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## **Actual and preferred working hours**

René Böheim  
Seminar for applied economic research  
University of Munich, Germany

and

Mark P. Taylor\*  
Institute for Social and Economic Research  
University of Essex  
Colchester, Essex  
CO4 3SQ

**Abstract:** In this paper, we use data from the British Household Panel Survey to test the traditional labour supply model by investigating whether subjective data on desired labour supply provide information on future adjustment of actual hours worked. Our estimates suggest that male and female employees, particularly job changers and men working part-time, are able to adjust their work hours in line with preferences. Our evidence indicates that working hours are not driven by labour demand alone.

**JEL classification:** J22, J60

**Keywords:** labour supply, panel data, BHPS

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\* Corresponding author: [taylm@essex.ac.uk](mailto:taylm@essex.ac.uk)

## Non-technical Summary

How much influence do employees have in determining their own working hours? Although in the labour supply literature it is typically assumed that workers can choose any number of working hours up to a maximum equal to the time endowment, there are both theoretical arguments and empirical evidence suggesting otherwise. In this paper, we use data from the British Household Panel Survey to test the traditional labour supply model by investigating whether subjective data on desired labour supply provide information on future adjustment of actual hours worked. The null hypothesis is that they do not. By comparing preferred changes in hours with actual subsequent changes, we can identify the presence of restrictions in the labour market.

Descriptive statistics indicate that men working part-time have a higher probability of being under-employed than similarly employed women. This suggests that a greater proportion of part-time work is voluntary among women. Part-time work may better correspond with the work time preferences of some women, perhaps because of home or family care responsibilities. Alternatively it could be a conditioning effect, with men expecting and expected to work full-time while part-time work is more common and acceptable for women. Further, men and women who are over-employed at one date of interview are more likely to subsequently experience a fall in their work hours than the under-employed or those who prefer to continue to work the same number of hours. Similarly, men and women who are under-employed are most likely to experience an increase in their labour supply – this is particularly true for men working part-time. Therefore the raw data indicate that subjective information on individuals' preferred working hours predicts future labour behaviour and that workers have some autonomy over their work hours.

Multivariate analysis, suitably corrected for any selection biases, confirms these findings – hours preferences at time  $t$  have a large and statistically significant impact on labour supply changes between  $t$  and  $t+1$  for both men and women. The over-employed reduce their labour supply while the under-employed increase it. This is particularly true for men working part-time and men and women who change jobs. We find lower bounds on work hours in the job to be more binding than upper bounds – workers find it easier to increase their work hours within the job than to reduce them. The fact that job changers are more able than job stayers to adjust their work hours in line with preferences suggests that restrictions on work hours within the job are important. Such restrictions may be caused by employer preferences, technology or industrial relations. Furthermore, given that job changes are costly and that job opportunities are unlikely to be evenly distributed across the hours distribution, this suggests that worker disequilibrium with respect to labour supply is likely to persist. Therefore our evidence indicates that, although workers have some scope to adjust their work hours within the job, rigidities in the British labour market exist, and these rigidities impair the welfare of employees. A redistribution of hours between under- and over-employed workers would be welfare enhancing.

## Introduction

How much influence do employees have in determining their own working hours? Although in the labour supply literature it is typically assumed that workers can choose any number of working hours up to a maximum equal to the time endowment, there are both theoretical arguments and empirical evidence suggesting otherwise (early examples include Rosen, 1969; Barzel, 1973; Deardorff and Stafford, 1976). In this paper, we use data from the British Household Panel Survey to test the traditional labour supply model by investigating whether subjective data on desired labour supply provide information on future adjustment of actual hours worked. The null hypothesis is that they do not. By comparing preferred changes in hours with actual subsequent changes, we can identify the presence of restrictions in the labour market.

Variations in hours worked reflect not only the labour supply decisions of individuals but also employer preferences, technology, industrial relations and the business cycle. This suggests that some individuals may need to change jobs in order to attain their desired level of labour supply (Altonji and Paxson, 1992). Altonji and Paxson (1988) find that job changers are more able than stayers to respond to changes in their work preferences, and conclude that restrictions on working hours in the job play a major role. Job changes however are not cost free, and employment opportunities are unlikely to be evenly distributed across the hours distribution. Firms, for example, generally do not offer jobs with low hours of work because of the fixed costs of workers. Therefore workers who wish to reduce their hours of work may be faced with the choice of not changing their hours or stopping work altogether. Incomplete information and/or imperfect mobility between jobs are likely to result in many workers being out of equilibrium with respect to their labour supply at any point in time.

Recent evidence for Britain suggests that 40% of men and women in paid employment prefer to work a different number of hours at their current wage, and the majority wish to reduce their labour supply (Böheim and Taylor, 2001; Stewart and Swaffield, 1997). Stewart and Swaffield (1997) explain this over-employment in terms of lower bounds on

working hours imposed by the firm. Euwals et al (1998) report similar numbers for the Netherlands. Restrictions on working hours have also been found in the U.S. (Biddle, 1988; Ball, 1990; Altonji and Paxson, 1988; Stratford et al, 1995), Canada (Drolet and Morissette, 1997) and Germany (Wolf, 1998). However, these studies find under-employment to be more common than over-employment.<sup>1</sup> Restricted working hours are consistent with various economic theories, such as imperfect competition in the labour market, the agency model (Lazear, 1981), and the firm specific human capital model. Kahn and Lang (1995) provide a summary. In a previous paper (Böheim and Taylor, 2001) we examine which individuals are able to work their desired number of hours at the prevailing wage, and which are under- and over-employed, and identify various job, employer and demographic characteristics determining these differences in work time preferences. Our aim in this paper is to examine whether workers are able to adjust their hours to meet their preferences, or whether these work hour restrictions are binding. Evidence from Dutch data suggests that hours preferences have a significant impact on future changes in actual hours among women, but less so among men (Euwals et al, 1998). Actual working hours of Dutch women are not driven by labour demand only. Analysis of U.S. data, however, indicates that individuals cannot freely choose the number of hours worked (Martinez-Granado, 1999). The variance of the change in hours worked is found to be more than six times greater for job movers than for those remaining in the same job.

We find that almost 40% of full-time employees prefer to work fewer hours at the prevailing wage, while about 5% prefer to work more hours. Men working part-time are more likely than full-time workers and women employed part-time to be under-employed, suggesting that a greater proportion of part-time work among women is voluntary. Multivariate analysis indicates that these subjective data regarding labour supply preferences contain important information on an individual's future labour supply, even when controlling for a range of individual, demographic, job and employer related

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<sup>1</sup> The difference between the findings of British studies and those of other countries could be explained by the fact that full-time workers in Britain work on average four hours more per week than those in other EC countries (Eurostat, 1999).

characteristics and local labour demand. Furthermore, men working part-time are considerably more likely than full-time employees to increase their work hours. We also provide evidence suggesting that job changers have more freedom to adjust working hours than stayers, and that lower bounds on work hours in the job are more binding than upper bounds.

