Workless couples: modelling labour market transitions.

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Policy Studies Institute

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Executive Summary

The need for a better understanding of workless households (households where no adult is in paid employment) arises from their growing prevalence. With this in mind, an earlier report (ESR79) examined the characteristics of the individuals within workless couples and their transitions away from worklessness. Using similar data, the analysis in this report uses econometric techniques to look more formally into the extent to which couples move away from worklessness. It also considers individuals within workless couples and investigates their movements between the economic states of unemployment (not working but seeking and available for work), inactivity (not working and not seeking work) and employment. For both the couple-level and individual-level analyses, the key characteristics associated with transitions are considered.

Couple-level exits from worklessness

By the end of the observation year, 23 per cent had exited worklessness. For unemployed couples, 54 per cent remained workless while for inactive couples the level was 86 per cent.

The probability of leaving worklessness fell with the duration of the workless spell. However, the move away from worklessness was much more emphatic for unemployed couples than for inactive couples.

It appeared to be the woman's age rather than the man's age that was associated with the couple exiting worklessness. This was true for both unemployed couples and inactive couples.

For unemployed couples, the presence of children, while suggesting a negative effect on the chances of finding work did not achieve statistical significance except where the youngest child was aged 11 years or older. For inactive couples, the youngest child being 11 years or older actually increased the chances of finding work. By contrast, the presence of very young children reduced the likelihood of moving away from worklessness for inactive couples.

Having qualifications was generally associated with an exit from worklessness. However, for inactive couples this was only true for higher level qualifications.

Long-term health problems that affected the type of work possible reduced the chances of exiting worklessness, particularly for inactive couples.

Individual exits from unemployment

Of those men who were initially observed unemployed, 46 per cent had acquired a different status by the end of the observation year. For women, the corresponding proportion was 61 per cent. Most male exits were to employment (67 per cent) while most female exits were to inactivity (60 per cent).

The likelihood of unemployed people finding work grew with age and then, beyond the age of about 40 years, declined. For both men and women, movements from unemployment into inactivity were unrelated to age.

The presence of children had an overall negative effect on the chances of men moving into employment, although this was only significant when the youngest child was aged five years or more. For women, those with dependent children were much more likely to become inactive, particularly where the children were younger.

Qualifications increased the chances of men moving into work, the effect being greater for higher level qualifications. The results for women show only the higher level qualifications were significant in increasing the chances of job entry.

Having a long-term health problem significantly reduced the chances of finding work and increased (very significantly) the likelihood of becoming economically inactive. Poor health was significantly associated with a move into inactivity for men. For women, inactivity is more commonly associated with bringing up children.

The likelihood of finding work declined for both men and women as the duration of unemployment increased, but the likelihood of becoming inactive was completely unaffected by the length of unemployment spell.

Overall, exits from unemployment were fairly rapid. In fact, the stock of unemployed appeared to deplete more rapidly for women than for men. However, the proportion of exits accounted for by finding work was much greater for men than for women.

Individual exits from inactivity

Of those men initially observed inactive, 16 per cent had acquired a different status by the end of the observation year and 38 per cent of these exits were to employment. For women, 12 per cent exited inactivity, with 44 per cent finding work.

Age did not appear to be associated with inactive men's movement into either employment or unemployment. For women, the likelihood of finding work initially grew with age and then declined. The peak age for finding work was 35 years, while the peak age for becoming unemployed was 27 years.

Where the youngest child was aged 10 years or less, men were more likely to leave inactivity and become unemployed. However, where the youngest child was older than this, the man was more likely to enter employment. For women, young children were associated with reduced chances of seeking or finding work, while older children were associated with increased chances of job-entry.

Men who had relatively high level qualifications were more likely to leave inactivity for employment than those who had no qualifications. For women, having qualifications increased the likelihood of exiting inactivity and this was most evident for those with qualifications equivalent to NVQ level 4 or above, who were most likely to enter employment.

Having a long-term health problem greatly reduced the chances of leaving inactivity. This was true for both men and women.

The longer the spell of inactivity, the smaller were the chances of exiting to either employment or unemployment. Women were slightly more likely to enter employment while men were slightly more likely to become unemployed.

The relationship between partners' employment statuses

The results showed evidence of an inter-relationship between the employment statuses of partners within a couple. Thus, where one partner found work, the other partner was more likely to do likewise. However, it is not possible to state whether this is a causal link, or whether it reflects a tendency for partners within a couple to share characteristics associated with increased chances of finding work.

Summary and conclusion

The findings provide useful information for the development of policies aimed at tackling worklessness among couples. The tendency for workless exits to be concentrated in the early stages of the workless spell suggests a role for policy in encouraging transitions into employment as soon as couples begin such a spell. Particular help is required for those with poor qualifications and those with health problems. In the case of The New Deal for Partners the client group is very diverse and to be effective, policy must be sensitive to the needs of the group it seeks to help.

1. Introduction

The growing prevalence of the workless household has been one of the most significant changes to the labour market over the last thirty years. Gregg et al. (1999) show that the proportion of households where nobody is in work has almost tripled from a level of 6.5 per cent in 1975 to 17.9 per cent in 1998. Going back further, the rates are even lower. Over the same period, the proportion of households where all adults are in work has risen from 56 per cent to 63 per cent. Hence, there has been a polarisation of households into 'work-rich' and 'work-poor'. In fact, the UK had the fourth highest rate of workless households out of all the OECD countries in 1996 and the highest proportion of children growing up in workless households by far.

This presents urgent problems for employment and social policy. In particular, since earnings are the main generator of wealth, households without work are more likely to be poor. To illustrate this, in 1996 some 70 per cent of workless households had less than half mean household income. The corresponding figure for workless households with children was 90 per cent (Dickens et al., 2000). As well as the poverty implications, there are also wider ramifications. Lack of employment can result in social exclusion as individuals and households become increasingly distanced from mainstream activities and unable to afford to participate in leisure activities. Being reliant on benefits can result in a culture of dependency for adults and children in such households may grow up lacking a working role model. Hence, there may be some concern that children growing up in workless families may themselves have labour market disadvantages by the time they reach working age. In support of this view, Johnson and Reed (1996) show that while one in ten men aged 33 had been unemployed for more than a year in the period 1981-91, this rose to 19 per cent when considering those men who, at age 16, had unemployed fathers. Using the same data, Machin (1998) finds that inter-generational mobility is also limited in terms of earnings. Furthermore, Gregg (forthcoming) highlights the scarring effects of unemployment. That is, individuals experiencing unemployment when young are likely to endure long-term labour market disadvantage as a result. All these points highlight the urgency of addressing the problems of worklessness both from the viewpoint of alleviating existing poverty and preventing longer-term problems from arising.

In terms of the composition of workless households, Gregg et al. (1999) show that, in 1998, 86 per cent were single adult households. Single parents alone accounted for 54 per cent of all workless households at this time. Clearly, the trend toward more single adult households automatically increases the polarisation between 'no work' and 'all work' households. However, worklessness among couples has also grown. Figures from the Family Expenditure Survey show that 10.4 per cent of couples without children and 7.5 per cent of couples with children were workless in 1996. This represents a huge rise on the corresponding proportions in 1968, 2.7 and 1.6 per cent respectively.

Lone parents have long been acknowledged as a priority group for policy and indeed the New Deal for Lone Parents has the specific aim of helping such individuals into work. More recently, two policies aimed at addressing worklessness among couples have been introduced. The New Deal for Partners (NDP) is a voluntary programme which aims to help partners enter or move closer to the labour market. Joint Claims for Jobseeker's Allowance is a change to the legislation on claims for Jobseeker's Allowance (JSA). For couples without children where at least one partner is aged over 18 and born after 19 March 1976, both partners in a claim are now required to search and be available for work. Previously, where a claim was made for additional JSA payment for a dependent partner, only one partner had to seek and be available for work.

In this report the focus is on workless couples. Relatively little is known about such couples. It was with the aim of gaining a better understanding that an earlier ES report (Dorsett, 2001) investigated their characteristics and examined the degree to which they were distanced from the labour market. A number of aspects of workless couples were revealed that were of immediate interest. For example, the high degree to which partners tended to be similar in respect of important labour-market characteristics was evident. Other findings highlighted differences between types of worklessness in the tendency to enter employment. However, findings such as these can only describe the population of workless couples and how they fare in the labour market. To probe deeper requires a more sophisticated approach. In this report, the focus is on labour market transitions for workless couples, and the method used allows the effect of multiple influences to be considered simultaneously.

The structure of the report is as follows. In Chapter 2, the main findings from the descriptive analysis of workless couples are presented. These are included for the purpose of providing useful context for the econometric analysis to follow and for convenience of reference. Chapter 3 provides some details of the dataset (which is similar to the data used for the descriptive analysis) and then the analytical approach is set out in Chapter 4. The estimation results are then presented. In Chapter 5, the factors influencing couples' exits from worklessness are considered. In Chapter 6, the focus shifts towards individuals and their transitions away from unemployment are examined as well as their transitions away from inactivity. There is also an assessment of the effect of one partner's employment status on that of the other. Chapter 7 concludes.

2. Workless couples: characteristics and labour market transitions

This chapter provides a brief summary of some of the key results presented in Dorsett (2001):

- For men, nearly half of non-employment was explained by unemployment. However, this proportion fell over the period 1994-2000 owing to declining numbers of unemployed men, while the number of inactive men remained stable. Most male inactivity was accounted for by sickness or disability. For women, inactivity was consistently much more prevalent than unemployment. Family considerations were significant for women with more than half being inactive owing to looking after the family or the home.

- Partners tended to be similar with respect to a number of characteristics, both related and unrelated to work. This high level of similarity between partners in a couple suggests problems of worklessness may be concentrated within a particularly hard-to-reach group of households and that policies that have been ineffective for one partner may be equally ineffective for the other partner.

- Couples mainly exited worklessness via male employment. Men's movement into employment appeared to be chiefly due to the reduction in unemployment while the level of inactivity remained more or less stable. The increase in employment among women was made possible more by the reduction in inactivity. By the end of the year for which they were observed, one fifth of workless couples had found work. The dual-inactive couple remained relatively stable over the year.

- Examining transitions from one quarter to the next showed that most individuals who were in work remained so when next observed. Similarly, non-workless couples were very likely to still be non-workless in the next time period. This likelihood was particularly high for those couples where both partners worked. This suggests that helping individuals into work would yield long-term benefits.

- Unemployment was quite a stable status for men with three-quarters remaining unemployed from one quarter to the next. Women were more likely to leave unemployment, with inactivity being the most common destination. For unemployed couples, the chances of there being at least one earner when next observed were small (21 per cent), and less where initially one partner was unemployed and the other inactive.

- For both sexes, inactivity was the most stable employment status with very few changes from one quarter to the next. Joint inactivity was similarly stable,

as nine out of ten such couples remained jointly inactive into the next time period. Movements between inactivity and work were rare. In fact, the only real evidence of such moves was among those men or women with working partners.

These results provide important guidance for the econometric analysis that follows. In particular, unemployment and inactivity are shown to be qualitatively different and characterised by different likelihoods of moving into employment. Furthermore, there are different reasons for being inactive and such differences influence the rate of exit from inactivity. This underlines the importance of considering men and women separately since there are marked differences between the sexes in the reason for their inactivity. It also highlights the need to consider more than one possible destination for those leaving unemployment or inactivity.

3. A description of the data - the Labour Force Survey

All the analysis contained in this report is based on the Labour Force Survey (LFS). The LFS is a quarterly survey of 60,000 households in the UK with a focus on those characteristics related to the labour market. It is carried out as a rotating panel with one-fifth of the respondents being replaced each quarter. Hence, each (fully-participating) household is interviewed five times over a period spanning 12 months. All household members at a given address are sampled, although information on unavailable members of the household is collected by means of proxy interview. It is the address rather than the household that is the sampling unit. This means that households leaving or moving to a new address will not be observed for the full year.[1, 2]

The longitudinal element of the LFS is important for this analysis and permits changes over time between economic states to be considered. To do this required linking records for partners within households, and records for individuals across the five quarters over which the LFS tracks each household. In order to maximise the number of observations on the populations of interest, a number of waves of LFS data were pooled. The resulting dataset spans the period from the Spring quarter of 1994 to the Summer quarter of 2000. It comprises those couples who were observed to be jointly workless at some point over this period. Since the focus was on working age couples, those couples where one or both partners was aged 60 years or over at any point were excluded from further consideration.

In many cases, couples were observed fewer than five times in the final dataset. Attrition is a standard problem with longitudinal data and may occur for a variety of reasons. However, in addition to the usual problem of attrition due to non-response to subsequent interviews, there are problems introduced by the complicated structure of the data. Specifically, couples only feature in the data while the partnership is intact and from the point of initially being observed as workless onwards. Hence, there are other reasons, apart from non-response, for not appearing in all waves. These include partnership dissolution, moving and not being a workless couple when first observed.

With this in mind, the structure of the sample in terms of response to the five waves is considered in Table 3.1. For each cell, a cross indicates a response to a particular wave. The first column shows that, by construction, all couples responded at the time of first being observed jointly workless. It is important to note that this was not necessarily the first of the couples' five interviews as it is

[1] In contrast, the British Household Panel Survey (BHPS) tracks movers and those who leave the household. However, the sample size of the BHPS is too small for the purposes of this report.
[2] For more details on the LFS see:
www.statistics.gov.uk/downloads/theme_labour/What_exactly_is_LFS1.pdf

possible that they had earlier interviews but that their status did not satisfy the criteria for inclusion in the sample. In effect, couples appearing in the final dataset are aligned at the point of first observed joint worklessness. There were 18,341 couples in the dataset. The analysis that follows is based on all those couples who were observed at least twice sequentially. Couples featuring only once were excluded from the analysis since for them it was not possible to observe whether their economic status changed between interviews.

Table 3.1 Structure of the sample

Months since first observed jointly non-employed:						
0	3	6	9	12	N	%
Whether responded in this wave:						
X					4305	23.5
X	X				3209	17.5
X	X	X			2545	13.9
X	X	X	X		2323	12.7
X	X	X	X	X	5959	32.5
					18341	100

4. The models to be estimated

The main object of study in this report is the move over time between different economic states. Since the main interest is in modelling transitions, it is appropriate to examine this using duration analysis. This allows an explicit focus on the *time* it took to exit from a particular economic state. As well as allowing one to show how long an individual or couple was likely to remain in a given state, the results also show which characteristics were most associated with transitions between states. Some details of the analytical approach are provided in the methodological appendix, which also considers the interpretation of the results. The aim of this chapter, is to set out the models to be estimated.

As noted, worklessness at both the couple and the individual level is of interest. Furthermore, the descriptive analysis has revealed a qualitative difference in the type of worklessness in that inactivity tends to be a more rigid economic status than unemployment. With this in mind, a number of models are required.

The models required for the examination of worklessness at the couple level are listed below:

- Time to exit worklessness, for all couples
- Time to exit worklessness, for couples who are first observed jointly inactive
- Time to exit worklessness, for all couples who are first observed having at least one unemployed partner.

At the individual level this distinction between unemployment and inactivity is maintained. However, there is also interest in the destination of those moving away from their original economic status. Three statuses are considered: employment, unemployment and economic inactivity which, between them, account for all individuals.[3] These individual level analyses allow for the possibility that those exiting their original status may do so in one of two ways. That is, an individual can exit unemployment to either employment or inactivity. Similarly, an inactive person can become employed or unemployed. Two models are required to examine these movements:

- Time to exit inactivity, for those first observed inactive
- Time to exit unemployment, for those first observed unemployed.

[3] Those on government employment and training programmes are regarded as unemployed and those who are unpaid family workers are regarded as inactive. This simplification is justified by the fact that these groups (particularly the latter) are very small.

Finally, as mentioned earlier, it is interesting to examine the effect of one partner's employment status on that of the other. The final models allow for the possibility of such effects.

5. Modelling transitions away from worklessness - couples

The analysis in this chapter is at the level of the couple and considers those factors influencing the length of the workless spell. The average spell of worklessness for these couples at the point of first being observed jointly workless in the data was 15 quarters. However, this was influenced by a small number of very long spells; the median spell was only 8 quarters.

