001	0.026
	—	—	—	(0.027)	(0.027)
<i>Hours</i>	—	0.002**	0.002*	0.002*	0.002**
	—	(0.001)	(0.001)	(0.001)	(0.001)
<i>More days</i>	—	0.002	0.000	0.001	0.001
	—	(0.002)	(0.002)	(0.002)	(0.002)
<i>Irreg/Oncall</i>	—	—	—	—	-0.105*
	—	—	—	—	(0.043)
<i>Evening</i>	—	—	—	—	-0.046
	—	—	—	—	(0.039)
<i>Split/Rotating</i>	—	—	—	—	0.010
	—	—	—	—	(0.045)
<i>Union</i>	—	—	—	—	-0.015
	—	—	—	—	(0.041)
<i>Govt/Nonprofit</i>	—	—	—	—	0.009
	—	—	—	—	(0.028)
<i>Observations</i>	2,599	2,537	2,533	2,516	2,505
<i>R-squared</i>	0.087	0.102	0.096	0.090	0.107

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

First, while the pattern of coefficients indicate that happiness levels are positively associated with higher income (and negatively with lower income), these relationships are statistically significant only for the \$75,000 or over income category (compared to the middle income category) for the full sample (Table 4) and the \$20-\$29,999 group for hourly workers (Table 6). There are no meaningful changes to the income coefficients with the addition of job discretion and work variables in models 2 through 5.

On the other hand, the “time off during day” and “change start/end time” job discretion variables continue to show important associations with happiness in the OLS models, as they did in the earlier multinomial regression models. (The third job discretion variable indicating limited ability to refuse mandatory work remains insignificant in the OLS models, as was the case in the earlier models.) In particular, controlling for hours duration, income, and demographic variables, workers with the ability to take time off during the day to attend to personal and family matters and workers who can set their own start and end times report greater happiness than their colleagues without this flexibility. These results hold for the full sample and for salaried and hourly subgroups. Even in model 5 that includes the three job discretion variables simultaneously and also includes the additional work controls, the association between taking time off and happiness remains significant for the full sample and hourly and salaried subgroups, and the association between changing start and end times and happiness remains significant for the full sample and marginally significant for the subgroup of workers paid by the hour, but no longer for salaried workers. These findings indicate that job discretion is an important component of happiness that future studies on the relationship between income and happiness



might consider. Moreover, these results suggest that taking time off during the day may be an especially valued form of job discretion for both salaried and hourly workers, as is indicated by the markedly greater size of the coefficient of this indicator as compared to the coefficient for “change start/end time” or “mandatory extra work.”

Regarding the duration of weekly work hours, we observe a slight positive association between working more hours and happiness, and this relationship is significant in the full sample. The coefficients are largely unchanged for hourly and salaried subgroups but are no longer significant perhaps because of the smaller sample size. There is no statistically significant relationship found between working more days and happiness. The lack of negative relationship between work duration whether measured as hours or days and happiness may in part reflect a “happy worker effect,” much like the “healthy worker effect,” whereby workers whose health is excellent are capable of working longer hours.<sup>26</sup> Positive mental health might be associated with more hours devoted to any type of activity, including work. Or, the positive association may be reflective of something else in the nature of work itself, e.g., more job autonomy, control over pace of work, stimulating work tasks or other possible sources of process utility.

**Table 5: OLS Regressions for Salaried Worker Subsample, Sequential Models 1 through 5 Predicting Happiness. Unstandardized Coefficients (Standard Errors in Parentheses)**

