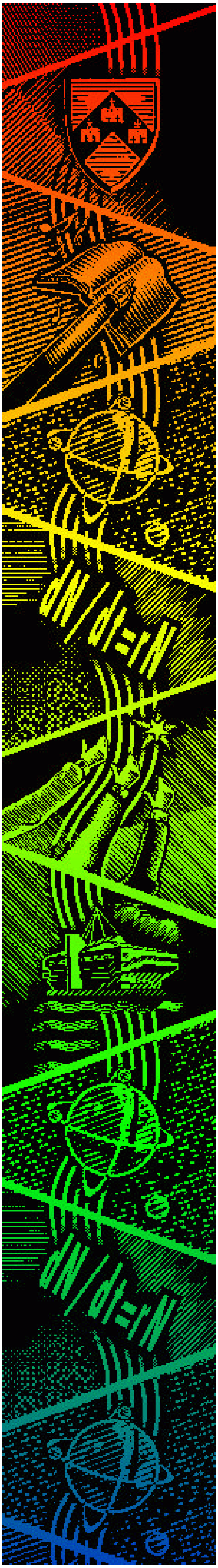

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Absenteeism in the UK: A Comparison Across Genders

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ABSENTEEISM IN THE UK: A COMPARISON ACROSS GENDERS *

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Abstract JEL # J6

We analyse an empirical model of absence from work based upon a variant of the traditional work-leisure model of labour supply. The model is tested with data from the 1993 UK Family Expenditure Survey (FES) and a comparison of absenteeism is made across genders. We find substantial differences in the probability of absenteeism across gender and various family situations. It appears that it is marital status rather than the presence of children that is driving this gender difference. We also find that our conclusions concerning gender differences in absenteeism are sensitive to the definition of absenteeism used and that the differences in the determination of these measures may help to explain some of the existing disagreements in the literature.

Key words: absenteeism, gender differences.

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I. Introduction.

Estimates of potential working time lost due to unscheduled worker absence typically range around 2 to 3% (Vistnes 1997, Akyeampong, 1996 and Kenyon and Dawkins, 1989). Despite the potential costs these substantial worker absences impose on economies, studies of absenteeism are comparatively rare and there is, as yet, little agreement regarding its major causes across different subject areas (Vistnes, 1997).Within the economic's literature there have been some recent papers explaining the absence from work as a labour demand phenomenon (Coles and Treble 1993 and 1996). It is more commonly assumed, however, that the decision to be absent from work primarily reflects an individual's choice over labour supply and that this choice may be impacted upon by the worker's personal characteristics. We also adopt this labour supply approach in this paper.

We implement an empirical model of absenteeism based upon a variant (developed by Allen, 1981) of the traditional work-leisure labour supply model. In particular, we want to consider gender differences in absenteeism and is so doing we follow a string of recent papers (Leigh 1983, Paringer 1983, VandenHeuvel and Wooden 1995, and Vistnes 1997). The model is tested with data from the 1993 UK Family Expenditure Survey (FES) and a comparison of absenteeism is made across genders.

The paper is organized as follows. A theoretical model of absence is presented in section II, the data are described in section III, key empirical results are reported in section IV, and conclusions and implications for future work are discussed in section V.

II. The model.

To the extent that voluntary absence can be thought of as a form of leisure, the decision to be absent from work can be analysed in terms of the traditional model of labour supply. Following Allen (1981), it is assumed that the individual's preferences are represented by a twice differentiable utility function of the form: $U = U(C,L)$ where C is consumption and L represents the number of hours of leisure that are consumed. Individuals are assumed to spend all of their income and the worker's budget constraint is given by: $C = N + W(t^c-t^a) - P(t^a)$ where N is the sum of non-labour real income, W is real wages from work, t^c is contracted labour hours, t^a is absent hours, and P is a lump sum penalty associated with absence. This penalty is an increasing function of the time the worker is absent. The worker maximises utility subject to this budget constraint[1]. Let $a = (t^a/t^c)$ be the absence rate and f be the degree of work

[1]In the extreme, when full sick pay is available, the border solution of the model implies contracting without attending work at all.

scheduling flexibility allowed by the employer. Then the absence probability function (with the direction of the expected relationships as predicted from the comparative statics shown in brackets) is:

$$a = a(w, N, t^c, P, f)$$
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which we estimate, and report results for, in section IV below.

