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Marital splits and income changes over the longer term

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Non-technical summary

What happens to people's incomes when their or their parents' marital union dissolves? Virtually all previous analyses of this question – for Britain, the USA, and a large number of European countries – have focused on short-term changes in income, comparing income for the year before the marital split with income for the year after the marital split. This research has found, almost without exception, that there are large falls in income in the year after a marital split for separating women and children, but not for separating men.

This paper is the first British study to examine whether the short-term economic consequences of a marital split have changed over time. Using data from waves 1–14 (survey years 1991–2004) of the British Household Panel Survey, I show that marital splits continue to be associated with short-term declines in income for separating wives and children relative to separating husbands, but the size of the decline has declined over time markedly for women with children, and for dependent children. For the period 1991–1997, the average fall in income for separating mothers between the year before and the year after the marital split was –30%, whereas for the period 1998–2004, the average fall in income for this group was –12%. The corresponding figures for separating husbands were 36% and 31%.

The explanation for why the economic consequences of a marital split are no longer so adverse for women with children appears to be relatively straightforward: employment rates for mothers rose secularly over the 1990s and were given a particular stimulus by the introduction of Working Families Tax Credit in 1998. WFTC both raised the incentives to take a job for workless families with children regardless of the marital status of the parent(s), and made work pay to a greater extent.

I also consider how post-split incomes evolve over the longer-term, tracing the incomes of separating husbands and wives from the year before their marital split through to the fifth year following the marital split. The analysis of these six-year income trajectories suggests that, after their large fall immediately after the marital split, incomes for separating wives do recover but not to their previous levels: five years after a split, incomes remain about 10% below their pre-split levels on average. However women who do not have a job in any of the five years after a marital split, or who do not find a new partner, do much worse than this. Women who remain in paid work or who have a new partner fare best.

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Abstract

What happens to people's incomes when their or their parents' marital union dissolves? Using data from waves 1–14 (survey years 1991–2004) of the British Household Panel Survey, I show that marital splits are associated with short-term declines in income for separating wives and children relative to separating husbands, but the size of the decline has declined over time markedly for women with children and this most likely reflects the effects of secularly rising employment rates and, related, the introduction of Working Families Tax Credit in 1998. Analysis of income trajectories suggests that in the five years following a marital split, incomes for separating wives recover but not to their previous levels.

Keywords: divorce, marital dissolution, income distribution, income mobility, poverty
JEL codes: J12, D31, I38

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1. Introduction

In the past two decades, as panel surveys have become widespread, substantial evidence has accumulated concerning the economic consequences of marital disruption measured in terms of the change in some measure of net household income adjusted for differences in household size and composition. Almost without exception, these studies have found large falls in income in the year after a marital split for separating women. National studies covering Britain, Canada, and the USA include Bianchi and McArthur (1989), Bianchi et al. (1999), David and Flory (1989), Duncan and Hoffman (1985), Finnie (1993), Hoffman (1977), Jarvis and Jenkins (1998, 1999), McKeever and Wolfinger (2001), and Smock (1993, 1994). Cross-national comparative studies have also become more common, building on the pioneering study of Germany and the USA by Burkhauser et al. (1990, 1991). See Andreß et al. (2006) comparing Belgium, Britain, Germany, Italy and Sweden using national panel surveys, and Uunk (2004) and Aassve et al. (2007) comparing member states of the European Union using the European Community Household Panel.

This paper contributes to this literature in two ways, drawing on data from waves 1–14 (survey years 1991–2004) of the British Household Panel Survey. First, it is the only study of the trends over time in Britain of the short-term changes in income associated with a marital split. As in most previous studies, I calculate the average year t and year t+1 income change for persons experiencing a marital split between t to t+1, pooling multiple waves of panel data to ensure sample sizes are not too small. With a long run of panel data, however, I do not have to pool all waves of data, and can compare earlier periods with later periods. I focus on 1991–1997 compared with 1998–2003 (the years mentioned refer to year t). Previous studies of trends in short-term income changes, all for the USA as far as I am aware, have either utilised different surveys to draw conclusions about trends (e.g. McKeever and Wolfinger 2001) or, for the same survey, examined trends relatively long ago (e.g. Smock 1993). With the BHPS, I am able to use consistently defined data from the same survey, and they refer to the relatively recent past.