When considering worklessness, the dependent variable is whether *either* of the partners has found work. This is therefore a couple-level variable since, at this stage, the concern is not with which partner finds work but rather with whether the couple exits worklessness. A complication arises from the fact that the independent variables used to model this exit are largely at the individual level. This means that, although a characteristic may be associated with success in a couple exiting worklessness, one cannot state that it is the partner having that characteristic who has actually found employment. This is unavoidable when considering worklessness at the level of the couple. However, it should be borne in mind that the earlier report highlighted the high degree of similarity between partners in a couple. Hence, where one partner has a particular characteristic, there is a reasonable chance of the other partner sharing it. The individual-level analysis in the next chapter does not suffer from this ambiguity.

Overall, there were 13,872 couples in the sample observed more than once (and therefore contributing transition information).[4] By the end of the observation periods, 3,244 (23 per cent) were observed to have moved from worklessness to the position where at least one of the partners was in work. Figure 5.1 shows the cumulative movements out of work over the five observation points. This type of graph is often referred to as a 'survival curve' because it represents what proportion survive in the initial state (here, worklessness) as time progresses. It is a purely descriptive presentation of the movement away from worklessness and does not incorporate any statistical adjustment for other factors which may exert an influence. The "step" nature of this chart reflects the fact that couples are sampled only at quarterly intervals. Clearly the proportion remaining workless will fall gradually during the first quarter, not all at once at the end of the quarter, but the information to show this is not available.

Two lines are shown in Figure 5.1. The upper line represents the movements away from worklessness for those couples comprising two inactive partners at the time of first being observed jointly workless. The lower line represents transitions for those couples where at least one partner was unemployed when first observed. For notational convenience, these couples will be referred to as

[4] Note that this is less than the number implied in Table 3.1. This is because some observations were dropped owing to missing values.

inactive and unemployed respectively in the remainder of this report. By definition, these two categories mutually exhaust the sample. It is clear that unemployed couples were more likely to find employment than inactive couples; after four quarters 54 per cent of unemployed couples remained workless compared with 86 per cent of inactive couples.

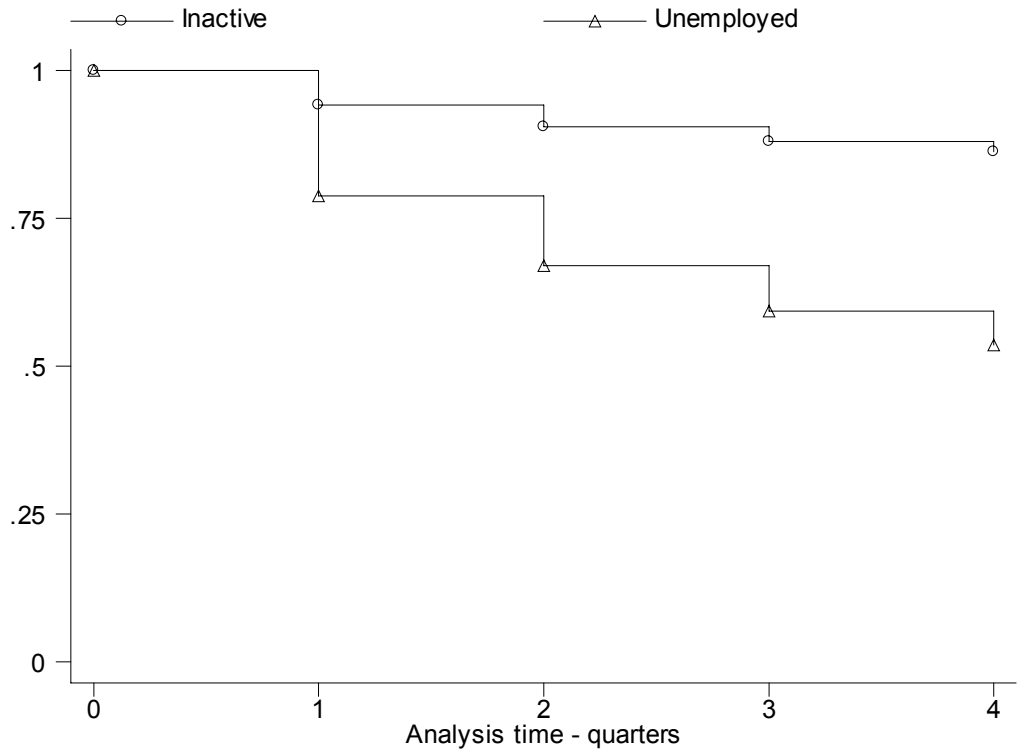


Figure 5.1: Empirical survivor functions for workless couples

However, as mentioned, this is a purely descriptive account of movements away from worklessness and makes no attempt to control for variables that may influence the likeliness of an observed transition. For example, no distinction is drawn between those couples who had been workless for an extended period and those for whom it was a more recent experience. It may be felt that long-term workless couples are less likely to be observed to find work. To investigate questions such as this requires econometric analysis.

5.1 Estimation results

The full results are presented in Appendix Table 5.1. However, for ease of reference, Table 5.1 below reproduces the results for those variables that are of

most interest. The first column of results in Table 5.1 relates to the sample as a whole and therefore includes both inactive and unemployed couples. Characteristics of both partners within the couple are allowed to influence the movement away from worklessness, although in the case of occupation in the previous job only the male characteristic was included since there were too many missing values for the woman.

Table 5.1: **modelling exits from worklessness at the household level**

	(1)	(2)	(3)
	All workless couples	Unemployed couples	Inactive couples
Male age	1.026	1.033	0.962
	(1.31)	(1.42)	(1.05)
Male age squared	0.999	1.000	1.000
	(2.02)*	(1.63)	(0.11)
Female age	1.097	1.081	1.122
	(5.02)**	(3.57)**	(3.24)**
Female age squared	0.999	0.999	0.999
	(4.78)**	(3.25)**	(3.16)**
Youngest child 0-1 years	0.823	0.876	0.731
	(2.75)**	(1.64)	(2.09)*
Youngest child 2-4 years	0.859	0.890	0.849
	(2.08)*	(1.37)	(1.15)
Youngest child 5-10 years	0.859	0.860	0.908
	(2.11)*	(1.79)	(0.70)
Youngest child 11+ years	0.942	0.788	1.357
	(0.81)	(2.66)**	(2.42)*
Either partner not white	0.898	0.878	0.939
	(1.51)	(1.59)	(0.45)
Highest qual of either partner: NVQ4+	1.586	1.456	1.906
	(6.76)**	(4.47)**	(5.56)**
Highest qual of either partner: NVQ3	1.326	1.324	1.378
	(5.45)**	(4.56)**	(3.30)**
Highest qual of either partner: NVQ2	1.125	1.138	1.150
	(2.11)*	(2.00)*	(1.24)
Highest qual of either partner: NVQ1	1.205	1.222	1.180
	(2.80)**	(2.65)**	(1.14)
Highest qual of either partner: other	1.118	1.145	1.000
	(1.80)	(1.86)	(0.00)
SOC male: manager & admin	0.978	1.093	0.703
	(0.30)	(1.00)	(2.45)*
SOC male: professional	1.156	1.172	0.981
	(1.37)	(1.15)	(0.11)
SOC male: associate prof & tech	1.054	0.980	1.040
	(0.47)	(0.15)	(0.21)
SOC male: clerical, secretarial	0.834	0.917	0.608
	(1.72)	(0.69)	(2.46)*
SOC male: personal, protective services	0.965	1.117	0.604
	(0.41)	(1.11)	(2.67)**
SOC male: sales	0.908	0.867	1.067
	(0.85)	(1.12)	(0.31)
SOC male: plant & machine operatives	0.882	0.948	0.735
	(2.00)*	(0.75)	(2.35)*

Table 5.1: **modelling exits from worklessness at the household level continued**			
SOC male: other occupations	0.765	0.778	0.769
	(3.67)**	(3.06)**	(1.70)
Health problem affecting work: either partner	0.657	0.717	0.485
	(8.79)**	(5.95)**	(7.90)**
Health problem affecting work: both partners	0.597	0.711	0.617
	(5.72)**	(2.57)*	(3.65)**
Length of non-employment spell	0.922	0.917	0.924
	(22.24)**	(16.75)**	(13.23)**
Square of length of non-employment spell	1.001	1.001	1.001
	(16.50)**	(10.12)**	(11.74)**
Couple inactive when first observed	0.384		
	(18.47)**		
Observations	34223	14664	19559
Robust z-statistics in parentheses			
* significant at 5% level; ** significant at 1% level			

Reference categories for the categorical variables: no children; no qualifications; craft & related occupation; Rest of South East; interview in 1994; LFS interview 2. Missing values for categorical variables were set to zero and dummy variables were included to indicate missing values.

5.1.1 All workless couples

The results show that the effect of age was non-linear for both men and women. That is, the chances of finding work grew with the age, reached a peak and then declined. The peak for men came earlier than for women; 26 compared to 39 years of age. However, the effect of male age on moving away from worklessness struggled to achieve statistical significance. The results were much more definite for women's age.

The presence of young children in the household had an overall negative effect on the chances of finding work. Those couples with children aged 10 years or younger were less likely to move into employment. Children over this age had no effect on the chances of finding work.

There did not appear to be any ethnic dimension. A variable was included in the model to indicate whether either partner was from an ethnic minority. This was not statistically significant.

The human capital characteristics were captured in this analysis by the qualification and previous occupation variables. The qualification variables indicate the highest qualification held by either partner. The results show the benefit of being relatively well-qualified. Compared to those without qualifications, those couples in which either partner had a qualification that can be translated into an NVQ equivalent were more likely to enter work than those couples where neither partner had any qualifications. These effects were especially large for the higher qualifications, NVQ level 3 and above, and very

significant. It should be noted that converting to NVQ equivalents allows academic and vocational qualifications to be considered jointly.

It is possible that those couples where both partners are qualified to a roughly similar level differ in their likelihood of exiting worklessness from those in which one partner is much more qualified than the other. To investigate this, the model was re-estimated including a variable indicating whether there was a substantial difference in qualifications between partners. The results (not presented) were sensitive to the precise definition of this difference; where the disparity was greater, it was more likely to be statistically significant. This suggests that although higher qualifications were associated with increased exit from worklessness, the effect at the couple level was reduced where one partner was relatively highly qualified and the other had few, if any, qualifications.

As a general point, higher qualifications were associated with increased exit from worklessness. However the greater the disparity in partners' levels of qualification, the less likely they were to exit worklessness. To illustrate this, those couples comprising one partner qualified to the level of NVQ3 or higher and one with only NVQ1, some 'other' qualification or no qualifications were no more nor less likely to exit worklessness than any other couple. However, those couples comprising one partner qualified to the level of NVQ3 or higher and one with no qualifications were significantly less likely to exit worklessness.

In terms of the occupation of the previous job, only the male's previous job was considered for the reason stated earlier. The reference category was 'craft and related' occupations and most other occupations were statistically indistinguishable from this in their effect on movements away from worklessness. The exceptions were plant and machine operatives and 'other' occupations[5], both of which were relatively less likely to find work.

Poor health was strongly associated with remaining workless. In those couples where one or other of the partners had a long-term health problem, the chances of finding work were substantially reduced. This is unsurprising since this variable relates specifically to health problems that affect the kind of work an individual can perform. Should both partners have a long-term health problem, the odds were further reduced, again by a substantial amount. This could be possibly due to the longer they remain workless, the more likely they are to describe their condition as limiting.

It is plausible to believe that the probability of leaving worklessness falls with the duration of the workless spell. This is compellingly illustrated in the results with the associated reduction in odds being statistically very significant. Hence, the longer a couple had been workless, the more difficult it was to find work. There was a non-linearity in this relationship that was also statistically significant,

[5] The 'other occupations' category comprises a diverse collection of largely unskilled and manual job types.

indicating that the marginal reduction associated with an additional quarter of non-employment diminished as the overall length of non-employment grew.

Perhaps the most important result was that relating to the type of worklessness. The descriptive analysis of the data has already revealed a qualitative difference between unemployed and inactive couples and this was evident in the estimation results. A variable indicating whether the couple was unemployed or inactive when first observed was included in the model and had a large effect, reducing the odds of finding work by more than half. Furthermore, the effect was hugely significant. This suggests it may be more appropriate to consider unemployed and inactive couples separately, something that will be returned to below. An inactive person is either not available for work, or not actively seeking work, so this is not a surprising result.

A number of other (non-individual) characteristics were also important. There appear to be some strong regional differences. Compared to the South East (excluding London) couples in other areas in the UK were generally less likely to have found work. In several cases these regional differences attained statistical significance: Tyne & Wear, rest of Northern region, rest of Yorkshire & Humberside, inner London, outer London, Merseyside, Strathclyde and Northern Ireland. These results are perhaps unexpected given the relative affluence of South East (excluding London).

Year and quarter variables were included in the model in order to capture variations over calendar time. There appears to have been an overall increase over the years in the chances of finding work. The main disruption to the smoothness of this trend was a surge in 1997. If one is willing to interpret this increase as a macro effect, one would expect it to be positive since it reflects the generally improving economic conditions during the period covered by the analysis. The results also show a seasonality in movements into work. Specifically, couples were less likely to have moved into work in the winter months (December-February) than they were in the rest of the year.

As noted earlier, some variables indicating the panel nature of the data were included in an attempt to control partially for attrition in the data. All these variables were significant. These control variables comprised an indicator of whether the couple was observed in all five quarters over the LFS observation year plus variables indicating the interview in question.

Finally, a number of variables were included to control for the possibility that missing values for variables were systematically related to the probability of finding work. These variables took a value of 1 if the variable was missing for either of the partners (except in the case of male occupation). Reassuringly, these were all insignificant.

Using the results of the estimation it is possible to examine the transitions away from non-employment for an individual or couple with given characteristics. In order to present the results graphically, the approach followed in this report is to calculate the probability of having moved away from worklessness over a period of time for an individual or couple with 'average' characteristics. Doing so is tantamount to calculating the probability of leaving worklessness at the aggregate level, ie for all members of the population of interest. Having calculated the average values of those characteristics included in the model, the probability of being in work is calculated for such a couple as the length of non-employment increases. Plotting the resulting series yields a survival curve, which is the modelled analogue of the Kaplan-Meier curve already presented. That is, the survival curve now controls for variations in characteristics. All the survival curves presented below relate to a couple just beginning a spell of non-employment and chart out movements into work over a three-year period.

Figure 5.2 uses the estimation results discussed above to summarise movements away from non-employment for two 'average' couples in the sample who differ only in that one was inactive and the other was unemployed. There is a clear difference in the rate at which those couples who were originally inactive move away from worklessness compared to those couples where at least one partner was unemployed. In fact, by the end of the three-year period featured in the graph, only 22 per cent of the unemployed couples are predicted to still be workless compared with 38 per cent of the inactive couples.

It should be remembered that the estimated survival curves chart the modelled probability of remaining in the initial state as the length of the workless spell grows. As such, they are on a different basis from the Kaplan-Meier curves presented in Figure 5.1, which only represent observed transitions between LFS interviews without taking account of the length of spell. Clearly, it is the length of the non-employment spell, which is the timescale of interest rather than the spacing of LFS interviews (which is arbitrary to the determination of the probability of worklessness exit).

These results highlight the markedly different employment prospects of unemployed and inactive couples. The significance of this effect, coupled with the already noted qualitative difference between unemployed and inactive couples, suggests that it may be appropriate to consider the two types of couples separately. Doing this allows characteristics to differ in their influence on the odds of finding work for unemployed couples compared to inactive couples. This captures the differences between the two types of couple in a much less crude way than simply relying on a single dummy variable.

