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JOB SATISFACTION AND FAMILY HAPPINESS: THE PART-TIME WORK PUZZLE

By Alison L. Booth, Jan C. van Ours

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Job Satisfaction and Family Happiness: The Part-time Work Puzzle*

Alison L. Booth[†]   Jan C. van Ours[‡]

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Abstract

Using fixed effects ordered logit estimation, we investigate the relationship between part-time work and working hours satisfaction; job satisfaction; and life satisfaction. We account for interdependence within the family using data on partnered men and women from the British Household Panel Survey. We find that men have the highest hours-of-work satisfaction if they work full-time without overtime hours but neither their job satisfaction nor their life satisfaction are affected by how many hours they work. Life satisfaction is influenced only by whether or not they have a job. For women we are confronted with a puzzle. Hours satisfaction and job satisfaction indicate that women prefer part-time jobs irrespective of whether these are small or large. In contrast, female life satisfaction is virtually unaffected by hours of work. Women without children do not care about their hours of work at all, while women with children are significantly happier if they have a job regardless of how many hours it entails.

Keywords: part-time work, happiness, satisfaction, working hours, gender.
JEL-codes: J22, I31, J16

†Department of Economics, University of Essex; Economics Program, RSSS, Australian National University, IZA, and CEPR; corresponding author; email: albooth@essex.ac.uk

‡Department of Economics and CentER, Tilburg University; Department of Economics, University of Melbourne; IZA, and CEPR; email: vanours@uvt.nl

In this paper we investigate the relationship between part-time work and part-nered well-being, as measured by life satisfaction, working hours satisfaction and job satisfaction. To our knowledge, no previous studies have explored the nexus between the happiness of British *partnered* couples and their work status, although several have estimated the correlation between individual subjective well-being and part-time work.[1] And yet the observed patterns of higher female participation over the life cycle, and the combination of market and household production engaged in by couples, would suggest that the relationship between work status and family happiness is an important issue to address. This is what we do in this paper, using data on partnered men and women from waves 6 to 13 of the British Household Panel Survey (BHPS).

While there is little work on relationship between part-time work and individual well-being, numerous studies have focused on unemployment status and individual life satisfaction.[2] These have typically found that it is the experience of unemployment itself, rather than the loss of income through unemployment, that reduces life satisfaction. This finding has been rationalized by appealing to work as a source of social and self esteem that is not found in unemployment. But these same arguments – that work brings with it social connection through work colleagues and prestige through employment – are also likely to apply to individuals choosing to work part-time in the market sector rather than choosing home production or leisure. Moreover a large – and in many countries growing – proportion of the workforce is in part-time work, and it would therefore seem important to know whether or not this work pattern is welfare-enhancing to the individuals and couples concerned.

Although happiness research in the economics literature has been underway for over a decade, only relatively recently have panel data techniques been employed to control for unobserved individual heterogeneity. Cross-sectional equations facilitate

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[1] Bardasi and Francesconi (2004) use the British Household Panel Survey to investigate the impact of atypical work on whether or not individuals experience low job and life satisfaction. Some other studies examining individual life satisfaction also include part-time work status as a control but do not comment on the estimated coefficients. Frijters, Hasken-DeNew and Shields (2004a, 2004b) find, using the German Socio-Economic Panel data, that life satisfaction is higher for full-time and part-time women – and for non-participating women – relative to the base of unemployed women. In job satisfaction studies, hours of work are frequently included as controls, and typically have a negative effect on job satisfaction (see *inter alia* Clark, 1997; Clark and Oswald, 1994; Sousa-Poza and Sousa-Poza (2003); Van Praag and Ferrer-i-Carbonell (2004: pp.56-7); Clark and Senik (2006).

[2] Studies using panel data explicitly to investigate the relationship between happiness and unemployment include Carroll (2007), Clark and Oswald, (1994), Clark (2003), Clark, Georgellis and Sanfey (2001) Gerlach and Stephan, (1996); Winkelmann and Winkelmann, (1998).

the establishment of correlation rather than causation. This is because unobservables – such as an extrovert personality type – can be correlated both with the propensity to report happiness and with the explanatory variables of interest. Thus the coefficients to the latter are possibly biased in cross-sectional work. The use of panel data can overcome this problem, to the extent that personality traits are fixed over time, and can be differenced out.

In our analysis, we use fixed effects ordered logit estimation on a panel of part-nered British men and women. This estimation method is in contrast to the fixed effects binomial logit model used in most of the existing satisfaction literature util-ising panel data. That literature typically uses an arbitrary common fixed cut point to reduce the categorical satisfaction scale to a (0,1) scale, permitting fixed effects estimation of a binomial logit model using Chamberlain's method. But unfortunately that binomial logit method comes at a large cost, since only those individuals moving across the cut-off point can be used in the estimation.[3] Rather than adopting that procedure, we follow Ferrer-i-Carbonell and Frijters (2004). A simple reformulation allows Chamberlain's method to be used, removing both individual-specific effects and thresholds from the likelihood specification. Thus all changes in satisfaction are exploited, and not just those across some arbitrary cut point.

To our knowledge only three earlier satisfaction studies look at interdependence within the family. Van Praag and Ferrer-i-Carbonell (2004: Chapter 6) investigate gender differences in happiness and explore covariances between satisfaction of the two partners in a household, using random effects from a cross-section of the BHPS. Winkelmann (2005) uses the GSOEP to examine inter-dependence across generations, using random effects estimation.[4] In a previous paper (Booth and Van Ours, 2005), we investigated the relationship between part-time work and family well-being for Australian couples. Controlling for family income, we found that part-time women are more satisfied with working hours than full-time women, and that women's life satisfaction is increased if their partners work full-time. Male partners' life satisfaction is unaffected by their partners' market hours but is greater if they themselves are working full-time. This difference in the impact of part-time or full-time work on male and female partners' hours and life satisfaction is suggestive of Australian households

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[3]Bardasi and Francesconi (2004), for example, converted the 7-category satisfaction measure in the British Household Panel Survey to an indicator variable taking the value one for observations with reported satisfaction of three or less, and zero otherwise. Their focus of interest was on low satisfaction as a measure of individual worker well-being.

[4]Plug and Van Praag (1998) compare responses to subjective well-being questions between house-hold partners. While they find little difference, this is not the case with our variables of interest.

having traditional gender divides. Indeed, when we used time use data to explore the relationship between male shares of market work and housework, we found that our results were more consistent with the gender identity hypothesis of Akerlof and Kranton (2000) than with the household specialisation model of Becker (1965). But labour markets in Australia and Britain differ in many important respects, not least in the fact that there is a *ceteris paribus* part-time pay premium for women and men in the former and a penalty in the latter.[5] We might therefore expect to observe different patterns of partnered satisfaction across the two countries.

The set-up of the present paper is as follows. In Section 1 we give a brief overview of the relevant issues. Section 2 describes the data. In Section 3 we examine the degree to which workers are satisfied with their current hours of work and with their current job. In Section 4 we investigate whether or not part-time work affects life satisfaction. Section 5 concludes.

1 Background

Although young people may choose to work part-time because it allows them to finance educational investments or because it provides pocket money while they are at school, the majority of part-time workers are those with family responsibilities. And family responsibilities involve partners in difficult choices, such as whether or not to buy in from the market sector goods and services that might alternatively be produced by one partner at home. Part-time jobs provide a means of combining domestic and market production, whilst maintaining workforce skills or experience capital for the future. Neoclassical labour supply theory would suggest that it is preferences that dictate women's decisions to work. *Ceteris paribus*, those who are in full-time work or part-time work should be as happy as those who are not in the labour force, since individuals have made their choices optimally.[6]

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[5]Part-time jobs are often viewed as bad jobs with poor pay and promotion prospects. However, Hirsch (2005), using US panel data, finds little evidence of a pay gap between part-time and full-time women, although he does find a part-time pay penalty for men. Rodgers (2004) and Booth and Wood (2006), using Australian panel data, show that there is a ceteris paribus part-time pay premium in Australia for women and men. This is in contrast to the results found for Britain by Main (1988), Ermisch and Wright (1992) and Manning and Petrongolo (2007). For a discussion of institutional differences affecting participation rates across countries, see OECD (2001) and references therein.