The second contribution of the chapter arises from its use of the long run of BHPS panel data in a different way. I examine six-year trajectories, analysing how incomes evolve from the year prior to the marital split (t) over the five years following the split (t+1 to t+5). This longer-run perspective on the economic consequences of marital splits has also been taken by Andreß et al (2006) using data from five European panel surveys and, in much greater detail, by Duncan and Hoffman (1985) using the US Panel Study of Income

Dynamics. My contribution is its focus on Britain, and examination in detail of women who have dependent children prior to the marital split.

In Section 2, I explain key definitions such as a 'marital split' and 'income', and how data about these were derived from the BHPS, and report sample numbers. In Section 3, I update the analysis of Jarvis and Jenkins (1999), which was based on four waves of BHPS data. I show that marital splits continue to be associated with substantial declines in income for separating wives and children relative to separating husbands. However, the analysis of trends reveals that the size of the drop in income declined in the late 1990s, and I argue that the most likely explanation for this were secular increases in labour force participation rates and – closely associated – changes to the social security benefit system at that time, notably the introduction of Working Families Tax Credit. The analysis of six-year income trajectories is presented in Section 4. The estimates suggest that, in the five years following a marital split, incomes for separating wives recover but not to their previous levels, on average. Women in paid work or who have a new partner fare best. Section 5 provides concluding remarks.

2. Data and definitions[1]

I analyse longitudinal data from the first fourteen waves of the BHPS (survey years 1991–2004).[2] (For a detailed discussion of the BHPS, see Lynn 2006.) All the adults and children in the wave 1 sample were designated as original sample members (OSMs). On-going population representativeness has been maintained by using a following rule typical of household panel surveys: at the second and subsequent waves, all OSMs are 'followed' (even if they move house, or if the household splits up), and there are interviews, at approximately one year intervals, with all adult members of all households containing either an OSM, or an individual born to an OSM whether or not they were members of the original sample. New panel members who subsequently stop living with an OSM are, however, not followed and interviewed again. Thus, for example, if a non-OSM married an OSM at wave 2, and the partnership subsequently dissolved, the OSM is followed, but the non-OSM is not. There are some exceptions: new panel members who have children with OSMs become 'permanent

[1] This section draws on Jarvis and Jenkins (1999).
[2] I use only the original sample which began in 1991. Data from the later extension samples for Scotland, Wales, and Northern Ireland are not used.

sample members' (PSMs) and continue to be followed. These PSMs are included in the analysis.

Following Jarvis and Jenkins (1999) and most other studies, I define a marital split as a transition from a legal marriage or cohabiting union observed at the wave t interview to living apart from the wave t spouse or partner at the wave t+1 interview, where t runs from 1 (wave 1) to 13 (wave 13). Calculations are based on three main subsamples of persons experiencing a marital split: (i) separating men, (ii) separating women, and (iii) the dependent children present at wave t of parents who separated between t and t+1.[3] Adults who repartner between wave t and wave t+1 are included in the analysis. As with a number of other studies, I consider only the first marital split that is observed in the panel (this accounts for almost 90 per cent of all observed splits.)

An individual's economic circumstances in each year is measured in terms of the equivalized household net income of the household to which the individual belongs. Net income is the sum across household members of income from employment and self-employment, investments and savings, private and occupational pensions, other market income and private transfers (including maintenance income), plus cash social security and social assistance receipts from the state, less income tax payments, employee National Insurance contributions, and local taxes.[4] Net income is the most widely used income measure in the U.K., and the basis of official income distribution statistics (see e.g. Department for Work and Pensions 2007).[5]

The reference period over which most income components are measured is the month prior to the interview or the most recent relevant period,[6] with all figures converted to a comparable pounds per week basis pro rata. The use of this current income measure increases the chance that observed income changes reflect transitory variations.[7] However, there are also significant advantages to using a relatively short reference period. First, we can be more confident that the household income measure is based on information for the people who are

[3] A dependent child is aged less than 16 years, or more than 16 years but under 19 years and unmarried, in full-time non-advanced education and living with their parents. When looking at income changes for dependent children experiencing a marital split, I also required that the child be dependent at both waves t and t+1.
[4] For a more detailed discussion of the construction of the BHPS net income variables, see Levy et al. (2006).
[5] See Jarvis and Jenkins (1999) for analysis of pre-tax pre-transfer ('original') income and pre-tax post-transfer ('gross') income.
[6] The principal exceptions are employment earnings which are 'usual earnings', and income from investments and savings which are annual measures.
[7] But see Böheim and Jenkins (2006) who show that the distributions of BHPS current and annual income measure are very similar.

present in the household during the income reference period. Second, we maximise sample size, because fewer interviews are required to measure pre- and post-split income change.

