Tell me why I don't like Mondays:
Investigating day of the week effects on job satisfaction and psychological well-being

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ABSTRACT

This paper explores the relationship between the day of the week on which a survey respondent is interviewed and their self-reported job satisfaction and mental health scores using from the first ten years of the British Household Panel Survey. Evidence presented here confirms that self-reported levels of job satisfaction and subjective levels of mental distress systematically vary according to the day of the week on which respondents are interviewed even when controlling for other observed and unobserved characteristics. Other previously ignored factors that have important impacts on mental distress and job satisfaction emerge from our analysis.

NON-TECHNICAL SUMMARY

Economic research into well-being, mental health and job satisfaction has proliferated in recent years in attempts to discover the levels and sources of peoples' general happiness. Most studies deal with self-reported, subjective measures at the individual level. It is argued that such data approximate the theoretical concept of utility and are therefore worthy of investigation. However, it is important to explore how sensitive such measures are to calendar effects, such as day of the week on which an interview takes place. Do employees systematically report being less satisfied in their job at the beginning of the week than at the end of the week? Do they report different levels of mental well-being at the start of the working week than at the end of the week? If so, this has important implications for the accuracy and reliability of such well-being data, and for the conclusions drawn from their analyses. In this paper, we examine the importance of the day of the week on which a survey respondent is interviewed in determining their reported levels of mental well-being and job satisfaction using British panel data for the 1990s. We also highlight other previously ignored determinants of job satisfaction and mental well-being.

Our results confirm that self-reported levels of job satisfaction and levels of mental distress systematically vary according to the day of the week on which respondents are interviewed. These day of interview effects are particularly pronounced for levels of mental distress among women, and emerge even when holding a wide range of individual, household, and job related characteristics constant, and eliminating any unobserved time invariant, individual specific effects. In particular, our results suggest that men and women interviewed on Friday report higher levels of job satisfaction and lower levels of mental stress than those interviewed in the middle of the week. As well as providing important evidence on the psychological well being of individuals and how this varies through the week, these results suggest that any analyses of job satisfaction or subjective well-being which do not explicitly allow for such effects should be treated with caution. While a comparison of our results with previous findings suggests that the main conclusions are robust to the inclusion of the day of interview controls, we highlight other important determinants of job satisfaction and subjective well-being that have not previously been identified in the literature. In particular, our results suggest that over-employment has the largest negative effect on job satisfaction among both male and female workers in Britain, while a deteriorating financial situation has a large negative impact on mental well-being. Therefore financial hardship has both psychological and material consequences for individuals.

Introduction

Economic research into well-being, mental health and job satisfaction has proliferated in recent years in attempts to discover the levels and sources of peoples' general happiness. Most studies deal with self-reported, subjective measures at the individual level. It is argued that such data approximate the theoretical concept of utility and are therefore worthy of investigation. However, it is important to explore how sensitive such measures are to calendar effects, such as day of the week on which an interview takes place. Do employees systematically report being less satisfied in their job at the beginning of the week than at the end of the week? Do they report different levels of mental well-being at the start of the working week than at the end of the week? If so, this has important implications for the accuracy and reliability of such well-being data, and for the conclusions drawn from their analyses. In this paper, we examine the importance of the day of the week on which a survey respondent is interviewed in determining their reported levels of mental well-being and job satisfaction using British panel data for the 1990s. We also highlight other previously ignored determinants of job satisfaction and mental well-being.

Psychologists are well aware that people tend to be happier on days when the sun is shining, and in the Spring rather than in the Winter (Schwarz and Clore, 1983; Briere et al, 1983; Smith, 1979). There is also a large psychiatric literature on Seasonal Affective Disorder, a major depressive disorder with a distinct seasonal nature thought to be related to reduced levels of daylight in winter (Rosenthal et al, 1984; Birtwhistle and Martin, 1999). This has been found to be a common affliction in general population samples in the US (Rosen et al, 1990), Wales (Michalak et al, 2001) and Scotland (Eagles et al, 1999). However, there appear to be few if any previous studies of whether job satisfaction scores or well-being vary systematically on a day-to-day basis. This issue is of obvious relevance to survey methodologists and statisticians, and has potential implications for the interpretation of previous work that has examined the determinants of happiness.

One difficulty when studying job satisfaction and well-being is obtaining reliable and comparable data. Satisfaction or well-being scores tend to be relative, people compare their present state with different periods in their past life, or with how they see other peoples' lives (Argyle, 1989). The

same amount of happiness or satisfaction may be described differently, and different amounts of happiness or satisfaction may be described by the same score. To overcome these sorts of issues, we use a more objective, questionnaire based measure of well-being derived from the General Health Questionnaire (GHQ). This is a reliable indicator of psychological distress (Argyle, 1989), and is widely used in the medical literature (Goldberg, 1972; 1978).

Job satisfaction has been shown to be an intrinsic component of subjective well-being (Argyle, 1989). Job satisfaction is likely to have an impact on worker morale, productivity, absenteeism and job mobility – we would expect workers who are dissatisfied in their jobs to have low morale, low productivity, high absenteeism and higher levels of job turnover.[1] Previous research suggests that job satisfaction scores provide important information about subjective work place experiences (Rose, 1998). Low job satisfaction scores are correlated with high rates of anxiety and depression (Argyle, 1989), while Freeman (1978), Akerlof et al (1988), Clark et al (1998) and Clark (2001) all find job satisfaction to be related to quits and effort. Mangione and Quinn (1975) and Clegg (1983) report job satisfaction to be negatively correlated with absenteeism and positively correlated with productivity. In this paper a subjective job satisfaction score is analysed. Although in studies using satisfaction scales, few individuals admit to having scores below the scale mid-point (Argyle, 1989), psychologists have studied self-reported satisfaction measured in this way for many years (see Argyle 1989, and Diener et al 1999 for summaries).

In this paper we use British panel data to examine the impact of the day on which a survey respondent is interviewed on mental distress and job satisfaction. The use of panel data is important given that "subjective well being research is limited by the almost exclusive reliance on cross-sectional designs with inadequate tests of causal hypotheses" (Diener, 1999: p.277).[2] Results presented here suggest that, even controlling for a wide range of individual and household characteristics, job and employer attributes, and individual specific unobserved effects, large and statistically significant day of interview effects emerge. However, we find that

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[1] It is questionable whether job satisfaction actually measures interest in the quality of the work experience, or positive involvement with work. People may express satisfaction in their job not because of a sense of positive involvement but because it makes few demands or because they have low expectations (Gallie et al, 1998).
[2] Recent exceptions to this include Clark (2001), Clark et al (1998; 2001), Gardner and Oswald (1999) and Winkelmann and Winkelmann (1998).

the main conclusions from previous studies of the determinants of job satisfaction and mental well-being are robust to the inclusion of these day of interview controls. Our analysis also highlights other important and previously ignored factors that affect mental well-being and job satisfaction. These include measures of financial well-being and labour supply restrictions.