	1	2	3	4	5
< \$20,000	-0.013	0.035	0.021	0.022	0.038
	(0.076)	(0.077)	(0.077)	(0.077)	(0.077)
\$20-29,999	-0.006	0.010	0.005	-0.010	0.016
	(0.071)	(0.072)	(0.072)	(0.072)	(0.072)
\$40-49,999	-0.014	-0.002	-0.003	-0.016	-0.001
	(0.062)	(0.062)	(0.063)	(0.063)	(0.063)
\$50-74,999	-0.016	-0.014	-0.015	-0.017	-0.015
	(0.056)	(0.056)	(0.057)	(0.057)	(0.057)
\$75,000+	0.062	0.055	0.044	0.052	0.033
	(0.059)	(0.059)	(0.060)	(0.060)	(0.061)
Year2002	0.002	-0.007	0.002	-0.005	-0.005
	(0.041)	(0.041)	(0.041)	(0.042)	(0.042)
Age	-0.022+	-0.024*	-0.026*	-0.025*	-0.023*
	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)
Age2	0.000+	0.000+	0.000*	0.000+	0.000+
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Male	0.048	0.022	0.019	0.037	0.022
	(0.040)	(0.040)	(0.041)	(0.041)	(0.042)
White	0.044	0.034	0.028	0.033	0.032
	(0.049)	(0.049)	(0.050)	(0.050)	(0.050)
Married	0.353**	0.346**	0.351**	0.348**	0.335**
	(0.043)	(0.043)	(0.043)	(0.044)	(0.043)
One kid	-0.102+	-0.081	-0.085	-0.088	-0.089

<sup>26</sup> Note that models that included workers’ self-reported health were run, and revealed a strongly positive relationship to happiness, not surprisingly, but are not included herein due to their collinearity with variables such as work hours duration, age and other demographic variables.

	(0.058)	(0.058)	(0.059)	(0.059)	(0.058)
<i>Two kids</i>	-0.069	-0.056	-0.060	-0.059	-0.064
	(0.054)	(0.055)	(0.055)	(0.055)	(0.055)
<i>Three+ kids</i>	0.030	0.042	0.044	0.041	0.033
	(0.059)	(0.060)	(0.060)	(0.061)	(0.061)
<i>Time off during day</i>	—	0.063**			0.055**
	—	(0.020)			(0.021)
<i>Change start/end time</i>	—		0.034*		0.014
	—		(0.016)		(0.018)
<i>Mandatory extra work</i>	—			-0.040	-0.016
	—			(0.044)	(0.045)
<i>Hours</i>	—	0.002+	0.002	0.002	0.002
	—	(0.001)	(0.001)	(0.001)	(0.001)
<i>More days</i>	—	0.004	0.002	0.003	0.003
	—	(0.002)	(0.002)	(0.002)	(0.002)
<i>Irreg/Oncall</i>	—	—	—	—	-0.138+
	—	—	—	—	(0.082)
<i>Evening</i>	—	—	—	—	-0.162
	—	—	—	—	(0.107)
<i>Split/Rotating</i>	—	—	—	—	0.048
	—	—	—	—	(0.089)
<i>Union</i>	—	—	—	—	-0.028
	—	—	—	—	(0.069)
<i>Govt/Nonprofit</i>	—	—	—	—	-0.035
	—	—	—	—	(0.044)
<i>Observations</i>	920	899	898	898	896
<i>R-squared</i>	0.10	0.117	0.110	0.107	0.123

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

**Table 6: OLS Regressions for Hourly Paid Worker Subsample, Sequential Models 1 through 5 Predicting Happiness. Unstandardized Coefficients (Standard Errors in Parentheses)**

	1	2	3	4	5
<\$20,000	-0.056	-0.065	-0.054	-0.050	-0.057
	(0.041)	(0.041)	(0.041)	(0.042)	(0.042)
\$20-29,999	-0.080+	-0.088+	-0.082+	-0.091+	-0.097*
	(0.047)	(0.047)	(0.048)	(0.048)	(0.048)
\$40-49,999	-0.019	-0.025	-0.025	-0.022	-0.027
	(0.062)	(0.062)	(0.063)	(0.063)	(0.063)
\$50,000+	0.064	0.059	0.056	0.046	0.052
	(0.059)	(0.059)	(0.060)	(0.060)	(0.060)
<i>Year2002</i>	0.037	0.033	0.032	0.031	0.023
	(0.033)	(0.033)	(0.033)	(0.034)	(0.034)
<i>Age</i>	-0.010	-0.013+	-0.013+	-0.011	-0.013+
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)