In order to derive comparable measures of real income over time, all incomes have been indexed to April 2007 price levels using an appropriate monthly price deflator (the index of retail prices excluding local taxes).

Net household income were adjusted to take account of differences in composition and size between households using the McClements (before housing costs) equivalence scale, which has scale rates which depend on the number of adults and the number and age of dependent children: see Department for Work and Pensions (2007) for details. I normalise the scale rates so that the rate has the value of one for single adult households.

Although the McClements scale has been the most commonly-used in Britain, there is no single 'correct' equivalence scale from a conceptual or an empirical point of view (Coulter et al., 1992). Estimates of the size and direction of the income change resulting from a marital split may be sensitive to the equivalence scale chosen. When a couple separate, they typically form separate households of a smaller size and so, if there are large economies of scale, the consequences of a marital split for living standards are much more deleterious than were there only minor economies of scale. Moreover, inbuilt assumptions about economies of scale affect income change estimates more for separating husbands than wives (or children) because the change in household size with a marital split is greater for husbands: children of separating couples typically reside with their mothers after the split. For a detailed analysis of the sensitivity of results to changes in the equivalence scale, see Jarvis and Jenkins (1999).

Sample numbers and characteristics

The numbers of separating husbands, wives and children who experienced a marital split in BHPS waves 1–14 are summarized in Table 1. Column 1 shows the number of individuals for the case where at least one partner of a splitting couple was traced at the wave after the split. (If both partners attrit, one cannot tell if they also split up.) Column 2 shows the numbers of individuals providing some form of response at interview, and Column 3 shows the numbers for whom valid net income measures could be derived. Clearly, sample dropout is substantial,

especially for separating husbands and those with dependent children at wave *t* in particular.[8] For only 67 per cent of separating husbands is any kind of interview achieved (77 per cent for those without children at *t*; 60 per cent for those with children at *t*). By contrast, there are interviews with 89 per cent of separating wives, and this fraction does not vary between mothers and childless women. These figures may be compared with the overall wave-on-wave response rates to the BHPS of around 90 per cent for wave 2, and several percentage points higher for each wave thereafter. Incomplete response to income questions reduces sample numbers further, as a comparison with column 3 shows. However, the proportionate reduction is broadly the same for separating husbands and wives.

Table 1
Numbers of persons experiencing a marital split

Persons experiencing a marital split	Original Sample Members at wave *t* eligible to be interviewed at wave *t*+1 Waves 1–13 (1)	As (1), and with an interview of any kind at wave *t*+1 (full, proxy, telephone) Waves 1–13 (2)	As (1), and with valid net income data at waves *t* and *t*+1 Waves 1–13 (3)	Waves 1–7 (4)	Waves 8–13 (5)
Husbands	803	539	392	234	158
Wives	845	748	513	311	202
Husbands with no children at *t*	327	252	182	112	70
Wives with no children at *t*	346	305	199	124	75
Husbands with child(ren) at *t*	476	287	210	122	88
Wives with child(ren) at *t*	499	443	314	187	127
Children	849	748	610	357	253

Notes: For the definitions of an Original Sample Member, a marital split, and net income, see text. 'Children' refers to the dependent children of couples experiencing a marital split (see text). Table excludes cases where neither partner of the splitting partnership provided an interview at *t*+1. Numbers refer to first marital split observed in the panel. If all marital splits in the panel are used the Column 1 numbers are 911 for separating husbands, 995 for separating wives, and 963 for affected children.

Despite sample dropout, there remain relatively large numbers of cases for analysis, an advantage of having a long run of panel data. With 14 waves, there are about four times as

[8] The differential attrition rates are not a BHPS peculiarity; they are typical in panel studies of this kind. See e.g. Burkhauser et al. (1990), using data from the US Panel Study of Income Dynamics and the German Socio-

many cases as there were for Jarvis and Jenkins (1999), who used BHPS waves 1–4: 610 children compared with 151, 392 separating husbands compared with 105, and 513 separating wives compared with 148. With the larger sample sizes, some analysis of subsamples is also possible: I compare the experiences of separating husbands and wives with and without children prior to the marital split, and also between different periods especially between waves 1–7 (survey years 1991–1997) and waves 8–13 (1998–2003). It remains the case, however, that although subsample numbers are relatively large for this kind of study, they are relatively small by the standards of much survey analysis, and the estimates need to be treated with appropriate caution. I limit the number subsamples that I analyse and, to minimise the influence of outlier values, I work mostly with medians rather than means.