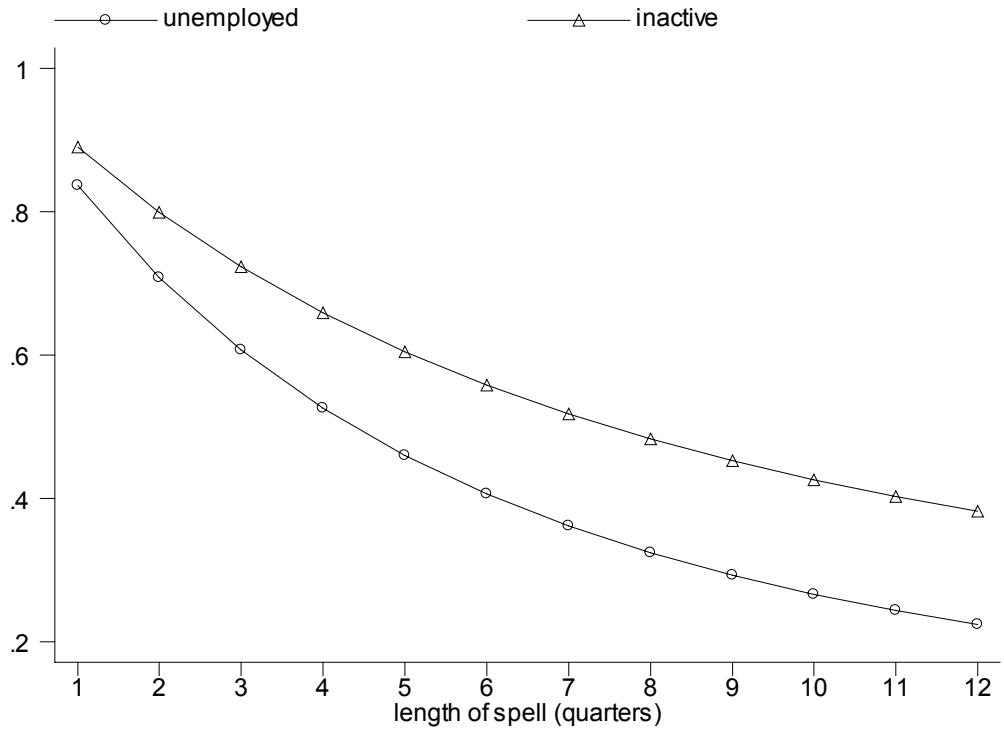


Figure 5.2: Remaining workless, by type of initial worklessness

5.1.2 Modelling unemployed couples and inactive couples separately

The results for unemployed couples and inactive couples are given in the second and third columns respectively of Table 5.1. In the commentary that follows, the emphasis is on drawing out the differences between the two types of couple.

Considering age, the main difference was with respect to the age of the man. While the effect of male age among unemployed couples did not achieve statistical significance at the conventional level, the estimates themselves appear plausible in that they reveal a likelihood of finding work that initially increases with age and then declines after the age of 34 years. For inactive couples, the results for men's age were insufficiently significant to even regard them as being indicative. Hence, it appears that there was no relationship between men's age and the probability of an inactive couple finding work. For women's age, the effects are broadly similar whether one considers unemployed or inactive couples.

The effect of age is shown graphically in Figure 5.3.[6] The upper panel shows how the probability of finding work in a given quarter varies with the age of both partners and how it varies separately with the age of the man and the woman. The estimated probabilities are representative of the 'average' unemployed couple. The line marked with circles shows the change in probabilities for a couple of identical age as this age increases. The non-linearity is clear to see, with the probability reaching a peak just before the age of 40 years. The other lines hold the age of one partner fixed while allowing the other to vary. This is unrealistic since partners tend to have similar ages but it allows the focus to be on the effect of just one partner's age. Again, the lines that are traced out are non-linear and the turning points are evident.

The lower panel shows the relationship between the age of the female partner and the probability of an inactive couple moving into work. As already noted, the effect of the male partner's age was very insignificant and is therefore not presented. As an overall comment on the two graphs, the difference between unemployed couples and inactive couples in the probability of finding work can be seen; for unemployed couples it peaks at 18 per cent, while for inactive couples the peak is only 3 per cent. Finally, it is worth noting that the median age for unemployed couples is lower than that for inactive couples. At the point of first appearing in the dataset, the median age for a man in an unemployed couple was 36 years and for a woman was 33 years. For inactive couples, the corresponding ages were 48 and 44 years.

There were a number of differences between unemployed and inactive couples with regard to the effect of other characteristics. For unemployed couples, the presence of children, while suggesting a negative effect on the chances of finding work did not achieve statistical significance except where the youngest child was aged 11 years or older. For inactive couples, the youngest being of this age actually increased the chances of finding work. By contrast, the presence of very young children in the household reduced the likelihood of moving away from worklessness for inactive couples. One possible explanation of this difference is that one of the main reasons for economic inactivity among women is childcare responsibilities. Hence, should a woman in an inactive couple be waiting for her child to reach a particular age before making herself available for work, the younger the children, the less likely the woman is to be on the margin of availability. In unemployed couples, on the other hand, there is a higher chance that the woman is unemployed rather than inactive and consequently, since she has already made herself available for work, that her children no longer play a role in determining availability.

[6] Note that the vertical scales on the two graphs in Figure 5.3 are different and cover only a small range.

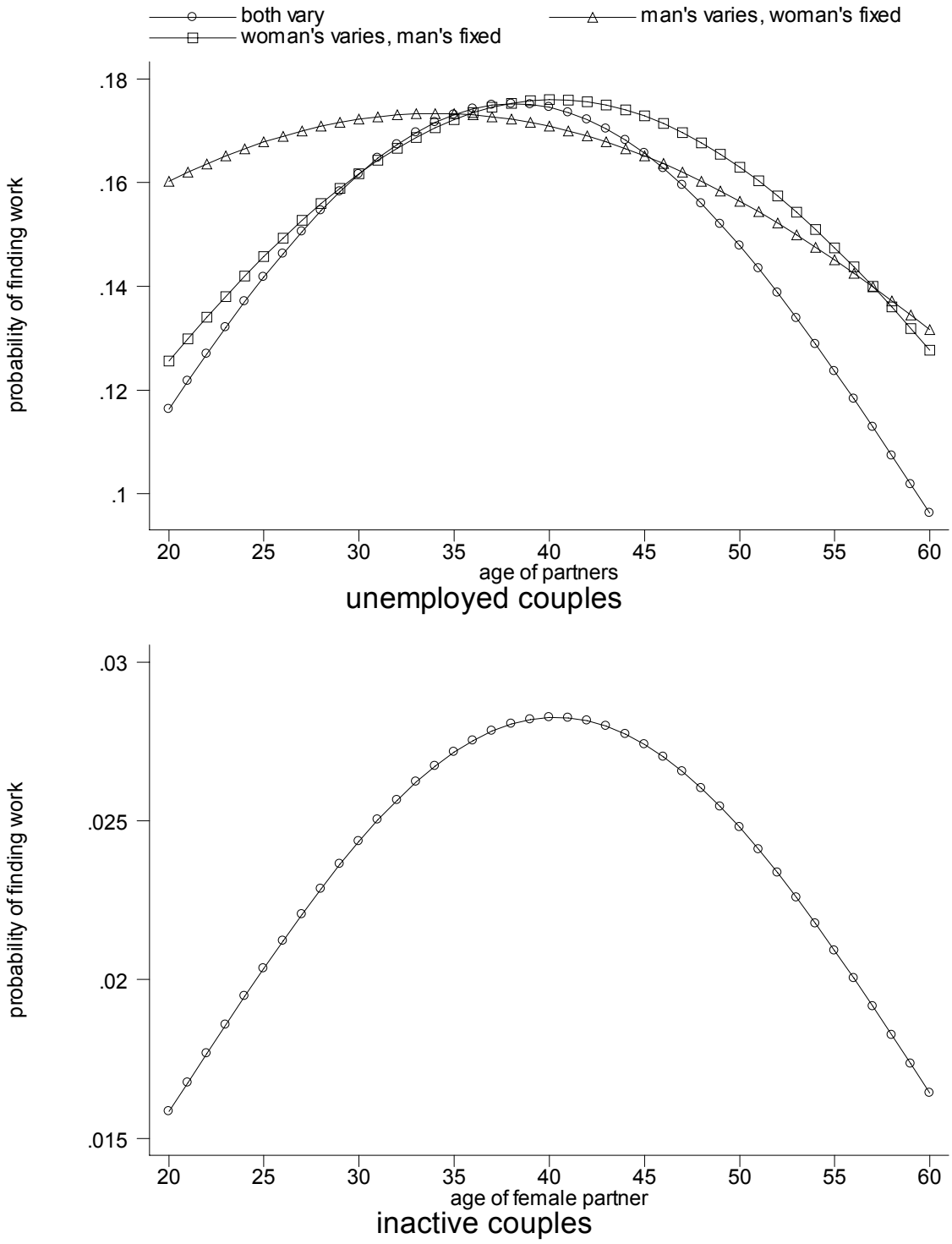


Figure 5.3: The effect of age on the probability of finding work in a given quarter

The association between qualifications and finding work was quite similar for unemployed and inactive couples, although the effects of having qualifications at NVQ level 2 or below were not significant for inactive couples. By contrast, having qualifications at NVQ level 4 or higher was particularly linked with job entry for inactive couples. It was also true that having certain previous occupations influenced the chances of moving away from worklessness for inactive couples. While there was little difference between previous occupations for unemployed couples, for inactive couples, having previously worked in an occupation that was managerial or administrative, clerical or secretarial, in personal or protective services or as a plant or machine operative reduced the odds of finding work relative to having been in a craft or related occupation. For unemployed couples, the category 'other occupations' was associated with a reduced chance of job entry.

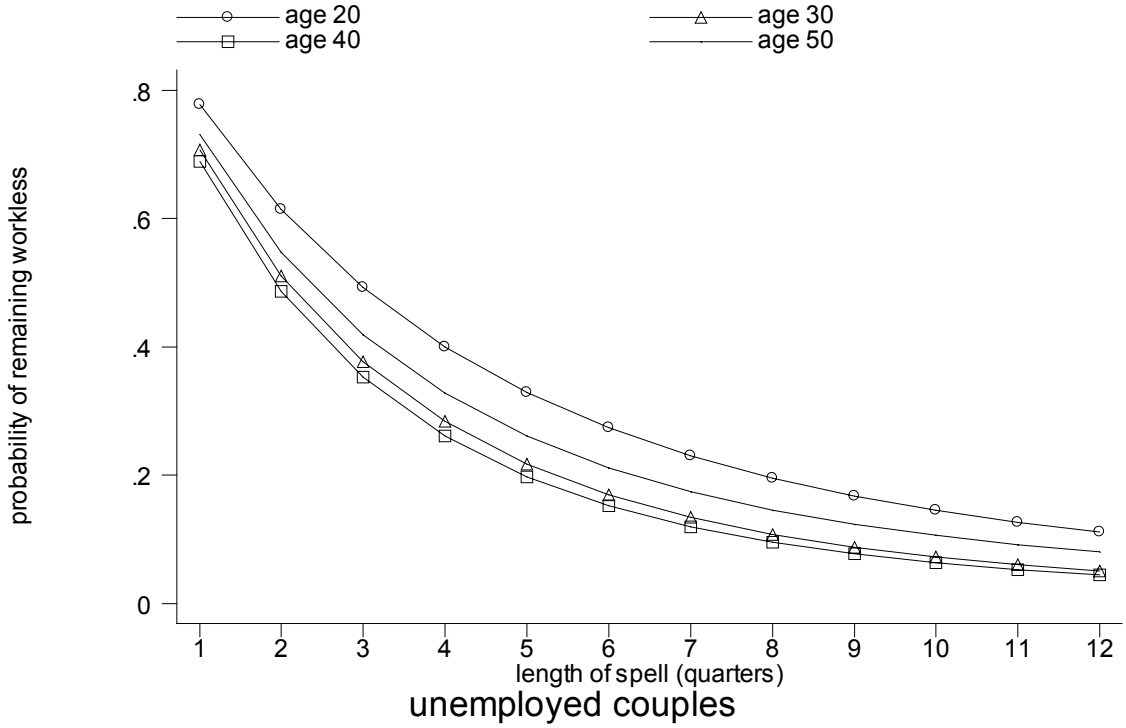
Long-term health problems were, not surprisingly, more significant for inactive couples than for unemployed couples. In addition to this, the size of the effect of poor health on reducing the odds of finding work was greater for inactive couples. This was true for those couples where either partner had a health problem as well as for those couples where both had a health problem.

Finally, the probability of leaving worklessness fell with the duration of the workless spell for both unemployed and inactive couples. However, the rate at which this changed differed across the two types of couple. This is shown graphically in Figure 5.4. Here, the probabilities of exiting worklessness for representative couples of different ages are illustrated. The effect of age is evident in both the upper panel relating to unemployed couples and the lower panel relating to inactive couples. However, the move away from worklessness can be seen to be much more emphatic for unemployed couples than for inactive couples. For both, the non-linearity in the relationship can be seen, suggesting that that the longer a couple remains workless, the more difficult it becomes to exit this state.

For ease of reference, the predicted probability of remaining workless for unemployed and inactive couples is summarised in Table 5.2. This table relates to representative unemployed or inactive couples and shows the proportion predicted to remain workless as the length of the workless spell grows.

Table 5.2: The predicted probability of remaining workless

	Duration of worklessness (months)					
	3	6	12	18	24	36
Percentage remaining workless:						
Unemployed couples	73	54	32	20	13	7
Inactive couples	86	74	58	46	38	28



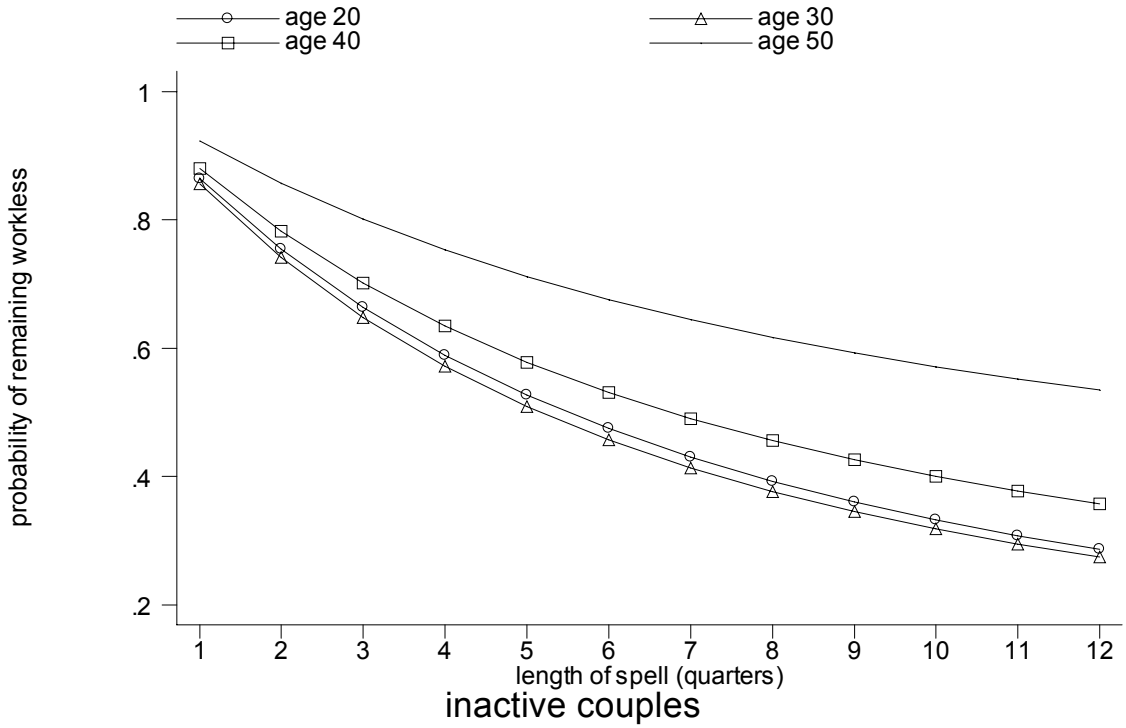


Figure 5.4: Remaining workless, by age

6. Modelling transitions away from worklessness - individuals

In this chapter, the transitions away from non-employment for individuals within workless couples are considered. While the results of chapter 5 are interesting from the policy viewpoint in terms of understanding the tendency for certain couples to exit from worklessness, the analysis of the process is complicated by the ambiguity in the dependent variable such that there is not a direct link between independent variables and outcomes. As mentioned, individual level analyses do not suffer from this drawback. Hence, in this chapter, individuals within workless couples are considered.