III. Data.

The data used in this study are drawn from the 1993 Family Expenditure Survey (FES). The FES is a voluntary survey of the expenditure and incomes of a random sample of 10,000 private households in the United Kingdom. The survey is continuous, with interviews spread evenly over the calendar year to ensure that seasonal changes are covered.

The FES provides a broad description of the members of each household including details of their occupation, marital status, age, sex, etc. It is also obviously not confined to a particular type of establishment. The FES survey does, however, lack some of the variables that would have been useful for this study, such as past work experience and current job characteristics. Further potential difficulties arise with the self-reported nature of the data and if the characteristics of the households which fail to respond to the survey differ from those who cooperate, both of which may imply the possibility of measurement bias. The definitions and descriptive statistics of the variables used in this analysis are discussed in section IV below.

IV. Estimation and Results.

Since we are interested in the factors that influence the probability that an individual will be absent from work, this is estimated using a probit model. The probability (P_i) of absenteeism (d_i) is given by $P_i = \phi[\sum \beta_j X_{ji}]$ where X_{ji} are the explanatory variables thought to influence an individual's decision to be absent from work, $\phi(.)$~N(0,1) and d_i~Bernoulli (Greene, 1997).

As discussed above, an employee is classified as absent if s/he reports to have been away from work on the day of the FES interview. We exclude those who have been away for paid vacations and public holidays, which leaves absence due to ‘illness and accidents’ and ‘other reasons’. We begin by adding these two categories together and calling it total absence. We also exclude the self employed.

We include nine variables as explanatory variables (not counting the occupation and region dummies[2]). These variables, which are discussed in greater detail below, are: a relative wage measure; non-labour income; usual hours worked; and education. The remaining five variables are included to capture personal/demographic characteristics expected to influence absence, these are: the age of the employee; and a series of demographic measures capturing family situation (the presence of a child aged less than 2; child aged between 2 and less than 5; child aged between 5 and less than 18; and marital status). The mean values of these variables are provided in columns 9 and 10 of Table 1.

The probit estimates are presented in Table 1: columns 1 through 6 provide results for total absenteeism, whilst columns 7 and 8 consider female absenteeism due to illness or accident only. The overall test of the explanatory power of the regressors is clearly significant for all the regressions and whilst the pseudo R^2 measures are not high, they are comparable with those found in other studies (eg., Allen, 1981, and Barmby and Treble, 1991). Overall, the estimates are generally well defined and of the expected sign. We consider the results for total absence in more detail by addressing the impact of each of the right hand side variables in turn.

What matters most for absenteeism in our results are the demographic variables. We found a strong positive and significant coefficient on age for males implying older male workers are more likely to be absent than younger males. This is not true for females where an insignificant effect is found. If we increased the average male age by one year (from 37.9 to 38.9 years), the male average probability of being absent would increase some 10% (from 2.36 to 2.61). These results are consistent with the literature (VandenHeuvel and Wooden 1995). We also considered the possibility of a non-linear relationship between age and absenteeism by including an age squared term in our regressions. We found, however, that this term was consistently insignificant for both genders and had no obvious impact on our other results.

The largest and most significant of the coefficients we found for female absenteeism are those associated with the effects of children. Women with preschool age children display more absenteeism, especially so with children aged under 2. Whilst the presence of 2 to 5 year olds actually increases the average probability of men being absent more than women (2% relative to 2.5%), the effect of children

[2]The occupational dummy categories are managers and administrators; professional; ancillary; foremen-supervisory; junior; manual; and other. The regional dummies are the North; Yorkshire; North West; East Midlands; West Midlands; Scotland; Greater London; South East; South West and Wales (East Anglia as other).

under the age of 2 is not significant for men, suggesting little substitution across the sexes in caring for very young children. The presence of school age children does not have a significant impact for either gender. The significant negative coefficient for marital status indicates that a single man is more likely to be absent from work than one who is married. The coefficient on this dummy for women was positive but not significant. (We also considered the interaction of marital status and the presence of children but found a consistently insignificant result for this inclusion.)