Data

Our data source is waves 1 to 10 of the British Household Panel Survey (BHPS) which provide detailed information on individual, household and job related characteristics on an annual basis from 1991 to 2000. The first wave was designed as a nationally representative random sample of the population of Great Britain living in private households in 1991. These original respondents have been followed and they and any adult co-residents are interviewed at annual intervals. The date of each interview is recorded, allowing the impact of the day of the week on which an interview occurs to be used in analysis. As we expect any day of interview effects to be concentrated among individuals of working age, we restrict analysis to men aged 16-64 and women aged 16-59 inclusive – individuals enter our sample on turning 16 and leave the sample when they reach retirement age.

In the BHPS contact dates are left entirely to the interviewers, who are instructed to make a mixture of calls in the daytime, evening and weekend to try to contact respondents.[3] The day of interview, however, is potentially endogenous. It is possible that workers who are happiest in their work, and who therefore report higher levels of job satisfaction and low levels of mental distress, are unable to be interviewed during the week because of their commitment to their job. This is a problem we address in our multivariate analysis.

As part of the interview, employed respondents are asked to rate satisfaction levels with seven specific facets of their job: promotion prospects, total pay, relations with supervisors, job security, ability to work on their own initiative, the actual work itself and hours of work. Respondents rank their satisfaction on a scale from 1 to 7, where 1 corresponds to 'not satisfied at all' and 7 to 'completely satisfied'. They are then asked a final question: "All things

considered, how satisfied or dissatisfied are you with your present job overall using the same 1-7 score?". It is the answer to this final question that we focus on here – Clark and Oswald (1996) and Clark (1997) suggest that answers to this in 1991 are an accurate reflection of answers to the preceding seven.[4] Although these job satisfaction questions are asked of both employees and the self-employed, we focus only on employees.

Respondents are also asked a series of questions from the General Health Questionnaire (GHQ), which take the following form:

> "Have you recently:
> 1. Been able to concentrate on whatever you are doing?*
> 2. Lost much sleep over worry?
> 3. Felt that you are playing a useful part in things?*
> 4. Felt capable of making decisions about things?*
> 5. Felt constantly under strain?
> 6. Felt you couldn't overcome your difficulties?
> 7. Been able to enjoy your normal day to day activities?*
> 8. Been able to face up to your problems?*
> 9. Been feeling unhappy and depressed?
> 10. Been losing confidence in yourself?
> 11. Been thinking of yourself as a worthless person?
> 12. Been feeling reasonably happy all things considered?*"

Answers are coded on a four-point scale running from 'Disagree strongly' (coded 0) to `agree strongly' (coded 3 - asterisked questions are coded in reverse), and added together provide a total GHQ level of mental distress ranging from 0 to 36. High scores correspond to low feelings of well-being (high levels of stress/depression), and vice-versa. This approach is sometimes known as a Likert scale - medical opinion is that healthy individuals will score around 10-13. Our analyses of these mental well-being data focus both on all individuals, and on full-time employees only.

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[3] Interviewers are given call records to help choose the best time to call for households who required six or more calls to make contact at a previous wave. This, on average, accounts for fewer than 4% of households.
[4] Rose (1998) finds that the BHPS Wave 1 job satisfaction scores to be considerably higher than those in subsequent waves, and suggests that this may be due to changes in the measurement instrument. Our results are unchanged if Wave 1 data are excluded from the analysis.

Descriptive statistics

Table 1 presents the mean job satisfaction scores by year of interview and reveals that on average women have a job satisfaction score 0.31 points (or 6%) higher than men (5.54 compared with 5.23). Clark (1997) reports a similar finding and speculates that this may be caused by different job expectations.[5] The highest mean score for men is 5.31 (in 1997), while the lowest is 5.16 (in 1994 and 1999). For women the highest mean score is 5.71 (in 1992) and the lowest 5.38 (in 1999). The proportion of individuals who report being completely satisfied in their job (a score of 7) has fallen dramatically over the period. In 1991, 25% of men and 38% of women regarded themselves as completely satisfied in their job. By 2000, this had fallen to just 8% of men and 11% of women.[6] These raw data suggest that, with no controls for compositional changes, employees are becoming unhappier in their work.[7] Table 2 records the mean GHQ scores by year of interview, and shows that on average and at each year, women have higher scores than men indicating greater levels of mental distress. The mean score for women, at 11.83 is 1.47 points (or 14%) higher than that for men.[8] There appears to be little systematic change in GHQ scores through the decade.

Table 3 summarises job satisfaction and GHQ scores by day of interview. This shows that 20% of interviews have been conducted on each of Mondays, Tuesdays and Wednesdays, while 13% have been conducted at weekends. Among men, those interviewed on a Monday have the lowest average job satisfaction score at 5.21, while those interviewed on a Sunday have the highest at 5.30. So although this suggests that there is some day of the week effect, variations in the means are small. The same is true among women, for whom those interviewed on a Friday have the highest mean score. A similar picture emerges from the GHQ scores. Men and women

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[5] Clark (1997) finds that these gender differences increase with age and decrease with education levels. Ward and Sloane (2000) find no gender differences in job satisfaction scores among academics in Scotland.

[6] This dramatic decline in the proportion of workers completely satisfied in their work is apparent even if the potentially unreliable 1991 data are excluded.

[7] There are difficulties comparing raw averages over time if people inflate their satisfaction level because it is socially desirable to be happy (Smith, 1979). If either the social norm of happiness changes over time or the magnitude of the social acceptance effect varies over time, then such comparisons are meaningless. In multivariate analysis this is only a problem if these effects vary over time with demographic characteristics – if, for example, the social acceptance effect varied over time for the highly educated but not for the less educated.

[8] This is consistent with the psychiatry literature which finds lifetime prevalence rates of depression higher in women than in men (see for example Piccinelli and Wilkinson, 2000; Birtwhistle and Martin, 1999).

interviewed on Saturdays report the least mental distress, although again the differences are small.[9] For a more robust analysis, we turn to multivariate specifications.

Estimation Procedure

Job Satisfaction

The estimation procedure we specify to examine the impact of the day of the week on which the respondent is interviewed has on job satisfaction scores needs to account for the ordered nature of the dependent variable. We therefore estimate ordered probit models, where the dependent variable takes a value between 1 (not satisfied at all) and 7 (completely satisfied).[10] This is modelled as a function of the day of interview and a range of demographic, household and job and employer related characteristics. We benefit from panel data with repeated observations on the same individuals over a ten year period which allow us to take time-invariant individual specific effects into account in our estimation procedure. This will be important if, as we suspect, inherently more motivated and committed workers are more likely to be interviewed at weekends. We therefore estimate random effects ordered probit models as described in Frechette (2001). Specifically, the latent probability of reporting a job satisfaction score S is:

$$S_{it}^{*} = D_{it}\delta + X_{it}\gamma + \varepsilon_{it} \qquad [1]$$

$$\varepsilon_{it} = w_{it} + v_i \qquad [2]$$

where S_{it}^{*} is unobserved, D_{it} indicates the day of the week on which the interview occurred, X_{it} is a vector of strictly exogenous individual, household and job and employer related characteristics, and δ and γ are vectors of coefficients to be estimated, $i = 1,...,n$, $t = 1,...,T$. The individual-specific unobservable effect, v_i, is treated as random, and $w_{it} \sim IN\left(0, \sigma_w^2\right)$ and are independent of the X_{it} for all i and t. We observe

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[9] We may also expect individuals interviewed on a Bank holiday to be happier. However, only about 1% of interviews in the BHPS have taken place on a Bank Holiday. Ideally, we would also like to take other holidays or absences from work into account, but the data provide only a limited scope for this.