[6]Frijters et al (2004a) found, using fixed effects ordered logits and GSOEP data, that the co-efficients for non-participation and full-time work are very similar for West German women, but different for East German women, who are far less satisfied with their lives if not participating.

But individuals operate within society's constraints, and social custom and conditioning might affect subjective well-being and the gender division of labour.[7] It is possible that – controlling for family income – part-time jobs could make partnered women happier than either full-time work or no work, because such jobs allow them to gain esteem through working, while obtaining social and self esteem from being with and caring for their families and their homes. Indeed, as argued by Akerlof and Kranton (2000), society's prescriptions about appropriate modes of behavior for each gender might result in women and men experiencing a loss of identity should they deviate from the relevant code. If this is the case, men might be happier in full-time work and women in part-time work, since both are then adopting modes of behavior dictated by social custom. Another hypothesis predicting gender differences in working hours is that partners within a household specialize in either market work or house work, as argued for example by Becker (1965).

In summary, if women prefer part-time work because it satisfies their hours preferences given their constraints, we should observe a positive correlation between part-time work and hours satisfaction. But although part-time work might increase hours satisfaction, it might not necessarily increase job satisfaction. As shown in the contributions by Connolly and Gregory (2007) and Manning and Petrongolo (2007), British part-timers may be doing more menial work at lower pay than if they were full-time. So if part-time jobs are bad jobs, overall job satisfaction might be lower. What about the effect of part-time work on overall life satisfaction? This is unclear *a priori*. Part-time work is likely to provide flexible working and caring hours while maintaining an individual's social connection. On the other hand, working part-time might be intrinsically unsatisfying, affording little in the way of future advancement and being characterized by low prestige. Consequently part-time work might reduce life satisfaction through this avenue. Ultimately it is an empirical issue as to which effect dominates.

2 Data

The empirical estimation is based on waves 6 to 13 of the British Household Panel Survey (BHPS), a nationally representative random-sample survey of private house-

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These results – not commented on in their text – were for individuals aged 21-64.

[7]Policy can also affect constraints, as noted in the Introduction to this Feature.

holds in Britain spanning the period 1996-2003.[8] We began our analysis at wave 6, since the main questions on well-being were not asked prior to this date nor were they asked in wave 11, which is therefore also dropped from our analysis.

We restrict our estimating sub-sample to married or cohabiting couples, because we are interested in the relationship between part-time work and family welfare. Since prime age women in particular are confronted with choices concerning family life and paid work, we further restrict our analysis to couples in which the female partner was aged 25 to 50 in the first year of available data from the BHPS survey (1996).[9] We also dropped a few couples in which the male partner was older than 60 at wave 6, because such males are much less likely to participate in the labour market. As there are clearly some outliers both at the lower and the higher end of the family income distribution, we removed couples with an annual gross household labour income below £1,000 and above £100,000.[10] We use an unbalanced panel, in which selected couples are present in at least two consecutive waves. These restrictions yield a sample of 17,392 observations of 3,856 couples.

Figure 1 about here

Figure 1 presents histograms of normal weekly working hours in the main job, separately for women and men. As shown in the top graph, for women there are peaks in working hours at 20, 30, 35, 37 and 40. Few women work more than 40 hours per week in their main job. For men, the situation is different. Few men work less than 30 hours per week in their main job while quite a few men work more than 40 hours per week.

The bottom graph of Figure 1 distinguishes four categories of weekly working hours: 1-15 (small part-time job), 16-29 (large part-time job), 30-40 (full-time job), and 40+ (job with overtime hours). We chose the first category, 1-15 hours, because workers in this group are eligible for certain in-work benefits. We label this category *small part-time jobs*. Those individuals working 16-29 hours are comparable to the 'half-time' jobs defined in Hakim (1997), and we label this group *large part-time jobs*. Regular full-time hours range from 30 to 39 hours, while those working 40+ hours are viewed as working overtime (which may be paid or unpaid). Of the women in

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[8]For details of the BHPS, see Appendix A and the UK Data Archive at the University of Essex. In Appendix A we also provide an overview of the definitions of the variables used in the analysis.

[9]Fur further details see Appendix A.

[10]We also estimated all our models on a sample including households without these income thresholds finding that this made no difference to our results.

our sample, 10% have a small part-time job, 20% have a large part-time job and 40% have a full-time job. Of the men 2% have a part-time job and 71% have a full-time job. Thus hardly any men have a part-time job while only a small proportion of women has a job with overtime hours. In the empirical analysis below we continue to distinguish for women these four categories of jobs. However, since there are a small number of men working part-time, we merge the two part-time categories into one category for men, comprising 1-29 hours.

Although partnered labour supply is not the focus of this paper, we briefly report in Appendix B estimates of the main determinants of each partner's employment probability and hours of work. Cross-sectional and fixed effects results show that, for a woman, having young children is associated with a significantly lower employment probability and a greater part-time employment probability. This holds until the children reach the age of 12. For women, having a partner in work significantly increases their employment probability. For men, having a partner in work is also associated with a significantly higher employment probability.

In our analysis we focus on three satisfaction variables: hours of work satisfaction, overall job satisfaction, and life satisfaction.

1. Hours satisfaction was constructed from responses to the following question, in the Individual Questionnaire conducted by a trained interviewer: "I'm going to read out a list of various aspects of jobs, and after each one I'd like you to tell me from this card which number best describes how satisfied or dissatisfied you are with that particular aspect of your own present job...The hours you work." [11] Respondents were instructed to choose a number ranging from 1 = completely dissatisfied through to 7 = completely satisfied, and were prompted that 4 = neither satisfied or dissatisfied.

2. Job satisfaction was constructed from the question immediately following the above, and it read: "All things considered, how satisfied or dissatisfied are you with your present job overall?" Respondents were instructed to choose a number ranging from 1 = completely dissatisfied through to 7 = completely satisfied, and were prompted that 4 = neither satisfied or dissatisfied.

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[11]Four aspects of the job were included in this question. These were: pay, job security, actual work, and hours of work. We consider only the last aspect in our analysis, in order to analyse the determinants of hours satisfaction. It is possible that the next question, given below and forming the basis of our job satisfaction measure, might be viewed as encompassing all four aspects of work satisfaction, given the wording of the questions and their location.

3. Life satisfaction was constructed from a subsequent question in the Self-completion Questionnaire. This asked, after prompting the respondent to employ the same 7-category scale used for all satisfaction measures, "...how **dis**satisfied or satisfied are you with your life overall?"

Table 1 about here

While the hours satisfaction measure might be viewed as possibly encompassed within the job satisfaction measure, the third variable - life satisfaction - is quite distinct.[12] The distribution of each of the satisfaction variables is presented in Table 1. Hours satisfaction, job satisfaction and life satisfaction each range from 1 to 7 (low to high). Few individuals have low satisfaction; only about 20% have satisfaction less than 5. Category 6 contains the largest proportion of both women and men for hours, job and life satisfaction.

For women in work, there are 12,054 and 12,058 pooled observations respectively for hours and job satisfaction. Of these, 39% are in category 6 for hours satisfaction and 49.2% are in category 6 for job satisfaction. There are 12,317 to 12,319 pooled observations for working men, of whom 34.8% are in category 6 for hours satisfaction and 43.9% are in category 6 for job satisfaction. Next consider life satisfaction, which covers all partnered individuals regardless of their employment status. There are 16,906 observations for all women, and 35.4% are in category 6, as compared with 36.0% of the 16,367 pooled observations for all men. Notice that the life satisfaction variables are slightly less peaked for men, around a third of whom are also in category 5. Table 1 also shows mean satisfaction. Women on average have higher hours and job satisfaction than men, but the average value for life satisfaction is about the same for women and men.[13]

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[12]Since the question about life satisfaction appeared in a quite different part of the survey, in the self-completion questionnaire, it is highly unlikely that respondents would nest their job satisfaction responses within their life satisfaction responses. The overall life satisfaction question immediately followed a question asking about how the respondent felt about each of the following aspects of their life: health, income, house/flat, husband/wife/partner, job, social life, amount of leisure time, way you spend leisure time. Hence it seems likely that the respondent considered all the items on this list when coming up with an overall measure of life satisfaction.