In addition to the small numbers, Table 1 raises questions about the possibility of bias in estimated statistics from non-random attrition. The relatively high attrition rates for separating husbands compared to separating wives is typical in studies of this kind (see e.g. Burkhauser et al. 1990). The standard method for controlling for attrition biases and cross-sectional non-response potential attrition bias is to use an appropriate sample weight when calculating statistics. Jarvis and Jenkins (1999), for example, used the BHPS longitudinal enumerated individual weights for wave t+1 to derive their estimates, though they also noted that their conclusions were unchanged when unweighted data were used.

I report unweighted estimates of short-term income changes following a marital split. This is because the BHPS longitudinal weights were not designed for this type of analysis and this unsuitability is exacerbated the longer the panel is. The longitudinal weights for wave s are non-zero only for OSMs who are respondents at every annual interview between wave 1 and wave s inclusive, or their children (Lynn 2006, section 8.1.2). They are zero for PSMs, for non-OSMs who join the panel after wave 1, and for any OSM with intermittent panel response. As the panel matures, increasing numbers of persons at each wave do not have a valid longitudinal weight or, put another way, applying the longitudinal weights systematically excludes cases from later waves.[9] Although unweighted estimates are reported, I also calculated weighted estimates and these yielded similar conclusions.

` For analysis of longer-term income trajectories, the possibility of attrition bias was larger because of the stringent selection criteria for membership of the analysis sample, namely

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Economic Panel.

[9] There is another issue about using BHPS longitudinal weights. They are not designed for the case where analysts pool pairs of waves, as here. Although this case is common, it does not appear to have been addressed in the statistical literature.

responding and having valid net income values at six consecutive waves. I estimated the probability of inclusion in the analysis sample using probit regression and, for each member of the analysis sample, calculated an individual-specific weight equal to the inverse of the probability predicted from the regression. See Section 4 for further details.

3. Short-term income changes for persons experiencing a marital split

Patterns of income change, by subgroup and over time

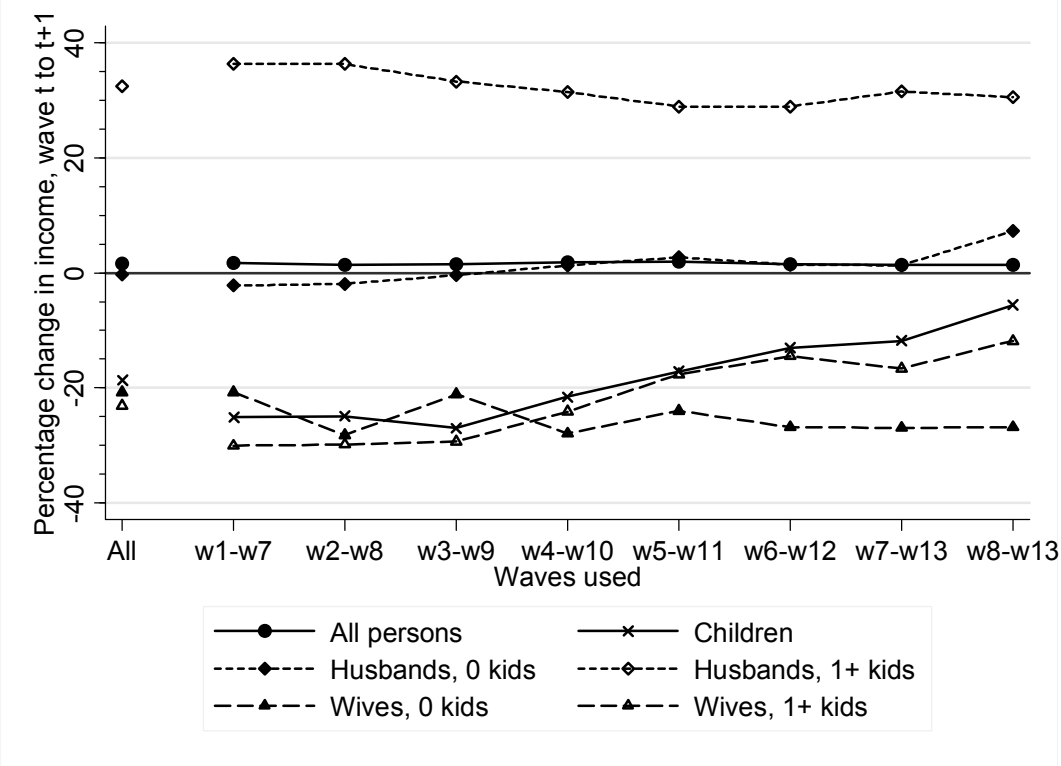
For each individual experiencing a marital split, I calculated the percentage change in net income between the interview before the split (year *t*) and the interview after the split (year *t*+1). Figure 1 summarizes the median of the distribution of these changes for each of a number of subgroups and time periods. The horizontal axis shows time periods defined in terms of the waves for the calculations. For example, 'All' refers to all waves (t = 1–13), 'w1-w7' to waves 1–7 (t = 1–7), and so on. Thus, what is plotted is a form of temporal moving average. Each line shows the median percentage change for a particular group. Also shown, for reference, is the corresponding median percentage income change for all persons in the panel, including those not affected by a marital split ('All persons'), which is consistently between 1½ and 2 per cent per year.