[10] This technique has been used previously in the analysis of job satisfaction (see Idson, 1990; Clark, 1997; Clark and Oswald, 1996; Clark et al, 1996; Ward and Sloane 2000).

$$S_{it} = 1 \text{ if } S_{it}^* \le \mu_1$$

$$S_{it} = 2 \text{ if } \mu_1 < S_{it}^* \le \mu_2$$

$$:$$

$$S_{it} = 7 \text{ if } \mu_6 < S_{it}^*$$

This framework has its limitations. It assumes, for example, that the time-invariant unobserved individual specific effect (v_i) is independent of the observable characteristics (D_{it}, X_{it}) for all i and t. This is quite unrealistic in our case as, for example, we expect committed and motivated workers to be more likely to work longer hours, more likely to be interviewed on a weekend and also to be more satisfied in their job.[11] In this case, the estimated coefficients will pick up some of the effects of the unobservable v_i, and in particular the impact of being interviewed at the weekend will be positively biased. To avoid this problem, we relax the assumption that v_i is independent of the observable time-varying characteristics in D_{it} and X_{it}. Following Chamberlain (1984), we model the dependence between v_i and the observable characteristics by assuming that the regression function of v_i is linear in the means of all the time-varying covariates.[12] This can be written:

$$v_i = a_o + \overline{D}_i a_1 + \overline{X}_i a_2 + \eta_i \qquad [3]$$

We also assume that $\eta_i \sim IN\left(0, \sigma_\eta^2\right)$ and is independent of the D_{it}, X_{it} and w_{it} for all i and t, a_o is the intercept and $\overline{D}_i$ and $\overline{X}_i$ refer to the vector of means of the time varying day of interview and other time varying covariates for individual i over time.[13] Equation [1] therefore becomes:

$$S_{it}^* = D_{it}\delta + X_{it}\gamma + \overline{D}_i a_1 + \overline{X}_i a_2 + \eta_i + w_{it} \qquad [4]$$

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[11] This problem is highlighted in the raw data, which shows that about one in three respondents interviewed at a weekend in one year are also interviewed at a weekend in the subsequent year. This compares to annual persistence rates in the day of interview of about 25% for those interviewed Monday to Friday.

[12] See also Arulampalam et al (2000), who use a similar technique when investigating unemployment persistence.

[13] Note that the coefficients in a_2 corresponding to the time-invariant variables in equation [1] are set equal to zero.

$i = 1, ..., n$, $t = 1, ..., T_i$, where we have absorbed the intercept a_o into the δ and the γ. This is equivalent to the random effects ordered probit with additional regressors, $\overline{D}_i$ and $\overline{X}_i$. In this specification, the correlation between two successive error terms for the same individual is a constant given by:

$$\rho = Corr(\varepsilon_{it}, \varepsilon_{it-1}) = \frac{\sigma_\eta^2}{\sigma_\eta^2 + \sigma_w^2} \ , \ \ t = 1, ..., T_i \quad\quad [5]$$

Mental well-being

A potential endogeneity issue also arises in the estimation of the well-being equations. In particular, it can be argued that inherently happier individuals are likely to be busy, either in their work or in their social environment, and are therefore more likely to be interviewed at weekends. Estimation methods that do not allow for these (time-invariant) unobservable individual traits are likely to result in biased estimates. Again we take advantage of the longitudinal nature of the data to control for time-invariant individual specific unobserved characteristics. We do this by approximating our measure of well being, the GHQ score, to be linear, and estimating the following specification:

$$\text{GHQ}_{it} = D_{it}b + X_{it}k + z_i + h_{it} \quad\quad [6]$$

$i = 1, ..., n$, $t = 1, ..., T_i$, where GHQ_{it} is the reported GHQ score of individual i at time t, D_{it} and X_{it} are as previously defined, z_i is a time invariant individual specific error term capturing the effects of unobservable characteristics, h_{it} is the random error term and b and k are coefficient vectors.

In estimating the parameters of interest, it is necessary to take into account the possible correlation between the unobservables and observables as well as the latent time invariant psychological effects which have been found to systematically influence reported well-being (De Neve and Cooper, 1999). We do this by estimating the model using within-group estimation,

which is equivalent to a simple OLS estimation of the model in which variables are defined as deviations from their individual means. Therefore we essentially estimate whether an individual's level of mental distress changes systematically with the day of the week on which an interview occurs, controlling for changes in a wide range of personal, household, family, job-related and local labour market characteristics.

This procedure requires respondents to the survey to report at least two GHQ scores, and therefore to be interviewed in the survey at least twice. Such selection can create a non-random sample and ignoring this can result in biased estimates on the variables of interest. We use the standard technique in dealing with this problem, a Heckman (1979) style two-stage procedure. The first stage is to explain the probability of a respondent being interviewed twice in the survey using a reduced form probit. The second stage involves constructing the inverse Mill's ratio from the residuals from this probit, and using it as an additional regressor in the main equation. The dependent variable in the selection probit takes the value 1 if a respondent is interviewed at least twice in the survey (and reports a valid GHQ score in each). It takes the value 0 if a respondent is not interviewed at least twice (or does not report at least two valid GHQ scores).

Identification restrictions require at least one variable that influences the probability of being in the selected sample but that does not influence GHQ scores conditional on being in the sample. We use father's employment status and father's occupation when the respondent was aged 14, and the type of school the respondent last attended as identifying variables. They are assumed to influence the probability of responding to the survey in at least two years but not to affect GHQ scores conditional on being in the sample. Other variables, such as age, marital status, the number of children, education level, ethnicity, region of residence, health status, household size and the local unemployment rate are also included in the selection equation, which is estimated separately for men and women. The selection analysis is based on 8744 men and 8602 women of working age. The results, shown in Appendix Table A1, are not discussed here. Note, however, that the set of identifying variables is jointly significant for both men and women. Although this selection procedure is cross-sectional, we allow for possible time-varying biases by interacting

the selection correction term with time dummies in the estimated models.[14] Any time invariant biases due to sample selection are accounted for in the within-groups estimation procedure.

Estimation results

Job Satisfaction

Table 4 presents the results of the random effects ordered probit estimation of job satisfaction scores by gender. In these we include the usual set of control variables used in recent job satisfaction regressions. All models were also estimated with the means of the time-varying covariates in the equation to capture any correlation between the observed and unobserved characteristics. We estimate separate specifications for men and women given potentially important differences in, for example, reasons for working, attitudes to work and sources of job satisfaction, and for all workers and full-time workers only. The proportion of the variance explained by unobserved individual heterogeneity, ρ, varies from 0.37 for women to 0.42 for men working full-time. Therefore 40% of the total variance in job satisfaction can be attributed to the time invariant, individual specific unobserved term.[15] The covariates in Table 4 focus on the impact on job satisfaction scores of being interviewed on a Monday, Friday, Saturday or Sunday relative to Tuesday, Wednesday or Thursday. This allows us to test the null hypothesis that job satisfaction scores vary systematically according to the day of the week on which the respondent is interviewed.