[13]Clark (1997) too finds that on average women are more satisfied with their jobs than men. For an extensive analysis, see also Kaiser (2002) who uses European Community Household Panel (ECHP) individual data to explore gender differences in job satisfaction. He uses a probit model on a subset of data for 5 countries, pooled across countries and time, and finds that only women in Britain and Germany have a significantly higher level of job satisfaction than men. In the Netherlands and

In Table 2, we present averages of the satisfaction values for workers stratified by hours of work. Table 2 shows that, for both women and men, average hours satisfaction and job satisfaction are highest in part-time jobs. For women, *small* part-time jobs generate a slightly higher average hours satisfaction and job satisfaction than *large* part-time jobs. Notice also that average hours and job satisfaction levels are higher for women than men across each working hours category. Turning now to life satisfaction, we see from inspection of the 3rd and last columns of Table 2 that life satisfaction does not vary much across the working hours categories. However, there is a difference between working and not-working. Life satisfaction is lowest for individuals without a job.

Figure 2 explores in more detail the relationship between hours satisfaction, job satisfaction and life satisfaction on the one hand, and weekly working hours on the other hand. Figure 2 shows that, for women, there is a clear difference between job satisfaction and life satisfaction. Life satisfaction is lowest for women without a job, or with a very small job. But apart from that life satisfaction seems to be independent of working hours. For job satisfaction, the pattern is completely different; job satisfaction drops considerably when weekly working hours increase. Only for jobs of more than 35 hours per week is job satisfaction roughly equal to life satisfaction. For women in small and large part-time jobs, job satisfaction is much higher than life satisfaction. There is also a clear difference between hours satisfaction and the other two satisfaction measures. Female hours satisfaction initially exhibits a small increase as working hours increase up to a peak at 6-10 hours. Thereafter satisfaction declines slightly up to around 30 hours and then drops considerably as weekly hours increase. A similar drop is found for men.

Figure 2 also shows the graph for men. Although here too there is a difference between job satisfaction and life satisfaction, this only holds for the few men working less than 25 hours per week. For most men, job satisfaction and life satisfaction are very similar. Neither of these satisfaction variables seems to depend on the number of

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Portugal women have significantly lower job satisfaction. These results derive from cross-sectional regressions on a (0,1) indicator variable and cannot be directly compared with ours. As we argue below, ordered logit fixed effects estimation utilising all the changes of satisfaction status, rather than those derived from an arbitrary cut point, are most appropriate in this context.

working hours as long as the job involves at least 25 hours per week. For men, there is only a small difference between hours satisfaction and the other two satisfaction measures. Male hours satisfaction initially exhibits a small increase as working hours increase up to a peak around 20 hours. Thereafter hours satisfaction declines slightly up to around 35-40 hours; beyond this, male hours satisfaction diverges from the other satisfaction measures, declining considerably as weekly hours increase.

In the next two sections we analyze the determinants of hours satisfaction, job satisfaction, and life satisfaction. We present both the cross-sectional estimates and those obtained from panel analyses in which we account for individual fixed effects. The latter are our preferrred estimates, since they remove fixed effects that might otherwise bias our estimates. While the main results of the analysis of the pooled cross-sections are in line with the panel analysis, there are some differences, as we highlight below.

3   Hours and Job Satisfaction

3.1   Hours satisfaction

Hours satisfaction in the BHPS – as well as job satisfaction and life satisfaction – was reported in a categorical scale ranging from 1 to 7. To analyze hours satisfaction, we start with a pooled cross-section estimation, using an ordered logit specification. In this model j represents the response category ($j = 1,..,7$ for the satisfaction variables) and $Pr(y_{it} = j) = \Lambda(\mu_j - \beta' x_{it}) - \Lambda(\mu_{j-1} - \beta' x_{it})$, with $\mu_1 = -\infty$, $\mu_2 = 0$, $\mu_7 = \infty$. Notice that Λ is an indicator of the logistic cumulative distribution function, y indicates whether or not individual i is satisfied with working hours, t refers to the year, x is a vector of explanatory variables, and β is a vector of parameters to be estimated. Thus the probability that the observed dependent variable y_{it} equals j is the probability that the latent variable y_{it}^* is between the boundaries $j - 1$ and j (where the μ_j are unknown parameters that are estimated jointly with β and are not reported in the interests of space).

The cross-sectional parameter estimates are presented in Table 3a. As shown, family income has a negative effect on hours satisfaction of both women and men. This is consistent with the finding in the panel analysis presented in Table 3b, and which will be further discussed below. This negative effect illustrates that an increase of family income is associated with some workers preferring shorter working hours since they are unhappy with their current working hours. Along the same lines,

women with young children have a lower hours satisfaction because they would prefer to reduce their working hours. Women in good health are satisfied with their working hours. Finally, as in the panel analysis, women's hours satisfaction is substantially lower if they work more than 30 hours per week.

Cross-sectional estimates are likely to be biased, as we argued at the start of this paper. So we next consider the results obtained from fixed effects estimates. Here we employ a less restrictive method than that utilised in most of the panel data satisfaction literature. In that literature, a categorical satisfaction scale is usually reduced to a (0,1) scale – choosing an arbitrary common cut-off point – so that, instead of an ordered logit model, a binomial logit model may be used. This allows the introduction of fixed effects and the estimation of the parameters using Chamberlain's method. However this benefit comes at the cost of a large loss of observations, since only individuals that move across the cut-off point can be used in the analysis.[14]

Instead of following that procedure, we use an ordered logit model, in which we introduce individual fixed effects α_i and individual specific thresholds μ_{ij}: $Pr(y_{it} = j) = \Lambda(\mu_{ij} - \alpha_i - \beta' x_{it}) - \Lambda(\mu_{i,j-1} - \alpha_i - \beta' x_{it})$. Ferrer-i-Carbonell and Frijters (2004) show that, by choosing for every individual a specific barrier k_i, the fixed effects ordered logit specification can be reformulated as a fixed effects binomial logit. So instead of a common cut-off point, individual-specific cut-off points are chosen. This reformulation allows Chamberlain's method to be used and removes the individual-specific effects α_i as well as the individual specific thresholds μ_{ij} from the likelihood specification.[15]

Table 3 about here

Our parameter estimates for women and men of hours satisfaction, obtained from this procedure, are presented in the first pair of columns in Table 3b. Notice from the penultimate row that 1928 women changed hours satisfaction status, as compared to 2049 men. For women, own health has a statistically significant positive effect on satisfaction with hours. The highest satisfaction is achieved for large part-time jobs although there is no significant difference compared to small part-time jobs. Women

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[14]This large loss of data may also mean that measurement errors become an important source of residual variation.

[15]In our estimates we use $k_i = \Sigma_t y_{it}/n_i$, where n is the total number of observations of individual i. All observations for which $y_{it} > k_i$ are transformed into $z_{it} = 1$, all observations for which $y_{it} \leq k_i$ are transformed into $z_{it} = 0$. Alternatively, we used $z_{it} = 1$ if $y_{it} \geq k_i$ and $z_{it} = 0$ if $y_{it} < k_i$. This hardly affected the parameter estimates.

dislike the working hours associated with full-time jobs, and dislike even more jobs with overtime hours. Notice that, while the magnitude of the coefficients to health status and full-time work is smaller in absolute terms than those obtained from the pooled cross-section estimation, they remain statistically significant. Moreover, it remains the case that the partner's health and hours of work do not affect female hours satisfaction. Household income no longer has a statistically significant effect.