## Data

Our analyses use data from the British Household Panel Survey (BHPS), a nationally representative survey providing detailed information on individual, household and job related characteristics on an annual basis from 1991 to 1998. Information on wages and other income are also collected, which allow the calculation of each employee's hourly wage rate. Panel data are required to enable observation of individuals' desired changes in working hours at time  $t$ , and subsequent changes in actual hours between  $t$  and  $t+1$ . The relevant questions in the BHPS are asked of all those in employment (full-time, part-time, or self-employment) at each date of interview.<sup>2</sup> In particular, respondents are asked:

“Thinking about your (main) job, how many hours, excluding overtime and meal breaks, are you expected to work in a normal week?”

“And how many hours overtime do you usually work in a normal week?”

“Thinking about the hours you work, assuming that you would be paid the same amount per hour, would you prefer to work fewer hours, work more hours, or the same number of hours?”

The answer to these questions provides important information on an individual's actual and preferred working hours.<sup>3</sup> Note that respondents are asked to assume that their hourly

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<sup>2</sup> This necessarily restricts our sample to workers. However, non-workers who wish to increase their labour supply and find work will typically be looking for a job while non-workers who do not wish to participate in the labour market will not be seeking work. Therefore by definition the work hour preferences of non-workers will have an impact on changes in actual work hours.

<sup>3</sup> Subjective data, as opposed to objective data, are rarely used in empirical economics as the reliability of the respondents' answers is unclear. There is no guarantee that the answers to a survey question reflect the “true” value as respondents are not penalised for giving a wrong value, be it unconsciously or intentionally. Although the same can be said of all survey data, objective data can be compared against information from other sources to check accuracy. Recent empirical studies that use subjective data include Kooreman and Kapteyn (1990), Clark (1996), Clark and Oswald (1996), Stewart and Swaffield (1997) and Oswald (1997).

wage would remain unchanged in stating their desired hours changes, absolving them from making hidden assumptions. Individuals who say they prefer to work fewer (more) hours at the prevailing wage are considered to be over- (under-)employed. Those that prefer to work the same number of hours are unconstrained in their labour supply. By relating changes in actual hours across consecutive waves with desired changes in hours for men and women, we can establish whether individuals have some freedom in choosing their supply of working hours. By capturing job to job transitions between dates of interview, the data also allow us to investigate the extent to which individuals change jobs to satisfy their labour supply preferences.

We exclude the self-employed from our analysis as by definition they have greater freedom to determine their labour supply. We also exclude men and women employed in agriculture, the armed services, and those who hold second jobs. Analysis is restricted to those of working age at the time of the annual interview, that is men aged 16 to 65 and women aged 16 to 60. We use an unbalanced panel; respondents are not required to be interviewed at each wave to be included in the sample, and nor are new entrants to the survey prevented from entering our sample. As men and women behave very differently in terms of labour supply, we consider them separately throughout.

Table 1 provides information on work hours preferences by gender and whether employed full- or part-time. This shows that on average 36% of men and 40% of women working full-time prefer to work fewer hours at their current wage, while 7% and 4% prefer to work more hours. Therefore more than one-third of full-time workers are over-employed. Among part-time workers, about 10% prefer to work fewer hours, while 34% of men and 19% of women prefer to work more hours. Therefore men working part-time are more likely to be under-employed than similarly employed women, and a greater proportion of part-time work is voluntary among women than men. Part-time work may better correspond with the time preferences of some women, perhaps because of home or family care responsibilities. Alternatively, this could be a conditioning effect, with men

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Euwals et al (1998) conclude that subjective data on preferred working hours contain important information, helping to explain future changes in actual hours for women.

expected and expecting to work full-time while part-time employment is more common and acceptable for women with families.

Table 2 summarises actual work hours by whether individuals prefer to work more or fewer hours and job status. This reveals a consistent pattern, with men and women who are over-employed working on average the most hours per week. The under-employed supply the least number of hours to the labour market. Altonji and Paxson (1988) report similar findings for the USA.

Table 3 examines the dynamic nature of the data by investigating the percentage of workers experiencing a fall in their working hours between  $t$  and  $t+1$  by their work hour preferences at  $t$ . This shows that men working full-time who are over-employed are most likely to experience a subsequent fall in their labour supply, with 41% working fewer hours at  $t+1$  than at  $t$ . Indeed, for all job status categories, men and women who are over-employed at  $t$  are more likely to experience a subsequent fall in their work hours than those under-employed or who prefer to work the same number of hours. A similar picture emerges from Table 4. Within each job status category, men and women who are under-employed at  $t$  are more likely to subsequently experience an increase in their labour supply. Men who work part-time and who are under-employed are most likely to increase their working hours, almost three quarters (72%) of this group reduce their working hours between waves. Women who work full-time and who are over-employed at  $t$  are least likely to reduce their hours between interviews, only 29% of them act according to their stated preference. This suggests that subjective data on individuals preferred working hours provide information on their future labour market behaviour, and that workers have some freedom to change their work hours. This is tested more rigorously later in the paper.

## **Analytical Framework and Estimation Procedure**

At each wave  $t$ , we observe an individual's ( $i$ ) actual working hours,  $H_{i,t}^A$ . However, it is possible that individuals are not free to choose the number of hours they work at a given

wage, either because of institutional factors, employer preferences, the high costs of job search and job changing, or family constraints. Therefore actual hours may not correspond to preferred working hours,  $H_{i,t}^P$ . The data allow us to observe whether the individual is under- or over-employed at each wave. We define individual  $i$  to be over-employed at time  $t$  and supplying too much labour in the following way:

$$O_{i,t} = 1 \text{ if } H_{i,t}^A - H_{i,t}^P > 0 \\ = 0 \text{ otherwise.}$$

Similarly, the individual is under-employed and supplies too little labour if:

$$U_{i,t} = 1 \text{ if } H_{i,t}^A - H_{i,t}^P < 0 \\ = 0 \text{ otherwise.}$$

Subsequently, at the following date of interview approximately 12 months later, we observe the change in an individual's actual hours:

$$\Delta H_{i,t+1}^A = H_{i,t}^A - H_{i,t+1}^A$$

Our interest lies in whether the individual's preferences at  $t$  influence their changes in actual hours between  $t$  and  $t+1$ . However, we do not observe *by how much* individuals are under- or over-employed at  $t$ , and therefore a simple binary explanatory variable may not be sufficient to determine the actual hours change. To overcome this problem, we redefine the variable of interest to also be binary. In particular, we define whether individuals increase or reduce their labour supply between  $t$  and  $t+1$ . An increase in hours is defined as:

$$I_{i,t+1}^A = 1 \text{ if } \Delta H_{i,t+1}^A < 0, \text{ and } 0 \text{ otherwise,}$$

and a reduction as:

$$R_{i,t+1}^A = 1 \text{ if } \Delta H_{i,t+1}^A > 0, \text{ and } 0 \text{ otherwise.}$$

