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Abstract

On any given weekend, over a fifth of the UK labour force is at work, while more than half of working adults report working at the weekend at least some of the time. This is despite the fact that weekends are conventionally set aside as rest days. The question that this paper addresses is: does this matter? This paper adds to the literature by using two large panel datasets to analyse the effects of weekend working on eight different measures of subjective well-being in the UK. Unlike most previous literature on this topic, the analysis in this paper controls for individual fixed effects such that the results should not be confounded by time invariant omitted variables that differ between individuals. I find that weekend working does not affect how satisfied people are with their lives overall but it does have a significant impact on how satisfied they are with the amount of leisure time they have, with the results suggesting that the avoidance of weekend working is equivalent to working six fewer hours per week. Moreover, people working at the weekend report significantly lower happiness yesterday than non-weekend workers. These findings imply that, while weekend working is arguably good for productivity and hence welfare, such benefits come at a cost. Notwithstanding the fact that many people may be freely supplying their labour at weekends, actions aimed at limiting weekend working or mitigating its adverse effects will improve the overall well-being of workers.

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JEL classifications: I3, J2

Section 1: Introduction

The practice of dividing the seven day week into five working days and two rest days is an established social convention that dictates business, community and family life across most of the world today. In the UK, as in most of the Western world, the rest days of Saturday and Sunday have come to be defined as the 'weekend'. Aside from social convention, there is nothing in the natural world and very little in terms of official legislation to mark these two days out as being different from the other five days of the week. However, there are theoretical and empirical reasons for supposing that working on a designated weekend day may be experienced differently to working on a conventional weekday.

This paper explores the extent to which weekend working affects subjective well-being (SWB) across the UK population. There is a substantial body of literature (see Section 2) showing a correlation between weekend working and various adverse outcomes. My current paper adds to the literature by using two large national datasets to analyse the effects of two different definitions of weekend working on eight different measures of SWB (see Section 4). These datasets are the Quarterly Labour Force Survey (LFS) and Understanding Society: The UK Household Longitudinal Study (UKHLS). Both datasets contain panel data, which allows for a fixed effects model, such that results should not be confounded by unobserved time invariant factors that might be expected to be correlated with both SWB and probability of working at the weekend. This approach sets my research apart from much of the existing literature on the effects of weekend working, which is predominantly based on cross-sectional data.

My results (see Section 6) show that weekend working has a detrimental impact on two of the eight measures of SWB investigated: happiness yesterday and satisfaction with amount of leisure time. No positive effects are found. This implies that actions to reduce weekend working should improve the overall well-being of the UK workforce (Section 8).

Section 2: Literature review

There is an established literature on the impact of working hours on well-being, including Bardasi and Francesconi (2004), Booth and Van Ours (2008), Booth and Van Ours (2009), Gash et al. (2012), Berger (2013), Wooden et al. (2009), Angrave and Charnwood (2015), Wunder and Heineck (2013) and Iseke (2014). The general conclusion from these studies is that it is primarily a mismatch between desired hours and actual hours which is detrimental for well-being. Both underemployment and overemployment are associated with reduced well-being, and the optimal number of hours varies between individuals. These findings suggest that labour markets do not always migrate to a 'clearing' equilibrium whereby individuals supply their desired number of hours.

With respect to nonstandard working hours, a few studies use longitudinal surveys to explore the well-being effects of shift working (e.g. evening and night work, or rotating shifts), including Bardasi and Francesconi (2000), Ulker (2006), Bara and Arber (2009), and Robone et al. (2011). Interestingly, the findings from the latter three studies infer that men are in general less resilient to atypical or inconsistent working hours than women, in terms of impact on mental health and well-being.

The literature on the impacts of weekend working is somewhat more fragmented. A cross-sectional study by Hosking and Western (2008) explores the effects of non-standard employment on work-family conflict in Australia. They find that regular weekend working is associated with increased work-family conflict for parents, with the result being significant for fathers but not mothers. Tausig and Fenwick (2001) also use a cross-sectional US dataset to consider the effects of weekend working, and other non-standard schedules, on perceptions of work-life balance. They find that individuals working a non-Monday to Friday schedule are significantly less likely to report good work-life balance than individuals working a standard schedule.

A study by Cooke et al (2009) finds that, among a cross-section of Canadian employees, there is very little difference overall in job satisfaction levels between part time weekend workers and all other workers, but speculates that this result may be due to partnered women having a preference for non-standard working schedules in order to facilitate domestic and family responsibilities.

Davis et al. (2008) find that weekend working in the US is not associated with perceived marital instability or negative spillovers between family and work, and vice versa, although night working is found to be associated with these negative outcomes. However, the incidence of daily stressors is found to be higher among weekend workers than weekday workers. A difference between night working and weekend working in the US is also found by Gassman-Pines (2011), based on a survey of 61 low income mothers of pre-school children. While night working is shown to have an adverse effect on maternal mood, mother-child interactions and child behaviour, there are no such negative associations among women working at the weekend. This also confirms the findings of Presser (2000), in which non-day work schedules are associated with marital instability among American couples with children but these effects are not observed for people working during the day at the weekend.

Hook (2012) analyses the time use of fathers in the UK and finds that those who work at the weekend spend less time with their children than those not working at the weekend, partly as a result of higher overall hours. Barnes et al. (2006) also find that time spent with children, and time spent on particular activities involving children, is negatively associated with atypical working patterns (including weekend working) of both fathers and mothers. However, Brayfield (1995) finds that fathers in the US are more likely to engage in childcare of pre-school children when the mother works at the weekend, although there is no effect for school-age children.

Similarly, Craig and Brown (2015) assess whether weekend workers in Australia 'make up' for lost non-work time during the week, focusing on all workers not just parents. They find that weekend workers, and particularly those working on a Sunday, spend less non-work time in the company of others (including family and friends both inside and outside of the household) and more time alone than

people who do not work weekends. It is suggested that this may lead to a negative well-being impact, although this is not captured in the data. Bittman (2005), also using Australian data, finds a similar result insofar as people working on a Sunday spend significantly less time engaged in leisure with others on a Sunday than people not working that day, but do not compensate for this by spending more time in similar activities on a weekday.

Martin and Lechook (2011) find that retail workers in a particular US company who worked fewer weekend days in 2010 compared to 2007 report a higher satisfaction with days worked in 2010 than those who worked on both Saturdays and Sundays in both years. The same authors (Martin et al. 2012) also find that retail employees working weekend schedules or non-day shifts remain with their employer for a shorter duration than those on standard schedules.

There is limited evidence on the direct link between weekend working and measures of SWB. Jamal (2004) finds that employees involved in weekend work report higher emotional exhaustion, job stress and psychosomatic health problems than employees not involved in weekend work, but this study does not appear to control for other factors so the results should be treated tentatively.

Possibly the strongest evidence from the existing literature on the impact of weekend working on SWB is provided by Bryson and MacKerron (2017). In this study, well-being data was collected from UK individuals in real time via a smartphone app called Mappiness. Controlling for fixed effects, they find that participants on average reported very low levels of happiness and relaxation while working or studying, second only to being sick in bed among all coded activities. This negative coefficient is significantly larger when working occurs at the weekend relative to the hours of 6am-8pm on Monday-Friday. It should be noted, however, that this sample is drawn from a self-selecting population, which may not be representative of the wider UK population in the same way that the national surveys I use in this paper are designed to be representative.