Three possible employment statuses are allowed for in the analysis that follows: employment, unemployment and inactivity. Estimating movements between these states requires use of a multinomial model, as discussed earlier. The results that follow are based on a multinomial logistic regression. The first set of results consider those who were first observed as being unemployed and examines the influences of movement into employment and inactivity. The second set of results considers transitions away from inactivity and into either employment or unemployment. Throughout, men and women are considered separately.

6.1 Transitions away from unemployment

As with the analysis of couples, it is useful to begin by considering some summary indicators of the transitions away from unemployment. In overall terms, there were 6,288 men who were initially observed unemployed and, by the end of the observation period, 2,874 of them (46 per cent) had acquired a different status. For women, there were 1,641 individuals and 1,007 (61 per cent) had exited from unemployment by the end of the observation period.

This movement is depicted graphically in Figure 6.1. Three lines appear in both charts. These indicate the destination of the exits from unemployment. The line showing the steepest decline relates to total exits and this overall number of exits can be divided between those who find work and those who become inactive. One important point is clear from inspecting Figure 6.1. The substantial movement away from unemployment, particularly for women, is evident. There is also another important difference between men and women in that the majority (67 per cent) of men leaving unemployment did so to enter work, while the corresponding proportion for women was much smaller (40 per cent). This underlines the importance of considering men and women separately.

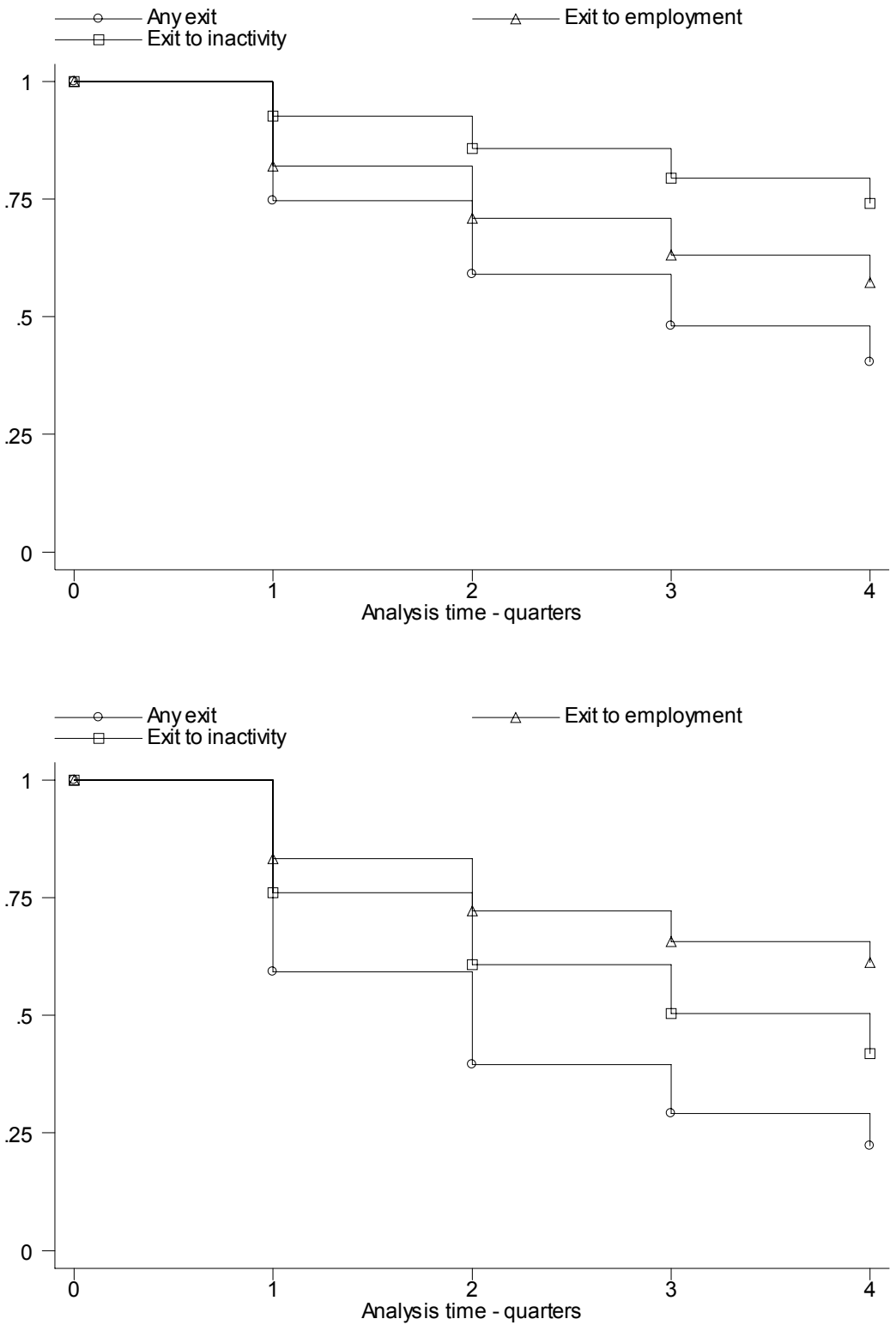


Figure 6.1: Empirical survivor functions for unemployed men (top panel) and women (bottom panel)

The econometric results are presented in Appendix Table 6.1. The main results are also presented in Table 6.1 below. As noted earlier, the interpretation of the results is more complicated in the multinomial case since the odds ratios are presented as relative to a reference economic status. When considering unemployed men and women, the reference status is unemployment, and each coefficient represents the effect of a given characteristic on the odds of exiting to a certain status (denoted by the column heading) relative to remaining in unemployment. In view of the slightly convoluted interpretation of the coefficients, the discussion of the results includes a graphical depiction of modelled exits over time. Furthermore, the extent to which the probability of exiting to either employment or inactivity is affected by each characteristic is considered explicitly. However, these are only summary measures introduced in order to aid clarity. The definitive results of the estimation are those presented in Table 6.1 (and Appendix Table 6.1) and these are considered below.

There are four columns of results, the first two relating to men and the second two relating to women. For both sexes, the first column presents the effect of a variable on the relative odds of entering work, while the second column presents the effect of the same variable on the relative odds of becoming inactive. The results relating to men (columns 1 and 2) will be considered first.

Table 6.1 Modelling exits from unemployment at the individual level

	(1)	(2)	(3)	(4)
	Men		Women	
	Working	Inactive	Working	Inactive
Age	1.102	0.976	1.132	0.999
	(4.59)**	(0.87)	(2.89)**	(0.03)
Age squared	0.999	1.000	0.998	1.000
	(4.36)**	(1.40)	(2.69)**	(0.39)
Youngest child 0-1 years	0.876	1.029	1.254	2.421
	(1.53)	(0.24)	(1.08)	(5.22)**
Youngest child 2-4 years	0.929	0.943	1.292	2.157
	(0.84)	(0.49)	(1.20)	(4.35)**
Youngest child 5-10 years	0.822	0.972	1.266	1.853
	(2.20)*	(0.25)	(1.21)	(3.60)**
Youngest child 11+ years	0.736	0.810	1.111	1.301
	(3.10)**	(1.74)	(0.54)	(1.53)
Non-white	0.882	0.911	0.665	1.032
	(1.27)	(0.75)	(1.59)	(0.16)
Highest qualification:: NVQ4 or higher	1.515	1.107	2.275	0.735
	(3.44)**	(0.63)	(3.27)**	(1.29)
Highest qualification:: NVQ3	1.424	0.934	1.599	0.792
	(4.55)**	(0.67)	(2.17)*	(1.23)
Highest qualification:: NVQ2	1.269	0.995	1.401	0.873
	(2.49)*	(0.04)	(1.93)	(0.90)
Highest qualification:: NVQ1	1.309	0.806	1.178	0.778
	(2.53)*	(1.45)	(0.75)	(1.40)
Highest qualification:: other	1.321	0.772	1.076	0.846
	(3.05)**	(2.17)*	(0.32)	(0.88)
Age completed FT education: Before 16	0.915	0.860	1.322	1.523
	(1.33)	(1.70)	(1.69)	(2.96)**

Age completed FT education: 17-18	1.002	1.319	1.023	1.639
	(0.02)	(2.17)*	(0.12)	(3.10)**
Age completed FT education: Over 18	1.178	1.033	1.286	1.634
	(1.50)	(0.21)	(1.04)	(2.22)*
SOC: Manager & admin	1.051	1.099		
	(0.51)	(0.67)		
SOC: Professional	1.100	0.818		
	(0.60)	(0.80)		
SOC: Associate prof & tech	0.964	0.968		
	(0.24)	(0.16)		
SOC: Clerical, secretarial	0.903	1.004		
	(0.71)	(0.02)		
SOC: Personal, protective services	1.075	0.975		
	(0.64)	(0.16)		
SOC: Sales	0.840	1.068		
	(1.24)	(0.34)		
SOC: Plant & machine operatives	0.965	0.951		
	(0.44)	(0.44)		
SOC: Other occupations	0.803	1.033		
	(2.36)*	(0.27)		
Long-term health problem	0.693	1.565	0.675	1.004
	(3.66)**	(3.96)**	(1.79)	(0.02)
Length of unemployment spell	0.915	1.000	0.950	1.001
	(16.23)**	(0.01)	(6.39)**	(0.22)
Squared unemployment spell	1.001	1.000	1.000	1.000
	(8.51)**	(0.76)	(4.85)**	(0.02)
Observations	12893	12893	2763	2763

Robust z-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Reference categories for the categorical variables: no children; no qualifications; left full-time education at age 16; craft & related occupation; Rest of South East; interview in 1994; LFS interview 2. Missing values for categorical variables were set to zero and dummy variables were included to indicate missing values.

There were a number of characteristics significantly associated with exits from unemployment to employment but fewer when considering transitions to economic inactivity.[7] There was once again a non-linear age effect with unemployed men aged 41 years most likely to find work. This is much greater than the peak of 34 years estimated when considering workless couples and highlights the value of treating the individual rather than the couple as the unit of analysis.[8]

The presence of children in the household also appeared to exert an overall negative effect on the chances of moving into employment. However, this was only significant when the youngest child was aged five years or more; younger children did not seem to affect the odds of finding work. I

[7] This will be partly due to the smaller number of observed transitions from unemployment to inactivity on which to base the estimates.
[8] Although note that the effect of male age was not statistically significant when considering couples.

Qualifications were strongly associated with men moving from unemployment to employment. While the possession of any qualifications increased the chances of finding work, the effect was greater for higher level qualifications. By way of contrast, the year at which full-time education ceased was not an important factor. With regard to movements into inactivity, those whose highest level of qualification was 'other' were less likely to become inactive than those with no qualifications, while those who left full-time education at the age of 17 or 18 were more likely to become inactive than those who left at the age of 16.

For those for whom information was available about the occupation of their last job, only having the 'other' occupation category was significantly different from the base category of 'craft and related' workers. The 'other' category comprises an assortment of largely manual and low-skilled occupations. Men with this occupation were less likely to find work.

Having a long-term health problem that limited the kind of work the man could perform significantly reduced the chances of finding work. Furthermore, it was this characteristic which appears most influential in terms of affecting the likelihood of becoming economically inactive. Those who did have such a health problem were at greater risk of becoming inactive. This tallies with expectations since the descriptive analysis has shown that inactivity among men was dominated by health considerations.

Finally, there was a very strong relationship between the length of unemployment spell and the chances of entering work. The likelihood of finding work declined as the duration of unemployment increased, although the effect of this relationship also weakened with spell length. By way of contrast, it appears that the likelihood of becoming inactive is completely unaffected by the length of unemployment spell.

The results for women (columns 3 and 4) were very different. Age was again a significant influence on entry to employment and, as with the consideration of worklessness at the level of the couple, the variation with age was more pronounced than that for men. The overall result was that the likelihood of exiting unemployment to employment grew non-linearly with age, reaching a peak at the age of 39 years, some two years younger than that for men.

Those with dependent children were equally likely to remain unemployed as find a job, but were much more likely to move to inactivity. Hence, while inactivity among men is more related to ill-health and disability, for women it is dominated by childcare considerations. The estimated effects for the presence of dependent children were not only highly significant but were also large in size. There was a clear relationship with the age of the youngest child such that those women with the youngest children were more likely to become economically inactive and this effect declined as the youngest aged, to the point where there was no discernible effect for those women whose youngest child was aged 11

years or more. For women with the very youngest children, the odds of becoming economically inactive more than doubled.

As with men, higher qualifications were associated with increased entry into employment and the size of the effects were even greater for those with the highest level of qualification. However, those with qualifications at NVQ level 2 or lower (including 'other' qualifications) were no more likely to enter employment than those with no qualifications. The age at which full-time education ceased was not associated with an increased likelihood of finding work, but was associated with a greater chance of becoming inactive. This is a similar result to that found for men.

Finally, as with men, the length of the unemployment spell was related to the chances of finding work but this relationship was non-linear. The relationship was not as significant as that for men, nor was the size of the effect as large.

Using the estimation results it is possible to examine the transitions away from unemployment in a similar way to that presented when considering workless couples. Figure 6.2 traces the estimated probabilities of either remaining unemployed or moving into employment or inactivity over a period of three years for an individual with 'average' characteristics starting a spell of unemployment. The top panel relates to men and the bottom panel to women. In both panels, the cumulative probability of remaining unemployed rather than finding work or becoming inactive is presented.

Figure 6.2 shows that, for both men and women, exits from unemployment were fairly rapid. In fact, the stock of unemployed people appeared to deplete more rapidly for women than for men. However, the destinations for men leaving unemployment differed from those for women. Specifically, the proportion of unemployed men finding work was much greater than that for women to the extent that, by the end of the three year period, three-quarters of men were predicted to be in employment while the corresponding proportion for women was a half. By definition, it was exits to inactivity that accounted for the difference. This was a much stronger feature for unemployed women and by the end of the three year period almost half the women were inactive compared to only one fifth of the men.

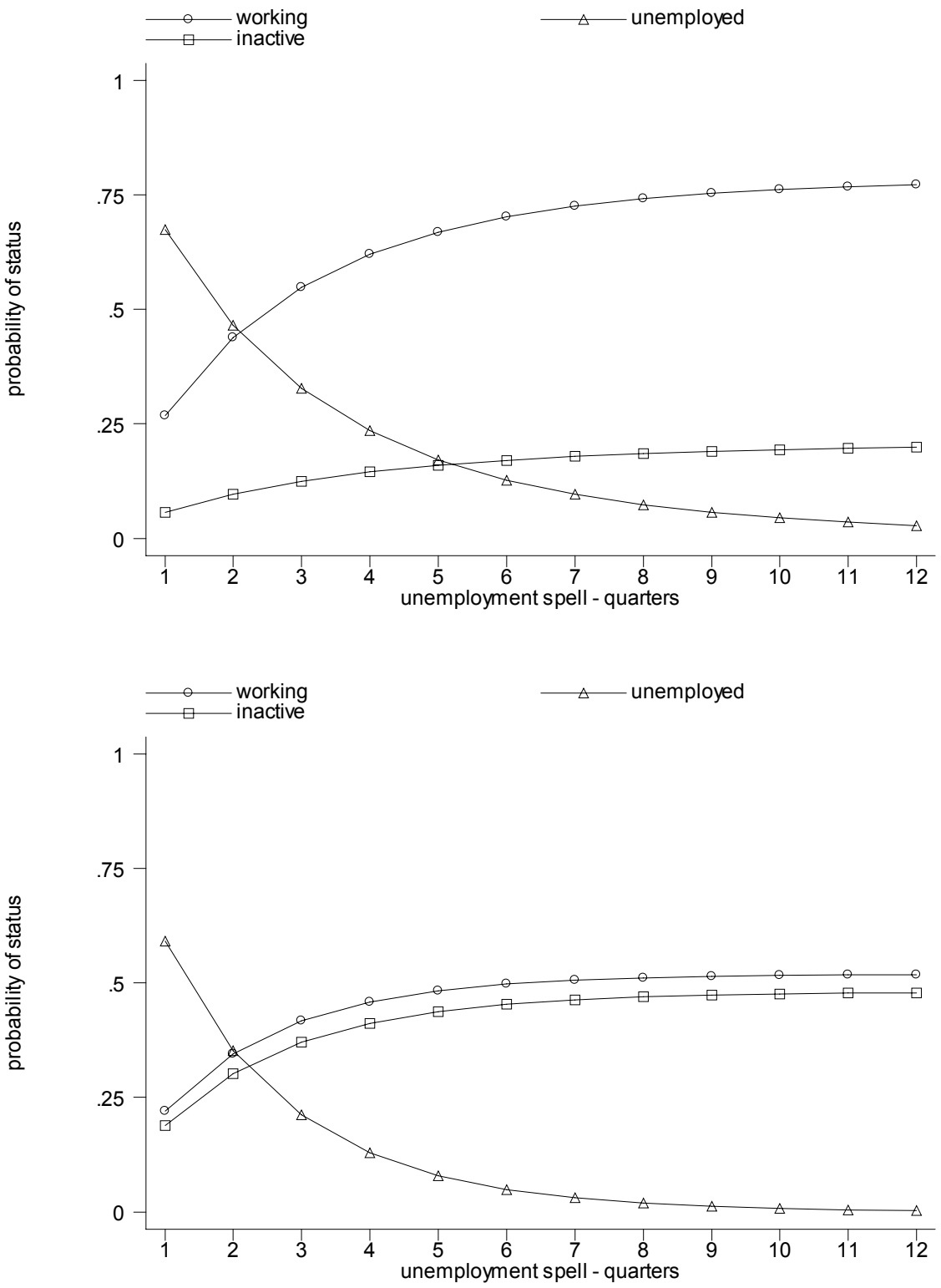


Figure 6.2: Estimated survivor functions for unemployed men (top panel) and women (bottom panel)

Table 6.2 presents a summary of the same information in tabular format.