Our empirical work therefore consists of estimating limited dependent variable models of whether workers experience an increase or decrease in their work hours between two consecutive dates of interview.<sup>4</sup> The under- or over-employment status at  $t$  is used as an explanatory variable to test the hypothesis that subjective data on desired labour supply



provide no information on the future adjustment of actual hours worked. Our models can be expressed in the following form:

$$\Pr(I_{i,t+1}^A = 1) = f(O_{i,t}, U_{i,t}, X_{i,t}, w_{i,t}, E_{i,t})$$

$$\Pr(R_{i,t+1}^A = 1) = g(O_{i,t}, U_{i,t}, X_{i,t}, w_{i,t}, E_{i,t})$$

where the vector  $X_{it}$  contains variables measuring the preferences and characteristics of the individual which capture expectations of future income – workers make their labour supply choices in an environment in which they face uncertain future income streams.  $w_{i,t}$  represents the current prevailing wage rate, while  $E_{i,t}$  captures firm and job related characteristics.<sup>5</sup> As observed hours are used to define the dependent variable, they are not used as an explanatory variable. This procedure provides information on whether the subjective data on desired working hours is informative, and if so whether actual working hours converge towards individuals preferences.

Applying this process empirically, we observe each individual  $i=1,2,\dots,N$  and their labour supply preferences at times  $t=1,\dots,T$  ( $0 < T \leq 8$ ). All explanatory variables are predetermined, and measured at time  $t$  to ensure exogeneity. The propensity for individuals to increase or to reduce their working hours between  $t$  and  $t+1$  can be written:

$$y_{it+1}^* = X_{it}b + n_i + e_{it} \quad (4)$$

where

$$y_{it} = \begin{cases} 1 & \text{if } y_{it}^* > 0 \\ 0 & \text{otherwise,} \end{cases}$$

and  $n_i \sim \text{IN}(0, s_n^2)$  captures the individual-specific unobservable effect and  $e_{it} \sim \text{IN}(0, s_e^2)$  is random error. Further,  $n_i$  and  $e_{it}$  are independent of each other and of  $X_{it}$ , the set of explanatory variables (which here include the prevailing wage rate and job and employer

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<sup>4</sup> We have also experimented with defining the dependent variable to take the value 0 if workers reduce their hours, 1 if they do not change their hours, and 2 if they increase their work hours, and estimating ordered probits and multi-nomial logit models. Results from doing so are similar to those presented here.

related characteristics). We assume that the relationship between the covariates and the dependent variable can be described by a normal distribution, and therefore specify a random-effects panel probit.<sup>6</sup> To ensure identification,  $s_e$  is set to one and the likelihood function is parameterised in terms of the within-subject correlation,  $\rho$ ,

$$\rho = s_n^2 / (s_n^2 + s_e^2).$$

This indicates the proportion of the variance that is explained by the panel-variance component,  $\eta_i$ , which captures time invariant unobserved differences between individuals. If  $\rho$  is zero, then the panel-variance level component is unimportant and the panel estimator is not different from a cross-sectional (or pooled) estimation.

## Multivariate Results

Table 5 (Table 6) presents the estimates from a probit model with the dependent variable taking the value 1 if workers experience a fall (rise) in their labour supply between  $t$  and  $t+1$ , and zero otherwise.<sup>7</sup> Selection into the estimating sample requires individuals both to be interviewed and to be in work for at least two consecutive waves. If attrition from the sample or the probability of leaving work between  $t$  and  $t+1$  are non-random, then the coefficients of interest will be biased. We control for this by estimating two-stage models following Heckman (1979), entering the generalised error term (inverse Mill's ratio) from a probit for being interviewed and in work at two consecutive waves as an additional regressor in the hours change equations. The dependent variables in the selection equations are dummy variables which take the value 1 if an individual is interviewed at two consecutive waves and is in employment at both points. The dependent variable is set to zero if this condition is not satisfied – if an individual is not employed at  $t$  or is either not in employment at the subsequent date of interview or is not interviewed at all. Identification of the parameters in the hours change equation using the selected sample

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<sup>5</sup> The prevailing wage rate at  $t$  could be endogenous if more motivated and committed individuals who increase their work hours also receive a higher wage at  $t$ . We have estimated models excluding the wage rate, and the results remain unchanged.

<sup>6</sup> Greene (1997) and Baltagi (1995) provide more details on the random effects probit approach.

<sup>7</sup> Descriptive statistics for the explanatory variables can be found in Appendix Table A.2.

requires at least one variable in the selection equation that is not included in the hours change equation – variables that influence the probability of remaining in the sample but not the probability of increasing or reducing work hours. We use whether the respondent is a new entrant into the survey at time  $t$  and pre-sample and background information as exclusion restrictions. The selection equation is estimated separately for men and women, and the full estimation results are presented in Appendix Table A.1, and are not discussed here.

As well as including hours preferences at  $t$ , our specification also controls for labour market experiences between  $t$  and  $t+1$  (in particular whether an individual changed job or experienced an unemployment spell between the dates of interview), demographic and family variables, highest educational qualification, a range of job and employer characteristics (including the wage) and the local unemployment rate.<sup>8</sup> These are all predetermined, and are factors that will determine workers tastes and preferences and labour demand. In all cases, estimates for  $\rho$  in the random effects probit specification were zero, implying that the unobserved, time-invariant individual specific effect is unimportant. For this reason, we only present the results from the pooled probits.

Table 5 focuses on the determinants of reducing labour supply between two consecutive dates of interview. This shows that hours preferences at  $t$  have a large and statistically significant impact for both men and women. Furthermore, the sign on the estimated coefficients are always intuitively appealing – the over-employed are more likely to reduce their labour supply and are less likely to increase it. Preferring to work more hours reduces the probability of experiencing a fall in hours worked at the next date of interview by 8 percentage points for men and 11 percentage points for women.<sup>9</sup> Preferring to work fewer hours increases this probability by 7 percentage points for both men and women. Table 6 shows that hours preferences also significantly influence the probability of increasing labour supply. Preferring to work more hours increases this

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<sup>8</sup> The local labour market information is taken from the National Online Manpower Information Service (NOMIS), and is matched into the BHPS by month of interview and travel-to-work area.