Section 3: Theory

In a standard neo-classical labour market model, individuals choose their labour supply (number of hours worked) based on their relative preferences for consumption and leisure. Hamermesh (1999) extends this model by allowing the value of leisure time to vary according to the time of day. In other words, the individual's optimisation problem involves choosing not only how many labour hours to supply but also when to supply those hours. This framework is a helpful starting point for understanding how the weekend might impact on labour supply decisions and the well-being of workers.

A given individual may have a choice between accepting a job that involves weekend working and accepting a job that does not involve weekend working. The two jobs may require working the same number of hours and be identical in every other way. Nevertheless, the difference with respect to weekend working may cause the individual to strictly prefer one job to the other.

The literature reviewed above suggests that, if anything, weekend working is a dis-amenity for most people. This assumption is based on the hypothesis that an individual's leisure time has added value when it is coordinated with the leisure time of others. For example, many social, cultural and community events take place at the weekend in order to maximise attendance (i.e. when most people are not at work) so an hour of weekend time contributes much more to participation at these events than an hour of weekday time. Similarly, leisure time concentrated at the weekend is likely to have more value for families with children, as this is typically the time when children are not in school or childcare.

However, there may be other people for whom the weekend working option is preferred, due to the benefits of having leisure time during the normal working week. For example, non-working time spent in education or training or attending health appointments or personal business appointments (e.g.

banking, solicitors) may have greater value on weekdays due to limited supply of certain services at weekends. Time spent shopping or on leisure activities may also have higher value on weekdays due to the disutility of higher levels of congestion at weekends. Where a household contains two adult members, household utility may be increased where non-working time is staggered. A prime example of this is the idea of 'shift parenting' where two parents look after the children at different times of the week to minimise reliance on paid childcare, which may also increase preference for non-working time on weekdays.

Heterogeneity between people with respect to their preference for weekend working leads to a matching of workers to jobs such that people with a preference for weekend working are more likely to select into jobs which involve weekend working and vice versa. Hence there is no reason to suppose *a priori* that weekend workers should be any more or less content than non-weekend workers, controlling for other personal characteristics.

By solely focusing on the supply side of the labour market, however, we ignore the effects of demand on how workers are matched to jobs. Hamermesh (1999) shows that work performed at different times of the day (or week) makes a different contribution to firms' profits. This is intuitive in the sense that the productivity of labour is a function of the timing of work. For example, a manufacturing firm with a fixed capital stock would maximise productivity by spreading its labour hours over the whole week rather than leaving capital idle for two days per week and concentrating all work into five days. In the personal services sector (e.g. retail, hospitality and leisure), workers are much more productive when utilised during periods of high customer demand, which very often includes the weekend when many customers are themselves not at work.

It is likely, therefore, that there will be some mismatch between the supply of and demand for weekend working. Of course, in a flexible labour market, wages will adjust to equalise supply and demand. Given that this mismatch involves excess demand, we may observe weekend workers being offered a wage premium for doing the same work at the weekend in order to induce some workers

who would otherwise prefer not to work at the weekend to accept weekend working nevertheless, as the increased disposable income compensates for the disutility of an unfavourable working schedule. Other aspects of a job may also act as compensation for weekend working. Therefore, we should expect to see weekend working having some effect on well-being once income and other job characteristics are controlled for, reflecting the fact that some people are selecting into weekend working despite that not being their preference due to the compensatory effects of other job aspects.

Section 4: Data

I have chosen to explore this research question using two national datasets, the LFS and the UKHLS.¹ The two datasets contain distinctly different measures of SWB (with the exception of life satisfaction which is captured in both) and also provide different definitions of weekend working. Hence, this approach enables a much fuller assessment of the effects of weekend working on well-being than if only a single dataset were used.

The LFS (Office for National Statistics 2016) is a large scale quarterly survey undertaken in the UK. It is a simple random sample of all persons normally resident in private households in Great Britain and Northern Ireland. Each individual, within sampled households, is interviewed five times over a 12 month period (at quarterly intervals) before leaving the sample, with a new batch of households joining the sample every quarter. Some questions are asked in all five waves of the survey while others are asked at specific waves or in specific quarters only. Four questions on SWB have been included in the LFS since 2012, and are asked to all respondents in the first and fifth waves only.²

¹Although all efforts are made to ensure the quality of the materials, neither the original data creators, depositors or copyright holders, the funders of the data collections, nor the UK Data Archive, nor the UK Data Service bear any responsibility for the accuracy or comprehensiveness of these materials. Due to the potentially sensitive or disclosive nature of the data, access to the LFS was granted via the Secure Data Service. This involved accessing the data through a virtual laboratory. All research outputs were independently checked by UK Data Service officers before being released from the laboratory, to ensure compliance with data protection procedures.

² It should be noted that SWB variables are not normally included in quarterly LFS datasets. While SWB is collected at waves 1 and 5 of the LFS, the purpose of this collection is to provide well-being data for the Annual Population Survey (APS). The reader should be aware of two analytical issues relating to the use of the LFS for

The analysis presented in this paper is based on a pooled sample of individual adult respondents across 11 quarters, between January-March 2012 and July-September 2014. This period was chosen as it includes all quarters available to date where questions on well-being are included in the datasets. The total sample size used for the main regressions is around 29,200 observations, although the sample size is slightly smaller where anxiety is the dependent variable due to this variable being missing in one quarter of the LFS.

LFS respondents who reported working in the reference week (effectively the seven-day period ending on the Sunday before the interview took place) were asked to state on which days they were scheduled to work that week. From this information, I create a dummy variable to indicate whether or not the individual was scheduled to work at any time at the weekend. I also create separate dummy variables for Saturday and Sunday working. Across the sample as a whole, 25% of men and 21% of women were scheduled to work on at least one weekend day in the reference week, with Saturday working more prevalent than Sunday working. As shown in Table 1, weekend working is more frequent among lower skilled occupations, with people working in sales or customer service occupations experiencing the highest incidence of weekend working.

The four SWB variables available in the LFS (the dependent variables in this analysis) are the same as the measures used by the Office for National Statistics to report personal well-being in the UK as a whole. See Dolan et al. (2011) for a justification of the inclusion of these measures in national surveys. Each variable can take any integer value between 0 and 10 and is summarised as follows: ‘Satisfaction’

SWB analysis. Firstly, the correct weighting variable to be used for SWB analysis is not provided in the LFS. This does not pose a problem for my research as the main findings are derived from unweighted regression analysis, and no descriptive statistics are provided in relation to SWB outcomes. Secondly, the LFS contains only a subset of the APS sample, as the APS sample is also derived from an APS boost. Therefore, the sample I have used does not constitute the full set of individuals from whom SWB data is collected for the APS. Nevertheless, the samples achieved from pooling together all LFS respondents appear to be sufficient for a robust analysis (over 25,000 reporting a wave 1 and wave 5 score for each of the four SWB variables).

measuring overall life satisfaction; 'Worthwhile' measuring eudaimonic well-being;³ 'Happy' measuring happiness yesterday; and 'Anxious' measuring anxiety yesterday.

The UKHLS (University of Essex 2015) is a longitudinal study of 26,000 UK households intended to be representative of the UK population in 2009. Due to the over-sampling of Northern Ireland households in the UKHLS, only households in Great Britain (England, Scotland and Wales) are retained for this analysis. To keep the sample as representative as possible, I also exclude households from the British Household Panel Survey (BHPS) that were added to the UKHLS sample from wave 2 and households from the Ethnic Minority Boost (EMB). However, as a robustness check, the analysis is repeated for the full UKHLS sample (including households in Northern Ireland and the BHPS and EMB sub-samples). This generates some different results which are discussed below.