We find the impact of wages is not well defined in common with many other studies (such as Allen, 1981, Markham *et al*,1983, and Leigh, 1991) perhaps suggesting offsetting income and substitution effects of wages on absenteeism. We considered alternative wage measures including the difference between the individual's gross hourly earnings and their average occupational gross hourly wage (see Table 1). This wage variable for both women and men is found to be insignificant. We similarly considered the individual's own gross hourly wage and their average gross hourly occupational wage as alternative wage measures. In all cases we found an insignificant wage effect on absenteeism.

Our measure of non-labour income (nly) is the difference between gross normal weekly household income and the respondent's weekly labour income. We find no significant effect of this measure on absenteeism for either gender. This insignificant finding has also been reported in many other studies (eg.,Vistnes, 1997) and is probably due to difficulties in constructing a full measure of this variable (Allen, 1981; 84)[3]. For most people, however, the major source of nly is their spouse's wages. We therefore also included an interactive married by nly term. We find a positive relationship on absence from this measure of non-labour income for women which is consistent with our theoretical model. The size of this effect for women is not particularly sizeable: a 10% increase in this source of nly (some £30 per week) increases their probability of being absent by 0.26%.

We do not have a measure of actual contracted work hours nor of the degree of flexibility in rescheduling working hours in response to employee wishes, we proxy these variables with usual hours worked (assuming that the hours most people work are their actual contracted hours and that higher working hours reflect lower schedule flexibility). We find the impact of usual hours worked on absenteeism to be positive for males and females, as would be expected from our simple model, but not

[3]It would be valuable to have additional variables which could capture other costs of supplying labour work, such as commuting time which VandenHeuvel and Wooden (1995) find to significantly increase absenteeism for women but not for men.

to be significant.

We could expect a more educated person to be less likely to be absent from work. We used the age the respondent left education as a proxy for their education level. This measure of education was only found to have a significant effect for female employees and the size of this impact is very small (0.3%). An insignificant effect from education is commonly found in those studies which have incorporated it (eg., Allen 1981, Wilson and Peel 1981, and Vistnes 1997).

In Table 2 we compare the results across men and women more explicitly by contrasting two representative individuals: a man and a woman, both employed as ancillary workers, living in the South-East, with the average gender sample value for age, wage measure, non-labour income, education and hours worked (see columns 7 and 8 of Table 1). We can see that marriage status has a substantial impact on the probability of being absent for men. A married man is consistently less likely to be absent than his respective single counterpart in each child category. For everyone except married men, having a baby/infant dramatically increases the probability of being absent. For women, the effect of moving from having no children to having one child under the age of 2 increases the average probability of being absent from work some ten fold. For both men and women, having a child between 2 and 5 basically doubles their chance of being absent compared to having no children. Whilst having a school age child (over 5) has a bigger impact on male absenteeism than it does for women.

Illness and accidents only

There has been some debate in the literature as to the tendency of females with dependents to be absent, with Leigh (1983) and Vistnes (1997) finding that the presence of children less than six increased female absenteeism whereas Paringer (1983) found women with dependents were less likely to be absent. There is a similar debate over the effect of age: Leigh (1983) found no significant effect on female absenteeism, Paringer (1983) found a positive relationship for both genders which was greater for males. We believe that this debate can be addressed by considering the definition of the dependent variable used. If we narrow our definition of absenteeism to consider only illness and accidents (thereby moving closer to the definition used by Paringer, 1983) we found little effect on our results for male absenteeism, however, for females the strong effect of having a child under 2 falls away dramatically and the positive relationship with age becomes clearly significant (Table, 1 columns 5 and 6). If we consider our representative individual (Table 2, column 3) we find that the pattern of absenteeism for women is now much more like that of men.

V. Conclusion.

We find limited support for a traditional work-leisure labour supply model in the analysis of absenteeism in the UK. Our results are in accordance to the existing body of literature in this field. We also find substantial differences in the probability of absenteeism across various gender and family situations. In general, we find that married men are the least likely to be absent whereas married women are the most likely. Interestingly, it appears that it is marital status rather than the presence of children that is driving this gender difference. There appears to be a substitution taking place between the genders on marriage not directly related to children (and allowing for changes in non-labour market income) which impacts on relative absenteeism. Addressing this finding is an obvious area for future research.