<sup>9</sup> These marginal effects are calculated at the sample means.

probability by 7 percentage points for men, and by 17 for women. Preferring to work fewer hours reduces the probability by 4 percentage points for men and 3 for women, all things equal. These results suggest that subjective data collected on labour supply preferences contain important information regarding individuals' future labour supply, even when controlling for a range of individual, demographic, job and employer related characteristics and local labour demand. Workers are able to adjust their labour supply in line with preferences, and their hours of work are not dictated by labour demand alone.

#### *Other coefficients of interest*

Table 5 and Table 6 highlight a number of other variables which have significant impacts on the probability of reducing or increasing work hours. Men and women who change job between the dates of interview have more flexibility in their working hours than stayers – the coefficients are consistently positive and well determined (with one exception). Women who change jobs are 4 percentage points more likely to reduce their labour supply, and 12 percentage points more likely to increase their labour supply than those remaining in the same job. Men who change jobs are 7 percentage points more likely to increase their work hours than job stayers. This suggests that some individuals are required to change jobs in order to vary their labour supply; job changing facilitates the adjustment of working hours in line with preferences. Altonji and Paxson (1988) find similar results for the US and conclude that it is caused by restrictions on working hours in the job. Of course, some individuals may change their job because of their hours preferences. To investigate the effect of work hour preferences on the propensity to change job we have estimated probit models with the dependent variable equal to 1 if the individual changes job between two consecutive dates of interview, and equal to zero if they remain in the same job. Hours preferences were included in the vector of explanatory variables. The results (not shown but available on request) suggest that preferred working hours have no statistically significant impact on the probability of changing job for men all things equal (although the coefficients on the hours preference variables are positive). Women who prefer to work more hours however, are 8 percentage points more likely to change job than those wishing to continue to work the same number

of hours. Therefore under-employed women have a higher probability of changing job, suggesting that these face the most binding work hours restrictions in their current jobs.

Men and women who experience unemployment between the dates of interview are roughly seven percentage points more likely to work fewer hours at the subsequent wave. Given that we are holding work hour preferences and job change status constant, it is possible that this reflects a scarring impact of unemployment. Recent British studies have documented the scarring aspects of unemployment on both the probability of experiencing subsequent unemployment (Arulampalam et al, 2000; Gregg, 2000) and on re-employment wages (Arulampalam 2000; Gregory and Jukes, 2000). Unemployment may also reduce employer demand for a worker's time, perhaps because of perceived lower productivity or the erosion of human capital. The fact that experiencing unemployment inter-wave increases the probability of reducing work hours, but has no statistically significant impact on the probability of increasing work hours lends weight to this hypothesis.

A number of demographics have significant impacts on the probability of experiencing a reduction or an increase in working hours. The probability of reducing work hours increases with age, peaking at 47 years of age for men and 41 years of age for women. The probability of increasing work hours falls with age for both men and women, reaching a minimum at ages 58 and 44 respectively. The presence of young children in the worker's household has a significant impact on the probability of increasing labour supply for women, reducing it by 5 percentage points. Mothers of young children are less likely than other women to increase their work hours, perhaps because of child care responsibilities. There is some evidence among men that an employed spouse reduces the probability of experiencing a fall in the number of hours worked which suggests that some interdependencies exist in husband's and wife's labour supply decisions. Changes in labour supply are inversely related to household income – the probability of reducing work hours increases with household income, and that of increasing work hours falls with household income. Those with greater financial resources are more able to increase their leisure time. The probability of reducing labour supply increases with education. Men

and women educated to 'A'-Level standard have a higher probability of reducing work hours than those with no qualifications by 6 and 4 percentage points respectively, while a degree increases the probability by 11 percentage points for men and 12 percentage points for women. Similarly, women educated to degree level are 9 percentage points more likely to increase their labour supply. The more highly educated may be employed in jobs which offer greater flexibility and freedom in determining the number of hours worked per week.

Job and workplace characteristics also determine the probability of reducing or increasing labour supply. The hourly wage received at  $t$  has a large and very well determined impact on the probability of both reducing and increasing work hours between  $t$  and  $t+1$ . In particular, higher hourly wage earners have a lower probability of reducing and a higher probability of increasing their labour supply. This is consistent with economic theory – high wage earners have a greater opportunity cost of not working. Such workers may also be in more rewarding employment, from which they obtain utility directly. Men covered by trades unions, and especially members, are significantly less likely to reduce their work hours between waves – such individuals may have work hours determined as part of the bargaining procedure and therefore have limited freedom to adjust their labour supply within the job.

The probability of reducing work hours is positively associated with travel to work time for both men and women, although the quantitative impact is larger for women. This implies that workers with a relatively long daily commute reduce the hours spent at work, perhaps to compensate for time lost commuting. Overtime workers are also more likely to reduce their work hours (by 25 percentage points), and less likely to increase their hours, than those who do not work overtime. Using overtime opportunities may be one way through which workers are able to temporarily adjust their labour supply in line with preferences, or that employers induce workers to work more hours than ideally preferred.

Many employers use fringe benefits and bonus packages to stimulate workers' effort. If such a measure of effort is the amount of working hours supplied, it appears that these

schemes are, all in all, not overly effective. Men who receive bonus payments or promotion opportunities as part of their remuneration package are 2 percentage points more likely to reduce their work hours, although these are poorly determined, and are no more likely to increase them. However, women who have regular opportunities for promotion are 2 percentage points more likely to increase their work hours, all things equal, which suggests that this may be a more efficient means of increasing effort.

The number of hours worked are in some sectors determined by the production technology. A crude measure of the effect of technology on the flexibility of working hours is the distinction between manual and non-manual jobs. Manual jobs, especially in heavy industry, are organised in strict schedules. Non-manual jobs, with the increase of tele-work etc, are usually more flexible in their hour requirements. Consistent with this, we find that men and women who work in non-manual occupations have a higher probability than manual workers of reducing their labour supply between dates of interview (by 8 and 3 percentage points). Public sector workers and women employed in large establishments have lower probabilities of increasing their labour supply, all things equal.

Clear evidence emerges from these tables that part-time workers (and men working part-time in particular) are under-employed. Men and women in part-time employment at  $t$  are less likely than full-time employees to reduce their working hours between  $t$  and  $t+1$  by 12 percentage points. Men working part-time have a probability of increasing their work hours some 24 percentage points higher than those in full-time employment, while for women the impact is much smaller, increasing the probability by 10 percentage points. These large effects suggest that men working part-time are more likely than similarly employed women to be under-employed. Men and women with a longer elapsed job tenure – who have been in their job for a longer period of time – are less likely to experience a fall or a rise in their work hours (although only the former is statistically significant for men, and the latter for women). Each additional year in a job reduces the probability of experiencing a fall in working hours by 0.2 percentage points for men, while reducing the probability of experiencing an increase in working hours by 0.5

percentage points for women. This is consistent with job matching theory, individuals with longer job tenure are better matched to their job and employer and are happier with the amount of labour they supply. If workers are happy with their employment relation, they may be more willing to vary their work hours as required.