The first column of Table 4 shows that among all employees, those interviewed on Friday or Saturday report significantly higher job satisfaction scores than those interviewed mid-week, all else equal. The coefficients are positive, relatively large, and well determined. Being interviewed on Monday or Sunday has a small, negative and poorly determined effect on reported job satisfaction levels. The second column shows that the impact of being interviewed on Friday or Saturday is even larger among full-time employees. Full-time workers in particular report higher levels of job satisfaction if interviewed on Friday or Saturday than during the rest of the week.

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[14] The selection equation is estimated cross-sectionally (i.e. once per individual) to account for an overall selection of at least two interviews per respondent over the period. Arulampalam (2001) uses a similar technique.

Again, there is no Monday or Sunday effect. The coefficient on the Saturday indicator is also positive and statistically significant among male employees and full-time male employees. Among women, the coefficient on the Friday indicator is positive and well determined among all female employees, but is particularly large among women working full-time. Similarly, the coefficient for being interviewed on Saturday is positive and statistically significant among women working full-time. This coefficient is sufficiently large to cancel the negative impact of, for example, being in temporary employment. However, our results suggest that female employees who are interviewed on Sunday report lower job satisfaction scores than those interviewed mid-week. The coefficient is negative and well-determined. Furthermore, this is not apparent among female full-time employees, suggesting that it is part-time workers who are driving this result.

Therefore our results suggest that job satisfaction scores are influenced by the day of the week on which respondents are interviewed. Although Mondays are not associated with lower reported job satisfaction than other days of the week, Fridays and Saturdays are associated with higher job satisfaction scores among both men and women, while Sundays are associated with lower job satisfaction among women working part-time. Workers appear to feel more satisfied with their jobs when asked at the end of the week. If worker morale and satisfaction with the job influences productivity, we might expect to see some correlation between job satisfaction scores and worker output. Studies of productivity however, suggest that daily output reaches a peak in mid-week and tails off towards the weekend (see Oi, 2001, for a summary). The intuition behind this is that the accumulation of work tires the worker, resulting in a drop in output on Friday. However, workers on piece-rates expand their output on Fridays (Oi, 2001). A more robust and detailed examination of the correlation between worker morale and productivity is a potential avenue for further research.

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[15] The test for $\rho = 0$ is not a standard test since the parameter restriction is on the boundary of the parameter space. Under the null, the Wald test has a probability mass of 0.5 at zero and a 0.5 N(0,1) for positive values. However, likelihood ratio tests easily reject the null hypothesis that $\rho = 0$ for all model specifications.

Other coefficients of interest

Previous research has highlighted how job satisfaction in Britain varies with individual and job related characteristics. To examine the robustness of previous findings, Table 5 shows the coefficients on some of these variables allowing for date of interview effects, and in general these remain consistent with previous work. Furthermore, the size and significance of these coefficients are robust to the exclusion of the calendar variables.[16] Results presented in Table 5 indicate that men report significantly lower levels of job satisfaction than women, and among men job satisfaction is lowest for those in their mid-40s.[17] No significant age effect is apparent for women. Job satisfaction is negatively related to education levels, which in the literature is typically explained by job expectations – the more highly qualified expect more out of a job.

The next variable indicates whether or not the respondent was away from his or her job in the previous week, the only measure of absence from work available in these data. The coefficients on this term are consistently negative and well-determined (especially among men) indicating that respondents who were away from work in the last week are less satisfied with their job, all things equal. Unfortunately we do not know the reason for worker absence, and it is likely that this reflects sickness rather than vacations, which may be endogenous. Our results are robust to the exclusion of this variable.

Female union members appear more dissatisfied in their work than union non-members, although no such effect emerges for men.[18] There is some evidence that, among men in particular, usual weekly hours have a negative impact on job satisfaction. Dissatisfaction with hours, however, has a much larger effect. Both under- and over-employment reduce satisfaction with the job, the coefficients are large, negative and well-determined. The coefficients are approximately twice the size on the over-employment variables than on the under-employment variables – working more

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[16] For reasons of parsimony the results from specifications excluding the day and month of interview variables are not presented here, but are available from the author on request.

[17] Clark et al (1996) explain the 'U' shape relationship between age and job satisfaction in terms of changing expectations or comparisons across time of what a job should entail.

[18] Bender and Sloane (1998) find that the negative impact of union membership on job satisfaction disappears when allowing for the state of industrial relations. They conclude that this relationship is at least partly explained by poor employee/employer relations. There is also the issue of reverse causation – less satisfied workers are more likely to join a union.

hours than desired increases dissatisfaction with the job by more than working fewer hours than desired.[19] This is especially true among women working full-time.

Working for a small employer and having regular opportunities for promotion increase job satisfaction, consistent with previous research.[20] Workers on temporary rather than permanent contracts and men who work shifts rather than standard hours enjoy lower levels of job satisfaction. Men employed on fixed term contracts appear to enjoy higher levels of job satisfaction than permanent workers, all else equal. Interestingly we find that public sector workers (especially women) report higher levels of job satisfaction than those in the private sector.[21] The final group of variables in Table 5 focus on the domestic division of labour, and in particular capture whether the respondent is mainly responsible for the shopping, cooking, childcare, ironing and cleaning in their household. The coefficients on these variables are small and poorly determined, and it therefore appears that home and family care responsibilities do not impinge upon satisfaction from paid employment.

Mental well-being

Table 6 presents the results from the within-group regression analyses where the dependent variable is the respondents' GHQ scores. These take values ranging from 0 to 36, where high scores correspond to low levels of mental well-being (high levels of stress) and low scores correspond to high levels of well-being (low levels of stress). These regressions have been estimated separately for men and women. We have also estimated separate regressions for all individuals of working age and for the subset of full-time workers as we might expect any day of the week variations in mental well-being to be more pronounced among full-time workers.[22] As

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[19] Böheim and Taylor (2002) analyse the determinants of and persistence in under- and over-employment in Britain.

[20] Idson (1990) explains the finding of greater levels of job satisfaction among workers at small establishments in terms of the inflexible work environment present in large establishments. The author presents evidence showing that workers in large establishments have significantly lower levels of freedom concerning what type of work they do and how they do it, and face significantly greater rigidity with regards to hours and days of work.

[21] We define public sector workers as those working in education, health, fire and police services and local or central government (excluding the armed forces). This is not necessarily inconsistent with Gardner and Oswald (1999) who report that job satisfaction among public sector workers fell over the 1990s relative to that of private sector workers. We do not test this explicitly.

[22] The models for full-time workers only are also estimated using a two-step procedure. In these regressions, however, the selection equation takes the value 1 if a respondent is interviewed in at least two years and is in full-

before, the covariates in Table 6 focus on the impact on mental well-being of being interviewed on a Monday, Friday, Saturday or Sunday relative to Tuesday, Wednesday or Thursday. This allows us to test the null hypothesis that well-being varies systematically according to the day on which the respondent is interviewed.