Table 6.2: The predicted probability of becoming employed, inactive or remaining unemployed

	Spell length (months)					
	3	6	12	18	24	36
Percentage in each status:						
Men						
Working	27	44	62	70	74	77
Unemployed	67	46	23	13	7	3
Inactive	6	10	15	17	19	20
Women						
Working	22	35	46	50	51	52
Unemployed	59	35	13	5	2	0
Inactive	19	30	41	45	47	48

As a final variant on the presentation of results, Table 6.3 shows the estimated probabilities of exiting from unemployment to either employment or inactivity. The first row of results gives the estimated probabilities for the 'average' individual and each subsequent row shows how the probabilities change when a single characteristic is altered. This can be used to show the effect of such characteristics on the probabilities of exiting unemployment to either employment or inactivity. The results in Table 6.3 permit the same interpretation as that resulting from examination of the model results themselves and are not considered further; they are included merely to attempt to convey the effects of different characteristics on exits from inactivity in a more transparent way.

Table 6.3 Effect of individual characteristics on the probability of transitions from unemployment to other economic states

	Probability of entering economic state:					
	Men			Women		
	Employment	Unemployed	Inactive	Employment	Unemployed	Inactive
'Average' individual	14	80	7	14	65	21
Age 20	10	84	6	10	70	19
Age 30	14	80	6	15	65	20
Age 40	15	78	7	16	62	22
Age 50	14	78	8	13	61	25
No children	15	76	8	13	68	19
Youngest child aged 0-1	14	78	9	12	52	36
Youngest child aged 2-4	14	78	8	13	54	33
Youngest child aged 5-10	13	79	8	14	56	30
Youngest child aged 11+	12	81	7	13	63	24
White	12	81	7	14	63	23
Not white	11	83	7	10	65	25
NVQ level 4 or higher	13	80	7	17	63	20
NVQ level 3	12	81	6	12	65	23

NVQ level 2	11	82	7	10	65	25
NVQ level 1	12	83	6	9	68	23
Other qualifications	12	83	5	8	67	25
No qualifications	9	84	7	7	64	28
Left ft education before 16	11	84	5	9	63	28
Left ft education aged 16	12	83	5	8	71	21
Left ft education aged 17-18	12	81	7	7	63	30
Left ft education aged 18+	14	81	6	9	62	29
No long-term health problem	15	80	5	9	61	29
Long-term health problem	10	82	8	7	63	30
Unemployed for 0 quarters	23	70	7	12	60	28
Unemployed for 1 year	17	75	7	10	62	29
Unemployed for 2 years	13	79	8	8	62	29
Unemployed for 3 years	10	82	8	7	63	30

6.2 Transitions away from inactivity

This section considers transitions away from inactivity and follows an identical format to that of the previous section relating to transitions away from unemployment. Overall, there were 7,584 men who were initially observed inactive and, by the end of the observation period, 1,235 of them (16 per cent) had acquired a different status. For women, there were 12,231 individuals and 1,516 (12 per cent) had exited from inactivity by the end of the observation period.

Figure 6.3 presents the Kaplan-Meier empirical survival functions. These appear quite flat indicating a lack of movement away from inactivity. This accords with expectations since the descriptive analysis in Dorsett (2001) showed inactivity to be a very rigid employment status. Comparison with the results for exits from unemployment emphasises this point. As with unemployment, there was some difference between the sexes in that, for men, 38 per cent of exits from inactivity were to employment while for women the proportion was 44 per cent. Hence, women were slightly more likely to move directly from inactivity to employment in the period between LFS interviews. It is conceivable that this finding captures those women who are on the margin of their childcare responsibilities and that this responsibility represents the main obstacle to their employment. However, this possibility is better tackled in the econometric analysis.

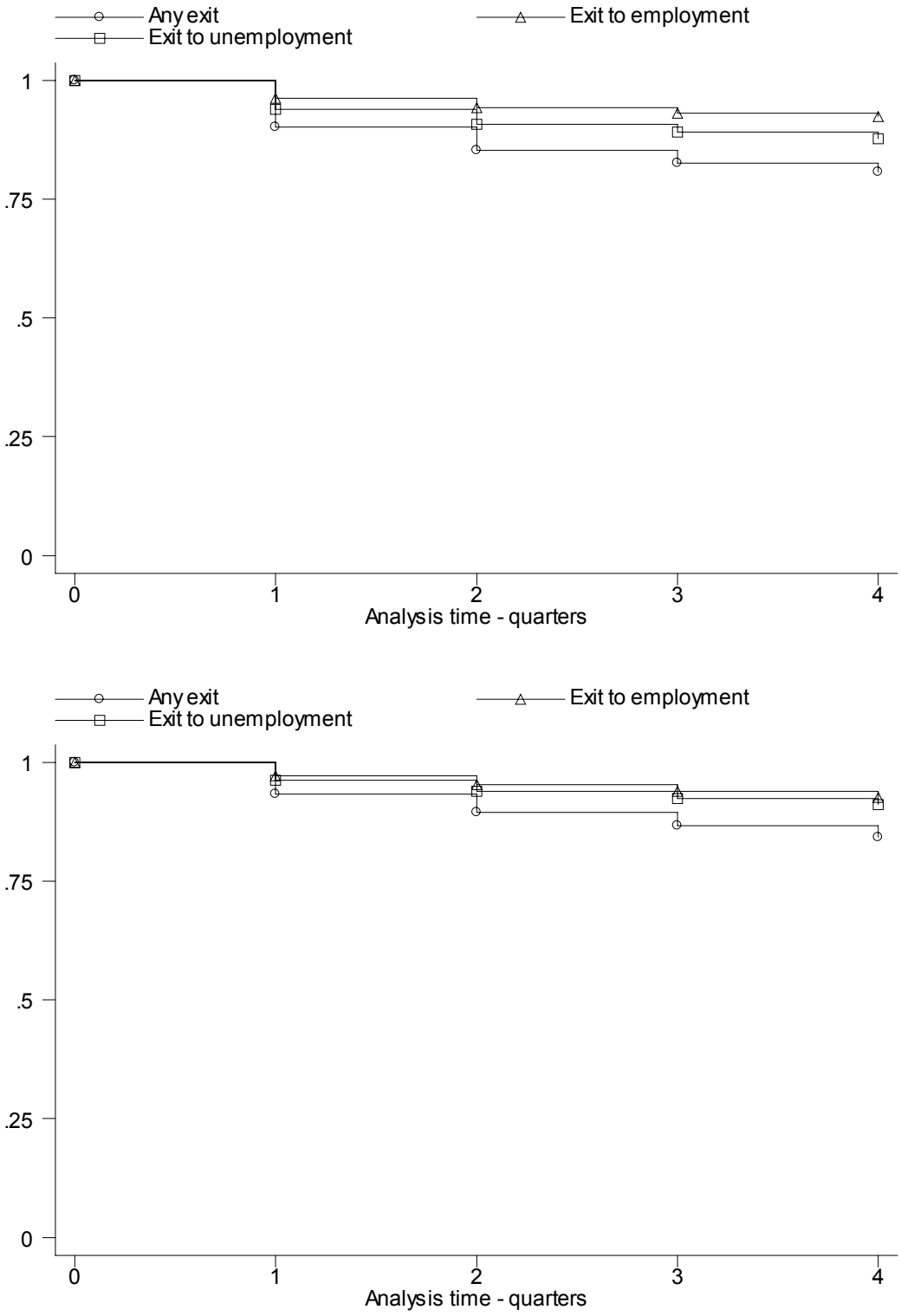


Figure 6.3: Empirical survivor functions for inactive men (top panel) and women (bottom panel)

The econometric results are presented in Appendix Table 6.4 and the main influences on exits from inactivity are discussed below. The main results are also reproduced in Table 6.4, for convenience.

Table 6.4: Modelling exits from inactivity at the individual level

Inactive	(1)	(2)	(3)	(4)
	Men		Women	
	employment	unemployed	employment	unemployed
Age	1.016	0.985	1.160	1.112
	(0.37)	(0.45)	(4.68)**	(3.54)**
Age squared	0.999	1.000	0.998	0.998
	(1.29)	(0.71)	(5.10)**	(4.84)**
Youngest child 0-1 years	0.837	1.517	0.676	0.562
	(0.95)	(2.95)**	(2.57)*	(4.25)**
Youngest child 2-4 years	1.030	1.422	0.902	0.739
	(0.17)	(2.45)*	(0.67)	(2.17)*
Youngest child 5-10 years	1.107	1.330	1.104	1.038
	(0.59)	(2.04)*	(0.69)	(0.28)
Youngest child 11+ years	1.534	1.279	1.371	1.123
	(2.71)**	(1.67)	(2.27)*	(0.81)
Non-white	1.160	1.599	0.478	0.808
	(0.77)	(3.51)**	(3.60)**	(1.64)
Highest qualification:: NVQ4 or higher	2.588	1.043	2.283	1.434
	(4.79)**	(0.23)	(4.67)**	(2.03)*
Highest qualification:: NVQ3	1.537	1.132	1.307	1.224
	(2.83)**	(1.09)	(1.76)	(1.44)
Highest qualification:: NVQ2	1.176	0.991	1.214	1.230
	(0.78)	(0.06)	(1.62)	(1.94)
Highest qualification:: NVQ1	1.038	1.130	1.371	1.288
	(0.15)	(0.72)	(2.20)*	(2.02)*
Highest qualification:: other	1.102	0.828	1.322	1.173
	(0.51)	(1.38)	(1.77)	(1.14)
Age completed FT education: Before 16	0.895	0.966	0.943	0.849
	(0.84)	(0.34)	(0.55)	(1.64)
Age completed FT education: 17-18	1.033	0.855	0.848	1.111
	(0.20)	(1.08)	(1.26)	(0.96)
Age completed FT education: Over 18	0.845	0.790	0.990	1.304
	(0.92)	(1.39)	(0.05)	(1.70)
SOC: Manager & admin	0.636	0.864		
	(2.45)*	(0.89)		
SOC: Professional	0.722	0.592		
	(1.45)	(2.04)*		
SOC: Associate prof & tech	0.727	1.116		
	(1.29)	(0.47)		
SOC: Clerical, secretarial	0.503	1.021		
	(2.46)*	(0.10)		
SOC: Personal, protective services	0.643	1.083		
	(1.88)	(0.46)		
SOC: Sales	0.918	1.267		
	(0.32)	(1.07)		
SOC: Plant & machine operatives	0.552	1.051		
	(3.24)**	(0.37)		
SOC: Other occupations	0.678	1.038		
	(1.90)	(0.25)		
Long-term health problem	0.340	0.366	0.391	0.502

	(7.56)**	(8.69)**	(7.28)**	(5.40)**
Length of inactivity spell	0.899	0.939	0.949	0.972
	(11.82)**	(11.05)**	(13.30)**	(7.92)**
Squared inactivity spell	1.001	1.000	1.000	1.000
	(11.92)**	(10.20)**	(10.85)**	(5.09)**
Observations	20020	20020	32173	32173

Robust z-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Reference categories for the categorical variables: no children; no qualifications; left full-time education at age 16; craft & related occupation; Rest of South East; interview in 1994; LFS interview 2. Missing values for categorical variables were set to zero and dummy variables were included to indicate missing values.

Considering men, the first noticeable point is that exits from inactivity appear unrelated to age. This was true for both exits to employment and exits to unemployment. This is in marked contrast to exits from unemployment which displayed the age effects already discussed.

The presence of dependent children exerted a complicated influence. Where the youngest child was aged 10 years or less, men were more likely to leave inactivity and become unemployed. However, where the youngest child was older than this, the man was more likely to enter employment. This is in contrast to the effect of children on exits from unemployment considered earlier which showed that having a youngest child aged over 10 years (or, indeed, aged over five years) tended to reduce the chances of moving into work. This highlights the different mechanisms determining movements away from unemployment and inactivity.

Ethnicity was not significantly associated with exits to employment but did appear to influence exits to unemployment. Inactive men who were not white were more likely to become unemployed than inactive men who were white.

Qualifications were important and men who had relatively high level qualifications were more likely to leave inactivity for employment than those who had no qualifications. This is similar to the finding for exits from unemployment to employment, although mid-range qualifications (NVQ level 2 and below) were also an important determinant of job entry for unemployed men. There was no significant relationship between qualifications and becoming unemployed. Furthermore, the age at which full-time education was completed was not significantly associated with either job entry or becoming unemployed.

Occupational variables appeared to have a significant effect on exits from inactivity. Men reporting a previous occupation that could be described as ‘managerial or administrative’ or ‘clerical or secretarial’ together with those who previously worked as ‘plant or machine operatives’ were less likely to exit inactivity to employment than those who had been ‘craft and related’ workers. Similarly, professional men were less likely to become unemployed.

Very significant was the effect of having a long-term health problem that affected the kind of work a man could do. This greatly reduced the chances of either entering work or becoming unemployed. This is unsurprising since the tendency for male inactivity to be largely determined by health issues has already been seen.

Finally, the longer the spell of inactivity, the smaller were the chances of exiting to either employment or unemployment. This duration effect was less marked for unemployment than employment but, in both cases, the effect was non-linear. This means that the marginal negative effect on both employment chances and unemployment chances diminished with increased spell length.

For women, the picture was slightly different. Age was an important factor for both entry into employment and entry into unemployment. The peak age for employment entry was 35 years and beyond this point the positive influence of age fell. The peak age to move into unemployment was 27 years.

The presence of very young dependent children reduced the chances of exiting inactivity to either employment or unemployment. Where the youngest child was aged five years or above there was no discernible effect on entry to unemployment. However, those women whose youngest child was aged at least 11 years were more likely to enter work. Thus, the influence of children in the household conformed to broad expectations; young children required more maternal attention and consequently reduced the chances of moving towards the labour market, while women with older children were able to re-enter employment since their children no longer required them to stay at home.

Women from a minority ethnic group were less likely than white women to enter employment. While it is over-ambitious to attempt to summarise the ethnic dimension of employment decisions with a single variable, it is possible that the reduced tendency for ethnic minority women to move from inactivity into employment coupled with the increased tendency for ethnic minority men to move from inactivity into unemployment is capturing, in part, a difference in perceived gender roles among minority ethnic groups.