It is interesting to note that the level of local labour demand has a statistically significant impact on changes in work hours only for women. A one percentage point increase in the local unemployment rate (from the sample mean) reduces the likelihood of experiencing an increase in labour supply by about 0.45 percentage points. This effect contradicts Stewart and Swaffield (1997) who hypothesise that job security and the scarcity of alternative job opportunities either enable employers to set hours constraints above employee preferences, or encourages more effort on behalf of the worker. Instead, our evidence suggests that workers are less likely to increase their labour supply when unemployment is high, and that workers supply more hours to the labour market when the level of demand in the economy is high. Employers may increase the length of the working week to meet (perhaps temporary) fluctuations in demand.

To examine the quantitative impact of work hour preferences on the probability of reducing or increasing labour supply in more detail, Table 7 presents the predicted probabilities of each for particular case studies. The first row gives the observed probabilities (sample means), showing that 35.5% of men and 30.5% of women in the estimating sample experienced a fall in work hours between two consecutive dates of interview, while 36.4% and 35.4% experienced an increase in work hours. The second row shows that the predicted probabilities from the models, calculated at the sample means, are very close to the observed. The third row provides the predicted probability for a hypothetical man and woman, defined below.

*Hypothetical man:* 36 years old, married, travel to work time of 20 minutes, full-time employee in a non-manual occupation, wage of £6.00 per hour, local unemployment rate of 0.077, in the transport and communication industry, working in an establishment employing more than 500 employees, a current job tenure of 5 years, has a spouse



working 15 hours per week, and a household income of £2,500 per month. All other variables set to zero.

*Hypothetical woman:* 36 years old, married, travel to work time of 20 minutes, full-time employee in a non-manual occupation, wage of £4.75 per hour, local unemployment rate of 0.077, in the non-financial service industry, working in an establishment employing between 100 and 499 employees, a current job tenure of 4 years, has a spouse working 40 hours per week, and a household income of £2,500 per month. All other variables set to zero.

The subsequent rows highlight how the predicted probabilities for this hypothetical man and hypothetical woman change as their work hour preferences change, if they change job between two consecutive interviews, and if they were in part-time work at time  $t$ . This shows that for the man, the highest probability of reducing working hours is for the over-employed job changer which, at 34%, is some 9 percentage points higher than for the base male. Under-employed part-time workers have the lowest probability of reducing working hours at 10.9%, some 15 percentage points below the base hypothetical male. However, such characteristics are also associated with the highest probability of increasing labour supply for the man at 68%, more than 30 percentage points higher than for the hypothetical male. The smallest probability of increasing working hours for the man occurs for the over-employed full-time worker (at 33.3%). This confirms that men working part-time are considerably more likely than full-time employees to increase their work hours.

For the woman, the smallest probability of experiencing a fall in work hours is also found for the under-employed part-time worker. This, at 9.2%, is more than 16 percentage points lower than for the base woman. Over-employed women who change jobs have the highest probability of doing so at 37.6%, 10 percentage points higher than for the base case. Under-employed job changers have the highest probability of increasing their labour supply, at 53% this is more than double that for the base woman. Over-employed women working full-time who do not change jobs have the lowest probability of experiencing an increase in work hours.

It is interesting to note that in almost all cases, the probability of increasing work hours is larger than that for reducing work hours. Again, this implies that lower limits on work hours are more binding than upper bounds – individuals are more able to increase their labour supply than reduce it.

### *Model Extensions*

To further investigate the relationship between work hour preferences, work hour changes, job changes and full- and part-time employment, we estimate the models separately for full- and part-time workers, and individuals who change jobs (movers) and those that remain in the same job (stayers) between dates of interview. The latter provides important information on whether workers need to change jobs in order to adjust their working hours. As firms differ with respect to production technology, the hours-wage package for a certain type of job may vary across firms. The results from these specifications are shown in Table 8 and Table 9.

Table 8 shows that among men the impact of over-employment on the probability of reducing work hours is larger for part-time workers than for full-time workers. The quantitative impact of the hours preferences variables for full-time workers are largest for those that change jobs, while among part-time workers it is largest for those that remain in the same job. This suggests that full-time workers are more constrained than part-time workers in their work hours in the job, and is further evidence suggesting that many workers need to change jobs in order to reduce their labour supply. Among women, over-employed full-time workers who change jobs have the largest probability of reducing work hours. The impact of over-employment on the probability of reducing work hours is smallest for full-time workers who remain in the same job. This indicates again the presence of lower limits on hours within jobs.

Table 9 reveals that under-employment among men working full-time has a similar impact on the probability of increasing labour supply for job movers and stayers. Therefore men are equally able to increase work hours within and between jobs. These results imply that lower limits on work hours within full-time jobs are more binding than

upper limits – employers are more willing to allow workers to increase their labour supply within a job than reduce it. For both men and women there is clear evidence that part-time workers who are under-employed have a higher probability of increasing their work hours than full-time employees.

## **Conclusions**

In this paper we use subjective data on desired hours of work from the BHPS to investigate the amount of influence employees have in determining their own working hours. Although the majority of British workers are satisfied with the number of hours worked, there is a considerable minority who prefer to change the numbers of hours worked (keeping the wage rate constant). Full-time workers generally would like to work fewer hours and part-time workers would like to work more hours. Our estimates, suitably corrected for selection biases, suggest that men and women are able to adjust their work hours in line with preferences. This is particularly true for men working part-time and men and women who change jobs. We find that lower bounds on work hours in the job are more binding than upper bounds – workers find it easier to increase their work hours within the job than reduce them. Our evidence indicates that working hours are not driven by labour demand only.

The fact that job changers are more able than job stayers to adjust their work hours in line with preferences suggests that restrictions on work hours within the job are important. Such restrictions may be caused by employer preferences, technology or industrial relations. This implies that some workers who do not work their preferred number of hours need to change jobs in order to adjust the number of hours supplied. Furthermore, given that job changes are costly and that job opportunities are unlikely to be evenly distributed across the hours distribution, this suggests that many workers will remain in disequilibrium with respect to the number of hours worked. Therefore our evidence indicates that, although workers do have some autonomy in determining their hours of work, rigidities in the labour market exist, and these rigidities impair the welfare of workers. A redistribution of hours between over- and under-employed workers would be welfare enhancing.