The patterns of income changes between men, women and children correspond closely to those found in earlier studies, and Jarvis and Jenkins (1999), in particular. Separating wives and children fare much worse than separating husbands. According to the 'all waves' estimates, the median income change for separating wives is –22 per cent, for separating husbands +13 per cent, and for children –19 per cent. For separating wives, there is little difference in the median change according to whether there were dependent children present at the pre-split interview: –21 per cent for those without children, and –23 per cent for those with children. By contrast, there is a large difference for separating husbands: for those without dependent children at *t*, the median change is 0 per cent; for those with dependent children, it is +32 per cent.[10] As explained by Jarvis and Jenkins (1999), this differential is in part due to changes in household composition rather than changes in money

[10] In principle, income gains for separating fathers may be over-estimated, because child support payments are not deducted from my definition of income. However, in practice, the bias is likely to be small: see the sensitivity analysis undertaken by Jarvis and Jenkins (1999).

income. Changes in incomes that are unadjusted for differences in household size and composition are similar for the two groups but, because children mostly live with their mother rather than their father after a marital split, the equivalence scale factor for fathers falls markedly, thereby increasing equivalised income.

Figure 1
Median percentage change in net income, wave *t* to wave *t*+1, for persons experiencing a marital split, by period



Note. Net income is defined in text. 'Waves used' refers to waves pooled for calculations. The median is the 50th percentile (middle value) of a distribution.

How have income changes associated with a marital split varied within the 14 year period? Figure 1 shows that there was little trend in the median change for separating wives without dependent children at *t*, or for separating husbands regardless of whether they had children at *t*. By contrast, there have been marked trends for separating wives with children, and for children. For both groups, the median percentage change in income associated with a marital split has become less negative, and this starts once calculations involve wave 9 and later waves ('w3–w9' onwards). For example, for separating wives with children, the median change is –30 per cent for 1991–1997 but –12 per cent for 1998–2003. For children, the

corresponding estimates are –25 per cent and –6 per cent. So, there appears to have been a substantial reduction on average in the adverse consequences of a marital split for these two groups. Are these patterns replicated across the full distribution of changes rather than only the median?

Table 2 shows, in addition to the median income change, the lower quartile and the upper quartile of the distribution of income changes for each subgroup, where the calculations have been undertaken separately for waves 1–7 and for waves 8–13. The table shows that for separating wives with children, and for children, there has been a rightward shift in the distribution of income changes: for both groups, each of the lower quartile, median, and upper quartile has become less negative or more positive. This cannot be said for the other groups. Kernel density estimates of the entire distribution of income changes (not shown) confirm these differential trends over time for the different groups.