The first column of Table 6, focusing on men and women of working age, reveals that being interviewed on a Friday has a negative impact on GHQ scores (statistically significant at the 6% level). That is, respondents interviewed on a Friday report lower levels of stress than those interviewed Tuesday through Thursday, all else equal, consistent with our hypothesis that individuals well-being varies on a day to day basis. The coefficient, at –0.1033, is equivalent to a reduction in an individual's GHQ score of about 1% at the mean. Although the coefficients on the other day of interview controls are not statistically significant, the importance of controlling for the day of the week on which respondents are interviewed is highlighted by the joint significance of the coefficients. The second column of Table 6 focuses on men and women in full-time work. This reveals that the coefficients on the Friday and Saturday terms are smaller (more negative) for full-time employees than all working age individuals, implying that full-time workers report a larger reduction in their stress levels than other individuals when interviewed at a weekend relative to mid-week. Again, these results are consistent with our null hypotheses. However, the statistical significance of these coefficients is marginal (significant at the 8% and 10% level respectively, and jointly significant at the 11% level).

Among men of working age, no significant relationships between the day on which an interview takes place and mental well-being emerge. The coefficients are not statistically significant either individually or jointly. There is some evidence of a weekend effect among men working full-time, again suggesting that Friday and weekends are associated with lower stress levels than the mid-week period. However, the statistical significance of these effects are, at best, marginal. Among working age women, the day of interview has much clearer impacts on mental well-being. Women interviewed on a Friday report lower stress levels than those interviewed mid-week. The coefficient is negative and statistically significant at the 8% level, reducing the GHQ

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time employment in at least two years, and takes the value 0 if only interviewed once, or is not in full-time work at

score by 0.14 points (about 1.1% at the sample means). However, women interviewed on a Sunday report higher levels of stress than those interviewed in mid-week. The coefficient is relatively large and well-determined (significant at the 3% level), suggesting an increase in stress levels of 0.29 GHQ points (about 2.5%). The analogous coefficient for women working full-time is smaller and poorly determined, suggesting that these higher levels of stress are not caused by the return to work. The coefficients on the day of interview terms are jointly significant among all women of working age, but are not important determinants of well-being among women working full-time.

Other coefficients of interest

Table 7 presents estimates on covariates that previous research has shown to be important determinants of mental well-being, as well as on several variables that have not previously been included in such work. Again, we find that our results generally support the conclusions of previous research. Consistent with the literature, the unemployed suffer higher levels of mental stress than those in work or economically inactive. Entering unemployment increases stress levels among men by 0.6 GHQ points (about 6% at the sample means).[23] Marriage is associated with a reduction in stress levels, by almost 1 GHQ point among men (about 10%). Our results also suggest that those employed on fixed term contracts enjoy lower levels of stress than permanent workers. This effect is particularly pronounced among women, reducing GHQ scores by almost 0.7 points (6% at the sample means) relative to permanent workers. Female temporary workers also enjoy lower stress levels, although the size of this effect is smaller.

We find that employed men and women who were absent from work in the previous week report higher levels of mental stress, increasing GHQ scores by about 1.1 point (11% at the sample means). The next four variables, measuring perceived recent changes and expected future changes in financial well-being, have not before been used in explaining mental well-being

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least twice. The results from this reduced form selection equation are reported in Appendix Table A1.
[23] Clark et al (2001) provide a summary of the literature relating unemployment to lower mental well-being across countries and data sets.

scores.[24] Our results suggest that this is an important oversight in the literature, as they have large and well-determined impacts on GHQ scores. Men and women who expect their financial situation to improve in the coming year report lower GHQ scores than those expecting no change. This effect is largest among full-time workers, reducing GHQ scores by about 0.35 points. Men and women expecting their financial situation to deteriorate suffer higher levels of mental distress (by 0.55 points, or about 5% at the sample means). Men and women who perceive an improvement in their financial situation over the previous 12 months report lower levels of mental distress than those whose situation has not changed (by 0.5 GHQ points). However, the largest impact on GHQ scores comes from experiencing a worsening financial situation over the past 12 months. This increases individuals' GHQ scores by about 1.3 points relative to those who have experienced no change. This effect is large, representing an increase in stress levels of about 12% at the sample means, and is twice as large as the unemployment effect. This would suggest perceived financial losses contribute more to low levels of mental well-being than becoming unemployed.[25] The difference in the relative sizes of the effect of an improving and deteriorating financial position is consistent with Tversky and Kahneman (1991) who find that in the financial domain, individuals value modest losses roughly twice as much as equal sized gains. As Rabin (1998) points out, this effect is also implied by a concave utility function that is typically used by economists as an explanation for risk aversion.

The final set of coefficients relate to the domestic division of labour, and suggest that home and family care responsibilities have little impact on mental well-being, all else equal, even among full-time workers. We might expect individuals who have both domestic and labour market responsibilities to suffer from greater levels of mental distress, but these data suggest that this is not the case.[26]

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[24] These variables are created from the responses to the following questions: "Would you say that you yourself are better off or worse off financially than you were a year ago? Looking ahead, how do you think you will be financially a year from now, will you be better off, worse off, or about the same?

[25] Note that we control for current household income in these specifications, so these variables are capturing perceived changes in financial situation rather than the actual change.

[26] This finding is robust to entering the number of domestic responsibilities rather than each responsibility individually.

From these results, we can conclude that although the day of the week on which a respondent is interviewed has significant impacts on individuals' levels of mental distress and reported job satisfaction, these do not invalidate the main findings of previous research. We find, however, that recent perceived changes and expected future changes in financial well-being have large and well-determined impacts on GHQ scores while hours constraints, especially over-employment, reduce satisfaction with the job.

Summary and conclusions

Evidence presented in this paper confirms that self-reported levels of job satisfaction and levels of mental distress systematically vary according to the day of the week on which respondents are interviewed. These day of interview effects are particularly pronounced for levels of mental distress among women, and emerge even when holding a wide range of individual, household, and job related characteristics constant, and eliminating any unobserved time invariant, individual specific effects.

In particular, our results suggest that men and women interviewed on Friday report higher levels of job satisfaction and lower levels of mental stress than those interviewed in the middle of the week. As well as providing important evidence on the psychological well being of individuals and how this varies through the week, these results suggest that any analyses of job satisfaction or subjective well-being which do not explicitly allow for such effects should be treated with caution. While a comparison of our results with previous findings suggests that the main conclusions are robust to the inclusion of the day of interview controls, we highlight other important determinants of job satisfaction and subjective well-being that have not previously been identified in the literature. In particular, our results suggest that over-employment has the largest negative effect on job satisfaction among both male and female workers in Britain, while a deteriorating financial situation has a large negative impact on mental well-being. Therefore financial hardship has both psychological and material consequences for individuals.