To date, three waves containing the key weekend working explanatory variable (waves 2, 4 and 6) are available for analysis. The wave 2 interviews were conducted over the calendar years 2010 and 2011, the wave 4 interviews were conducted in 2012 and 2013 and the wave 6 interviews were conducted in 2014 and 2015. For a given household, the interviews took place at 12 month intervals (i.e. the time elapsed between waves 2 and 4 and between waves 4 and 6 was 24 months for each interviewee).

The relevant question in UKHLS, asked to all adult respondents who had a paid job (employed or self-employed) at the time of the interview, is expressed as follows: "Do you ever work at weekends?" The response is used to create a dummy variable which takes the value of 1 if the individual answered "yes" (i.e. worked at least some weekends in the wave in question) and 0 otherwise. As such, this is a substantially different measure of weekend working compared to the LFS indicator, referring to normal working patterns rather than a particular specified weekend. In wave 2, 57% of respondents reported working at least some weekends, rising slightly to 58% in wave 4 and 59% in wave 6. The sample size used in the main regressions is approximately 19,400 observations.

³ See Bryce (2018) for a detailed explanation of eudaimonic well-being and its origins.

Again, I use four different measures of well-being as the dependent variable in the UKHLS regressions. These are: the General Health Questionnaire (GHQ), an established multi-question measure of psychological health; life satisfaction; satisfaction with amount of leisure time; and job satisfaction. Please see the Appendix for a full description of the dependent variables used in this study.

For both the LFS and UKHLS analysis, a full set of covariates that may be expected to vary over time are also included. These are marital status, whether caring for another member of the household (UKHLS only), whether has dependent children living in the household, self-assessed health, log of income, whether self-employed (UKHLS only), whether works in public sector (LFS only), job quality,⁴ whether job is temporary, whether job is new, hours worked per week and whether works in the daytime only (UKHLS only).

Section 5: Methodology

To assess the impact of weekend working on different measures of satisfaction and well-being, I assume that the relationship between weekend working and well-being takes the following form:

$$S_{it}^* = \beta_0 + \beta_1 W_{it} + \mathbf{X}_{it}' \boldsymbol{\beta} + v_i + \varepsilon_{it} \quad (1)$$

In this model, S_{it}^* denotes the outcome of interest (i.e. measure of satisfaction or well-being) for individual i at time t . Note that this is assumed to be a continuous variable which is not directly observed in the data. The variable W_{it} is a dummy variable which takes the value of 1 if individual i worked weekends at time t , and 0 if the individual did not work weekends at time t . The vector \mathbf{X}_{it} contains all other observable time variant factors that are thought to impact on S_{it}^* . The fixed effects error term v_i contains all unobservable variables that are assumed not to change over time, while the time variant error term is ε_{it} .

Estimates of β_1 based on equation (1) will be biased due to the existence of unobservable characteristics (e.g. personality) that are themselves correlated with well-being and the probability of

⁴ This variable is derived in a similar way to occupational upgrading and downgrading as described by Gash et al. (2012), p. 60.

weekend working. Where these unobservable factors are time invariant and hence contained in v_i , their confounding influence can be removed by specifying the ‘within’ transformation as follows:

$$\ddot{S}_{it} = \beta_0 + \beta_1 \dot{W}_{it} + \ddot{\mathbf{X}}_{it}' \boldsymbol{\beta} + \ddot{\varepsilon}_{it} \quad (2)$$

Here, $\ddot{S}_{it} = S_{it} - T^{-1} \sum_{t=1}^T S_{it}$ and similarly for all right hand side variables, where T is the number of periods in the panel, S_{it} is self-reported well-being on an ordinal scale and $S_{it} = S_{it}^*$. In line with Ferrer-i-Carbonell and Frijters (2004), where individual fixed effects are included, it is reasonable to make the assumption that self-reported well-being, S_{it} , is a cardinal approximation for actual well-being, S_{it}^* . Equation (2) can be estimated using OLS.

I also estimate the model based on the Blow Up and Cluster (BUC) method developed by Baetschmann and Staub (2015) and described and applied by Dickerson et al. (2014). This estimator controls for the fixed effect but also maintains the ordinal nature of the SWB variable (i.e. relaxes the assumption that observed well-being, S_{it} , and latent well-being, S_{it}^* , are cardinally related). The results of the BUC analysis and a detailed description of the methodology are not presented in this paper but are available from the author on request. The BUC approach yields very similar results to the OLS analysis and leads to identical conclusions.

Section 6: Results

In this analysis, I explore a number of specifications of the models expressed in equations (1) and (2). The means and distributions for all explanatory variables in the model are presented in Table 2 and Table 3. Note that the incidence of weekend working is much higher in UKHLS than LFS. This is due to the different ways in which that variable is defined, as discussed above. Average incomes are also higher in the UKHLS sample due to the fact that this includes all personal income, not just wage income from one’s main job as is the case in LFS.

Tables 4 and 5 show how the coefficient with respect to weekend working changes in the different specifications of the model. Specification (1) is the most basic model, controlling for personal

characteristics only. It is based on equation (1) above where \mathbf{X}_{it} contains only selected non-work variables. In both the LFS (Table 4) and UKHLS data (Table 5), weekend working is associated with lower life satisfaction. It is also associated with reduced satisfaction with the amount of leisure time one has and reduced psychological health as indicated by GHQ.

These results are of course confounded by the fact that there may be systematic differences between people who work at the weekend and those who do not. To take account of this, specification (4) controls for individual fixed effects, based on equation (2) above, with \mathbf{X}_{it} again limited to non-work characteristics. Effectively, this specification predicts the extent to which changes in weekend working affect the well-being of individuals. Controlling for fixed effects reduces the impact of weekend working on life satisfaction, such that it becomes insignificant, in both the LFS and UKHLS regressions. In other words, while people who work weekends have lower life satisfaction, this is largely due to selection effects and individuals switching weekend working status do not experience a notable change. The effect on GHQ, while still negative, also becomes statistically insignificant, although in a robustness check it is found to be significant when including the full UKHLS sample. However, there remains a negative and significant coefficient in the equations where happiness and satisfaction with leisure time are the dependent variables.

Specifications (5) and (6) in Tables 4 and 5 additionally control for income and all other observable work characteristics respectively. For the most part, the inclusion of these additional controls does not affect the coefficients with respect to weekend working. The effect of weekend working on satisfaction with leisure time (Table 5 Panel C) actually falls slightly when including job characteristics. This is likely to be due to the fact that weekend working is often accompanied by other dis-amenities such as longer working hours and non-daytime working. Hence other job aspects are exacerbating rather than compensating for weekend working.

Tables 6 and 7 show the full results for specification (6) in Tables 4 and 5 respectively, which include all controls and individual fixed effects. In the LFS regressions (Table 6), weekend working is

significantly associated with reduced happiness for Saturday working and weekend working generally (but not Sunday working). The size of the coefficient implies that weekend working predicts just under a two percentage point change in overall happiness (the equivalent of moving from, say, 7.0 to 6.8 on a zero to ten scale). However, note that, although these full regressions control for working hours, unlike the UKHLS regressions they do not take account of the possible correlation between weekend working and non-daytime working, as this variable is not available in LFS. Weekend working does not have any impact on any of the other three SWB measures in the LFS (life satisfaction, worthwhileness and anxiety). Health is a significant predictor for all four outcomes while being in a partnership improves well-being on all measures except anxiety. Income does not predict any of the well-being outcomes while weekly working hours are associated with higher job satisfaction and higher anxiety.