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## Tables

**Table 1: Work hours preferences by gender and job status, BHPS 1991-1998 (column %)**

Hours Preferences	Full-time		Part-time	
	Men	Women	Men	Women
Prefer fewer hours	35.9	40.4	9.2	9.8
Prefer more hours	6.9	4.3	33.8	19.1
Prefer same hours	57.2	55.2	57.0	71.2
N	13957	9757	738	4974

**Table 2: Mean work hours by gender and job status, BHPS 1991-1998**

Hours Preferences	Full-time		Part-time	
	Men	Women	Men	Women
Prefer fewer hours	48.5	42.1	16.2	19.8
Prefer more hours	43.0	37.5	14.3	14.5
Prefer same hours	44.5	39.2	14.8	17.2
N	13760	9584	738	4974

**Table 3: Percentage experiencing a fall in working hours between wave t and t+1, by work hours preferences, gender and job status at wave t, BHPS 1991-1998**

Hours Preferences	Full-time		Part-time	
	Men	Women	Men	Women
Prefer fewer hours	40.7	37.3	34.6	28.2
Prefer more hours	26.5	27.8	13.9	13.5
Prefer same hours	33.2	32.3	18.3	22.0
N	9725	6612	347	3077

**Table 4: Percentage experiencing a rise in working hours between waves t and t+1, by work hours preferences, gender and job status at wave t, BHPS 1991-1998**

Hours Preferences	Full-time		Part-time	
	Men	Women	Men	Women
Prefer fewer hours	31.2	28.9	49.8	38.9
Prefer more hours	42.5	38.5	72.2	59.1
Prefer same hours	35.9	32.6	61.1	38.4
N	9725	6612	347	3077

**Table 5: Results from probit estimating the probability of experiencing a fall in usual working hours between t and t+1.**

Variable	Men			Women		
	Coeff	t-stat	Marg effect	Coeff	t-stat	Marg effect
<i>Hours preferences at t<sup>a</sup></i>						
Prefer more hours	-0.2317	4.09	-0.081	-0.3472	5.56	-0.108
Prefer fewer hours	0.1990	6.96	0.074	0.1912	5.74	0.067
<i>Work experiences between t and t+1</i>						
Changed job	0.0522	1.49	0.019	0.1148	3.07	0.040
Experienced unemployment	0.2031	2.50	0.077	0.2055	2.22	0.074
<i>Demographics at t</i>						
Age	0.0465	4.05	0.017	0.0355	2.92	0.012
Age <sup>2</sup> /100	-0.0500	3.32	-0.018	-0.0436	2.68	-0.015
Married	0.0652	1.67	0.024	-0.0095	0.22	-0.003
Has child aged < 5	0.0164	0.42	0.006	0.0598	0.94	0.021
Spouse employed	-0.0966	1.73	-0.034	0.0150	0.16	0.005
Spouse working hours	0.0009	0.60	0.000	-0.0003	0.14	-0.000
Log household income (£ per month)	0.3027	8.51	0.111	0.1275	3.95	0.044
<i>Highest Qualification<sup>b</sup></i>						
First Degree or above	0.2767	4.59	0.105	0.3338	4.88	0.121
'A'-Levels or equivalent	0.1617	3.44	0.060	0.1127	2.09	0.039
'O'-Levels or equivalent	0.0821	1.70	0.030	0.0029	0.05	0.001
Less than 'O'-Levels	0.1120	1.97	0.042	0.0048	0.08	0.002
<i>Job characteristics at t</i>						
Log hourly wage	-0.5656	12.95	-0.208	-0.4922	11.04	-0.168
Trade union member	-0.2186	5.85	-0.078	-0.0061	0.15	-0.002
Trade union covered, not member	-0.1916	4.18	-0.068	-0.0061	0.13	-0.002
Travel to work time (in 1/4s of hours)	0.0201	2.08	0.007	0.0303	2.47	0.010
Does paid over-time	0.6466	20.15	0.241	0.7038	18.98	0.259
Receives bonus payments	0.0494	1.49	0.018	-0.0558	1.33	-0.019
Regular promotion opportunities	0.0519	1.78	0.019	-0.0345	1.09	-0.012
Non-manual occupation	0.2222	6.19	0.081	0.1018	2.61	0.034
Workplace 25-99 employees <sup>c</sup>	-0.0125	0.33	-0.005	0.0252	0.67	0.009
Workplace 100-499 employees <sup>c</sup>	0.0264	0.54	0.010	-0.0395	0.75	-0.013
Workplace >500 employees <sup>c</sup>	-0.0030	0.08	-0.001	-0.0187	0.46	-0.006
Public sector	0.0148	0.31	0.005	0.0120	0.27	0.004
Shift work	0.0258	0.68	0.009	-0.0572	1.49	-0.019
Part-time job	-0.3203	3.33	-0.115	-0.3639	9.06	-0.119
Job tenure (years)	-0.0056	2.27	-0.002	-0.0021	0.65	-0.001
<i>Local labour market demand at t</i>						
Local unemployment rate	-0.0984	0.17	-0.036	-0.5424	0.81	-0.185
Constant	-3.1851	7.89		-1.7376	4.33	
Log-likelihood		-5843.8			-5077.4	
Chi <sup>2</sup>		882.62			874.43	
Pseudo R <sup>2</sup>		0.0782			0.0884	
N observations		9747			9058	

Notes: Regression also includes 8 industry dummies, 6 year dummies, 6 ethnicity dummies and a selection correction term (see text for details). <sup>a</sup> Prefer to work the same number of hours is the reference category. <sup>b</sup> No qualifications is the reference category. <sup>c</sup> Workplace under 25 employees is the reference category. Estimation procedure also controls for clustering on individuals.

**Table 6: Results from probit estimating the probability of experiencing a rise in usual working hours between t and t+1.**