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Tables:

Table 1: Mean overall job satisfaction scores by year of interview, BHPS 1991-2000

| | Year | | | | | | | | | | |
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Men	5.29	5.28	5.20	5.16	5.20	5.26	5.31	5.23	5.16	5.20	5.23
SD	*1.54*	*1.44*	*1.42*	*1.44*	*1.38*	*1.31*	*1.28*	*1.29*	*1.38*	*1.27*	*1.40*
% completely satisfied	24.6	15.4	13.4	12.5	11.2	11.7	12.2	10.0	9.0	7.8	13.0
Women	5.68	5.71	5.59	5.55	5.51	5.53	5.54	5.45	5.38	5.39	5.54
SD	*1.48*	*1.23*	*1.32*	*1.32*	*1.32*	*1.29*	*1.30*	*1.23*	*1.33*	*1.23*	*1.31*
% completely satisfied	37.9	25.2	21.2	21.4	18.8	18.6	19.1	13.1	13.3	11.1	20.1

N (men) = 26761, N (women) = 27905

Table 2: Mean GHQ scores by wave of interview, BHPS 1991-99

| | Year | | | | | | | | | | |
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Men	10.10	10.41	10.32	10.38	10.47	10.51	10.40	10.33	10.22	10.42	10.35
SD	*4.66*	*4.84*	*5.01*	*5.07*	*5.05*	*5.19*	*5.11*	*5.09*	*5.07*	*4.97*	*5.00*
Women	11.26	11.70	11.69	11.77	12.08	12.04	12.04	11.92	11.65	12.15	11.82
SD	*5.07*	*5.30*	*5.51*	*5.51*	*5.76*	*5.66*	*5.95*	*5.77*	*5.68*	*5.99*	*5.62*

N (men) = 40749, N (women) = 42610

Table 3: Mean overall job satisfaction and GHQ scores by day of interview, BHPS 1991-99

| Day of interview | % of interviews | Job satisfaction | | | | GHQ | | | |
| | | Men | | Women | | Men | | Women | |
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Monday	19.56	5.208	1.378	5.531	1.319	10.390	5.046	11.878	5.650
Tuesday	19.73	5.255	1.359	5.542	1.303	10.347	4.914	11.775	5.546
Wednesday	19.21	5.190	1.402	5.542	1.310	10.372	5.016	11.830	5.680
Thursday	17.14	5.214	1.405	5.535	1.300	10.311	4.979	11.860	5.631
Friday	11.58	5.237	1.350	5.553	1.346	10.407	5.172	11.817	5.654
Saturday	8.14	5.282	1.364	5.550	1.281	10.250	4.851	11.378	5.423
Sunday	4.64	5.299	1.381	5.425	1.326	10.349	5.096	11.857	5.687
N	83442	26758		27896		40741		42601	

Table 4: Overall job satisfaction regression results

Variable	Men and Women		Men only		Women only	
	All workers	Full-time workers	All workers	Full-time workers	All workers	Full-time workers
Day of interview						
Tuesday to Thursday			*Reference Category*			
Monday	-0.0154	-0.0101	-0.0066	-0.0106	-0.0225	-0.0092
	[1.02]	[0.60]	[0.31]	[0.48]	[1.07]	[0.35]
Friday	0.0535	0.0767	0.0387	0.0462	0.0696	0.1252
	[2.81]	[3.53]	[1.42]	[1.64]	[2.60]	[3.64]
Saturday	0.0583	0.0724	0.0649	0.0640	0.0496	0.0789
	[2.51]	[2.80]	[2.00]	[1.92]	[1.49]	[1.92]
Sunday	-0.0118	0.0200	0.0518	0.0557	-0.0847	-0.0378
	[0.42]	[0.64]	[1.30]	[1.37]	[2.08]	[0.77]
ρ	0.3967	0.4139	0.4138	0.4222	0.3705	0.3900
μ_1	-3.8962	-3.5363	-3.6615	-3.2620	-3.8741	-3.3518
	[28.40]	[21.24]	[18.62]	[14.73]	[19.57]	[12.65]
μ_2	-3.3911	-3.0176	-3.1265	-2.7263	-3.3998	-2.8579
	[24.82]	[18.18]	[15.96]	12.35]	[17.24]	[10.83]
μ_3	-2.7797	-2.3849	-2.4860	-2.0799	-2.8178	-2.2436
	[20.40]	[14.40]	[12.72]	[9.44]	[14.33]	[8.52]
μ_4	-2.3121	-1.9088	-1.9562	-1.5488	-2.4183	-1.8507
	[16.99]	[11.53]	[10.02]	[7.03]	[12.31]	[7.03]
μ_5	-1.4657	-1.0410	-1.0808	-0.6654	-1.5974	-1.0013
	[10.79]	[6.30]	[5.54]	[3.02]	[8.15]	[3.81]
μ_6	0.2251	0.6977	0.6427	1.0802	0.0763	0.7365
	[1.66]	[4.22]	[3.30]	[4.91]	[0.39]	[2.80]
Log-likelihood	-67990	-54250	-33935	-32012	-33812	-22070
Log-likelihood (ρ =0)	-72060	-57575	-36092	-34059	-35560	-23167
χ^2 (4)	16.91	20.54	6.96	7.80	16.93	18.59
Prob>χ^2	0.0020	0.0004	0.1378	0.0991	0.0020	0.0009
N observations	48390	38057	23518	22205	24872	15852

Notes: Random effects ordered probit coefficients. Absolute robust t-statistics in brackets. Dependent variable takes values from 1 (completely satisfied) to 7 (completely satisfied). Regressions also include variable indicating whether worker is was absent from job in last week, wage, full-time dummy, usual weekly hours of work, job tenure, contract type, establishment size, 8 ethnicity dummies, 8 region dummies, disabled dummy, 3 housing tenure dummies, marital status, age, age squared, 6 education dummies, overtime hours, paid overtime hours, travel-to-work-time, sector of employment, whether received regular bonus payments, promotion opportunities, trade union membership, occupation, industry, shift worker, local unemployment rate, household division of labour controls, measures of hours constraints, time trend, and means of time-varying explanatory variables to allow for correlation between the time varying covariates and unobservable heterogeneity (see text for details). χ^2 test for the joint significance of the day of interview terms.

Table 5: Overall job satisfaction regression results – other coefficients of interest