In the UKHLS data, Table 7 shows that there is a negative and significant association between weekend working and satisfaction with the amount of leisure time one has. These results suggest that people who work standard schedules and hence take their leisure time at standard times (i.e. evenings and weekends) are more satisfied with their leisure time than people who work the same number of hours (and hence have the same amount of leisure time) but at non-standard times. An interpretation of the coefficients in Table 7 (dividing the coefficient with respect to weekend working by the coefficient with respect to hours) suggests that on average individuals in the sample are indifferent between working six fewer hours per week or switching to a schedule that does not include weekend working, in terms of satisfaction with leisure time.

The UKHLS results show that job satisfaction and, similarly to the LFS results, life satisfaction are not affected by weekend working. There is also no significant relationship between weekend working and psychological health, as measured by the GHQ. However, this result is sensitive to the sample used. Repeating the regression including all UKHLS households, not just those in the core Great Britain sample, yields a significant negative coefficient on GHQ with respect to weekend working. In the GB sample, only two components of GHQ are affected by weekend working: loss of sleep due to worry

and feeling constantly under strain (not shown in the tables). Similarly to the LFS results, health is negatively associated with all four UKHLS outcomes. However, being in a partnership affects life satisfaction only and income affects job satisfaction only, while increasing hours worked has a negative association with all measures except life satisfaction.

Tables 8 and 9 summarise the results of a series of supplementary regressions, based on specification (6) in which all controls and individual fixed effects are included. Table 8 Panel B and Table 9 Panel B show the results of recoding the weekend working dummy variable to account for whether individuals moved into or out of weekend working. In terms of happiness and satisfaction with leisure time, where there is an overall negative effect due to weekend working, there do not appear to be any asymmetries between transitions into and out of weekend working.

Table 8 Panel C and Table 9 Panel C repeat the baseline specification but restrict the sample only to people working in lower skilled occupations. Such people may have less choice about the job they do and their weekly working schedule. The tables show that those in lower skilled occupations are no less happy from working weekends than managers and professionals, but they do experience lower satisfaction with leisure time and lower GHQ. Conversely, lower skilled people also experience improved job satisfaction from weekend working. While there may be job-constraining reasons for people to involuntarily work at the weekend, it is not clear that this affects lower skilled people disproportionately such that they experience worse well-being from weekend working.

Table 9 Panel D shows the result of interacting weekend working with the extent to which one has autonomy over one's working hours, as captured in the UKHLS. While having autonomy over working hours is associated with improved life satisfaction and job satisfaction, there is no evidence that such autonomy protects people from the adverse effects of weekend working.

Another way of approximating the extent to which weekend working is involuntary is to observe the individual's reason for leaving their previous job. Table 8 Panel D shows that the interaction between quitting one's last job and working at the weekend in one's current job is significantly positive on all

four measures. This suggests that the voluntary decision to move into a job that involves weekend working is good for well-being. However, similar results are not found in the UKHLS data (see Table 9 Panel E) and, if anything, the reverse is true. Also, in both datasets, the interaction between weekend working and leaving one's previous job involuntarily is not a significant predictor of well-being, although this may be due to a relatively small number of observations.

Table 8 Panel E shows that, to some extent, age mediates the effects of weekend working on well-being. People under the age of 45 experience lower life satisfaction and happiness from weekend working relative to older workers, although the latter result is not statistically significant. This may indicate that younger workers are more likely to accept less favourable working conditions as an investment in career capital. However, this hypothesis is not supported in the UKHLS data (see Table 9 Panel F).

Much of the literature on the impact of weekend working has a particular focus on parents with dependent children living in the household. To explore whether the effects of weekend working are significantly different for those with children, I introduce an interaction term in both the LFS and UKHLS regressions where the presence of dependent children in the household is multiplied by weekend working status. As shown in Table 8 Panel F and Table 9 Panel G, this interaction term is not significantly related to any of the SWB outcomes, suggesting that the presence of children makes little difference overall to the impact of weekend working on well-being.

As weekend days have a particular religious significance, we might expect those identifying as Christian or another religion to be more adversely impacted by weekend working than non-religious people. The results of interacting religion with weekend working are shown in Table 8 Panel G and Table 9 Panel H. The findings are ambiguous insofar as the LFS results appear to support the hypothesis that weekend working is worse for religious people while the UKHLS results contradict this hypothesis. This may be due to differences in how weekend working is defined in the two datasets.

Section 7: Discussion

The results suggest that weekend working does matter for well-being, but only with respect to certain aspects of SWB. Once we control for fixed effects, weekend working does not have any adverse impact on life satisfaction or job satisfaction. This implies that, in line with standard labour market theory, transitions into and out of weekend working reflect changes in people's preferences as individuals supply labour at times suitable for them. However, happiness yesterday and satisfaction with leisure time are aspects of SWB that do appear to be affected by weekend working, and this is not compensated by earnings or any other observable job characteristics. This raises the question: why do people continue to supply their labour at weekends if this makes them less happy and reduces the quality of their leisure time?

One response to this is to question the assumption that individuals are freely supplying their labour at desired times. As discussed above, several studies (e.g. Wooden et al. 2009) show that many people experience a mismatch between desired and actual working hours, and it stands to reason that there may be a similar phenomenon with respect to weekend working. I find little evidence to support this, however. People in lower skilled occupations, who may experience greater job constraints, are no more affected by weekend working than managers and professionals. Also, having autonomy over one's working hours does not mitigate the negative effects of weekend working. Some regressions do show, however, that people quitting their previous job subsequently have a more favourable experience of weekend working, thus implying that individuals not able to move jobs so freely are relatively worse off when working at the weekend.

Moreover, it may be completely rational for an individual to accept a work schedule that lowers her well-being now if by so doing she maximises her lifetime utility. People may be prepared to put up with unfavourable working conditions as an investment in career capital that will yield a return in the future. These returns may be with the same employer (e.g. being prepared to do weekend working may improve one's chances for future contract extensions, pay rises or promotions) or with a different

employer (e.g. investment in skills and experience that may improve one's future job prospects). There is some evidence that younger workers are more adversely affected by weekend working than older workers, which may indicate that some people are making short term sacrifices for future gain. To test this more fully, we would need to use a longer panel to assess whether the well-being effects of weekend working persist over time and the extent to which they predict job changes over the course of a career. This is an area for further research.

Even if individuals are not constrained and are freely choosing to work at the weekend, there remains a rationale for intervention on the basis of the observed well-being effects. Working time regulation exists to limit how much time people spend working even in cases where individuals would prefer to supply more hours, due to potential health implications and concerns about exploitation. The same logic could be applied to weekend working. For example, stricter legislation limiting weekend working would reduce the incentive for workers to agree to weekend working as an investment decision despite it having adverse effects on their well-being. It is reasonable to argue that any career capital gained from working extra hours or unsocial hours is simply being redistributed between workers rather than being generated as new capital. An example of this phenomenon is given by Landers et al. (1996) who find that associates in law firms have an incentive to work inefficiently long hours in a 'rat race' to gain promotion to partner. Therefore, as long as all workers in a given sector were equally restricted in the amount of weekend work they could supply, such restrictions would not disadvantage the career prospects of anyone.

Section 8: Conclusion

The analysis presented in this paper suggests that weekend working does significantly affect some aspects of SWB among employed adults in the UK.

The results from the LFS show that weekend working has an effect on short-term affective well-being, as people scheduled to work on the previous Saturday or Sunday report significantly lower happiness than those not having scheduled work on the previous weekend. Moreover, weekend working also

affects evaluative well-being insofar as those never working at the weekend report significantly higher satisfaction with the amount of leisure time they have, equivalent to working six hours fewer per week, as shown in the UKHLS results. However, no significant effects are found with respect to other measures of SWB, including life satisfaction and job satisfaction.