Table 2
Percentage change in net income, wave *t* to wave *t*+1, for persons experiencing a marital split, by period

	Waves 1–7			Waves 8–13		
	Lower quartile	Median	Upper quartile	Lower quartile	Median	Upper quartile
All persons*	–13	2	20	–12	2	18
Persons experiencing a marital split						
Children	–50	–25	11	–37	–6	25
Husbands	–25	9	55	–20	17	59
Wives	–53	–27	12	–43	–17	14
Husbands, no children at *t*	–30	–2	35	–24	7	46
Wives, no children at *t*	–51	–21	24	–48	–27	11
Husbands, child(ren) at *t*	–15	36	82	–15	31	76
Wives, child(ren) at *t*	–56	–30	8	–39	–12	18

Notes. Net income is defined in text. *: All BHPS respondents regardless of whether experienced a marital split or not. The lower quartile is the 25th percentile, the median is the 50th percentile, and the upper quartile is the 75th percentile of a distribution.

In addition to providing information about trends over time, Table 2 re-emphasises Jarvis and Jenkins's remarks that 'there is much heterogeneity in income change associated with a marital split, regardless of gender, in addition to the clearcut average changes' (1999: 244). Small sample numbers constrain the use of crosstabulations to investigate who the gainers and losers are. A median regression of the percentage change in net income for separating wives with dependent children at *t* suggests few systematic associations with their

characteristics measured at *t*. For instance, neither age, legal marital status, academic qualifications, number of children, whether UK-born, or housing tenure appeared to have a statistically significant association for this group. Two factors did have an association. The percentage change in net income after a marital split was smaller (i.e. less negative on average) for women whose former partner did not work (22 per cent of the estimation sample), and for women with marital splits in later years rather than earlier years.

Towards an explanation of the trends

Why have the economic costs of a marital split declined for women with dependent children? (Since most children stay with their mother after a marital split, answers to this question will also explain the improved fortunes of children experiencing parental marital splits.)

The most likely explanations of the trends are increases in attachment to paid work, and increases in the rewards to paid work relative to not working, both of which are associated with the various changes in the late 1990s to the system of in-work support. These changes specifically aimed to increase the employment rates of families of children and to 'make work pay'.

Family Credit (FC), the programme providing means-tested support to low income working families was replaced by Working Families Tax Credit (WFTC) in October 1999 and fully phased in by April 2000. WFTC was more generous than FC (Brewer et al. 2006): it paid higher benefits ('credits') especially for families with young children; more could be earned before benefits tapered off; there were credits for child care; and maintenance income from non-resident parents was disregarded when assessing income. (WFTC was itself replaced by the Working Tax Credit and Child Tax Credit programmes from April 2003. As this is at the end of my sample period, it is less relevant to an explanation of the trends I report.) By design, WFTC raised incentives to work for lone parents who were not in paid work, or working fewer than 16 hours per week, the minimum number required for WFTC receipt. See inter alia Brewer and Shephard (2004) for further details.

There were a number of other changes during this period that raised support for families with children, notably increases in Child Benefit (paid regardless of parental work status), and increases in the child allowances in Income Support, the principal means-tested

social benefit for families and individuals not in paid work.[11] These provided disincentives to paid work that could potentially have offset the effects of WFTC. What was the net effect on employment rates?

According to Labour Force Survey data, the proportion of lone parents in paid work increased steadily over the 1990s from around 40 per cent in 1993 to around 51 per cent in 2002 (Gregg et al. 2007; see also Brewer and Shephard 2004, Figure 11), with a notable increase in the rate of increase after 1998, especially for those with young children. The employment rate of married mothers also rose over the same period, but the rate of increase levelled off in the late 1990s (Gregg et al. 2007). The marked reduction in the gap in employment rates between married mothers and lone parents, and its timing, suggests that the introduction of WFTC did indeed stimulate increases in lone mothers' employment rates.

More sophisticated analytical methods, controlling for the changes in the composition of the lone parent population, the pre-1998 employment trends, and for the effects of the other reforms, confirm that WFTC's introduction had a causal effect. Three different studies suggest that 4–5 percentage points of the increase in lone mothers' employment rates could be attributed to WFTC: see Brewer et al. (2006), Francesconi and van der Klaauw (2007), and Gregg et al. (2007). For example, Gregg et al. write that the policy change 'lay behind more than two thirds of the rise in employment [of lone mothers] from 1998 to 2003' (2007: 10).

So, over the sample period there was an increase in employment rates for lone parents and a particular spurt closely associated with WFTC introduction. There was also a marked increase in WFTC take-up relative to FC take-up, and an increase in the average award made (Gregg and Harkness 2003, Figure 7). The combination of these changes provides a good prima facie explanation for the trends in the economic consequences of a marital split for women with children and is consistent with the timing of the onset of the trend (Figure 1).