The second column of Table 3b reports the results for men, for whom household income continues to have a statistically significant negative effect on hours satisfaction. This is likely to relate to changing preferences. As family income increases, men prefer to work fewer hours, and therefore they are less satisfied with their current number of working hours. Furthermore, if own health improves, men are more satisfied with hours (but note that the magnitude of this coefficient in absolute terms is less than half of that obtained using cross-sectional estimation). Men derive the least hours satisfaction from working overtime at 40+ hours (again the magnitude of this effect is far smaller than the cross-sectional result). Notice that for neither women or men does the presence of children matter, as was also found with the cross-sectional estimates. Finally, the partner's hours of work - which cross-sectional estimation showed to be statistically insignificant at conventional levels - is now found to have a significant positive effect on male working hours satisfaction, even controlling for family income. The magnitude is roughly twice as large as was found for the cross-sectional estimates. Ceteris paribus, men are happier with their hours of work if their partners are in work, either in larger part-time jobs or in full-time jobs.

The lower part of Table 3b shows the parameters estimates if we impose the restrictions that there are no satisfaction effects from family income, the presence of children, working in large part-time jobs and also no cross-partners effects. Indeed, a Likelihood-Ratio test indicates that we cannot reject the hypothesis that these parameters are jointly equal to zero. The remaining variables that affect hours satisfaction are own health, full-time job, and full-time job with overtime hours. Health has a positive effect on hours satisfaction, while the effect of working hours is gender-specific. Women prefer to work fewer than 30 hours per week, while men prefer to work full-time but without overtime hours. By way of a sensitivity analysis, we also performed separate estimates for couples with and without children. The results are very much in line with those reported in the table.[16]

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[16]We also explored the possibility that part-time work transitions and childcare responsibilities might jointly affect our various satisfaction measures. We stratified the sample into households according to whether they were families with one-child, two-children or 3+-children. We found

3.2   Job satisfaction

Cross-sectional parameter estimates for job satisfaction are presented in the last pair of columns in Table 3a. Again, we use an ordered logit specification. For women job satisfaction decreases with family income while for men it increases. Furthermore, both women and men have a greater job satisfaction when they are in good health. Women are most satisfied about their job if they work fewer than 15 hours per week. This result is partly confirmed in the panel analysis, where women are also less satisfied about their job if it is full-time. Finally, Table 3a shows that men are most satisfied about their job if it is a part-time job. Since these results do not hold in the panel analysis, it must have to do with happier men working in part-time jobs.

We next turn to panel estimates of the determinants of job satisfaction. These estimates are reported in the last pair of columns of Table 3b. Notice from the penultimate row that 1780 women changed status as compared to 1933 men. The estimates are very much in line with the hours satisfaction results. For women, household income has a negative effect on job satisfaction. For men, whereas hours satisfaction was influenced negatively by an increase in family income, job satisfaction is unaffected by this.

Own health has a statistically significant positive effect for both women and men, and women are most satisfied about part-time jobs. For men, the only variable significantly affecting job satisfaction is own health: satisfaction is increasing in own-health. The family situation – children and partner's health and work pattern – is irrelevant with respect to female and male job satisfaction.

The lower part of Table 3b, where we restricted some parameters to be equal to zero, confirms that male job satisfaction does not depend on family characteristics, partner characteristics or their own working hours. It is only own health that matters. For women, own health matters but so too do working hours. Women have higher job satisfaction if they work fewer than 30 hours per week, a finding that is consistent with their hours satisfaction.[17]

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similar results to those reported in the tables.

[17]Job satisfaction may be related to occupation. Accounting for differences between occupation does not seem to be very important in fixed effects estimates since the fixed effects account for time-invariant differences between occupations. Nevertheless, we reran the job satisfaction estimate for women including 3 digit level occupational fixed effects. The parameter estimates for the hours categories are not very much affected by this. We still find that job satisfaction decreases with the number of working hours.

4 Life satisfaction

4.1 Baseline estimates

The cross-sectional parameter estimates for life satisfaction, also based on an ordered logit specification, are presented in Table 4a. In contrast to hours satisfaction and job satisfaction, life satisfaction *is* affected by family characteristics, in particular the age of children in the household. Therefore, we performed separate estimation for couples without and with children. As shown, both for couples without children and with children, only a few variables have a significant effect.[18] In both cases family income and good health (both own and partner's) have a positive statistically significant effect on happiness. Furthermore, in households with children, women with young children and women working fewer than 15 hours per week are happier than their counterparts. Finally, men with children aged 5 to 15 are less happy than men with children of a different age.

Table 4 about here

Table 4b presents the panel parameter estimates (again with the estimates for couples with children in the first pair of columns, and for couples without children in the last pair). Notice that, for both types of couple, only own-health status matters: their partners' health status does not affect their own life satisfaction. Since the health of the partner is important in the pooled cross-section estimates but does not matter in a panel analysis, the cross-partner effect of health in the cross-sectional analysis must have to do with partnering. Healthier individuals partner with other healthy individuals.

Now consider the estimates for couples *without* children (columns 1 and 2). Family income matters for men, although this effect is significant only at the 10% level. The change in the part-time coefficient is also interesting. The cross-sectional results showed that men without children are happier if they have part-time jobs but this result is not confirmed in the panel analysis. This suggests that happier men are likely to be matched with part-time jobs and that, once this fixed effect has been

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[18]The main variables of interest exhibit considerable variation. Hence insufficient variation is unlikely to be the cause of lack of statistical significance. For example, in the life satisfaction sample, the numbers of women for whom there is a change in each of the following dummy variables are given in parentheses after the variable name: no kids (638), child 0-2 (554), child 3-4 (578), child 5-11 (618), child 12-15 (659), hours 1-15 (478), hours 16-29 (892), hours 30-40 (845), hours 40+(210), partner hours 1-29 (119), partner hours 30-40 (916), partner hours 40+(690).

differenced out in panel estimation, the coefficient to part-time work is close to zero and statistically insignificant. It should also be noted that only a few men actually have a part-time job.

In the lower part of the table we present the estimates obtained when we restrict all other coefficients to be equal to zero. This confirms the above results.

For couples *with* children (columns 3 and 4) family income has a positive effect on the life satisfaction of both women and men. The magnitude of the coefficient is similar for men and women. This could suggest the operation of income-pooling, but we would not wish to push this interpretation too hard. The age of the children also matters for both men and women. Young children aged 3 to 4 have a negative effect on female life satisfaction (in contrast to the positive though insignificant effect of this variable in cross-sectional estimation).[19] For men, children below the age of 5 significantly reduce life satisfaction. Children in the age range 5-15 seem to make only their mother happy. Again, own health has positive effects on life satisfaction of both partners, and own hours-of-work are relevant too. Both women and men are happier if they have a job, but for women the job should not be for more than 40 hours per week. For women, while life satisfaction is highest if they have a full-time job without overtime hours, a part-time job also increases their happiness. Indeed, having a job is the main distinguishing characteristic, for we cannot reject the hypothesis that the parameters of part-time job and full-time job without overtime hours are equal. Men with jobs are happier irrespective of the actual working hours. It is interesting that, for couples with children, female life satisfaction is greater if their partner works overtime hours, while male life satisfaction is higher if their partner works full-time (however in each case the impact is significant only at the 10% level). Somewhat surprisingly, the panel estimates show no statistically significant cross-partner effects for the other variables, for either couples with or without children. The happiness of women and men is unaffected by the health of their partner or by the other working-hours dummy variables.

The parameter estimates in the lower part of Table 4b, where some parameters are imposed to be equal to zero since they are jointly insignificant, also confirm these results.

The results for men across the three satisfaction indicators are simple to interpret. Men with a job have the highest *hours* satisfaction if they work full-time without

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[19]This negative effect might reflect childcare arrangements for this age group which, over the period, were provided at the discretion of the Local Education Authorities and hence rather unevenly distributed across Britain (see Bertram and Pascal, 2001).

overtime hours. But their *job* satisfaction is not affected by hours of work. Apparently hours satisfaction only contributes a little to job satisfaction, or alternatively other characteristics of the job – working conditions, the possibility of future promotions, wages – are compensating. And a man's *life* satisfaction is only influenced by whether or not he has a job, not by the hours of work related to that job. These outcomes are not terribly surprising since almost all men who work have a full-time job. Indeed, as with many labour supply issues, the behavior of men is rather less interesting than that of women. We find a typical man works about 40 hours per week, give or take a few hours, and this situation makes him satisfied with his life. What is of particular interest is the finding that a man's life satisfaction is higher, in couples with children, if his partner is working full-time.[20] Since this was significant only at the 10% level, we would not want to put undue emphasis on the finding. Nonetheless it does suggest that men do not necessarily favour a partnership with complete gender-stereotype specialisation. It is also interesting that, in couples with children, women on average favour having their men work long hours in the market sector even controlling for household income.