These findings support the notion that adherence to culturally determined temporal cycles is important. They are consistent with previous literature showing a negative association between weekend working and well-being (e.g. Davis et al. 2008; Martin and Lelchouk 2011; Bryson and MacKerron 2017). Moreover, evidence from other sources suggests that intermediate effects of weekend working such as time use and family and social cohesion (e.g. Barnes et al. 2006; Hosking and Western 2008; Hook 2012; Craig and Brown 2015) may be driving these well-being effects. For the same reasons, we might expect to find similar impacts from working on other days with religious, cultural and national significance, such as Christmas Day and other designated public holidays in the UK. It is not straightforward to identify holiday working from the datasets used in this paper, but this is an idea for further research.

With some minor exceptions (e.g. restrictions to Sunday trading), the issue of weekend working does not appear to be high on the policy agenda in the UK, with decisions about the weekly scheduling of work largely being left to the market. Notwithstanding the fact that many people are freely choosing to supply labour at the weekend, this research suggests that moves to reduce the number of people working at the weekend should cause an aggregate improvement in the well-being of workers in the UK, at least in terms of affective well-being (how happy people feel) and satisfaction with leisure time, if not overall evaluative well-being (how satisfied people are with their lives). These policies could include direct legislation limiting the amount of nonstandard hours worked, incentives for employers such as a legal premium for weekend working or changes to how public services are delivered. However, any such policy change would have to be balanced against any potential negative effects of

restricted weekend working, such as reduced productivity and output or reduced access to public and consumer services, both of which may erode total well-being.

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Table 1 - Weekend working in the UK by major occupational group. Source: LFS, Jan 12 – Sep 13 (Office for National Statistics 2016).

	Scheduled to work on Saturday (%)	Scheduled to work on Sunday (%)	Scheduled to work on weekend (%)	Unweighted N
Managers, Directors and Senior Officials	26.9	14.1	28.6	3,694
Professional Occupations	9.3	6.5	10.7	7,104
Associate Professional and Technical Occupations	14.3	9.9	16.3	4,658
Administrative and Secretarial Occupations	8.1	3.8	9.3	4,029
Skilled Trades Occupations	28.6	15.1	30.2	3,489
Caring, Leisure and Other Service Occupations	28.3	19.5	32.9	2,910
Sales and Customer Service Occupations	42.4	25.8	50.5	2,350
Process, Plant and Machine Operatives	28.5	15.3	32.4	2,139
Elementary Occupations	33.6	20.6	37.9	3,052
Total	21.3	12.7	24.0	33,446

Weighted data. Sample includes all individuals scheduled to work in the reference week. Pooled data from 2012 Q1 to 2013 Q3, wave 1 responses only.

Table 2 - Means of explanatory variables – LFS (pooled). Source: LFS (Office for National Statistics 2016).

	Mean	N
Weekend working	0.228	61,456
Saturday working	0.202	61,456
Sunday working	0.118	61,456
Married/partnered	0.733	61,456
Whether has dependent children in household	0.440	61,456
Self-assessed health on five-point scale	4.315	60,931
Log of net weekly income from main job in pounds	5.710	40,404
Working hours (main and second job)	35.553	60,765
Temporary employment status	0.041	53,056
Public sector	0.260	61,299

Table 3 - Means of explanatory variables – UKHLS (pooled). Source: UKHLS (University of Essex 2016).

	Mean	N
Weekend working	0.579	27,116
Married/partnered	0.756	27,116
Carer status	0.046	24,036
Whether has children in household	0.388	27,116
Self-assessed health on five-point scale	3.711	25,828
Log of net personal income in pounds	7.334	27,036
Working hours, including overtime	37.053	26,579
Self-employment status	0.136	27,110
Temporary employment status	0.056	27,074
Daytime working	0.721	27,113

Table 4 –OLS regression results – weekend working (LFS). Source: LFS (Office for National Statistics 2016).

Panel A – Life satisfaction						
	(1)	(2)	(3)	(4)	(5)	(6)
Worked previous weekend	-0.065** (0.032)	-0.051 (0.032)	-0.045 (0.033)	-0.009 (0.042)	-0.009 (0.042)	-0.015 (0.042)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly earnings in main job	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	13,466	13,466	13,466	29,219	29,219	29,219
Panel B – Worthwhile						
	(1)	(2)	(3)	(4)	(5)	(6)
Worked previous weekend	0.001 (0.031)	0.008 (0.031)	0.018 (0.032)	0.046 (0.041)	0.046 (0.041)	0.050 (0.041)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly earnings in main job	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	13,455	13,455	13,455	29,189	29,189	29,189
Panel C – Happy						
	(1)	(2)	(3)	(4)	(5)	(6)
Worked previous weekend	-0.034 (0.043)	-0.036 (0.043)	-0.034 (0.044)	-0.188*** (0.066)	-0.188*** (0.066)	-0.188*** (0.067)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly earnings in main job	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	13,464	13,464	13,464	29,217	29,217	29,217
Panel D – Anxious						
	(1)	(2)	(3)	(4)	(5)	(6)
Worked previous weekend	-0.091 (0.060)	-0.085 (0.060)	-0.111* (0.061)	0.068 (0.099)	0.068 (0.099)	0.055 (0.099)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly earnings in main job	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	13,453	13,453	13,453	26,822	26,822	26,822

*Unweighted data. *p<0.10; **p<0.05; ***p<0.01. Standard errors in brackets. †Personal characteristics include gender (not in fixed effects specification), ethnicity (not in fixed effects specification), whether married, whether has children, health, age, age squared and highest qualification. ‡Other job characteristics include weekly hours, whether temporary, whether public sector, whether new job and job quality.*

Table 5 –OLS regression results – weekend working (UKHLS). Source: UKHLS (University of Essex 2016).

Panel A – Life satisfaction						
	(1)	(2)	(3)	(4)	(5)	(6)
Sometimes or usually works at weekend	-0.092*** (0.033)	-0.100*** (0.033)	-0.058 (0.036)	-0.028 (0.030)	-0.028 (0.030)	-0.027 (0.031)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly personal income	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	5,828	5,828	5,828	19,387	19,387	19,387
Panel B – Job satisfaction						
	(1)	(2)	(3)	(4)	(5)	(6)
Sometimes or usually works at weekend	0.024 (0.036)	0.018 (0.036)	0.074* (0.040)	0.048 (0.032)	0.048 (0.032)	0.048 (0.032)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly personal income	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	5,824	5,824	5,824	19,436	19,436	19,436
Panel C – Satisfaction with leisure time						
	(1)	(2)	(3)	(4)	(5)	(6)
Sometimes or usually works at weekend	-0.250*** (0.039)	-0.241*** (0.039)	-0.104** (0.043)	-0.156*** (0.034)	-0.156*** (0.034)	-0.111*** (0.035)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly personal income	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	5,828	5,828	5,828	19,393	19,393	19,393
Panel D – GHQ						
	(1)	(2)	(3)	(4)	(5)	(6)
Sometimes or usually works at weekend	-0.274** (0.118)	-0.281** (0.118)	-0.169 (0.130)	-0.159 (0.103)	-0.159 (0.103)	-0.132 (0.105)
Controls:						
Personal characteristics†	Yes	Yes	Yes	Yes	Yes	Yes
Log of net weekly personal income	No	Yes	Yes	No	Yes	Yes
Other job characteristics‡	No	No	Yes	No	No	Yes
Individual fixed effects	No	No	No	Yes	Yes	Yes
<i>N</i>	5,807	5,807	5,807	19,338	19,338	19,338

*Unweighted data. *p<0.10; **p<0.05; ***p<0.01. Standard errors in brackets. †Personal characteristics include gender (not in fixed effects specification), ethnicity (not in fixed effects specification), whether married, whether carer, whether has children, health, age, age squared and highest qualification. ‡Other job characteristics include weekly hours, whether temporary, whether self-employed, whether daytime, whether new job and job quality.*

Table 6 – Fixed effects OLS regression results with all controls (LFS). Source: LFS (Office for National Statistics 2016).