Changing income sources

I now consider the extent to which this story is corroborated by the experiences of women experiencing marital splits, and examine changes in rates of employment, receipt of social

[11] Other changes included the introduction of a National Minimum Wage (which had negligible employment effects), and the New Deal for Lone Parents which aimed to improve job search and work readiness. See Brewer and Shephard (2004).

assistance and in-work benefits, and other sources. I use the term 'in-work benefits' to refer to FC, WFTC or Working Tax Credit. 'Social assistance' refers to means-tested social security benefits: Income Support, Unemployment Benefit or Job Seekers Allowance (contribution or income based),[12] and 'housing benefits' (Housing Benefit or Council Tax Benefit). In Table 3, I report results for all separating wives and for wives with children prior to the split, and compare changes between waves 1–7 and waves 8–13. (More detailed breakdowns were ruled out on sample size grounds.) Contrasts between the two periods should be indicative of the effects of the policy changes introduced by the Labour government.

Employment rates clearly increased between the periods. Two-thirds (66 per cent) of all separating wives were in paid work at the interview prior to the marital split over waves 1–7, but three-quarters (74 per cent) over waves 8–13, an increase in the rate of about an eighth. For separating women with children present, the corresponding proportions are 57 per cent and 67 per cent, which is an increase in the rate of 16 per cent. Looking at the employment transition rates instead reveals that the proportion of women with dependent children who stop working when after a marital split almost halved between the two periods, from 16 per cent to 9 per cent, and the proportion remaining in work increased sharply from 41 per cent to 58 per cent. (These changes are much larger in proportionate terms than the changes in transition rates for all separating women.) The second panel shows employment transition rates for employment defined as working at least 16 hours per week, the eligibility threshold for WFTC receipt. The same trends are apparent: the rise in cross-sectional employment rates and in employment retention rates, with the changes being larger for mothers compared to all separating wives. Gregg et al. (2007) have also remarked on the increased likelihood of job retention for employed mothers around the time of a marital split, and show that this trend is not due to changes in the characteristics of employed mothers over time. Paull's (2007) analysis of partnership and employment histories using monthly calendar data from the BHPS and the Family and Children's Study also concluded that 'the relationships between partnership transitions and the work behaviour of mothers have become less dramatic, particularly in the post-1996 period' (2007: 2–3).

[12] Job Seekers Allowance replaced Unemployment Benefit from October 1996. Unemployment Benefit and contribution-based JSA are not means-tested, but many recipients also received means-tested benefits. It is not possible to distinguish between the two types of JSA receipt in the BHPS and so, for consistency, Unemployment Benefit was also included in the definition of social assistance benefits used here.

Table 3
Participation in paid work, receipt of social assistance and in-work benefits, before and after a marital split

Column percentages	All separating Wives		Separating wives with children at *t*	
	Waves 1–7	Waves 8–14	Waves 1–7	Waves 8–14
Paid work (weekly work hours > 0)				
not working at *t*, not working at *t*+1	26	20	33	24
not working at *t*, working at *t*+1	8	6	10	8
working at *t*, not working at *t*+1	13	8	16	9
working at *t*, working at *t*+1	53	66	41	58
Paid work (weekly work hours ≥ 16)				
not working at *t*, not working at *t*+1	47	32	64	58
not working at *t*, working at *t*+1	10	15	6	9
working at *t*, not working at *t*+1	13	11	10	3
working at *t*, working at *t*+1	31	43	21	30
In-work benefits[*]				
not receiving at *t*, not receiving at *t*+1	90	75	83	60
not receiving at *t*, receiving at *t*+1	6	17	10	27
receiving at *t*, not receiving at *t*+1	3	3	4	5
receiving at *t*, receiving at *t*+1	2	5	3	8
Social assistance benefits[*]				
not receiving at *t*, not receiving at *t*+1	63	76	51	68
not receiving at *t*, receiving at *t*+1	20	9	26	15
receiving at *t*, not receiving at *t*+1	5	5	5	5
receiving at *t*, receiving at *t*+1	13	10	18	12
Social assistance benefits, including housing benefits[*]				
not receiving at *t*, not receiving at *t*+1	53	65	40	53
not receiving at *t*, receiving at *t*+1	25	17	34	25
receiving at *t*, not receiving at *t*+1	4	6	3	7
receiving at *t*, receiving at *t*+1	18	12	23	15
Receives maintenance at t+1				
Yes	25	30	26	31
Repartnered at t+1				
Yes	21	21	18	21

Notes. [*]: For the definitions of in-work benefits, social assistance benefits and housing benefits, see main text. Receipt refers to receipt by the respondent or respondent's partner.