We noted in Section 1 that the effect of part-time work on overall female life satisfaction was unclear *a priori*. Part-time work is likely to provide flexible working and caring hours while maintaining a woman's self esteem and social connection, since she is able to combine work and home life. If this is the case, we would expect part-time work to increase female hours, job *and* life satisfaction. On the other hand, working part-time might be intrinsically unsatisfying, affording little in the way of future advancement and being characterized by low prestige. Consequently part-time work might reduce life satisfaction through this avenue. But if so, we would expect it also to reduce job satisfaction, and yet it did not.

For women we are therefore confronted with a puzzle. The satisfaction variables that directly relate to a job – hours satisfaction and job satisfaction – indicate that women prefer part-time work relative to full-time work, irrespective of whether this

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[20]In our study using Australian data, we found that the life satisfaction of partnered women was increasing in the hours of work of their partners, even after controlling for family income. Partnered men, however, were unaffected by their wives' working activities. It is interesting that in both countries for men the stigma effect of having a working spouse - much discussed historically - no longer applies. We further tested for the possibility that the stigma effect might be found amongst older men by stratifying the BHPS sample into two subsamples - households in which the male partner was 50 years or more, and households in which he was younger than 50. If there is a stigma effect, we would expect female's working hours to negatively affect male life satisfaction. However in neither sub-sample was male life satisfaction affected by their partners' hours of work.

is in small or large part-time jobs. In this regard they differ from men. However, women are found to attain the greatest life satisfaction if they work - preferably full-time although part-time work also increases life satisfaction. Indeed, we could not reject the hypothesis of equality between the estimated coefficients of part-time jobs and full-time jobs without overtime. An analogous result is found for men. In the next subsection we explore this issue in more detail.

4.2   The part-time work puzzle

To the extent that part-time work allows women to combine market work and care in a more satisfactory way than does full-time work, we would expect women working part-time to have higher life satisfaction. Furthermore, because the downside of British part-time jobs is often their occupational downgrading (Connolly and Gregory, 2006), low wages (Manning and Petrongolo, 2006) or few possibilities of promotion (Francesconi, 2001), we would expect job satisfaction to be lower for part-time jobs. In fact, we find the opposite. For women without children, part-time jobs generate higher job satisfaction than do full-time jobs, without affecting life satisfaction. For women with children, part-time jobs generate greater job satisfaction while full-time work generates the biggest increase in life satisfaction. This is what we term the part-time work puzzle.

To investigate this part-time work puzzle for women, we started by adding extra explanatory variables. The idea is that we have to explain the gap between life satisfaction and job satisfaction for women who work part-time. First, we added an indicator of "caring", a dummy variable with a value of one if the person cares for handicapped or others in the household. This variable did not have a significant effect on job satisfaction. Secondly, we tried including an indicator for disability or disability of the partner, which also did not affect the job satisfaction estimates.

Thirdly, we split up the sample into two subgroups, using a variety of criteria. We did this to investigate if, as working hours increased, specific parts of our sample did not experience a decline in job satisfaction, or increasing or stable life satisfaction. We experimented with a number of splits, distinguishing between couples with and without children; women with high education and low education; couples with a high family income and couples with a low family income; older women and younger women; women in good health and women in poor health; women who work compared with working women who view their hours of work as OK compared with all women; women with partners aged 50 years or more and women with younger partners; women

who did the majority of domestic chores and those who did not.[21] The results of all these additional analyses were remarkably similar. Whatever the sub-sample, the puzzle remains.

5   Conclusions

This paper investigated the relationship between part-time work and partnered well-being, as measured by life satisfaction, working hours satisfaction and job satisfaction. The data used are from waves 6 to 13 of the British Household Panel Survey. In the analysis we allow for the possibility that an individual's satisfaction indicator is influenced by partner characteristics, in particular health and labour market position. Somewhat surprisingly – and different from our analysis of Australian couples (Booth and Van Ours, 2005) – we find little evidence of cross-partner effects for British couples. In particular, life satisfaction or an individual's happiness is independent of the health of his/her partner and is typically independent of the number of hours the partner works.

Men appear to have the highest hours of work satisfaction if they work full-time without overtime hours. However, neither their job satisfaction or their life satisfaction is affected by their hours of work. Life satisfaction is only influenced by whether or not they have a job. Because part-time work is advocated as making it possible for women to combine work and care we would have expected life satisfaction to be higher for part-time working women while at the same time job satisfaction would be lower for part-timers. However this is not the case. For women we are confronted with a puzzle. Hours satisfaction and job satisfaction indicate that women prefer part-time jobs, irrespective of whether these are small or large. But when it comes to female life satisfaction, hours of work hardly matter. Life satisfaction of women without children is not affected by their hours of work at all, while women with children are happier if they have a job. The puzzle seems to be present irrespective of the presence of children, the size of the family income, the educational level, the age or health status of the women, whether or not the woman viewed her hours of work as OK, the age of the male partner, or the division of domestic labour. Therefore, the puzzle remains a puzzle. Apparently British women are happy about their part-time job even though this does not increase their overall life satisfaction. It is interesting

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[21]Although the BHPS does not have a time use module, it contains a question on which partner assumes principal responsibility for four separate household chores. We summed these to obtain a measure of responsibility for home work and used this measure to stratify the data.

that we also found that work increased partnered male life satisfaction. In this sense, our finding for female life satisfaction parallels that of men.

There were two other interesting findings emerging from our study that, while not the focus of our research project, should not go unremarked. First, in our fixed effects estimation we typically found no cross-partner effects on various indicators of satisfaction. The partner's health or work status typically have no statistically significant impact on own well-being. Second, the presence of children brings no increase in life satisfaction for men - and an increase in the life satisfaction for women only when the children are attending school. Perhaps it is not surprising that fertility in Britain is declining.

Do our findings have policy implications? Discussion in this context can only be speculative given the focus of our empirical analysis.[22] However, there are two broad types of policy than might be relevant and we will list these shortly. Connolly and Gregory (2007) show that female part-time jobs in Britain involve occupational downgrading and Manning and Petrongolo (2007) show there is a part-time pay penalty. And yet, with our data, our analysis shows that women are satisfied with part-time jobs. Connolly and Gregory (2007) suggest that, for efficient resource allocation, better jobs should be made available on a part-time basis to reduce occupational downgrading. To the extent that our results indicate that partnered women dislike the working hours associated with full-time jobs and that, like men, they especially dislike overtime hours, our study corroborates their recommendations.

But how can we reconcile the stylised facts that, on the one hand, women prefer part-time work while on the other hand they are investing in ever-larger numbers in higher education? This seems especially a puzzle when part-time work under-utilises the skills that women have laboured hard to accumulate. There are several possible explanations. First, there are preferences: maybe partnered women on average like being at home, or are conditioned to like being at home, and so they prefer jobs with short hours regardless of their human capital investments. Second, perhaps women get more tired than men and the long market-hours culture might work against their physique. But this does not seem plausible in the twenty-first century for the service sector jobs that largely characterise our economy. Moreover, time use studies show that on average women are working as many total hours as men but that a large part

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[22]Perhaps future research will attempt to measure the impact of the various childcare initiatives introduced in the UK from 2004 - after the end of our data period - on family welfare. These initiatives include tax and National Insurance exempt childcare vouchers and free part-time early education places for children aged 3 and 4 years. See also footnote 23.

of their total working hours involves family care (Gershuny, 2000; Burda et al., 2007). This would seem to refute the physical fatigue argument. Third, women are operating within a society's constraints. If that society makes it hard for them to combine work and family, by providing little or inappropriate childcare or by institutionalising low female pay, then it is hardly surprising that women will want to work fewer hours in the market sector in order to increase hours and job satisfaction.