Qualifications were important determinants of exit from inactivity. However, this only achieved statistical significance for those with the highest level of qualification and those with NVQ level 1, although the results for other levels of qualification were just shy of statistical significance, conventionally assessed. As a general statement, it appears that having qualifications increased the likelihood of exiting inactivity and that this was most evident for those with NVQ level 4 or above, who were most likely to enter employment. As with inactive men, the age at which full-time education ceased did not appear important in determining exits from inactivity.

Those women with long-term health problems that limited the kind of work they could undertake were less likely to exit inactivity. This is a similar finding to that for men and is to be expected since, although inactivity was dominated by childcare responsibilities for women, there was still a sizeable minority for whom economic inactivity was due to ill-health.

Finally, the chances of exiting inactivity fell the longer the woman had been inactive.

Exits from inactivity are depicted graphically for both men and women in Figure 6.4. It is clear that exits from inactivity were less rapid than exits from unemployment, particularly for women. There were also some small differences between men and women in their destinations on leaving inactivity. Women were more likely to enter employment while men were more likely to become unemployed. However, these differences were only slight.

Table 6.5 presents a summary of the same information in tabular format.

Table 6.5: The predicted probability of becoming employed, unemployed or remaining inactive

	spell length (months)					
	3	6	12	18	24	36
Percentage in each status:						
Men						
Employment	8	14	22	27	31	35
Unemployed	7	14	23	29	33	39
Inactive	85	73	56	44	36	26
Women						
Employment	5	9	16	21	25	31
Unemployed	4	7	13	18	22	28
Inactive	91	84	71	61	53	41

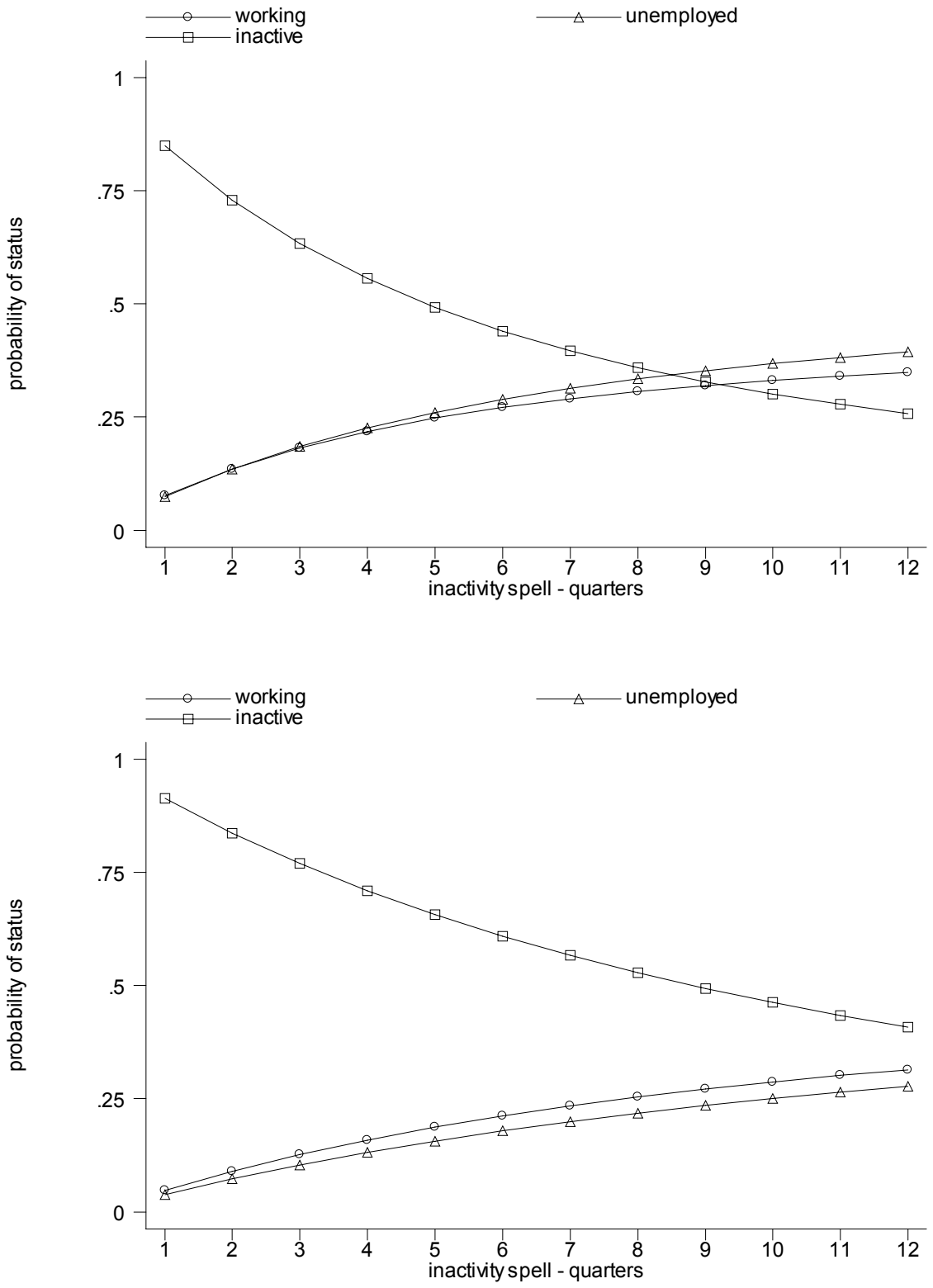


Figure 6.4: Estimated survivor functions for inactive men (top panel) and women (bottom panel)

Table 6.6 presents the effects of changes to individual characteristics on the probability of moving from inactivity to either employment or unemployment. Again, this presents the same results as those already discussed, but in a different way and therefore will not be discussed explicitly. However, one striking feature of the results presented in this way that is perhaps worthy of note is the very high probability of inactive individuals remaining inactive from one period to the next. For both men and women, the estimated probability of remaining inactive never fell below 90 per cent.

Table 6.6 Effect of individual characteristics on the probability of transitions from inactivity to other economic states

	Probability of entering economic state:					
	Men			Women		
	employed	Unemployed	Inactive	employed	Unemployed	Inactive
'Average' individual	1	3	96	2	2	96
Age 20	3	6	91	1	3	96
Age 30	2	5	93	2	3	95
Age 40	2	3	95	2	3	96
Age 50	1	2	97	1	1	97
No children	1	2	97	1	1	97
Youngest child aged 0-1	1	3	96	1	1	98
Youngest child aged 2-4	1	3	96	1	1	98
Youngest child aged 5-10	1	3	96	1	1	97
Youngest child aged 11+	2	3	96	2	2	97
White	2	2	96	2	2	96
Not white	2	4	94	1	1	98
NVQ level 4 or higher	4	4	93	2	2	96
NVQ level 3	2	4	94	1	1	97
NVQ level 2	2	4	95	1	1	98
NVQ level 1	1	4	94	1	2	97
Other qualifications	2	3	95	1	1	97
No qualifications	1	4	95	1	1	98
Left ft education before 16	2	3	95	1	1	98
Left ft education aged 16	2	3	95	1	1	97
Left ft education aged 17-18	2	3	95	1	2	97
Left ft education aged 18+	1	3	96	1	2	97
No long-term health problem	3	5	92	2	2	96
Long-term health problem	1	2	97	1	1	98
Unemployed for 0 quarters	7	6	88	2	3	95
Unemployed for 1 year	5	5	91	2	2	96
Unemployed for 2 years	3	4	93	1	2	97
Unemployed for 3 years	2	3	95	1	2	97

6.3 The relationship between partners' employment statuses

In the final section of this chapter, attention turns to the question of the relationship between the employment statuses of the two partners. It is a well-established empirical finding that the partners of unemployed men in Britain are less likely to be engaged in paid work than the wives of men who are employed. This subject is considered by, for example, Davies et al. (1992) who conclude that a causal relationship exists between male and female employment statuses within a couple. The analysis that follows allows for the possibility that the causal relationship can operate in both directions. That is, the model assumes that the man in a couple finding employment can influence the probability of his partner doing likewise and that the woman finding employment can influence the chances of job entry for the man.

Estimation of a model such as this poses formidable statistical obstacles. To account for the simultaneous determination of both partners' employment statuses, the method of Mallar (1977) was followed. This is a two-stage approach. In the first stage, two indexes are calculated, one reflecting the underlying propensity for the man to enter employment, the other a similar index for the woman. These indexes are based on two separate logistic regression models of observed employment for men and women, where the regressors in both are all those characteristics affecting either male or female employment. In the second stage, male employment participation is estimated, including as regressors those variables thought to influence male participation together with the index reflecting the propensity of the female to participate that was calculated in the first stage. For women's participation, an analogous model is estimated.

Clearly, this approach is suited to the consideration of the case where the dependent variable is dichotomous. The results already presented have shown that it is from unemployment rather than inactivity that most entries to employment occur. Consequently, the focus in the analysis that follows is on unemployed individuals and considers the effect that one partner moving into employment has on the probability of the other partner doing likewise.

The results of estimating these models are presented in Appendix Table 6.7. Columns 1 and 3 show, for men and women respectively, the results of modelling the move from unemployment to employment without including the index reflecting the partner's propensity to be in employment. These results are very similar in terms of size, direction and significance to those presented in Table 6.1 for the move from unemployment to employment and are included merely to demonstrate that the results yielded by this more simple model are comparable to those from the earlier multinomial logistic regression. Columns 2 and 4 present the results of estimating the models (for men and women respectively) including as a regressor the index of the other partner's propensity to be employed. In both cases, the inclusion of these indexes did little to change the estimated effect of the other regressors. However, for both men and women, the

estimated odds ratio for the index was significantly greater than one. In other words, where one partner works, the other is significantly more likely to also work.

This result appears to suggest that a causal link exists between partners' employment statuses. However, it is important to note the possibility that there are some unobserved characteristics, shared by partners within a couple, that are associated with the probability of finding work. In this case, it is not possible to assert the existence of a causal link. Rather, the result simply captures the tendency for couples to be polarised with respect to exiting unemployment. That is, there is a tendency for either both partners to find work or neither partner to find work.

7. Summary and conclusion

This report has used econometric techniques to examine more closely some of the findings from the earlier descriptive account in Dorsett (2001). Through duration analysis, the extent to which these transitions away from worklessness were associated with particular characteristics was explored. A number of findings emerged. Some of these confirmed the impressions created from the descriptive analysis while some of them provided an important new interpretation of the existing results.

While the descriptive analysis merely described the transitions between economic states, the results in this report show how these transitions were related to particular characteristics of the individual or the couple. This provides a more detailed understanding of which factors tend to increase the risk of prolonged worklessness. It should be noted that it is not possible to identify from this analysis those variables associated with becoming workless since it is only exit from worklessness that has been considered rather than entry into worklessness.

An important result concerns the rigidity of unemployment and inactivity. The descriptive analysis showed inactivity to be a very rigid status with few exits observed within the course of the year. However, the estimation results show that in the early period of the inactive spell there can be a substantial number of exits, and that it is among the long-term inactive that the chances of finding a job or becoming unemployed are relatively slim. A similar result was found when considering exits from unemployment. Again, exits were concentrated among those with relatively short spells of unemployment.

In examining the influences on exit from worklessness, the differences between unemployment and inactivity became clear. The descriptive analysis suggested that this was an important distinction and that exits from inactivity were less likely than exits from unemployment. The estimation results confirmed this, revealing a faster rate of exit from unemployment than from inactivity. They also showed that the characteristics influencing movements away from unemployment differed from those influencing the movements away from inactivity.

The destinations of those leaving unemployment and inactivity are also important. While women exited from unemployment at a faster rate than men, many of them left to become inactive rather than employed. Conversely, both men and women were approximately equally likely to exit inactivity to unemployment as to employment (although men exited at a faster rate). Moves from inactivity to unemployment represent a step closer to finding a job while moves from unemployment to inactivity constitute a move away from the labour market. These distinctions are useful in understanding the degree of distance from the labour market and it is important to appreciate that the move from inactivity to employment must include the intermediate stage of unemployment

and that, while an individual may still be workless, the move from economic inactivity to seeking and being available for work represents a definite first step towards leaving worklessness.

Finally, the results have shown the positive association between one partner finding work and the other also finding work. This may suggest a causal link between partners' employment states or may be due to some unobserved characteristics predisposing both partners to work. Whatever the interpretation, the implication is that there is a tendency for exits from unemployment to be concentrated within couples.

These findings provide useful information for the development of policies aimed at tackling worklessness among couples. For example, it has been shown that there is a tendency for exits from unemployment and inactivity to be concentrated in the early stages of the workless spell. This suggests a role for policy in encouraging transitions into employment as soon as couples begin such a spell rather than waiting until their spell has reached a given duration. Furthermore, the factors associated with movement towards work provide an indication as to who are likely to be the couples most difficult to help. Those longer-term workless, those with poor qualifications and those with health problems are likely to find a move into employment especially difficult to achieve and may require particular help. It is clear that, to be effective, policy must be sensitive to the needs of the group it seeks to help. This is particularly true of the New Deal for Partners since the list of qualifying benefits means that the client group is very diverse, comprising men and women of all ages in both unemployed and inactive couples.

Methodological appendix – duration analysis

The results presented in this report are based on two types of econometric model: binomial logistic regression and multinomial logistic regression. These are standard techniques which are routinely used when modelling a dependent variable[9] that is categorical in nature. It is well-acknowledged that such models can be used for the purposes of duration analysis (Allison, 1982). The binomial model is appropriate when the dependent variable is dichotomous. This will be the case when considering worklessness versus non-worklessness, for example. The multinomial model is simply a generalisation of this dichotomous case and allows the dependent variable to indicate one of a set number of states. For the purposes of this research, the multinomial model was used to differentiate between employment, unemployment and inactivity.

Clearly, individuals are not observed from the start of their worklessness spell. This means that only transitions for those couples or individuals who have remained workless up to the point of first appearing in the data can be observed. Jenkins (1995) shows that this does not pose any problems so long so long as the length of the spell is known. This highlights the importance of knowing the length of the worklessness spell. In the analysis that follows, this is simply taken as the time since last employment.[10] For those individuals with no previous employment, the spell of worklessness is taken to begin at the time they were aged 16. This implicitly treats any post-16 education as inactivity and in so doing is consistent with the ILO definition of economic inactivity. A complication arises when considering couples. In this case, the length of the worklessness spell is taken to be the minimum of the man's period of worklessness and the woman's period of worklessness. The implicit assumption is that the couple has existed at least as long as the period of worklessness. This assumption is required since there is no information in the dataset on how long the couple has, in fact, existed.

It is worth pointing out one important difference between the dataset used in the analysis in this report and that used for the descriptive analysis of economic transitions in Dorsett (2001). For simplicity and clarity, the descriptive analysis only considered transitions for those couples who were observed five times in the dataset. The duration analysis used here is robust to attrition. That is, the influences on changes in economic status can be estimated across all couples, be they fully-participating or not. However, this relies on the assumption that attrition from the sample is independent of the probability of change in economic status. The descriptive analysis suggests that this was unlikely to be the case, and that focusing on the balanced panel was tantamount to considering a lower bound on the true proportion moving into work. In the econometric analysis, the full sample was used but, following the approach of Verbeek and Nijman (1992),

[9] The dependent variable is the variable that is to be predicted, ie the variable of interest.
[10] Note that all spells are given as quarters. This is in line with the LFS which carries out interviews each quarter.

variables indicating the panel nature of the data were included in an attempt to control for attrition.

In the remainder of this appendix, a guide to interpretation of the model results is provided.[11] This is for the benefit of those who are unfamiliar with such models, or with modelling terminology more generally.

The advantage of econometric models over purely descriptive accounts is that they allow the researcher to investigate the extent to which a dependent variable is simultaneously associated with a number of other variables. These other variables are often termed 'independent' or 'explanatory' variables, although one should be cautious in assuming the relationship is causal in nature. To examine the relationship, the dependent variable is 'regressed' on the independent variables with the result that a measure of the separate influence of each independent variable is obtained. An estimate of the statistical significance of the influence is also obtained. This allows the researcher to reach a view as to what are the most important correlations.