<i>Age2</i>	0.000	0.000+	0.000+	0.000	0.000+
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>Male</i>	-0.032	-0.039	-0.029	-0.029	-0.031
	(0.034)	(0.034)	(0.034)	(0.035)	(0.035)
<i>White</i>	0.029	0.026	0.016	0.023	0.016
	(0.037)	(0.036)	(0.037)	(0.037)	(0.037)
<i>Married</i>	0.296**	0.297**	0.298**	0.299**	0.300**
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
<i>One kid</i>	-0.123*	-0.124*	-0.113*	-0.129**	-0.124*
	(0.049)	(0.049)	(0.049)	(0.049)	(0.050)
<i>Two kids</i>	-0.014	-0.025	-0.018	-0.026	-0.035
	(0.048)	(0.048)	(0.048)	(0.049)	(0.049)
<i>Three+ kids</i>	-0.038	-0.048	-0.041	-0.056	-0.051
	(0.048)	(0.047)	(0.048)	(0.048)	(0.048)
<i>Time off during day</i>	—	0.077**			0.068**
	—	(0.016)			(0.017)
<i>Change start/end time</i>	—		0.043**		0.026+
	—		(0.014)		(0.015)
<i>Mandatory extra work</i>	—			0.021	0.056
	—			(0.037)	(0.038)
<i>Hours</i>	—	0.002+	0.002+	0.002	0.002+
	—	(0.001)	(0.001)	(0.001)	(0.001)
<i>More days</i>	—	-0.002	-0.004	-0.003	-0.003
	—	(0.002)	(0.003)	(0.003)	(0.003)
<i>Irreg/Oncall</i>	—	—	—	—	-0.140*
	—	—	—	—	(0.068)
<i>Evening</i>	—	—	—	—	-0.001
	—	—	—	—	(0.045)
<i>Split/Rotating</i>	—	—	—	—	-0.018
	—	—	—	—	(0.057)
<i>Union</i>	—	—	—	—	0.010
	—	—	—	—	(0.054)
<i>Govt/Nonprofit</i>	—	—	—	—	-0.008
	—	—	—	—	(0.042)
<i>Observations</i>	1,372	1,354	1,353	1,337	1,330
<i>R-squared</i>	0.069	0.087	0.077	0.070	0.093

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

Regarding the other work variables (included in model 5 only), only irregular or on-call work shows a relationship with happiness. Specifically, workers who report that shift times are irregular or on-call as compared to daytime work schedules, also report lower happiness. This supports evidence of the adverse well-being effects on the daily lives of workers who face variable or unpredictable work hours and schedules (e.g., Henly, Shaefer & Waxman, 2006; Lambert, 2008). Being a labor union member does not have an association with happiness level;

nor does being employed in government or non-profits.

Some other control variables worthy of note are the pronounced positive effect of being married with happiness and negative effects of having one (presumably the first) child, especially for hourly workers. This reinforces findings based on other data elsewhere (e.g., Stevenson & Wolfers, 2008). Differences by gender, however, are not present. Results for the age control variable mirror findings regarding the U-shaped pattern of job satisfaction and life satisfaction (e.g., Clark, Oswald & Warr, 1996; Easterlin, 2006).<sup>27</sup>

### **Conclusion, Discussion and Implications**

The association of various dimensions of working time and worker self-reported happiness is revealed herein to have important nuances and implications for working time research. The General Social Survey (GSS) Quality of Worklife supplements for two years are pooled and exploited for their unique data generated that distinguishes between hourly paid and salaried workers, and several types of employee-centered flexibility in scheduling of work. We focused on three types of work schedule discretion for employees—the ability to vary the starting and ending times of the workday, ability to take time off during the work day to attend to family or personal matters and (in)ability to refuse overtime work. In sum, the empirical findings suggest that discretion over the timing of one's work matters far more for happiness than does the duration of working time or income. Indeed, the associations found between job discretion and happiness are apparently independent of income and work duration, and the associations prove quite robust over most specifications and control variables. Moreover, the associations of job discretion with happiness are consistently stronger and more significant among hourly paid workers. Regarding what kind of job discretion matters, these findings suggest that the ability to take time off over the course of the day is measurably greater than the ability to vary only the start or end of the work day. As previously noted, endogeneity cannot be ruled out that happier people seek or stay in jobs that provide scheduling discretion. Nevertheless, employee input into working time perhaps yields some procedural utility or hedonic returns that can be quite important to the employed, particularly to those workers with the least degree of access to it, hourly-paid workers.