Variable	Men and Women		Men only		Women only	
	All workers	Full-time workers	All workers	Full-time workers	All workers	Full-time workers
Male	-0.2454	-0.2871				
	[8.87]	[9.17]				
Age	-0.0259	-0.0345	-0.0438	-0.0436	-0.0085	-0.0205
	[2.35]	[2.90]	[2.76]	[2.62]	[0.55]	[1.02]
Age squared/100	0.0292	0.0310	0.0536	0.0437	-0.0011	0.0025
	[2.64]	[2.42]	[3.41]	[2.66]	[0.07]	[0.12]
Higher degree	-0.2589	-0.2410	-0.2078	-0.1666	-0.3188	-0.3417
	[3.94]	[3.36]	[2.34]	[1.82]	[3.22]	[2.96]
First degree	-0.4164	-0.3933	-0.3397	-0.3357	-0.4741	-0.4424
	[9.92]	[8.14]	[5.67]	[5.64]	[8.05]	[5.89]
Higher vocational qualification	-0.2475	-0.2382	-0.2117	-0.2423	-0.2570	-0.2268
	[7.99]	[6.57]	[4.76]	[5.21]	[5.94]	[3.93]
'A'-Levels	-0.2923	-0.2930	-0.2616	-0.3066	-0.2819	-0.2603
	[8.62]	[7.31]	[5.54]	[5.92]	[5.97]	[4.13]
'O'-Levels	-0.1556	-0.1492	-0.0947	-0.1310	-0.1929	-0.1696
	[5.09]	[4.06]	[2.09]	[2.73]	[4.65]	[2.99]
Other qual.	-0.0526	-0.0476	-0.0303	-0.0686	-0.0786	-0.0397
	[1.38]	[1.06]	[0.54]	[1.17]	[1.51]	[0.57]
Away from work	-0.1240	-0.1348	-0.1698	-0.1633	-0.0953	-0.1075
	[4.89]	[4.56]	[4.17]	[3.87]	[2.93]	[2.59]
Union member	-0.0582	-0.0440		-0.0103	-0.0920	-0.0744
	[3.05]	[2.07]		[0.37]	[3.38]	[2.24]
Usual weekly hours	-0.0041	-0.0019	-0.0036	-0.0035	-0.0028	0.0015
	[3.27]	[1.22]	[1.97]	[1.80]	[1.52]	[0.57]
Prefer to work more hours	-0.1952	-0.1395	-0.2086	-0.1746	-0.1902	-0.0615
	[8.33]	[4.47]	[6.01]	[4.59]	[5.96]	[1.12]
Prefer to work fewer hours	-0.4199	-0.4116	-0.3908	-0.3858	-0.4548	-0.4448
	[27.72]	[25.07]	[18.47]	[17.90]	[20.85]	[17.50]
Small employer	0.1013	0.0829	0.0942	0.0907	0.1029	0.0738
	[5.70]	[3.95]	[3.58]	[3.28]	[4.25]	[2.27]
Promotion opps.	0.3078	0.3597	0.3686	0.3793	0.2621	0.3382
	[19.82]	[20.49]	[16.52]	[16.45]	[12.05]	[12.44]
Temporary contract	-0.1618	-0.2291	-0.2762	-0.3426	-0.1079	-0.1252
	[5.20]	[4.94]	[5.32]	[5.33]	[2.60]	[1.86]
Fixed term contract	0.0660	0.1139	0.1195	0.1390	0.0270	0.0912
	[1.76]	[2.53]	[2.20]	[2.35]	[0.52]	[1.31]
Shift worker	-0.0297	-0.0464	-0.0867	-0.0823	-0.0011	-0.0044
	[1.70]	[2.12]	[3.37]	[2.98]	[0.05]	[0.12]
Public sector worker	0.0992	0.1060	0.0638	0.0780	0.1186	0.1360
	[3.77]	[3.32]	[1.49]	[1.70]	[3.58]	[3.03]
Responsible for						
Shopping	0.0270	0.0260	0.0182	0.0234	0.0320	0.0309
	[1.13]	[0.93]	[0.41]	[0.52]	[1.13]	[0.86]
Cooking	-0.0061	-0.0079	0.0757	0.0726	-0.0346	-0.0524
	[0.25]	[0.28]	[1.71]	[1.62]	[1.15]	[1.40]
Childcare	-0.0090	0.0531	0.1570	0.1915	-0.0254	0.0397
	[0.28]	[1.10]	[1.24]	[1.44]	[0.76]	[0.76]
Ironing	-0.0205	-0.0232	-0.0944	-0.0639	0.0280	0.0198
	[0.77]	[0.76]	[1.66]	[1.11]	[0.92]	[0.54]
Cleaning	-0.0174	-0.0425	-0.0576	-0.0731	0.0032	-0.0177
	[0.68]	[1.42]	[1.05]	[1.31]	[0.11]	[0.50]

Notes: See notes to Table 4

Table 6: GHQ regression results

Variable	Men and Women		Men only		Women only	
	All working age	Full-time workers	All working age	Full-time workers	All working age	Full-time workers
Day of interview						
Tuesday to Thursday			*Reference Category*			
Monday	0.0611	0.0563	0.0311	0.0096	0.0904	0.1479
	[1.42]	[1.03]	[0.55]	[0.15]	[1.41]	[1.50]
Friday	-0.1033	-0.1225	-0.0563	-0.1332	-0.1416	-0.0940
	[1.93]	[1.75]	[0.79]	[1.63]	[1.78]	[0.74]
Saturday	-0.0901	-0.1364	-0.0704	-0.1354	-0.01127	-0.1514
	[1.31]	[1.62]	[0.79]	[1.38]	[1.08]	[0.98]
Sunday	0.0797	-0.0397	-0.1041	-0.1664	0.2854	0.1868
	[0.93]	[0.39]	[0.95]	[1.40]	[2.17]	[1.00]
R-squared	0.0447	0.0460	0.0557	0.0515	0.0399	0.0461
χ^2 (4)	2.53	1.91	0.62	1.40	3.26	1.44
Prob>χ^2	0.0382	0.1058	0.6447	0.2305	0.0111	0.2191
N person-years	80501	45930	39373	28218	41128	17712

Notes: Within group estimation results. Absolute robust t-statistics in brackets. Dependent variable takes values from 0 (most depressed) to 36 (least depressed). Regressions also include 3 labour market status dummies, wage if employed, full-time dummy, usual weekly hours of work, job tenure, contract type, spouse's employment status and hours of work if employed, region , disabled dummy, housing tenure, marital status, number of children, household income, overtime hours, paid overtime hours, travel-to-work-time, employment sector, whether receive regular bonus payments, promotion opportunities, trade union membership, occupation, industry, shift worker, local unemployment rate, whether respondent has second job, household division of labour controls, financial experience and expectation variables, number of organisations of which a member, number of organisations in which active and sample selection term interacted with time dummies. See text for details.