	Satisfaction			Worthwhile			Happy			Anxious		
Weekend	-0.015 (0.042)			0.050 (0.041)			-0.188*** (0.067)			0.055 (0.099)		
Saturday		-0.024 (0.043)			0.026 (0.041)			-0.165** (0.067)			0.112 (0.101)	
Sunday			-0.021 (0.048)			0.028 (0.047)			-0.105 (0.076)			-0.128 (0.113)
Married	0.501*** (0.099)	0.501*** (0.099)	0.501*** (0.099)	0.191** (0.095)	0.190** (0.095)	0.190** (0.095)	0.444*** (0.155)	0.445*** (0.155)	0.446*** (0.155)	-0.082 (0.242)	-0.081 (0.242)	-0.087 (0.242)
Children	0.036 (0.076)	0.036 (0.076)	0.035 (0.076)	-0.013 (0.073)	-0.012 (0.073)	-0.011 (0.073)	-0.067 (0.119)	-0.067 (0.119)	-0.072 (0.119)	-0.023 (0.180)	-0.024 (0.180)	-0.021 (0.180)
Health	0.207*** (0.023)	0.207*** (0.023)	0.207*** (0.023)	0.127*** (0.023)	0.127*** (0.023)	0.127*** (0.023)	0.250*** (0.037)	0.250*** (0.037)	0.249*** (0.037)	-0.329*** (0.055)	-0.329*** (0.055)	-0.328*** (0.055)
Income	-0.010 (0.043)	-0.010 (0.043)	-0.010 (0.043)	0.005 (0.042)	0.004 (0.042)	0.004 (0.042)	-0.011 (0.068)	-0.009 (0.068)	-0.009 (0.068)	0.019 (0.101)	0.020 (0.101)	0.019 (0.101)
Degree	0.165 (0.154)	0.164 (0.154)	0.165 (0.154)	-0.057 (0.148)	-0.057 (0.148)	-0.058 (0.148)	-0.322 (0.243)	-0.322 (0.243)	-0.319 (0.243)	0.560 (0.367)	0.562 (0.367)	0.563 (0.367)
Higher Ed	0.133 (0.137)	0.133 (0.137)	0.134 (0.137)	-0.017 (0.132)	-0.016 (0.132)	-0.018 (0.132)	-0.092 (0.216)	-0.093 (0.216)	-0.088 (0.216)	0.332 (0.322)	0.334 (0.322)	0.338 (0.322)
A-level	0.175 (0.121)	0.175 (0.121)	0.176 (0.121)	0.003 (0.117)	0.004 (0.117)	0.003 (0.117)	-0.193 (0.191)	-0.198 (0.191)	-0.193 (0.191)	0.591** (0.286)	0.591** (0.286)	0.603** (0.286)
GCSE	0.104 (0.113)	0.104 (0.113)	0.105 (0.113)	0.025 (0.108)	0.026 (0.108)	0.025 (0.108)	0.003 (0.178)	0.002 (0.178)	0.003 (0.178)	0.423 (0.265)	0.420 (0.265)	0.433 (0.265)
Other qual	0.094 (0.101)	0.095 (0.101)	0.095 (0.101)	-0.114 (0.097)	-0.114 (0.097)	-0.114 (0.097)	-0.131 (0.160)	-0.129 (0.160)	-0.131 (0.160)	0.628*** (0.235)	0.625*** (0.235)	0.630*** (0.235)
Age	-0.003 (0.062)	-0.003 (0.062)	-0.003 (0.062)	0.075 (0.059)	0.074 (0.059)	0.075 (0.059)	0.039 (0.097)	0.041 (0.097)	0.041 (0.097)	-0.080 (0.144)	-0.080 (0.144)	-0.085 (0.144)
Age square	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
Public sector	0.153** (0.077)	0.153** (0.077)	0.154** (0.077)	0.063 (0.075)	0.061 (0.075)	0.061 (0.075)	0.200 (0.122)	0.205* (0.122)	0.207* (0.122)	-0.129 (0.182)	-0.128 (0.182)	-0.138 (0.182)
Quality	-0.055* (0.033)	-0.055* (0.033)	-0.054* (0.033)	-0.038 (0.032)	-0.037 (0.032)	-0.038 (0.032)	0.076 (0.052)	0.075 (0.052)	0.074 (0.052)	-0.110 (0.077)	-0.110 (0.077)	-0.105 (0.077)
Temp job	-0.050 (0.077)	-0.050 (0.077)	-0.050 (0.077)	0.011 (0.074)	0.011 (0.074)	0.011 (0.074)	-0.135 (0.121)	-0.134 (0.121)	-0.135 (0.121)	-0.018 (0.181)	-0.019 (0.181)	-0.018 (0.181)
New job	0.279*** (0.084)	0.279*** (0.084)	0.279*** (0.084)	0.073 (0.080)	0.073 (0.080)	0.073 (0.080)	0.241* (0.132)	0.242* (0.132)	0.240* (0.132)	-0.362* (0.194)	-0.362* (0.194)	-0.367* (0.194)
Hours	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)	0.005* (0.003)	0.005* (0.003)	0.005* (0.003)
Constant	5.846*** (1.451)	5.849*** (1.451)	5.848*** (1.451)	5.653*** (1.398)	5.685*** (1.398)	5.683*** (1.398)	5.343** (2.288)	5.279** (2.288)	5.237** (2.289)	5.282 (3.394)	5.263 (3.393)	5.443 (3.393)
N	29,219	29,219	29,219	29,189	29,189	29,189	29,217	29,217	29,217	26,822	26,822	26,822

*Unweighted data. *p<0.10; **p<0.05; ***p<0.01. Standard errors in brackets.*

Table 7 – Fixed effects OLS regression results (UKHLS). Source: UKHLS (University of Essex 2016).

	Life satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ score
Weekend	-0.027 (0.031)	0.048 (0.032)	-0.111*** (0.035)	-0.132 (0.105)
Married	0.244*** (0.064)	0.001 (0.068)	0.060 (0.073)	0.236 (0.221)
Carer	0.040 (0.073)	-0.111 (0.077)	-0.033 (0.083)	-0.147 (0.251)
Health	-0.115*** (0.017)	-0.114*** (0.018)	-0.099*** (0.019)	-0.949*** (0.057)
Log income	0.039 (0.032)	0.123*** (0.033)	-0.016 (0.036)	0.184* (0.108)
Children	-0.030 (0.043)	0.037 (0.045)	-0.139*** (0.049)	-0.006 (0.147)
Age	-0.064*** (0.023)	-0.177*** (0.025)	-0.082*** (0.027)	-0.356*** (0.080)
Age square	0.001** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.004*** (0.001)
Degree	-0.089 (0.322)	0.114 (0.341)	-0.165 (0.364)	-0.504 (1.097)
Other higher	0.075 (0.326)	0.528 (0.345)	0.131 (0.369)	-0.500 (1.111)
A-level	0.072 (0.305)	0.565* (0.323)	-0.154 (0.345)	0.878 (1.040)
GCSE	0.197 (0.302)	0.640** (0.320)	-0.142 (0.342)	-0.139 (1.030)
Other qual	0.492* (0.267)	0.290 (0.283)	-0.348 (0.302)	0.098 (0.911)
Hours	-0.000 (0.001)	-0.003* (0.002)	-0.017*** (0.002)	-0.017*** (0.005)
Temporary job	-0.035 (0.055)	-0.039 (0.058)	-0.039 (0.062)	-0.179 (0.187)
Self-employed	0.130 (0.083)	0.443*** (0.087)	0.096 (0.094)	0.637** (0.283)
Daytime	0.007 (0.034)	0.016 (0.036)	0.057 (0.039)	0.045 (0.116)
New job 1†	-0.055 (0.038)	0.459*** (0.040)	-0.010 (0.043)	0.445*** (0.131)
New job 2‡	0.195*** (0.039)	0.572*** (0.041)	0.114*** (0.044)	0.737*** (0.133)
Quality	0.039 (0.030)	0.018 (0.032)	0.018 (0.034)	-0.169* (0.102)
Constant	6.641*** (0.622)	9.540*** (0.657)	6.797*** (0.703)	34.961*** (2.122)
N	19,387	19,436	19,393	19,338