This is consistent with recent findings elsewhere of the effects of more flexible work scheduling on other potential outcomes of interest for worker subjective well-being--work-life conflict, work stress and fatigue—which hold even when controlling for duration of work hours and other job characteristics (Golden et al., 2011). The results lend some support to previous findings that hourly payment status leads individuals to rely relatively more on using income in the evaluation of their own happiness, although the income effects are minimized when job discretion variables are included in the models (DeVoe & Pfeffer, 2009).

Contributions from behavioral economics have been opening the heretofore “black box” of utility, by examining the economic, and not strictly economic determinants of subjective well-being and its measurements, such as self-reported happiness scales. Future research should make the key distinction not only between the effects of the duration of work hours and those from

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<sup>27</sup> There is growing interest in work hours flexibility over the life course, as a large segment of the work force ages (e.g., Pitt-Catsouphes & Matz-Costa, 2008; Christensen & Schneider, 2010). When the sample is subdivided by age, with the control variable for age excluded (above the sample median age of 42, with n= 1242), with results available upon request from authors. Among older workers, only hourly workers gain happiness with flexible working time, whereas among younger workers, both hourly and salaried workers gain happiness from flexibility. Relatively older workers' happiness is associated with the ability to take off work during the day and to vary one's start and end times, no less than it is for the all-age sample.

discretion (control or flexibility) over the timing of work, but how this lack of control detrimentally affects the character of life and well-being of hourly workers perhaps differently than salaried workers (Lambert, Haley-Lock, & Henly, 2012; Lambert, 2008; Swanberg et al., 2011). There seem to be nuanced differences between control over when one does work (starting and quitting time), does not work, or alternates between work and non-work activities over the course of a day. Future research also should investigate nuances in the relationship with happiness levels, hour duration, and control. In unreported results, weekly hours duration and hours-squared reveal a slight negative effect of hours with a positive exponential, suggesting a curvilinear effect of longer hours on well-being, which supports Knabe & Ratzel (2010). Since the ability to take time off during the work day appears to be so crucial, interacting it with income, shift time and gender might reveal more why it appears to yield greater happiness and the extent to which it does so differently by income level.

The results show that using a purely economic frame of income levels to explain variation in well-being indicators would be at best incomplete, thus scheduling autonomy and other job amenities and working conditions should enter not only worker utility functions but also indexes comparing well-being across countries. The most pertinent policy implication of the findings is that while worker well-being is certainly affected by trends in earnings and job opportunities, it may also be improved by practices and policies that promote more daily discretion over the timing of workers' time at work.<sup>28</sup> If public policy truly wishes to promote greater gross domestic happiness, policies that foster the spread in access to and use of autonomy in scheduling one's work such as "rights to request" and perhaps to a smaller degree also, "rights to refuse," at least for salaried workers, have much promise, and "small necessities laws, which have been adopted by a handful of US states, might be not so "small" in their power to yield greater happiness for many of those employed.

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<sup>28</sup> Numerous one-time surveys support the potential power of this practice, e.g., "The Key to Happiness at Work: Schedule Flexibility," "Minority of Employees Have Flexitime, but Majority Want it" (Tang & MacDermid Wadsworth, 2010).

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## Appendix 1: List of Key Variables