In summary, to improve female welfare and to facilitate efficient reseource allocation, there are several obvious policy remedies. The first is to try to improve the quality of part-time jobs, as argued in other contributions to this Feature. The second is to reduce the opportunity cost of working in the market sector by reducing the real cost of childcare. While the UK government has gone some way to improve childcare access and quality, its initiatives are still of only a marginal nature.[23]

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[23]The UK government introduced in 2004 a scheme whereby Childcare Vouchers are Tax and National Insurance exempt for the amount £55 per week. See http://www.hmrc.gov.uk/childcare/. In addition, since April 2004 all three and four year olds have been entitled to a free, part-time early education place. Initially capped at being free for twelve and a half hours per week, this is to be extended to fifteen hours. See http://www.surestart.gov.uk/improvingquality/guidance/freenurseryeducation/.

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Table 1 Distribution of satisfaction variables by gender (%)

	Women			Men		
	Hours Satisfaction	Job Satisfaction	Life Satisfaction	Hours Satisfaction	Job Satisfaction	Life Satisfaction
1	1.4	1.3	1.1	2.4	1.6	0.8
2	2.3	2.1	1.8	3.7	2.9	1.7
3	10.0	5.8	5.4	12.5	8.0	5.7
4	7.1	5.8	14.2	13.0	9.5	13.3
5	21.4	20.8	30.0	24.1	25.4	34.0
6	39.0	49.2	35.4	34.8	43.9	36.0
7	18.8	15.0	12.1	9.5	8.7	8.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Mean	5.37	5.50	5.25	4.95	5.21	5.20
N	12,054	12,058	16,906	12,317	12,319	16,367

Table 2 Average satisfaction by working hours (%)

	Women			Hours	Men		
Hours	Hours Satisfaction	Job Satisfaction	Life Satisfaction		Hours Satisfaction	Job Satisfaction	Life Satisfaction
0	–	–	5.07 (5133)	0	–	–	5.01 (4439)
1-15	5.80 (1662)	5.79 (1661)	5.32 (1649)	–	–	–	–
16-29	5.76 (3451)	5.60 (3451)	5.31 (3424)	1-29	5.28 (274)	5.46 (274)	5.21 (269)
30-40	5.12 (6343)	5.39 (6344)	5.34 (6269)	30-40	5.06 (9301)	5.18 (9302)	5.26 (9199)
40+	4.35 (439)	5.33 (439)	5.30 (431)	40+	4.53 (2502)	5.27 (2501)	5.30 (2460)

Note that for men the numbers at the row "16-29" actually concern "1-29".

Table 3 Parameter estimates hours satisfaction and job satisfaction

a. Pooled cross-section estimates

	Hours satisfaction		Job satisfaction	
	Women	Men	Women	Men
Family				
Income	-0.09 (1.7)*	-0.18 (3.1)**	-0.11 (3.2)**	0.16 (2.7)**
No kids	0.07 (0.8)	-0.14 (1.6)	-0.11 (1.2)	-0.13 (1.5)
Child 0-2	-0.07 (0.8)	0.03 (0.4)	-0.07 (0.9)	0.00 (0.0)
Child 3-4	-0.12 (1.6)	-0.00 (0.2)	0.06 (0.8)	-0.03 (0.5)
Child 5-11	0.02 (0.3)	-0.04 (0.6)	0.07 (1.0)	-0.01 (0.2)
Child 12-15	0.08 (1.0)	-0.12 (1.6)	0.03 (0.4)	-0.05 (0.7)
Women				
Health	0.18 (9.1)**	0.03 (1.4)	0.21 (10.1)**	0.04 (2.0)**
Hours 1-15	–	0.05 (0.7)	–	-0.04 (0.5)
Hours 16-29	0.11 (1.4)	0.09 (1.4)	-0.25 (3.2)**	-0.10 (1.4)
Hours 30-40	-1.02 (12.4)**	0.10 (1.6)	-0.48 (5.9)**	-0.14 (2.1)**
Hours 40+	-2.01 (15.0)**	0.07 (0.5)	-0.65 (4.9)**	-0.13 (0.9)
Men				
Health	-0.00 (0.2)	0.18 (8.8)**	-0.04 (2.0)**	0.23 (11.3)**
Hours 1-29	-0.11 (0.7)	–	0.11 (0.7)	–
Hours 30-40	-0.04 (0.6)	-0.43 (2.3)**	-0.06 (0.9)	-0.58 (3.5)**
Hours 40+	-0.02 (0.3)	-1.08 (5.5)**	0.04 (0.5)	-0.47 (2.7)**
-Loglikelihood	17,162.5	19,089.8	15,848.7	17,392.1
Observations	11,332	11,651	11,333	11,650

Note: Ordered logit specification; all estimates include age, age-squared, a dummy variable for persons born in Britain, 6 dummy variables for firm size, 2 dummy variables for type of contract, 10 dummy variables for region, 5 educational dummy variables and dummies for year of survey; the ancillary parameters are not reported; absolute z-statistics in parentheses (corrected for clustering of observations); a ** (*) indicates a parameter estimate significant at the 5% (10%) level.

b. Panel estimates

	Hours satisfaction		Job satisfaction	
	Women	Men	Women	Men
Family				
Income	-0.12 (1.4)	-0.24 (2.5)**	-0.18 (1.9)*	-0.01 (0.1)
No kids	0.09 (0.8)	-0.03 (0.2)	-0.08 (0.6)	-0.13 (1.1)
Child 0-2	0.01 (0.1)	0.11 (1.1)	-0.09 (0.7)	0.07 (0.6)
Child 3-4	0.05 (0.4)	0.08 (0.9)	0.10 (0.9)	0.05 (0.6)
Child 5-11	0.11 (1.1)	-0.08 (0.9)	-0.04 (0.4)	0.04 (0.4)
Child 12-15	0.13 (1.2)	-0.07 (0.7)	-0.01 (0.1)	0.05 (0.5)
Women				
Health	0.09 (3.4)**	0.02 (0.9)	0.12 (4.3)**	0.01 (0.2)
Hours 1-15	–	-0.05 (0.5)	–	0.01 (0.1)
Hours 16-29	-0.10 (0.8)	0.32 (3.1)**	-0.10 (0.8)	0.12 (1.1)
Hours 30-40	-1.00 (7.5)**	0.21 (2.0)**	-0.52 (3.7)**	0.12 (1.1)
Hours 40+	-1.59 (7.8)**	0.15 (0.8)	-0.79 (3.7)**	-0.02 (0.1)
Men				
Health	-0.00 (0.1)	0.08 (3.1)**	-0.04 (1.4)	0.10 (3.6)**
Hours 1-29	0.03 (0.1)	–	-0.05 (0.2)	–
Hours 30-40	-0.06 (0.7)	-0.12 (0.6)	0.01 (0.1)	-0.10 (0.5)
Hours 40+	-0.01 (0.1)	-0.59 (2.6)**	0.03 (0.3)	-0.19 (0.8)
-Loglikelihood	3490.6	3840.9	3198.9	3624.8

Restricted model – no cross partner effects

Health	0.09 (3.4)**	0.08 (3.1)**	0.12 (4.2)**	0.10 (3.6)**
Hours 30-40	-0.93 (10.7)**	–	-0.47 (5.3)**	–
Hours 40+	-1.52 (8.6)**	-0.48 (6.1)**	-0.75 (4.1)**	–
-Loglikelihood	3493.3	3852.9	3203.5	3629.0
LR-test restrictions	5.4	24.0**	9.2	8.4
Individuals	1928	2049	1780	1933
Observations	8739	9435	8113	8989

Note: Fixed effects ordered logit specifications; all estimates include dummies for year of survey; absolute z-statistics in parentheses; a ** (*) indicates a parameter estimate significant at the 5% (10%) level.