With a logistic regression model, the measures of influence appear as 'odds ratios'. The interpretation of these ratios differs according to whether the independent variable is categorical (that is, it indicates a category such as gender or ethnic group) or continuous (that is, it indicates a quantity such as wages or age). In the categorical case, the ratios represent the extent to which the independent variable is associated with an increase in the odds of the dependent variable taking on a particular value relative to some reference category. To illustrate, if the dependent variable were a binary indicator of whether an individual was in work, the ratio attached to the independent variable indicating presence of children in the household would show the extent to which having a child changed the odds of working relative to not having a child. The term 'odds' is used here exactly as in betting. If an outcome occurs 1 time in ten, the odds-against are 9 to 1 (i.e. 9), and the odds-on are 1 to 9 (i.e. 1/9). If the effect is 1 then the odds are unchanged. If the effect is greater than 1, the odds are increased (become higher), while if the effect is less than 1, the odds are decreased (become lower).

When the independent variable is continuous, the interpretation of the odds ratio is slightly different. Now it represents the effect on the odds of a unit increase in the value of the predictor variable. Thus, considering the same dependent variable but a continuous independent variable (minimum net hourly pay for which the respondent will work), the odds ratio represents the marginal impact of each extra pound of expected earnings on the odds of being in work. The estimated odds ratio can be small in size for continuous variables, depending on the scale used. For example, the estimated effect of the length of non-

[11] This section draws heavily on Payne, Payne, Lissenburgh and Range (1999) and White, Lissenburgh and Bryson (1997).

employment spell would be smaller if measured in weeks that it would if measured in years.

With a multinomial logistic regression model, the interpretation is slightly different. Now the estimated effects show the association between an independent variable and the odds of the dependent variable taking a particular value *relative* to it taking another value. To make this more transparent, consider the case in which the dependent variable is the individual's economic status which can be either employed, unemployed or inactive. There may be interest in the effect on employment status of there being children in the household compared to the situation in which children are not present. The results will show this effect as it relates to a reference category of the dependent variable. Taking inactivity as the reference category, the results can show how the presence of children increases the odds of being employed rather than inactive, or of being unemployed rather than inactive.

Appendix Table 5.1: modelling exits from worklessness at the household level

	(1) All workless couples	(2) Unemployed couples	(3) Inactive couples
Male age	1.026	1.033	0.962
	(1.31)	(1.42)	(1.05)
Male age squared	0.999	1.000	1.000
	(2.02)*	(1.63)	(0.11)
Female age	1.097	1.081	1.122
	(5.02)**	(3.57)**	(3.24)**
Female age squared	0.999	0.999	0.999
	(4.78)**	(3.25)**	(3.16)**
Youngest child 0-1 years	0.823	0.876	0.731
	(2.75)**	(1.64)	(2.09)*
Youngest child 2-4 years	0.859	0.890	0.849
	(2.08)*	(1.37)	(1.15)
Youngest child 5-10 years	0.859	0.860	0.908
	(2.11)*	(1.79)	(0.70)
Youngest child 11+ years	0.942	0.788	1.357
	(0.81)	(2.66)**	(2.42)*
Either partner not white	0.898	0.878	0.939
	(1.51)	(1.59)	(0.45)
Highest qual of either partner: NVQ4+	1.586	1.456	1.906
	(6.76)**	(4.47)**	(5.56)**
Highest qual of either partner: NVQ3	1.326	1.324	1.378
	(5.45)**	(4.56)**	(3.30)**
Highest qual of either partner: NVQ2	1.125	1.138	1.150
	(2.11)*	(2.00)*	(1.24)
Highest qual of either partner: NVQ1	1.205	1.222	1.180
	(2.80)**	(2.65)**	(1.14)
Highest qual of either partner: other	1.118	1.145	1.000
	(1.80)	(1.86)	(0.00)
SOC male: manager & admin	0.978	1.093	0.703
	(0.30)	(1.00)	(2.45)*
SOC male: professional	1.156	1.172	0.981
	(1.37)	(1.15)	(0.11)
SOC male: associate prof & tech	1.054	0.980	1.040
	(0.47)	(0.15)	(0.21)
SOC male: clerical, secretarial	0.834	0.917	0.608
	(1.72)	(0.69)	(2.46)*
SOC male: personal, protective services	0.965	1.117	0.604
	(0.41)	(1.11)	(2.67)**
SOC male: sales	0.908	0.867	1.067
	(0.85)	(1.12)	(0.31)
SOC male: plant & machine operatives	0.882	0.948	0.735
	(2.00)*	(0.75)	(2.35)*
SOC male: other occupations	0.765	0.778	0.769
	(3.67)**	(3.06)**	(1.70)
Health problem affecting work: either partner	0.657	0.717	0.485
	(8.79)**	(5.95)**	(7.90)**
Health problem affecting work: both partners	0.597	0.711	0.617
	(5.72)**	(2.57)*	(3.65)**

Length of non-employment spell	0.922	0.917	0.924
	(22.24)**	(16.75)**	(13.23)**
Square of length of non-employment spell	1.001	1.001	1.001
	(16.50)**	(10.12)**	(11.74)**
Couple inactive when first observed	0.384		
	(18.47)**		
Tyne & Wear	0.739	0.815	0.642
	(2.35)*	(1.35)	(1.76)
Rest of Northern Region	0.788	0.854	0.655
	(2.33)*	(1.34)	(1.85)
South Yorkshire	0.809	0.883	0.699
	(1.76)	(0.88)	(1.52)
West Yorkshire	0.966	0.944	1.065
	(0.29)	(0.41)	(0.30)
Rest of Yorkshire & Humberside	0.682	0.765	0.488
	(3.03)**	(1.84)	(2.54)*
East Midlands	0.969	0.978	1.006
	(0.35)	(0.20)	(0.04)
East Anglia	0.842	0.798	0.959
	(1.41)	(1.58)	(0.18)
Inner London	0.716	0.733	0.658
	(2.99)**	(2.42)*	(1.88)
Outer London	0.729	0.694	0.852
	(3.27)**	(3.29)**	(0.84)
South West	0.850	0.822	0.982
	(1.79)	(1.83)	(0.10)
West Midlands (metropolitan)	0.827	0.798	0.999
	(1.79)	(1.86)	(0.00)
Rest of West Midlands	0.947	0.869	1.208
	(0.48)	(1.05)	(0.96)
Greater Manchester	0.976	1.046	0.842
	(0.23)	(0.35)	(0.91)
Merseyside	0.683	0.577	1.009
	(2.70)**	(3.11)**	(0.04)
Rest of North West	0.920	0.993	0.819
	(0.72)	(0.05)	(0.97)
Wales	0.849	0.882	0.826
	(1.70)	(1.09)	(1.06)
Strathclyde	0.722	0.776	0.666
	(2.86)**	(1.88)	(1.84)
Rest of Scotland	0.826	0.859	0.810
	(1.77)	(1.20)	(1.01)
Northern Ireland	0.614	0.651	0.516
	(3.54)**	(2.72)**	(2.23)*
Interview in 1995	1.018	0.973	1.146
	(0.26)	(0.36)	(0.88)
Interview in 1996	1.175	1.155	1.170
	(2.25)*	(1.80)	(1.00)
Interview in 1997	1.546	1.536	1.554
	(5.50)**	(4.63)**	(2.79)**
Interview in 1998	1.284	1.353	1.172
	(2.64)**	(2.62)**	(0.89)
Interview in 1999	1.360	1.417	1.292
	(3.29)**	(3.01)**	(1.49)
Interview in 2000	1.322	1.231	1.455
	(2.47)*	(1.45)	(1.94)

Interview in quarter 2	1.071	1.104	0.996
	(1.26)	(1.55)	(0.04)
Interview in quarter 3	1.072	1.084	1.074
	(1.21)	(1.19)	(0.66)
Interview in quarter 4	0.863	0.880	0.835
	(2.45)*	(1.80)	(1.59)
Couple not observed in all waves	1.213	1.117	1.403
	(4.35)**	(2.12)*	(3.93)**
LFS interview 3	0.883	0.916	0.824
	(2.30)*	(1.40)	(1.85)
LFS interview 4	0.840	0.874	0.784
	(3.15)**	(2.07)*	(2.27)*
LFS interview 5	0.898	0.889	0.957
	(1.95)	(1.78)	(0.43)
Missing ethnicity	0.792	0.798	0.818
	(0.92)	(0.78)	(0.37)
Missing qualifications	0.842	0.910	0.545
	(0.84)	(0.42)	(1.19)
Missing: male SOC	1.163	1.083	1.129
	(1.66)	(0.64)	(0.86)
Missing health	0.958	0.964	0.973
	(0.64)	(0.42)	(0.24)
Observations	34223	14664	19559

Robust z-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Reference categories for the categorical variables: no children; no qualifications; craft & related occupation; no health problem affecting work; Rest of South East; interview in 1994; interview in quarter 1; LFS interview 2. Missing values for categorical variables were set to zero and dummy variables were included to indicate missing values.

Appendix Table 6.1 Modelling exits from unemployment at the individual level

	(1)	(2)	(3)	(4)
	Men		Women	
	Employment	Inactive	Employment	Inactive
Age	1.102	0.976	1.132	0.999
	(4.59)**	(0.87)	(2.89)**	(0.03)
Age squared	0.999	1.000	0.998	1.000
	(4.36)**	(1.40)	(2.69)**	(0.39)
Youngest child 0-1 years	0.876	1.029	1.254	2.421
	(1.53)	(0.24)	(1.08)	(5.22)**
Youngest child 2-4 years	0.929	0.943	1.292	2.157
	(0.84)	(0.49)	(1.20)	(4.35)**
Youngest child 5-10 years	0.822	0.972	1.266	1.853
	(2.20)*	(0.25)	(1.21)	(3.60)**
Youngest child 11+ years	0.736	0.810	1.111	1.301
	(3.10)**	(1.74)	(0.54)	(1.53)
Non-white	0.882	0.911	0.665	1.032
	(1.27)	(0.75)	(1.59)	(0.16)
Highest qual: NVQ4 or higher	1.515	1.107	2.275	0.735
	(3.44)**	(0.63)	(3.27)**	(1.29)
Highest qual: NVQ3	1.424	0.934	1.599	0.792
	(4.55)**	(0.67)	(2.17)*	(1.23)
Highest qual: NVQ2	1.269	0.995	1.401	0.873
	(2.49)*	(0.04)	(1.93)	(0.90)
Highest qual: NVQ1	1.309	0.806	1.178	0.778
	(2.53)*	(1.45)	(0.75)	(1.40)
Highest qual: other	1.321	0.772	1.076	0.846
	(3.05)**	(2.17)*	(0.32)	(0.88)
Age left full-time education: Before 16	0.915	0.860	1.322	1.523
	(1.33)	(1.70)	(1.69)	(2.96)**
Age left full-time education: 17-18	1.002	1.319	1.023	1.639
	(0.02)	(2.17)*	(0.12)	(3.10)**
Age left full-time education: Over 18	1.178	1.033	1.286	1.634
	(1.50)	(0.21)	(1.04)	(2.22)*
SOC: Manager & admin	1.051	1.099		
	(0.51)	(0.67)		
SOC: Professional	1.100	0.818		
	(0.60)	(0.80)		
SOC: Associate prof & tech	0.964	0.968		
	(0.24)	(0.16)		
SOC: Clerical, secretarial	0.903	1.004		
	(0.71)	(0.02)		
SOC: Personal, protective services	1.075	0.975		
	(0.64)	(0.16)		
SOC: Sales	0.840	1.068		
	(1.24)	(0.34)		
SOC: Plant & machine operatives	0.965	0.951		
	(0.44)	(0.44)		
SOC: Other occupations	0.803	1.033		
	(2.36)*	(0.27)		
Long-term health problem	0.693	1.565	0.675	1.004
	(3.66)**	(3.96)**	(1.79)	(0.02)
Length of unemployment spell	0.915	1.000	0.950	1.001
	(16.23)**	(0.01)	(6.39)**	(0.22)

Squared unemployment spell	1.001	1.000	1.000	1.000
	(8.51)**	(0.76)	(4.85)**	(0.02)
Tyne & Wear	0.855	0.787	0.750	0.935
	(0.96)	(0.96)	(0.77)	(0.23)
Rest of Northern Region	0.849	0.973	0.838	1.183
	(1.25)	(0.16)	(0.58)	(0.61)
South Yorkshire	0.954	1.332	0.499	0.963
	(0.31)	(1.50)	(1.61)	(0.13)
West Yorkshire	0.963	0.896	0.844	1.146
	(0.25)	(0.49)	(0.43)	(0.40)
Rest of Yorkshire & Humberside	0.820	0.954	0.417	1.132
	(1.26)	(0.21)	(1.57)	(0.36)
East Midlands	0.967	0.893	0.907	0.761
	(0.28)	(0.65)	(0.37)	(1.14)
East Anglia	0.732	0.907	1.139	1.388
	(1.91)	(0.44)	(0.38)	(1.11)
Inner London	0.779	1.072	0.642	0.743
	(1.73)	(0.39)	(1.41)	(1.15)
Outer London	0.693	1.032	0.845	0.909
	(2.99)**	(0.19)	(0.57)	(0.40)
South West	0.759	0.978	0.767	0.920
	(2.24)*	(0.13)	(0.99)	(0.35)
West Midlands (metropolitan)	0.729	1.120	0.599	1.024
	(2.29)*	(0.70)	(1.48)	(0.10)
Rest of West Midlands	0.886	1.048	0.665	0.770
	(0.84)	(0.24)	(1.35)	(0.93)
Greater Manchester	1.009	1.032	1.394	1.046
	(0.07)	(0.16)	(1.09)	(0.17)
Merseyside	0.535	0.931	0.797	0.806
	(3.04)**	(0.33)	(0.62)	(0.64)
Rest of North West	0.964	1.237	1.347	1.645
	(0.23)	(1.04)	(0.84)	(1.53)
Wales	0.818	0.858	0.779	0.724
	(1.50)	(0.80)	(0.89)	(1.30)
Strathclyde	0.701	1.064	0.865	0.809
	(2.27)*	(0.31)	(0.42)	(0.73)
Rest of Scotland	0.859	1.319	0.936	1.035
	(1.09)	(1.41)	(0.23)	(0.13)
Northern Ireland	0.629	0.499	0.413	0.314
	(2.62)**	(3.08)**	(2.17)*	(2.86)**
Interview in 1995	0.943	1.062	1.132	1.028
	(0.68)	(0.51)	(0.63)	(0.17)
Interview in 1996	1.164	1.224	1.355	0.994
	(1.73)	(1.71)	(1.45)	(0.03)
Interview in 1997	1.540	1.199	1.416	0.951
	(4.16)**	(1.27)	(1.46)	(0.24)
Interview in 1998	1.395	0.985	1.510	0.922
	(2.62)**	(0.09)	(1.47)	(0.33)
Interview in 1999	1.580	1.125	1.351	1.165
	(3.59)**	(0.70)	(1.04)	(0.63)
Interview in 2000	1.423	1.286	1.734	1.090
	(2.26)*	(1.24)	(1.54)	(0.27)
Interview in quarter 2	1.136	1.088	0.973	0.994
	(1.78)	(0.85)	(0.16)	(0.04)
Interview in quarter 3	1.088	1.049	1.222	1.147
	(1.10)	(0.45)	(1.19)	(0.94)

Interview in quarter 4	0.863	1.187	1.108	1.179
	(1.82)	(1.66)	(0.59)	(1.11)
Not observed in all waves	1.030	0.979	1.192	0.955
	(0.51)	(0.27)	(1.27)	(0.41)
LFS interview 3	0.982	0.936	0.971	1.085
	(0.25)	(0.72)	(0.20)	(0.67)
LFS interview 4	0.952	0.846	0.809	0.682
	(0.67)	(1.72)	(1.28)	(2.68)**
LFS interview 5	0.986	0.838	0.833	0.825
	(0.19)	(1.76)	(1.09)	(1.33)
Missing ethnicity	0.634	1.185	1.744	2.284
	(1.29)	(0.46)	(0.81)	(1.29)
Missing qualifications	1.532	1.081	0.475	0.828
	(1.34)	(0.17)	(0.68)	(0.29)
Missing age completed education	1.866	1.450	1.604	2.150
	(1.89)	(1.05)	(0.66)	(1.25)
Missing male SOC	2.440	1.196		
	(4.63)**	(1.01)		
Missing health problem	1.068	0.723	0.898	0.812
	(0.68)	(2.44)*	(0.51)	(1.06)
Observations	12893	12893	2763	2763

Robust z-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Reference categories for the categorical variables: no children; no qualifications; left full-time education at age 16; craft & related occupation; no health problem affecting work; Rest of South East; interview in 1994; interview in quarter 1; LFS interview 2. Missing values for categorical variables were set to zero and dummy variables were included to indicate missing values.