<b>Dependent Variable</b>	
<i>Happy</i>	Taken all together, how would you say things are these days-would you say that you are:
	1, very happy, 2. pretty happy, or 3. not too happy?
<b>Income Variable</b>	
	Reported annual income of individual
	1 = "less than \$10,000" 2 = "\$10,000-\$19,999" 3 = "\$20,000-\$29,999" 4 = "\$30,000-\$39,999" 5 = "\$40,000-\$49,999" 6 = "\$50,000-\$74,999" 7 = "over \$75,000"
<b>Employee Discretion Variables</b>	
<i>Change start/end time</i>	How often are you allowed to change your starting and quitting times on a daily basis?
	1 Often 2 Sometimes 3 Rarely 4 Never (REVERSE SCORED)
<i>Time off during day</i>	How hard [difficult] is it to take time off during your work to take care of personal or family matters?
	1 Not at all hard; 2 Not too hard; 3 Somewhat hard; 4 Very hard (REVERSE SCORED)
<i>Mandatory extra work</i>	When you work extra hours on your main job, is it mandatory (required by your employer?)
<b>Hour Duration Variables</b>	
<i>Hours</i>	If working, full or part time: How many hours did you work last week, at all jobs?
<i>More days</i>	How many days per month do you work extra hours beyond your usual schedule?
<b>Paid by a salary or by the hour</b>	
	In your main job, are you salaried, paid by the hour, or what?

**Appendix 2: Descriptive Data** Figure 1a, b, c: Cross Tabulations of Happiness with the Three Indicators of Worker Discretion over Work Schedules, by Hourly and Salary Paid Status, GSS and QWL data



### Appendix 3

Ultimately, it is employers that initially set work schedules (with the possible exception of self-employment). Employers may offer a traditional, fixed work schedule largely because switching regimes to provide schedules that better match each employee’s timing preference may not be entirely cost free.

The degree of scheduling mismatch, on any given shift length experienced by a worker that is not provided a fully accommodative, flexible schedule is:

$$( I_o^* - I_o ) + ( I_n^* - I_n )$$

customized work scheduling system, there will be on-going supervision costs (SC), such as the administrative and coordination costs of monitoring it once in place, including preventing abuse. An employer will presumably adopt more scheduling discretion for employees if the added SC in the short run is exceeded by longer run labor cost savings or improved performance achieved by

better matching actual to preferred schedules (Altman and Golden 2007; Ortega 2009; Lee and DeVoe 2012). The following equation would transform into monetary terms (via the term,  $\theta$ ) the net change in labor costs incurred by firms when customized schedules are absent (scaled by the number of employees involved,  $N$ ). Thus, a rational firm would:

$$\therefore \text{set } I = I^* \text{ if } : SC \leq \theta / \bar{I} - I^*{}^\delta$$

assumes  $\delta \geq 1$ ,  $\theta > 0$ ,  $SC > 0$

That is, firms would customize work schedules for employees if it provides cost savings that more than offset the costs of adopting and supervising them. The exponent  $\delta$  may be simply equal to one, or perhaps greater if larger deviations from the preferred schedule are harmful to costs more proportionately than small deviations. In addition, suppose  $SC$  is a constant, such that there are no net economies of scale present by staff size in supervising work schedules. Introducing the element of time, firms would be induced to implement work scheduling that fits employees' preferences if: 1) Employees'  $I^*$  changes in ways that would widen the absolute gap with  $I$ ; 2)  $SC$  decreases, e.g., due to technological innovations in capital, work organization or human resource management techniques that lower the cost of administering and monitoring flexible scheduling, such as improved telecommunications devices, diffusion of work scheduling software tools and self-managed team working; 3) The cost penalty ( $\delta$ ) on the employer for mismatching increases; 4) The opportunity cost ( $\theta$ ) of reduced retention increases, reflecting, e.g., a shortage of a specific type of human capital; 5) Either the employer's time horizon lengthens, its discounting of future cost savings shrinks or its willingness to risk adopting flexible scheduling increases.

Therefore, an employer may choose to provide a worker's desired interval fully, or, perhaps adjust only partly or gradually. The degree of scheduling flexibility is captured by a coefficient,  $\gamma$ , in the expression,

$$\Delta I_t = \gamma ( I_t^* - \bar{I}_{t-1} ) , \quad 0 \leq \gamma \leq 1.$$

The term  $\gamma$  indicates the degree of responsiveness of the actual (or fixed) schedule,  $I$ -bar, toward the preferred  $I^*$ , when the two deviate. If  $\gamma$  is 1.0, a worker has complete scheduling flexibility, accommodated to adjust to their preferred timing. If it were 0, then the employee works entirely at the behest of employers' preferred scheduling.