We also find that our conclusions concerning gender differences in absenteeism are sensitive to the definition of absence used. Indeed, if we narrow our definition of absenteeism to include only illness and accidents, we find that women have a similar pattern of absenteeism to men. We believe that this difference in results associated with the two definitions of absence arises primarily from a prevalence amongst women with very small children (under 2) to take absenteeism related to the care of others.

The results presented here may be subject to some serious qualifications. In particular, our data have limited information on the characteristics of the work environment which does not enable us to consider workplace practices and the penalties imposed to limit absence (Barmby and Treble, 1991) nor can we address the issues concerned with job satisfaction which have been raised in the applied psychology literature (Steers and Rhodes, 1978, and Leigh, 1991). Furthermore, our absence data is self reported (and so is very likely biased down) and does not allow for calculations of single or repeat spells (Delgado and Kneisner, 1997, and Vistnes, 1997). Knowledge of absenteeism is building slowly with the limited availability of suitable data sets. There would be many gains from applying a micro-based data set linking enterprise and individual response personal characteristics data across firms and time, thereby enabling demand and supply factors to be considered simultaneously.

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Table 1 Absenteeism by gender

	Total absence		Male absence		Female absence		Female illness/acc		means	
	Coeff	t-value	Coeff	t-value	Coeff	t-value	Coeff	t-value	men	women
wage difference	-0.013	-1.45	-0.013	-0.88	-0.000	-0.01	-0.002	-0.09	0	0
Non labour income	-0.001	-1.62	-0.000	-0.34	-0.001	-1.51	-0.000	-0.72	266.44	376.67
married*non labour income	0.001	2.85^{**}	0.000	0.33	0.001	1.81^{*}	0.001	1.05	191.71	296.19
usual hours worked	-0.002	-0.58	0.007	1.07	0.006	1.36	0.012	2.19^{**}	35.13	27.67
education	-0.016	-1.28	-0.006	-0.25	-0.032	-1.90^{*}	-0.018	-0.88	16.49	16.46
age	0.008	2.12^{**}	0.025	3.93^{**}	0.002	0.43	0.011	1.83^{*}	38.46	37.92
single	0.241	1.79^{*}	0.420	1.99^{**}	-0.057	-0.30	0.038	0.18	0.26	0.28
child <2	0.657	5.71^{**}	0.145	0.61	1.026	6.90^{**}	0.139	0.57	0.10	0.06
child 2↔<5	0.239	2.20^{**}	0.427	2.32^{**}	0.328	2.21^{**}	0.284	1.48	0.13	0.10
child 5↔<18	0.073	0.91	0.147	1.04	0.117	1.09	0.291	2.30^{**}	0.36	0.38
constant	-2.180	-5.58^{**}	-3.294	-4.73^{**}	-2.098	-3.38^{**}	-7.317			
absence									0.02	0.05
absence illness/accidents									0.02	0.03
average gross hourly wage									8.44	4.77
Number of obs		4229		2154		2075		2075	2154	2075
Pseudo R^2		0.06		0.07		0.11		0.05		
explanatory power χ^2 (26)		82.26^{**}		63.32^{**}		90.51^{**}	χ^2 (25)	52.86^{**}		

t values reported in brackets: ** significant at 95%, * significant at 90%. Estimation method: Probit (Stata Version 7). Regressions include occupation and region dummies.

Table 2. Probability of being absent: a comparison across genders

	Total absence		Illness, accidents
	men	women	woman
Single, no children	0.0374	0.0075	0.0239
Single, one child < 2	0.0516	0.0808	0.0329
Single, one child 2↔5	0.0885	0.0179	0.0455
Single, one child 5↔18	0.0516	0.0174	0.0455
Married, no children	0.0217	0.0089	0.0212
Married, one child< 2	0.0202	0.0901	0.0294
Married, one child 2↔5	0.0384	0.0207	0.0418
Married, one child 5↔18	0.0202	0.0122	0.0409

The comparison individuals are ancillary workers, living in the South-East, with age, average hourly wage, non-labour income, education and hours worked which are the average of the gender sample