*Unweighted data. *p<0.10; **p<0.05; ***p<0.01. Standard errors in brackets. †Whether changed jobs between wave 2 and wave 4. ‡Whether changed jobs between wave 4 and wave 6.*

Table 8 –Supplementary analysis and robustness checks (LFS). Source: LFS (Office for National Statistics 2016).

Panel A – Baseline estimate: see Table 4, specification (6)				
	Satisfaction	Worthwhile	Happy	Anxious
Worked previous weekend	-0.015 (0.042)	0.050 (0.041)	-0.188*** (0.067)	0.055 (0.099)
<i>N</i>	29,219	29,189	29,217	26,822
Panel B – Asymmetric changes				
	Satisfaction	Worthwhile	Happy	Anxious
Moved into weekend working	0.075 (0.065)	0.166*** (0.063)	-0.181* (0.103)	-0.096 (0.155)
Moved out of weekend working	0.086 (0.058)	0.043 (0.056)	0.193** (0.092)	-0.174 (0.136)
<i>N</i>	29,219	29,189	29,217	26,822
Panel C – Baseline estimate with managers and professionals (SOC levels 1-3) removed				
	Satisfaction	Worthwhile	Happy	Anxious
Worked previous weekend (lower skilled occupations only)	0.004 (0.061)	0.085 (0.058)	-0.171* (0.091)	0.014 (0.135)
<i>N</i>	15,468	15,439	15,462	14,133
Panel D – Interaction with reason for leaving last job†				
	Satisfaction	Worthwhile	Happy	Anxious
Worked previous weekend	-0.018 (0.043)	0.037 (0.041)	-0.200*** (0.067)	0.086 (0.100)
Quit last job	0.180 (0.140)	0.096 (0.135)	0.197 (0.221)	0.584* (0.339)
Dismissed or made redundant from last job	-0.110 (0.233)	-0.143 (0.225)	-0.311 (0.368)	-0.059 (0.548)
Quit * Worked previous weekend	0.604** (0.272)	0.785*** (0.261)	0.735* (0.428)	-1.989*** (0.623)
Dismissed * Worked previous weekend	-0.779 (0.543)	0.431 (0.523)	0.661 (0.856)	0.662 (1.328)
<i>N</i>	29,219	29,189	29,217	26,822
Panel E – Interaction with age group				
	Satisfaction	Worthwhile	Happy	Anxious
Worked previous weekend	-0.116* (0.070)	0.087 (0.068)	-0.310*** (0.111)	-0.013 (0.165)
Older age (45+)	-0.046 (0.095)	0.014 (0.092)	0.018 (0.150)	-0.258 (0.227)
Older age * Worked previous weekend	0.153* (0.085)	-0.055 (0.082)	0.185 (0.134)	0.103 (0.200)
<i>N</i>	29,219	29,189	29,217	26,822
Panel F – Interaction with whether has dependent children				
	Satisfaction	Worthwhile	Happy	Anxious
Worked previous weekend	-0.001 (0.052)	0.096* (0.051)	-0.222*** (0.083)	0.029 (0.123)
Children	0.044 (0.078)	0.015 (0.075)	-0.087 (0.123)	-0.040 (0.186)
Children * Worked previous weekend	-0.035 (0.080)	-0.118 (0.078)	0.088 (0.127)	0.068 (0.189)
<i>N</i>	29,219	29,189	29,217	26,822

Panel G – Interaction with religion‡				
	Satisfaction	Worthwhile	Happy	Anxious
Worked previous weekend	0.134* (0.073)	0.135* (0.071)	-0.163 (0.116)	0.101 (0.170)
Christian * Worked previous weekend	-0.245*** (0.089)	-0.128 (0.086)	-0.062 (0.140)	-0.119 (0.208)
Other religion * Worked previous weekend	-0.022 (0.216)	-0.107 (0.211)	-0.231 (0.341)	0.513 (0.514)
<i>N</i>	28,284	28,254	28,283	25,976

*Unweighted data. *p<0.10; **p<0.05; ***p<0.01. Standard errors in brackets. All regressions control for all covariates, including fixed effects, detailed in Table 4 specification (6). †Omitted category includes all those who either did not change job between wave 1 and wave 5 or did change jobs but reason not coded as resigned or dismissed / made redundant. ‡Omitted category is no religion.*

Table 9 –Supplementary analysis and robustness checks (UKHLS). Source: UKHLS (University of Essex 2016).

Panel A – Baseline estimate: see Table 5, specification (6)				
	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Sometimes or usually works at weekend	-0.027 (0.031)	0.048 (0.032)	-0.111*** (0.035)	-0.132 (0.105)
<i>N</i>	19,387	19,436	19,393	19,338
Panel B – Asymmetric changes				
	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Moved into weekend working between Waves 2 and 4	-0.105* (0.060)	0.136** (0.064)	-0.115* (0.068)	0.196 (0.205)
Moved into weekend working between Waves 4 and 6	0.041 (0.060)	0.104 (0.063)	-0.015 (0.068)	-0.339* (0.204)
Moved out of weekend working between Waves 2 and 4	-0.020 (0.043)	-0.026 (0.045)	0.063 (0.048)	0.051 (0.146)
Moved out of weekend working between Waves 4 and 6	0.108* (0.058)	0.035 (0.061)	0.137** (0.066)	0.228 (0.198)
<i>N</i>	19,387	19,436	19,393	19,338
Panel C – Baseline estimate with managers and professionals (SOC levels 1-3) removed				
	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Sometimes or usually works at weekend (lower skilled occupations only)	-0.049 (0.052)	0.089* (0.052)	-0.149*** (0.057)	-0.273* (0.161)
<i>N</i>	9,572	9,599	9,577	9,537
Panel D – Interaction with autonomy over working hours				
	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Sometimes or usually works at weekend	0.012 (0.039)	0.063 (0.042)	-0.087* (0.045)	-0.158 (0.135)
Whether has autonomy over working hours	0.090** (0.037)	0.211*** (0.040)	0.040 (0.042)	0.197 (0.128)
Autonomy over working hours * Sometimes or usually works at weekend	-0.077 (0.047)	-0.038 (0.050)	-0.046 (0.053)	0.040 (0.161)
<i>N</i>	19,387	19,436	19,393	19,338
Panel E – Interaction with reason for leaving last job†				
	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Sometimes or usually works at weekend	-0.038 (0.032)	0.050 (0.034)	-0.098*** (0.037)	-0.151 (0.110)
Quit last job before Wave 4 (Quit1)	0.099 (0.101)	0.783*** (0.106)	0.254** (0.114)	0.275 (0.346)
Quit1 * Sometimes or usually works at weekend	0.099 (0.112)	-0.056 (0.118)	-0.268** (0.127)	0.366 (0.383)
Dismissed or made redundant from last job before Wave 4 (Fired1)	-0.095 (0.135)	0.152 (0.143)	0.265* (0.153)	-0.260 (0.463)