Variable	Men			Women		
	Coeff	t-stat	Marg effect	Coeff	t-stat	Marg effect
<i>Hours preferences at t<sup>a</sup></i>						
Prefer more hours	0.1926	3.74	0.074	0.4362	8.51	0.169
Prefer fewer hours	-0.1177	4.09	-0.044	-0.0692	2.13	-0.025
<i>Work experiences between t and t+1</i>						
Changed job	0.1811	5.34	0.069	0.3261	9.33	0.124
Experienced unemployment	0.0287	0.37	0.011	0.0521	0.61	0.019
<i>Demographics at t</i>						
Age	-0.0336	3.03	-0.013	-0.0357	3.17	-0.013
Age <sup>2</sup> /100	0.0291	2.00	0.011	0.0405	2.67	0.015
Married	0.0238	0.64	0.009	-0.0317	0.79	-0.012
Has child aged < 5	-0.0562	1.42	-0.021	-0.1376	2.33	-0.050
Spouse employed	0.0469	0.84	0.018	0.0033	0.04	0.001
Spouse work hours	-0.0001	0.05	-0.000	0.0008	0.41	0.000
Log Household income (£s per month)	-0.1410	4.15	-0.053	-0.0549	1.78	-0.020
<i>Highest Qualification<sup>b</sup></i>						
First Degree or above	0.0112	0.18	0.004	0.2331	3.58	0.089
'A'-Levels or equivalent	-0.0885	1.84	-0.033	0.0735	1.45	0.027
'O'-Levels or equivalent	-0.0496	1.02	-0.018	-0.0127	0.25	-0.005
Less than 'O'-Levels	-0.0496	1.02	-0.010	-0.0149	0.25	-0.006
<i>Job characteristics at t</i>						
Log hourly wage	0.3734	9.37	0.140	0.3972	9.24	0.147
Trade union member	0.0755	2.03	0.028	-0.0720	1.80	-0.026
Trade union covered, not member	0.0619	1.42	0.011	-0.0014	0.03	-0.001
Travel to work time (in 1/4s of hours)	-0.0049	0.52	-0.002	-0.0166	1.42	-0.006
Does paid over-time	-0.0786	2.49	-0.029	-0.0184	0.51	-0.007
Receives bonus payments	-0.0447	1.39	-0.017	-0.0456	1.16	-0.017
Regular promotion opportunities	-0.0117	0.41	-0.004	0.0645	2.14	0.024
Non-manual occupation	-0.0264	0.73	-0.010	-0.0831	2.19	-0.031
Workplace 25-99 employees <sup>c</sup>	0.0631	1.72	0.024	-0.0637	1.84	-0.023
Workplace 100-499 employees <sup>c</sup>	-0.0192	0.40	-0.007	-0.0425	0.88	-0.016
Workplace >500 employees <sup>c</sup>	-0.0359	0.96	-0.013	-0.1851	4.83	-0.067
Public sector	-0.1164	2.44	-0.043	-0.1010	2.26	-0.037
Shift work	0.0589	1.59	0.022	0.0577	1.58	0.021
Part-time job	0.6003	7.61	0.235	0.2583	6.71	0.097
Job tenure (years)	-0.0017	0.67	-0.001	-0.0141	4.30	-0.005
<i>Local labour market demand at t</i>						
Local unemployment rate	-1.2021	2.08	-0.450	0.0690	0.11	0.026
Constant	1.0795	2.75		0.2204	0.58	
Log-likelihood		-6192.2			-5600.2	
Chi <sup>2</sup>		431.48			589.21	
Pseudo R <sup>2</sup>		0.0314			0.0489	
N observations		9747			9058	

Notes: Regression also includes 8 industry dummies and a selection correction term (see text for details).

<sup>a</sup> Prefer to work the same number of hours is the reference category. <sup>b</sup> No qualifications is the reference category. <sup>c</sup> Workplace under 25 employees is the reference category. Estimation procedure also controls for clustering on individuals.



**Table 7: Predicted probabilities of experiencing a reduction/increase in work hours**

	Men		Women	
	Reducing hours	Increasing hours	Reducing hours	Increasing hours
(1) Observed	0.355	0.364	0.305	0.354
(2) At sample means	0.342	0.361	0.289	0.348
(3) Hypothetical	0.255	0.375	0.268	0.248
(3) + prefer more hours at t	0.186	0.450	0.167	0.403
(3) + prefer fewer hours at t	0.321	0.333	0.334	0.227
(3) + job changer	0.272	0.445	0.307	0.361
(3) + job changer + prefer more hours at t	0.200	0.521	0.197	0.532
(3) + job changer + prefer fewer hours at t	0.340	0.400	0.376	0.336
(3) + part-time worker at t	0.159	0.608	0.163	0.335
(3) + part-time worker at t + prefer more hours at t	0.109	0.679	0.092	0.503
(3) + part-time worker at t + prefer fewer hours at t	0.211	0.563	0.214	0.310

*Hypothetical man:* 36 years old, married, travel to work time of 20 minutes, full-time worker in a non-manual occupation, wage of £6.00 per hour, local unemployment rate of 0.077, in transport and communication industry, working in establishment employing more than 500 employees, current job tenure of 5 years, has a spouse working 15 hours per week, and a household income of £2,500 per month. All other variables set to zero.

*Hypothetical woman:* 36 years old, married, travel to work time of 20 minutes, full-time worker in a non-manual occupation, wage of £4.75 per hour, local unemployment rate of 0.077, in non-financial service industry, working in establishment employing between 100 and 499 employees, current job tenure of 4 years, has a spouse working 40 hours per week, and a household income of £2,500 per month. All other variables set to zero.

**Table 8: Further results from probit estimations of the probability of experiencing a fall in usual working hours between t and t+1.**

Variable	Men			Women		
	Coeff	<i>t-stat</i>	Marg effect	Coeff	<i>t-stat</i>	Marg effect
<b>Part-time workers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	-0.2289	1.06	-0.045	-0.3660	4.38	-0.090
Prefer fewer hours	0.6637	1.82	0.179	0.2180	2.45	0.064
Log-likelihood		-110.3			-1360.4	
Chi <sup>2</sup>		132.36			227.47	
Pseudo R <sup>2</sup>		0.2631			0.0785	
N observations		298			2873	
<b>Part-time Stayers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	-0.3828	1.43	-0.085	-0.2628	2.77	-0.066
Prefer fewer hours	0.9202	1.96	0.296	0.2492	2.57	0.074
Log-likelihood		-75.6			-1099.6	
Chi <sup>2</sup>		68.07			178.61	
Pseudo R <sup>2</sup>		0.2910			0.0759	
N observations		191			2328	
<b>Part-time Movers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	-0.8690	1.50	-0.004	-0.7516	4.13	-0.168
Prefer fewer hours	1.4980	1.90	0.047	0.1650	0.76	0.046
Log-likelihood		-20.6			-241.2	
Chi <sup>2</sup>		59.68			79.09	
Pseudo R <sup>2</sup>		0.5055			0.1492	
N observations		125			535	
<b>Full-time workers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	-0.2344	3.89	-0.083	-0.3369	3.74	-0.114
Prefer fewer hours	0.1981	6.88	0.074	0.1936	5.29	0.071
Log-likelihood		-5686.1			-3684.4	
Chi <sup>2</sup>		867.67			555.42	
Pseudo R <sup>2</sup>		0.0765			0.0780	
N observations		9415			6178	
<b>Full-time Stayers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	-0.1968	2.82	-0.069	-0.3452	3.14	-0.113
Prefer fewer hours	0.1864	5.64	0.069	0.1350	3.20	0.048
Log-likelihood		-4383.7			-2746.7	
Chi <sup>2</sup>		733.51			448.64	
Pseudo R <sup>2</sup>		0.0836			0.0833	
N observations		7382			4721	
<b>Full-time movers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	-0.3762	3.27	-0.136	-0.3308	2.14	-0.122
Prefer fewer hours	0.2255	3.54	0.087	0.3848	4.95	0.150
Log-likelihood		-1238.9			-888.1	
Chi <sup>2</sup>		200.79			165.04	
Pseudo R <sup>2</sup>		0.0773			0.0877	
N observations		1996			1438	

Note: All specifications also include variables as per Table 5.