Table 7: GHQ regression results – other coefficients of interest

Variable	Men and Women		Men only		Women only	
	All working age	Full-time workers	All working age	Full-time workers	All working age	Full-time workers
Away from work	1.1134	1.1506	1.0833	1.1065	1.1449	1.2512
	[13.38]	[11.46]	[9.06]	[8.82]	[9.83]	[7.41]
Full-time worker	-0.2861		-0.2623		-0.2532	
	[3.36]		[2.07]		[2.05]	
Unemployed	0.4424		0.5984		0.3028	
	[3.93]		[4.11]		[1.73]	
Temporary worker	-0.1329	-0.1064	0.0368	0.1388	-0.2474	-0.4809
	[1.40]	[0.69]	[0.27]	[0.74]	[1.85]	[1.78]
Fixed term contract	-0.4801	-0.4125	-0.3604	-0.2902	-0.6069	-0.6769
	[4.48]	[3.19]	[2.73]	[1.98]	[3.51]	[2.68]
Shift worker	-0.0378	0.0252	0.0820	0.1370	-0.1390	-0.1919
	[0.65]	[0.33]	[1.01]	[1.56]	[1.65]	[1.35]
Public sector worker	0.0062	0.0166	0.0745	0.0447	-0.0424	-0.0158
	[0.07]	[0.14]	[0.54]	[0.29]	[0.35]	[0.08]
Married	-0.5587	-0.6214	-0.9728	-0.7518	-0.1281	-0.3841
	[5.17]	[4.48]	[6.65]	[4.58]	[0.77]	[1.39]
Expect improvement In finances	-0.2448	-0.3489	-0.2313	-0.3489	-0.2623	-0.3595
	[5.86]	[6.73]	[4.21]	[5.73]	[4.19]	[3.81]
Expect deterioration in Finances	0.5461	0.5342	0.5255	0.5089	0.5582	0.5733
	[9.42]	[7.06]	[6.91]	[5.74]	[6.40]	[4.14]
Experienced improved Finances	-0.5108	-0.5327	-0.5604	-0.5507	-0.4908	-0.4958
	[11.95]	[10.22]	[9.95]	[8.96]	[7.19]	[5.26]
Experienced worsening finances	1.3370	1.2178	1.3135	1.1738	1.3534	1.3082
	[30.04]	[20.62]	[22.20]	[17.07]	[20.47]	[11.97]
Responsible for						
Shopping	0.0958	0.0796	0.0424	0.0540	0.1206	0.0933
	[1.39]	[0.86]	[0.36]	[0.41]	[1.36]	[0.69]
Cooking	0.0361	0.0197	0.1340	0.1320	-0.0135	-0.0928
	[0.49]	[0.21]	[1.15]	[1.00]	[0.14]	[0.66]
Childcare	-0.0884	-0.1824	-0.1750	-0.5100	-0.0662	-0.1549
	[1.02]	[1.12]	[0.64]	[1.42]	[0.66]	[0.75]
Ironing	-0.1090	0.0818	-0.0713	-0.0083	-0.1601	0.0538
	[1.38]	[0.81]	[0.48]	[0.05]	[1.58]	[0.38]
Cleaning	0.0311	0.0871	0.0990	0.1517	0.0015	0.0376
	[0.41]	[0.88]	[0.72]	[0.93]	[0.02]	[0.28]

Notes: See notes to Table 6

Appendix

Table A1: Sample selection probits

Variable	Interviewed in at least two years[a]				In full-time work in at least two years[b]			
	Men		Women		Men		Women	
Age	-0.017	(1.94)	0.014	(1.32)	0.089	(11.35)	0.108	(11.13)
Age^2/100	0.013	(1.18)	-0.033	(2.30)	-0.138	(13.93)	-0.164	(12.26)
Married	0.271	(5.31)	0.149	(2.82)	0.292	(6.340	-0.260	(5.79)
Spouse employed	0.224	(5.31)	0.220	(4.81)	0.523	(14.23)	0.356	(8.91)
One child	0.278	(4.29)	0.357	(6.02)	0.179	(3.20)	-0.416	(9.07)
Two children	0.408	(5.68)	0.436	(6.42)	0.162	(2.62)	-0.554	(10.47)
Three + children	0.465	(4.77)	0.546	(5.75)	0.090	(1.07)	-0.595	(7.84)
Higher degree	0.124	(0.95)	-0.270	(1.80)	0.393	(3.40)	0.544	(4.06)
Degree	0.058	(0.82)	-0.229	(3.11)	0.376	(5.78)	0.534	(8.21)
Vocational qualifications	0.191	(3.48)	-0.073	(1.24)	0.408	(8.38)	0.540	(10.60)
'A'-levels	-0.131	(2.42)	-0.340	(5.73)	0.188	(3.69)	0.213	(3.94)
'O'-levels	0.395	(7.59)	0.319	(5.92)	0.438	(9.74)	0.422	(9.57)
Other qualification	0.250	(3.95)	0.058	(0.89)	0.441	(7.92)	0.177	(3.20)
Household size	-0.112	(7.81)	-0.104	(7.12)	-0.072	(5.30)	-0.063	(4.70)
Unemployment rate	-0.031	(3.74)	-0.033	(3.90)	-0.033	(4.54)	-0.006	(0.86)
Black Caribbean	-0.037	(0.17)	-0.161	(0.87)	0.098	(0.49)	-0.324	(1.82)
Black African	-0.261	(1.13)	-0.454	(1.98)	-0.923	(4.28)	-0.245	(1.07)
Black other	-0.882	(3.10)	-0.115	(0.42)	-0.921	(2.89)	-0.022	(0.09)
Indian	-0.110	(0.65)	-0.133	(0.78)	-0.226	(1.45)	-0.085	(0.58)
Pakistani	0.080	(0.38)	0.825	(2.78)	-0.491	(2.66)	-0.638	(2.74)
Bangladeshi	0.458	(1.33)	0.113	(0.26)	0.055	(0.19)		
Other ethnicity	-0.138	(0.82)	-0.327	(1.92)	-0.342	(2.13)	-0.045	(0.29)
South East (excluding London)	-0.089	(1.21)	0.032	(0.42)	-0.008	(0.12)	0.060	(0.94)
South West	0.150	(1.66)	0.018	(0.21)	0.275	(3.43)	-0.052	(0.69)
East Anglia	0.021	(0.18)	0.003	(0.03)	0.190	(1.80)	-0.077	(0.76)
Midlands	0.014	(0.19)	0.075	(1.03)	0.115	(1.75)	-0.027	(0.42)
North West	0.027	(0.32)	0.099	(1.19)	0.061	(0.83)	0.045	(0.64)
North East	0.112	(1.48)	0.091	(1.20)	0.079	(1.15)	-0.067	(1.02)
Wales	0.217	(2.73)	0.276	(3.46)	0.134	(1.87)	0.058	(0.83)
Scotland	0.279	(3.72)	0.278	(3.83)	0.145	(2.15)	0.017	(0.26)
Disabled	0.143	(1.67)	0.032	(0.29)	-1.063	(11.66)	-0.832	(6.44)
School last attended								
Comprehensive	-0.069	(1.65)	-0.058	(1.33)	0.045	(1.20)	0.027	(0.73)
Grammar	0.039	{0.60)	0.008	(0.12)	-0.007	(0.12)	-0.018	(0.35)
Fee paying	-0.273	(3.82)	-0.390	(5.44)	-0.220	(3.29)	-0.336	(5.03)
Sixth form college	0.022	(0.26)	-0.037	(0.46)	-0.056	(0.72)	-0.099	(1.38)
Father's occupation								
Deceased	0.180	(1.47)	0.136	(1.10)	0.140	(1.34)	-0.000	(0.00)
Unemployed	0.386	(2.66)	0.063	(0.51)	-0.040	(0.36)	0.002	(0.02)
Manager/professional	0.323	(5.09)	0.334	(5.20)	0.321	(5.97)	0.167	(3.53)
Self-employed	0.117	(1.56)	0.188	(2.47)	-0.003	(0.05)	0.060	(1.08)
Constant	1.689	(8.54)	1.339	(6.15)	-0.726	(4.03)	1.336	(6.92)
N individuals	8744		8602		8744		8602	
Log-likelihood	-3637.1		-3448.9		-4742.1		-5103.8	
Log-likelihood (no identifying vars.)	-3665.8		-3481.9		-4768.1		-5125.0	
p-value (joint significance of identifying vars)	0.0000		0.0000		0.0000		0.0000	

Notes: [a] Dependent variable takes value 1 if respondent is interviewed in at least two years of the BHPS, and 0 otherwise. [b] Dependent variable takes value 1 if respondent is in employment in at least two years of the BHPS, and 0 otherwise. Absolute robust t-statistics in parentheses.