Fired1 * Sometimes or usually works at weekend	-0.023 (0.157)	0.138 (0.165)	-0.059 (0.177)	0.561 (0.536)
Quit last job before Wave 6 (Quit2)	-0.137 (0.106)	0.331*** (0.112)	-0.053 (0.120)	0.626* (0.363)
Quit2 * Sometimes or usually works at weekend	0.083 (0.135)	0.110 (0.142)	0.000 (0.152)	-0.476 (0.460)
Dismissed or made redundant from last job before Wave 6 (Fired2)	-0.350** (0.154)	0.214 (0.162)	-0.302* (0.174)	0.470 (0.526)
Fired2 * Sometimes or usually works at weekend	0.295 (0.210)	-0.072 (0.222)	0.281 (0.238)	0.205 (0.719)
<i>N</i>	19,387	19,436	19,393	19,338

Panel F – Interaction with age group

	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Sometimes or usually works at weekend	-0.028 (0.042)	0.069 (0.045)	-0.060 (0.048)	-0.082 (0.145)
Older age (45+)	-0.016 (0.057)	-0.006 (0.060)	-0.003 (0.065)	-0.024 (0.195)
Older age * Worked previous weekend	0.002 (0.054)	-0.039 (0.058)	-0.093 (0.062)	-0.091 (0.186)
<i>N</i>	19,387	19,436	19,393	19,338

Panel G – Interaction with whether has dependent children

	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Sometimes or usually works at weekend	-0.036 (0.039)	0.034 (0.042)	-0.100** (0.045)	-0.244* (0.134)
Children	-0.041 (0.052)	0.020 (0.055)	-0.126** (0.059)	-0.139 (0.178)
Children * Sometimes or usually works at weekend	0.020 (0.054)	0.030 (0.057)	-0.024 (0.061)	0.243 (0.183)
<i>N</i>	19,387	19,436	19,393	19,338

Panel H – Interaction with religion‡

	Life Satisfaction	Job satisfaction	Satisfaction with leisure time	GHQ
Sometimes or usually works at weekend	-0.083** (0.041)	0.047 (0.043)	-0.152*** (0.046)	-0.211 (0.140)
Christian * Sometimes or usually works at weekend	0.130** (0.062)	-0.018 (0.066)	0.062 (0.070)	0.120 (0.212)
Other religion * Sometimes or usually works at weekend	0.114 (0.159)	0.197 (0.167)	0.406** (0.180)	0.637 (0.539)
<i>N</i>	19,387	19,436	19,393	19,338

*Unweighted data. *p<0.10; **p<0.05; ***p<0.01. Standard errors in brackets. All regressions control for all covariates, including fixed effects, detailed in Table 5 specification (6). †Suffix 1 refers to job changes between waves 2 and 4. Suffix 2 refers to job changes between waves 4 and 6. Omitted category includes all those who either did not change job between respective waves or did change jobs but reason not coded as resigned or dismissed / made redundant. ‡Omitted category is no religion.*

Appendix – Definitions of dependent variables

This appendix gives details of how the dependent variables used in the LFS and UKHLS regressions are derived. Details about the derivation of the explanatory variable of interest (weekend working) are included in the main text while details regarding the other explanatory variables used in the analysis are available from the author on request.

LFS

All four SWB variables used in the LFS analysis can take any integer value between 0 and 10.

Satisfaction

The variable denoted 'Satisfaction' is derived from the question "Overall, how satisfied are you with your life nowadays, where nought is 'not at all satisfied' and 10 is 'completely satisfied'?"

Worthwhile

The variable denoted 'Worthwhile' is derived from the question "Overall, to what extent do you feel that the things you do in your life are worthwhile, where nought is 'not at all worthwhile' and 10 is 'completely worthwhile'?"

Happy

The variable denoted 'Happy' is derived from the question "Overall, how happy did you feel yesterday, where nought is 'not at all happy' and 10 is 'completely happy'?"

Anxious

The variable denoted 'Anxious' is derived from the question "On a scale where nought is 'not at all anxious' and 10 is 'completely anxious', overall, how anxious did you feel yesterday?"

UKHLS

The variables 'Job satisfaction', 'Life satisfaction' and 'Satisfaction with leisure time' used in the UKHLS analysis can take any integer value between 1 and 7. The variable 'GHQ' can take any integer value between 0 and 36.

Life satisfaction and Satisfaction with leisure time

The satisfaction with leisure time and life satisfaction questions are asked in the self-completion part of the UKHLS questionnaire, and are expressed as follows: "Here are some questions about how you feel about your life. Please choose the number which you feel best describes how dissatisfied or

satisfied you are with the following aspects of your current situation.” The respondent then reports a score of between 1 and 7, where 1 is “completely dissatisfied” and 7 is “completely satisfied” for “The amount of leisure time you have” and “Your life overall” respectively.

Job satisfaction

The job satisfaction question appears elsewhere in the questionnaire, following questions about the individual’s employment and commuting, and forms part of the face-to-face interview rather than the self-completion section. In all other respects, the job satisfaction question is similar to the satisfaction questions in the self-completion section and is treated the same. The job satisfaction question is expressed as: “On a scale of 1 to 7 where 1 means ‘Completely dissatisfied’ and 7 means ‘Completely satisfied’, how dissatisfied or satisfied are you with your present job overall?”

GHQ

The GHQ questions, which form part of the self-completion questionnaire to be completed by all adults, are derived from a validated scale designed to measure the general mental well-being of an individual. Respondents have a choice of four responses to each of these 12 questions, which can be converted into an ordinal scale between 0 and 3, where 0 indicates good psychological health and 3 indicates poor psychological health. For each individual, the responses for all 12 questions are aggregated to generate a combined score of between 0 and 36. This scale is then reversed such that lower scores indicate worse psychological health and higher scores indicate better psychological health. Further details about the GHQ and its use is available from Goldberg and Williams (1988).

The actual questions that make up the GHQ measure are shown on the following page.

- a) The next questions are about how you have been feeling recently. Have you recently been able to concentrate on whatever you're doing?
1. Better than usual
 2. Same as usual
 3. Less than usual
 4. Much less than usual
- b) Have you recently lost much sleep over worry?
1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- c) Have you recently felt that you were playing a useful part in things?
1. More than usual
 2. Same as usual
 3. Less than usual
 4. Much less than usual
- d) Have you recently felt capable of making decisions about things?
1. More so than usual
 2. Same as usual
 3. Less so than usual
 4. Much less capable
- e) Have you recently felt constantly under strain?
1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- f) Have you recently felt you couldn't overcome your difficulties?
1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- g) Have you recently been able to enjoy your normal day-to-day activities?
1. More than usual
 2. Same as usual
 3. Less so than [sic] usual
 4. Much less than usual
- h) Have you recently been able to face up to problems?
1. More so than usual
 2. Same as usual
 3. Less able than usual
 4. Much less able
- i) Have you recently been feeling unhappy or depressed?
1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- j) Have you recently been losing confidence in yourself?
1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- k) Have you recently been thinking of yourself as a worthless person?
1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- l) Have you recently been feeling reasonably happy, all things considered?
1. More so than usual
 2. About the same as usual
 3. Less so than usual
 4. Much less than usual