Appendix Table 6.4: Modelling exits from inactivity at the individual level

Inactive	(1)	(2)	(3)	(4)
	Men		Women	
	Employment	unemployed	Employment	unemployed
Age	1.016	0.985	1.160	1.112
	(0.37)	(0.45)	(4.68)**	(3.54)**
Age squared	0.999	1.000	0.998	0.998
	(1.29)	(0.71)	(5.10)**	(4.84)**
Youngest child 0-1 years	0.837	1.517	0.676	0.562
	(0.95)	(2.95)**	(2.57)*	(4.25)**
Youngest child 2-4 years	1.030	1.422	0.902	0.739
	(0.17)	(2.45)*	(0.67)	(2.17)*
Youngest child 5-10 years	1.107	1.330	1.104	1.038
	(0.59)	(2.04)*	(0.69)	(0.28)
Youngest child 11+ years	1.534	1.279	1.371	1.123
	(2.71)**	(1.67)	(2.27)*	(0.81)
Non-white	1.160	1.599	0.478	0.808
	(0.77)	(3.51)**	(3.60)**	(1.64)
Highest qual: NVQ4 or higher	2.588	1.043	2.283	1.434
	(4.79)**	(0.23)	(4.67)**	(2.03)*
Highest qual: NVQ3	1.537	1.132	1.307	1.224
	(2.83)**	(1.09)	(1.76)	(1.44)
Highest qual: NVQ2	1.176	0.991	1.214	1.230
	(0.78)	(0.06)	(1.62)	(1.94)
Highest qual: NVQ1	1.038	1.130	1.371	1.288
	(0.15)	(0.72)	(2.20)*	(2.02)*
Highest qual: other	1.102	0.828	1.322	1.173
	(0.51)	(1.38)	(1.77)	(1.14)
Age left full-time education: Before 16	0.895	0.966	0.943	0.849
	(0.84)	(0.34)	(0.55)	(1.64)
Age left full-time education: 17-18	1.033	0.855	0.848	1.111
	(0.20)	(1.08)	(1.26)	(0.96)
Age left full-time education: Over 18	0.845	0.790	0.990	1.304
	(0.92)	(1.39)	(0.05)	(1.70)
SOC: Manager & admin	0.636	0.864		
	(2.45)*	(0.89)		
SOC: Professional	0.722	0.592		
	(1.45)	(2.04)*		
SOC: Associate prof & tech	0.727	1.116		
	(1.29)	(0.47)		
SOC: Clerical, secretarial	0.503	1.021		
	(2.46)*	(0.10)		
SOC: Personal, protective services	0.643	1.083		
	(1.88)	(0.46)		
SOC: Sales	0.918	1.267		
	(0.32)	(1.07)		
SOC: Plant & machine operatives	0.552	1.051		
	(3.24)**	(0.37)		
SOC: Other occupations	0.678	1.038		
	(1.90)	(0.25)		
Long-term health problem	0.340	0.366	0.391	0.502
	(7.56)**	(8.69)**	(7.28)**	(5.40)**

Length of inactivity spell	0.899	0.939	0.949	0.972
	(11.82)**	(11.05)**	(13.30)**	(7.92)**
Squared inactivity spell	1.001	1.000	1.000	1.000
	(11.92)**	(10.20)**	(10.85)**	(5.09)**
Tyne & Wear	0.697	0.950	0.564	1.147
	(1.09)	(0.22)	(2.06)*	(0.64)
Rest of Northern Region	0.577	0.805	0.784	0.937
	(1.89)	(1.02)	(1.19)	(0.34)
South Yorkshire	0.512	0.662	0.736	1.289
	(1.98)*	(1.69)	(1.26)	(1.29)
West Yorkshire	1.010	0.995	0.755	1.186
	(0.04)	(0.02)	(1.14)	(0.87)
Rest of Yorkshire & Humberside	0.280	1.122	0.490	1.346
	(2.90)**	(0.47)	(2.45)*	(1.43)
East Midlands	0.773	0.668	1.171	1.222
	(1.17)	(2.08)*	(0.96)	(1.22)
East Anglia	1.030	0.738	1.069	1.352
	(0.11)	(1.14)	(0.30)	(1.40)
Inner London	0.554	1.002	0.482	1.364
	(2.05)*	(0.01)	(2.51)*	(1.71)
Outer London	0.902	0.881	0.631	1.402
	(0.43)	(0.66)	(2.17)*	(2.07)*
South West	0.937	0.537	0.847	0.999
	(0.32)	(2.84)**	(0.95)	(0.01)
West Midlands (metropolitan)	0.902	0.880	1.015	0.959
	(0.38)	(0.62)	(0.08)	(0.21)
Rest of West Midlands	1.477	0.818	0.810	1.133
	(1.61)	(0.82)	(0.95)	(0.62)
Greater Manchester	0.583	1.007	0.963	1.045
	(2.02)*	(0.04)	(0.18)	(0.23)
Merseyside	0.779	0.542	0.756	0.927
	(0.82)	(2.31)*	(1.11)	(0.33)
Rest of North West	0.741	0.505	0.937	0.787
	(1.16)	(2.68)**	(0.31)	(1.04)
Wales	0.554	0.609	0.896	0.739
	(2.36)*	(2.50)*	(0.62)	(1.59)
Strathclyde	0.842	1.272	0.558	0.987
	(0.64)	(1.26)	(2.39)*	(0.07)
Rest of Scotland	0.812	0.735	0.785	0.918
	(0.80)	(1.39)	(1.14)	(0.41)
Northern Ireland	0.539	0.709	0.459	0.473
	(1.64)	(1.25)	(2.65)**	(2.51)*
Interview in 1995	0.889	0.834	1.356	0.839
	(0.60)	(1.33)	(2.02)*	(1.47)
Interview in 1996	1.037	0.867	1.383	0.941
	(0.18)	(1.02)	(2.10)*	(0.51)
Interview in 1997	1.413	0.927	1.843	0.798
	(1.79)	(0.53)	(3.81)**	(1.66)
Interview in 1998	1.252	0.582	1.410	0.770
	(1.09)	(3.18)**	(1.79)	(1.61)
Interview in 1999	1.401	0.693	1.692	0.602
	(1.68)	(2.27)*	(2.88)**	(2.98)**
Interview in 2000	1.229	0.380	1.581	0.615
	(0.87)	(4.26)**	(2.12)*	(2.30)*
Interview in quarter 2	1.019	0.920	1.154	0.892
	(0.14)	(0.79)	(1.26)	(1.11)

Interview in quarter 3	1.023	0.819	1.328	0.991
	(0.16)	(1.73)	(2.43)*	(0.09)
Interview in quarter 4	0.792	0.826	1.152	0.969
	(1.57)	(1.67)	(1.17)	(0.29)
Not observed in all waves	1.524	1.391	1.422	1.196
	(3.82)**	(3.94)**	(3.97)**	(2.31)*
LFS interview 3	0.740	0.806	0.900	0.788
	(2.29)*	(2.17)*	(0.95)	(2.55)*
LFS interview 4	0.663	0.624	0.778	0.664
	(3.04)**	(4.37)**	(2.16)*	(4.22)**
LFS interview 5	0.731	0.569	0.960	0.561
	(2.39)*	(5.10)**	(0.38)	(5.59)**
Missing ethnicity	0.700	1.380	1.117	1.201
	(0.45)	(0.78)	(0.22)	(0.39)
Missing qualifications	1.448	1.272	1.058	0.825
	(0.64)	(0.59)	(0.09)	(0.32)
Missing age completed educations	0.612	0.567	1.215	0.194
	(1.47)	(2.14)*	(0.61)	(3.06)**
Missing male SOC	3.395	2.505		
	(4.48)**	(4.97)**		
Missing health problem	1.389	1.109	1.062	0.966
	(2.30)*	(0.82)	(0.48)	(0.27)
Observations	20020	20020	32173	32173

Robust z-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Reference categories for the categorical variables: no children; no qualifications; left full-time education at age 16; craft & related occupation; no health problem affecting work; Rest of South East; interview in 1994; interview in quarter 1; LFS interview 2. Missing values for categorical variables were set to zero and dummy variables were included to indicate missing values.

Appendix Table 6.7: Exits from unemployment to employment

	(1)	(2)	(1)	(2)
	Male		Female	
Partner's propensity to work		1.159		1.218
		(4.08)**		(3.19)**
Age	1.099	1.081	1.129	1.129
	(4.62)**	(3.71)**	(3.06)**	(3.06)**
Age squared	0.999	0.999	0.998	0.998
	(4.60)**	(3.42)**	(2.94)**	(2.90)**
Youngest child 0-1 years	0.883	0.980	1.126	1.062
	(1.48)	(0.24)	(0.65)	(0.33)
Youngest child 2-4 years	0.946	1.014	0.999	0.942
	(0.64)	(0.16)	(0.01)	(0.31)
Youngest child 5-10 years	0.848	0.855	1.169	1.055
	(1.90)	(1.80)	(0.91)	(0.30)
Youngest child 11+ years	0.768	0.775	1.086	1.134
	(2.75)**	(2.65)**	(0.47)	(0.72)
Non-white	0.927	1.042	0.725	0.760
	(0.84)	(0.44)	(1.54)	(1.32)
Highest qualification: NVQ4 or higher	1.548	1.417	2.381	2.222
	(4.06)**	(3.17)**	(4.82)**	(4.42)**
Highest qualification: NVQ3	1.400	1.327	1.574	1.513
	(4.60)**	(3.82)**	(2.45)*	(2.24)*
Highest qualification: NVQ2	1.242	1.188	1.257	1.190
	(2.44)*	(1.93)	(1.47)	(1.12)
Highest qualification: NVQ1	1.258	1.234	1.370	1.315
	(2.22)*	(2.03)*	(1.65)	(1.44)
Highest qualification: other	1.346	1.311	1.269	1.202
	(3.39)**	(3.08)**	(1.15)	(0.88)
SOC: manager & admin	1.035	0.969		
	(0.37)	(0.34)		
SOC: professional	1.155	1.154		
	(0.94)	(0.94)		
SOC: associate prof & tech	0.954	0.950		
	(0.32)	(0.34)		
SOC: clerical, secretarial	0.870	0.875		
	(1.01)	(0.97)		
SOC: personal, protective services	1.046	0.992		
	(0.41)	(0.07)		
SOC: sales	0.824	0.809		
	(1.42)	(1.55)		
SOC: plant & machine operatives	0.967	0.974		
	(0.43)	(0.35)		
SOC: other occupations	0.755	0.754		
	(3.10)**	(3.12)**		
Long-term health problem	0.601	0.643	0.697	0.750
	(6.75)**	(5.71)**	(2.29)*	(1.82)
Length of unemployment spell	0.915	0.918	0.950	0.955
	(17.66)**	(16.99)**	(7.13)**	(6.29)**
Unemployment spell squared	1.001	1.001	1.000	1.000
	(11.35)**	(11.38)**	(5.34)**	(4.78)**
Tyne & Wear	0.894	1.073	0.710	0.750
	(0.73)	(0.44)	(0.97)	(0.82)
Rest of Northern Region	0.837	0.875	0.822	0.924
	(1.40)	(1.05)	(0.73)	(0.30)

South Yorkshire	0.874	0.907	0.450	0.525
	(0.91)	(0.65)	(2.01)*	(1.62)
West Yorkshire	0.946	0.956	0.796	0.964
	(0.37)	(0.31)	(0.69)	(0.11)
Rest of Yorkshire & Humberside	0.811	0.912	0.602	0.716
	(1.38)	(0.60)	(1.17)	(0.78)
East Midlands	0.947	0.972	1.139	1.277
	(0.47)	(0.24)	(0.55)	(1.01)
East Anglia	0.719	0.702	0.977	1.087
	(2.08)*	(2.22)*	(0.08)	(0.28)
Inner London	0.737	0.795	0.704	0.799
	(2.17)*	(1.60)	(1.25)	(0.79)
Outer London	0.671	0.701	0.877	0.962
	(3.35)**	(2.97)**	(0.49)	(0.15)
South West	0.750	0.741	0.750	0.799
	(2.43)*	(2.53)*	(1.18)	(0.92)
West Midlands (metropolitan)	0.713	0.750	0.621	0.652
	(2.57)*	(2.17)*	(1.54)	(1.37)
Rest of West Midlands	0.822	0.839	0.739	0.752
	(1.38)	(1.24)	(1.07)	(1.00)
Greater Manchester	0.994	0.946	1.316	1.376
	(0.04)	(0.41)	(0.94)	(1.09)
Merseyside	0.530	0.552	0.677	0.814
	(3.20)**	(2.97)**	(1.08)	(0.57)
Rest of North West	0.916	0.919	1.213	1.462
	(0.57)	(0.55)	(0.64)	(1.25)
Wales	0.800	0.843	0.988	1.037
	(1.73)	(1.32)	(0.05)	(0.15)
Strathclyde	0.633	0.644	0.883	0.839
	(3.00)**	(2.90)**	(0.40)	(0.57)
Rest of Scotland	0.783	0.794	0.955	1.178
	(1.82)	(1.71)	(0.18)	(0.61)
Northern Ireland	0.593	0.637	0.608	0.670
	(3.35)**	(2.88)**	(1.51)	(1.21)
Interview in 1995	0.913	0.900	1.000	1.030
	(1.09)	(1.26)	(0.00)	(0.16)
Interview in 1996	1.126	1.075	1.195	1.192
	(1.38)	(0.83)	(0.90)	(0.89)
Interview in 1997	1.428	1.297	1.470	1.404
	(3.90)**	(2.76)**	(1.98)*	(1.72)
Interview in 1998	1.284	1.154	1.570	1.511
	(2.53)*	(1.40)	(2.24)*	(2.04)*
Interview in 1999	1.454	1.291	1.255	1.210
	(3.80)**	(2.50)*	(1.04)	(0.87)
Interview in 2000	1.300	1.166	1.335	1.340
	(2.01)*	(1.16)	(1.01)	(1.02)
Interview in quarter 2	1.104	1.101	0.906	0.894
	(1.44)	(1.40)	(0.68)	(0.77)
Interview in quarter 3	1.067	1.039	1.104	1.099
	(0.88)	(0.52)	(0.66)	(0.63)
Interview in quarter 4	0.838	0.815	0.974	0.982
	(2.29)*	(2.63)**	(0.17)	(0.11)
Couple not observed in all waves	1.062	1.084	1.332	1.383
	(1.08)	(1.44)	(2.40)*	(2.72)**
LFS interview 3	0.953	0.900	0.829	0.774
	(0.69)	(1.50)	(1.35)	(1.83)

LFS interview 4	0.905	0.831	0.689	0.625
	(1.41)	(2.51)*	(2.53)*	(3.14)**
LFS interview 5	0.930	0.841	0.659	0.592
	(1.02)	(2.28)*	(2.80)**	(3.45)**
Missing SOC	2.353	2.163		
	(4.68)**	(4.19)**		
Observations	14116	14116	3621	3621
Robust z-statistics in parentheses				
* significant at 5% level; ** significant at 1% level				

Reference categories for the categorical variables: no children; no qualifications;; craft & related occupation; no health problem affecting work; Rest of South East; interview in 1994; interview in quarter 1; LFS interview 2. Missing values for SOC were set to zero and a dummy variable was included to indicate missing values.

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