Table 4 Parameter estimates life satisfaction

a. Pooled cross-section estimates

	Couples without children		Couples with children	
	Women	Men	Women	Men
Family				
Income	0.15 (2.4)**	0.26 (4.2)**	0.33 (6.4)**	0.29 (5.1)**
Child 0-2	–	–	0.25 (3.7)**	0.04 (0.6)
Child 3-4	–	–	0.08 (1.3)	-0.03 (0.5)
Child 5-11	–	–	-0.03 (0.6)	-0.13 (2.1)**
Child 12-15	–	–	-0.09 (1.4)	-0.20 (3.0)**
Women				
Health	0.47 (17.9)**	0.13 (5.2)**	0.49 (20.7)**	0.08 (3.5)**
Hours 1-15	0.11 (0.7)	-0.01 (0.1)	0.18 (2.1)**	-0.02 (0.2)
Hours 16-29	0.07 (0.6)	0.08 (0.7)	0.03 (0.4)	-0.06 (0.8)
Hours 30-40	0.02 (0.2)	0.10 (1.0)	-0.09 (1.1)	-0.11 (1.5)
Hours 40+	-0.11 (0.6)	0.04 (0.2)	-0.22 (1.2)	-0.35 (1.7)*
Men				
Health	0.11 (4.4)**	0.53 (18.1)**	0.10 (4.4)**	0.47 (17.8)**
Hours 1-29	-0.15 (0.7)	0.65 (2.8)**	-0.04 (0.3)	-0.09 (0.4)
Hours 30-40	0.05 (0.7)	0.05 (0.6)	-0.09 (1.1)	-0.07 (0.9)
Hours 40+	0.16 (1.5)	0.07 (0.6)	-0.03 (0.4)	-0.04 (0.5)
-Loglikelihood	9776.5	9137.4	13,058.6	12,059.4
Observations	6801	6647	8877	8533

Note: Ordered logit specification; all estimates include age, age-squared, a dummy variable for persons born in Britain, 10 dummy variables for region, 5 educational dummy variables and dummies for year of survey; the ancillary parameters are not reported; absolute z-statistics in parentheses (corrected for clustering of observations); a ** (*) indicates a parameter estimate significant at the 5% (10%) level.

b. Panel estimates

	Couples without children		Couples with children	
	Women	Men	Women	Men
Family				
Income	-0.05 (0.5)	0.18 (1.9)*	0.21 (2.7)**	0.16 (2.0)**
Child 0-2	–	–	0.01 (0.1)	-0.24 (2.3)**
Child 3-4	–	–	-0.21 (2.5)**	-0.16 (1.9)*
Child 5-11	–	–	0.20 (2.4)**	0.06 (0.7)
Child 12-15	–	–	0.19 (2.0)**	0.13 (1.3)
Women				
Health	0.19 (5.3)**	0.03 (1.0)	0.31 (9.8)**	0.00 (0.1)
Hours 1-15	0.16 (0.8)	0.05 (0.2)	0.19 (1.8)*	-0.09 (0.8)
Hours 16-29	0.04 (0.2)	0.03 (0.2)	0.17 (1.6)	0.04 (0.4)
Hours 30-40	0.17 (1.2)	0.05 (0.3)	0.32 (2.6)**	0.22 (1.8)*
Hours 40+	0.01 (0.0)	0.07 (0.3)	-0.16 (0.6)	0.32 (1.2)
Men				
Health	0.03 (0.8)	0.22 (5.7)**	0.01 (0.3)	0.27 (8.0)**
Hours 1-29	-0.02 (0.1)	0.04 (0.1)	0.04 (0.1)	0.26 (0.9)
Hours 30-40	0.17 (1.2)	-0.17 (1.2)	0.03 (0.3)	0.22 (1.8)*
Hours 40+	0.08 (0.5)	-0.11 (0.7)	0.24 (1.9)*	0.26 (1.8)*
-Loglikelihood	1971.1	1854.1	2734.8	2520.4

Restricted model – no cross partner effects

Family income	–	0.16 (1.7)*	0.21 (2.9)**	0.18 (2.3)**
Child 0-2	–	–	–	-0.25 (2.5)**
Child 3-4	–	–	-0.21 (3.0)**	-0.18 (2.2)**
Child 5-15	–	–	0.19 (2.8)**	–
Health	0.19 (5.3)**	0.23 (5.8)**	0.30 (9.8)**	0.27 (8.1)**
Hours 1-29	–	–	0.19 (2.1)**	–
Hours 30-40	–	–	0.34 (3.0)**	–
Hours 40+	–	–	–	0.23 (1.9)*
-Loglikelihood	1972.8	1855.6	2737.6	2523.5
LR-test restrictions	3.4	3.0	5.6	6.2
Individuals	1194	1099	1605	1481
Observations	5047	4732	6971	6492

Note: Fixed effects ordered logit specification; all estimates include dummies for year of survey; absolute z-statistics in parentheses; a ** (*) indicates a parameter estimate significant at the 5% (10%) level.

APPENDICES

A   The BHPS Data

The BHPS was designed as an annual survey of each adult (aged 16 years and over) member of a nationally-representative sample of more than 5,000 households, making a total of approximately 10,000 individual interviews. The same individuals are re-interviewed in successive waves and, if they leave their original households, all adult members of their new households are also interviewed. Children are interviewed once they reach the age of 16. Thus, the sample should remain broadly representative of the population of Britain (the United Kingdom from Wave 11 onwards) as it changed through the 1990s and beyond.

We restricted our estimating sub-sample, for reasons given in the text, to married or cohabiting couples in which the female partner was aged 25 to 50 in 1996. We use an unbalanced panel, in which selected couples are present in at least two consecutive waves.

The main variables in our analysis concern health, hours of work, family income and presence of children. "Health" is the self-assessed health status, which ranges from 1 to 5 – from "very poor" to "excellent". The hours of work concern the number of hours normally worked per week in the main job. Family income concerns annual gross household labour income. The children variables relate to the presence of children of a particular age in the household.

Table A1 about here

Table A.1 provides an overview of the main variables we used in the analysis. On average the men in our sample are 2.3 years older than the women. Self-assessed health is on average very good – closer to "good". Of the women in our sample 10% have a small part-time job, 20% has a large part-time job and 40% have a full-time job. Of the men 2% have a part-time job and 71% have a full-time job. These differences materialize in the usual hours per week in the main job, which is about 28.9 for women and 40.3 hours for men. Of the couples about 12% has a child below two years of age, 13% has a child in the range 3-4, 34% in the range 5-11, and 21% in the range 12-15. Note that these categories may be overlapping.

B   Partnered labor supply

To explore the determinants of employment, we estimate discrete choice models exploiting the panel character of the data. To investigate the way in which the decisions of one partner affect the other, we also allow some individual characteristics to affect the partner's

employment position. Thus we ignore joint decision making and assume that the decision of the partner is exogenous to the decision of the individual. In a bivariate probit model (not reported), we investigated to what extent there is correlation in the behavior of partnered men and women conditional on their observed characteristics. We found that the estimated parameters are hardly affected by the introduction of possible correlation in the unobserved characteristics, whereas the correlation itself is positive and significantly different from zero. This indicates either joint decision making – or perhaps selective matching (individuals who are more likely to work match with similar individuals) – that is orthogonal to observed characteristics.

The principal explanatory variables used in the analysis are: the presence of children of a particular age, health, and labor market position of the partner. Other variables included are education, country of birth, and region. However, since these variables are time-invariant, they drop out of the panel analysis. In the interests of space, we do not report the estimated coefficients to these variables in the pooled-cross-sectional models.

Table B1 about here

Table B1 reports the parameter estimates, where the upper panel gives the results for the probability of having a job, both for women and men. The lower panel of Table B1 concerns only women and gives the results for having a part-time job and the weekly hours of work, both conditional on having a job.[24]

The probability of having a job is analyzed using a logit model and pooled cross-section data. As shown, for women being childless has a positive effect on the job probability, while having children up to the age of 12 has a negative effect. Being in good health has a positive effect on the probability of having a job. Also, having a partner with a part-time or full-time job is positively related to an women's own job probability. For men not many variables differ significantly from zero. Being in good health and having a partner who works has a positive effect on man's probability to have a job. Somewhat surprisingly, having a child aged 5-11 and having a partner in good health has a negative effect on a man's job probability.