**Table 9: Further results from probit estimations of the probability of experiencing a rise in usual working hours between t and t+1.**

Variable	Men			Women		
	Coeff	t-stat	Marg effect	Coeff	t-stat	Marg effect
<b>Part-time workers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	0.4438	2.37	0.151	0.5012	7.82	0.198
Prefer fewer hours	-0.1160	0.33	-0.042	0.0074	0.08	0.003
Log-likelihood		-166.2			-1768.7	
Chi <sup>2</sup>		110.87			386.94	
Pseudo R <sup>2</sup>		0.2258			0.0961	
N observations		329			2878	
<b>Part-time Stayers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	0.5243	2.07	0.202	0.4503	6.10	0.174
Prefer fewer hours	-0.0547	0.12	-0.022	0.0672	0.68	0.025
Log-likelihood		-112.1			-1444.1	
Chi <sup>2</sup>		79.00			163.50	
Pseudo R <sup>2</sup>		0.2077			0.0500	
N observations		205			2328	
<b>Part-time Movers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	0.7884	2.08	0.106	0.8434	5.07	0.248
Prefer fewer hours	-0.6145	1.13	-0.124	-0.2605	1.25	-0.093
Log-likelihood		-38.9			-278.9	
Chi <sup>2</sup>		58.98			114.98	
Pseudo R <sup>2</sup>		0.3310			0.1697	
N observations		125			533	
<b>Full-time workers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	0.1718	3.14	0.065	0.3358	3.79	0.127
Prefer fewer hours	-0.1215	4.20	-0.045	-0.1128	3.19	-0.040
Log-likelihood		-5993.6			-3769.0	
Chi <sup>2</sup>		271.87			258.26	
Pseudo R <sup>2</sup>		0.0208			0.0318	
N observations		9415			6178	
<b>Full-time Stayers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	0.1852	2.87	0.070	0.4173	3.96	0.156
Prefer fewer hours	-0.1064	3.22	-0.039	-0.0666	1.62	-0.023
Log-likelihood		-4639.7			-2812.4	
Chi <sup>2</sup>		185.65			158.74	
Pseudo R <sup>2</sup>		0.0187			0.0287	
N observations		7382			4721	
<b>Full-time movers</b>						
<i>Hours preferences at t</i>						
Prefer more hours	0.2015	1.87	0.079	0.2196	1.42	0.086
Prefer fewer hours	-0.1820	2.84	-0.070	-0.2776	3.74	-0.105
Log-likelihood		-1290.8			-909.2	
Chi <sup>2</sup>		136.93			101.99	
Pseudo R <sup>2</sup>		0.0437			0.0563	
N observations		1996			1438	

Note: All specifications also include variables as per Table 6.

**Appendix Table A.1: Results of reduced form selection probit**

	Men		Women	
<i>Demographics at t</i>				
Age	0.110	19.75	0.129	13.68
Age <sup>2</sup> /100	-0.158	15.71	-0.177	14.31
Married	0.101	1.72	-0.230	3.61
Cohabiting	-0.184	3.10	-0.245	3.95
Widowed, divorced or separated	-0.051	0.68	-0.028	0.46
Number of children	-0.130	6.62	-0.214	12.08
Has child aged < 5	0.023	0.56	-0.421	11.18
Spouse employed	0.351	6.23	0.691	9.73
Spouse work hours	-0.002	1.49	-0.005	3.56
New entrant at current wave	0.540	19.75	0.553	19.45
<i>Ethnicity</i>				
Black Caribbean	0.152	0.72	-0.260	1.55
Black African	-0.353	1.55	-0.374	2.23
Indian	0.042	0.32	-0.310	2.54
Pakistani	-0.122	0.50	-0.601	2.12
Bangladeshi	0.157	0.73		
Other non-white	-0.379	2.35	-0.132	0.89
<i>Highest Qualification</i>				
First Degree or above	0.297	5.28	0.233	4.03
'A'-Levels or equivalent	0.250	5.71	0.256	5.86
'O'-Levels or equivalent	0.188	3.82	0.319	7.03
Less than 'O'-Levels	0.223	3.63	0.196	3.49
<i>Father's occupation</i>				
Father unemployed	-0.273	2.49	-0.093	1.11
Father non-manual occupation	0.009	0.24	0.003	0.09
<i>Local labour market demand at t</i>				
Local unemployment rate	1.488	2.43	3.117	5.38
Constant	-2.975	19.04	-3.483	20.43
Log-likelihood	-15986.7		-15546.4	
Chi <sup>2</sup>	3338.10		3406.57	
Pseudo R <sup>2</sup>	0.1224		0.1254	
N observations	27657		27803	

Note: Also include year dummies.

**Table A.2: Variable means for Tables 5 and 6**

Variable	Men		Women	
	Mean	SD	Mean	SD
<i>Hours preferences at t</i>				
Prefer more hours	0.0765		0.0863	
Prefer fewer hours	0.3491		0.2996	
<i>Work experiences between t and t+1</i>				
Changed job	0.2176		0.2180	
Experienced unemployment	0.0316		0.0263	
<i>Demographics at t</i>				
Age	36.4763	11.42	36.2986	10.909
Age <sup>2</sup> /100	14.6109	8.763	14.3659	8.089
Married	0.6050		0.5808	
Has child aged < 5	0.1679		0.1151	
Spouse employed	0.5513		0.6358	
Spouse work hours	15.8192		26.0592	21.258
Log Household income (£s per month)	7.6975	0.483	7.6335	0.554
<i>Highest Qualification</i>				
First Degree or above	0.1434		0.1098	
'A'-Levels or equivalent	0.4122		0.3319	
'O'-Levels or equivalent	0.2046		0.2889	
Less than 'O'-Levels	0.0891		0.1063	
<i>Job characteristics at t</i>				
Log hourly wage	1.8143	0.525	1.5584	0.496
Trade union member	0.2543		0.2290	
Trade union covered, not member	0.1072		0.1387	
Travel to work time (in 1/4s of hours)	1.6149	1.452	1.4045	1.220
Does paid over-time	0.3643		0.2040	
Receives bonus payments	0.2777		0.1713	
Regular promotion opportunities	0.5663		0.4436	
Non-manual occupation	0.5332		0.7365	
Workplace 25-99 employees	0.2700		0.2750	
Workplace 100-499 employees	0.1214		0.1047	
Workplace >500 employees	0.3626		0.2674	
Public sector	0.1444		0.1976	
Shift work	0.1915		0.2325	
Part-time job	0.0341		0.3180	
Job tenure (years)	5.0028	6.106	4.1577	4.859
<i>Local labour market demand at t</i>				
Local unemployment rate	0.0770	0.027	0.0784	0.027
N observations	9747		9058	