The parameters of the fixed effects logit model are estimated using Chamberlain's conditional likelihood method. This means that the parameters are identified on the subset of observations where the dependent variable changes at least once over time. Indeed, as shown in Table B1, the number of observations reduces substantially if fixed effects are

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[24]For men the share of part-time jobs is so small and the number of working hours so concentrated that a separately analysis is not very useful.

introduced. In total 938 women and 766 men found a job or lost a job at least once. However, by and large the results are not very different from the estimates based on pooled cross-sections. The main differences concern, for women, the effect of children in the age of 12-15, which now has a positive effect on the job probability, and the effect of having a full-time working partner, which is now no longer significantly different from zero. For men, in the fixed effects estimate only, having children in the age range of 3-4 years has an effect on the job probability.

The lower part of Table B1 shows the estimates of the determinants of women's probability of having a part-time job conditional on being in work, and of the number of weekly working hours conditional on being in work. The probability of having a part-time job is only related to the presence and age of the children in the household. Having no children or children beyond the age of 12 has a negative probability on having a part-time job, which is in line with the findings concerning the job probability. The number of working hours is affected in a similar way. In short, it is mainly the presence and age of children that affect the labor market position of women.

Table A1 Means of variables

	Women	Men
Personal characteristics		
Age	39.0	41.3
Health	3.59	3.69
Hours 1-15	0.10	–
Hours 16-29	0.20	0.02
Hours 30-40	0.37	0.59
Hours 40+	0.03	0.16
Job characteristics		
Hours of work	28.9	40.3
Family characteristics		
Family income	31,363	
Child 0-2	0.12	
Child 3-4	0.13	
Child 5-11	0.34	
Child 12-15	0.21	

Note that for men the number in the row "Hours 16-29" is related to "Hours 1-29".

Table B1 Parameter estimates employment, part-time work and hours of work

a. All	Job – Cross-section		Job – Panel	
	Women	Men	Women	Men
No kids	0.22 (2.1)**	0.04 (0.4)	0.17 (1.0)	-0.11 (0.6)
Child 0-2	-1.08 (13.4)**	-0.00 (0.0)	-1.28 (9.6)**	-0.16 (1.0)
Child 3-4	-0.86 (12.2)**	-0.08 (0.9)	-0.82 (7.3)**	-0.24 (1.7)*
Child 5-11	-0.66 (9.0)**	-0.16 (1.9)*	-0.30 (2.4)**	-0.04 (0.3)
Child 12-15	0.01 (0.2)	-0.06 (0.7)	0.46 (3.4)**	-0.02 (0.1)
Health	0.24 (10.1)**	0.16 (6.2)**	0.12 (3.1)**	0.02 (0.6)
Health partner	-0.03 (1.4)	-0.06 (2.4)**	-0.05 (1.3)	-0.04 (0.8)
Partner part-time	0.35 (2.0)**	0.58 (7.4)**	0.85 (2.7)**	0.14 (1.0)
Partner full-time	0.61 (8.9)**	0.62 (7.5)**	0.10 (0.8)	0.09 (0.6)
-Loglikelihood	8434.0	7960.3	1779.7	1431.1
Observations	15,875	15,478	4850	3834
Individuals	–	–	938	766

b. Women	Part-time job		Hours of work	
	Cross-section	Panel	Cross-section	Panel
No kids	-1.08 (9.1)**	-1.27 (6.0)**	4.43 (8.1)**	3.47 (10.9)**
Child 0-2	0.58 (5.4)**	1.29 (6.4)**	-2.86 (5.5)**	-3.34 (11.0)**
Child 3-4	0.81 (7.9)**	1.55 (7.8)**	-4.28 (9.0)**	-3.48 (12.6)**
Child 5-11	0.72 (8.3)**	0.82 (5.1)**	-3.83 (9.1)**	-1.66 (6.5)**
Child 12-15	-0.15 (1.6)	-0.32 (1.9)*	0.22 (0.5)	1.10 (4.1)**
Health	-0.04 (1.5)	-0.01 (0.3)	0.19 (1.6)	-0.03 (0.4
Health partner	0.06 (2.1)**	-0.06 (1.2)	-0.31 (2.6)**	0.12 (1.7)*)
Partner part-time	0.29 (1.3)	0.53 (1.4)	-0.37 (0.3)	-0.75 (1.3)
Partner full-time	-0.10 (1.2)	0.10 (0.6)	0.63 (1.6)	-0.19 (0.7)
-Loglikelihood	6834.1	1146.8	–	–
Observations	11,535	3449	11,535	11,762
Individuals	–	719	–	3148

Note: Probability to have a job – logit model; Probability to work part-time conditional on having a job – logit model; Hours of work conditional on having a job – OLS; the panel estimates contain individual fixed effects; the panel estimates also contain dummies for year of survey; the cross-section estimates also include age, age-squared, a dummy variable for persons born in Britain, 10 dummy variables for region, and 5 educational dummy variables; absolute z-statistics in parentheses (cross-section estimates corrected for clustering of observations); a ** (*) indicates a parameter estimate significant at the 5% (10%) level.

Figure 1: **Normal weekly working hours in the main job (%); hours (top graph) and hours categories (bottom graph)**
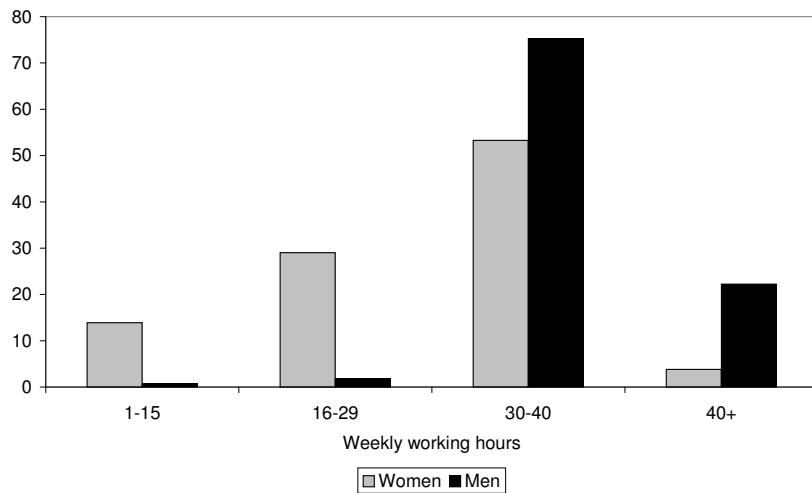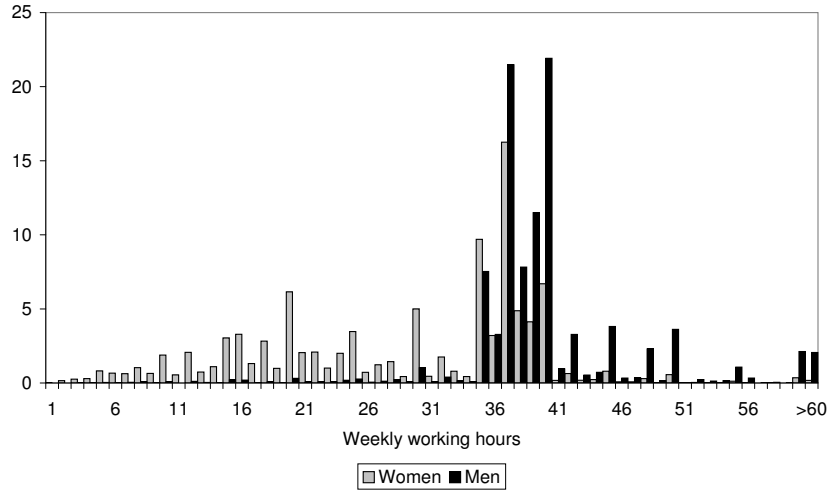
Figure 2: **Satisfaction indicators by weekly working hours; women (top graph) and men (bottom graph)**