How receipt of in-work benefits and social assistance changed is shown in the next three panels of Table 3. (Since the family is the unit of assessment, receipt refers to receipt by either partner.) For women with dependent children, there is a substantial rise in receipt of in-work benefits between the year before and the year after the marital split, in both periods. What changed between the two periods is that pre-split receipt rates were higher (13 per cent rather than 7 per cent) and the take-up after a marital split was higher still: 35 per cent rather

than 13 per cent, i.e. more than twice rather than less than twice the pre-split rate. Correspondingly, the chances of not being in receipt in both the year before and the year after the split fell between the two periods, from 83 per cent to 63 per cent.

The patterns of receipt of social assistance are the inverse of those for in-work benefits. That is, there is marked rise in receipt between the year before and the year after the marital split in both periods, but the association between receipt and separation declined between the two periods. For example, for waves 1–7, the proportion of wives with children receiving social assistance including housing benefits was more than twice as high in the year after the split as before the split (57 per cent rather than 26 per cent) but, for waves 8–13, the corresponding proportions were 40 per cent and 22 per cent. So, the relative chances of receipt associated with a separation declined from 2.2 to one to 1.8 to one. Correspondingly, the proportion who did not receive social assistance including housing benefits before and after the split rose from 40 per cent to 53 per cent.

Labour market earnings, social assistance and in-work benefits form the major part of most families' income packages. For lone parents, maintenance payments from a former partner and income from a new partner are other potential sources of income. The bottom two panels of Table 3 provide an indication of the importance of these sources. The proportion of separating mothers who receive maintenance from a former partner increased from 26 per cent to 31 per cent between the two periods, and the proportion who found a new partner within a year of separation increased only slightly, from just below one fifth to just above one fifth. Since the repartnering rate hardly changed, it is unlikely that repartnering can play a substantial role in explaining the decline in the income loss associated with a marital split for women with children. The change in the proportion receiving maintenance is also not large. Its effects are likely to have been indirect, via its interactions with the policy changes aiming to make work pay. In particular, maintenance was counted as income in assessments of eligibility for Income Support, but was not counted in assessments for WFTC eligibility.

4. Changes in income over the five years following a marital split

What do income trajectories look like when the focus is changed from the immediate short-term (one year after the split) to a longer period (from one through five years after the split)? I look in particular at the evolving circumstances of women with dependent children prior to

the split. Small sample sizes are an important constraint on the analysis.[13] For instance it is not possible to examine how the shape of the six-year trajectories changed over time.[14] Almost all of the trajectories analyzed below began in waves 1–7, and so most refer to the period before the Labour government's policy changes. It should be borne in mind that some of the reported relationships between income and time since the marital split may reflect the effects of these policy changes.

The requirement for response and valid household net income at six consecutive annual interviews is a stringent criterion; with differential attrition, the analysis sample may be unrepresentative. Because the BHPS longitudinal weights were not designed to be applied in this context, I developed a special purpose set in the following way. I defined an 'at risk' sample to be all adults living as man and wife at wave *t*, where *t* could be any of waves 1 to 8 (some of whom separated from their marital partner by wave *t*+1) and with valid household net income data at *t*, and then modelled the probability of having valid household net income data at waves *t*+1, *t*+2, *t*+3, *t*+4 and *t*+5, using probit regression. A weight for the analysis of trajectories was then constructed for each individual equal to the inverse of the probability predicted from the regression. The probability of having valid household net income data for the full sequence was estimated to be higher for women, for those legally married rather than cohabiting, for older persons, for those UK-born, with higher academic qualifications, with a lower income, with fewer children or fewer adults in the household, or living in owner-occupied accommodation. There were also differences by region of residence and survey year.[15] All the calculations reported below are based on these weights. I also repeated the analysis without using the weights and, reassuringly, the patterns derived were similar.

Income trajectories are summarised in Figures 2(a) and 2(b). I calculated for each individual his or her income in each of the five years after the marital split and expressed that income as a ratio of his or her income at wave *t*. The figures report, by subgroup, the subgroup median income ratio year by year. For comparison, I also show the corresponding

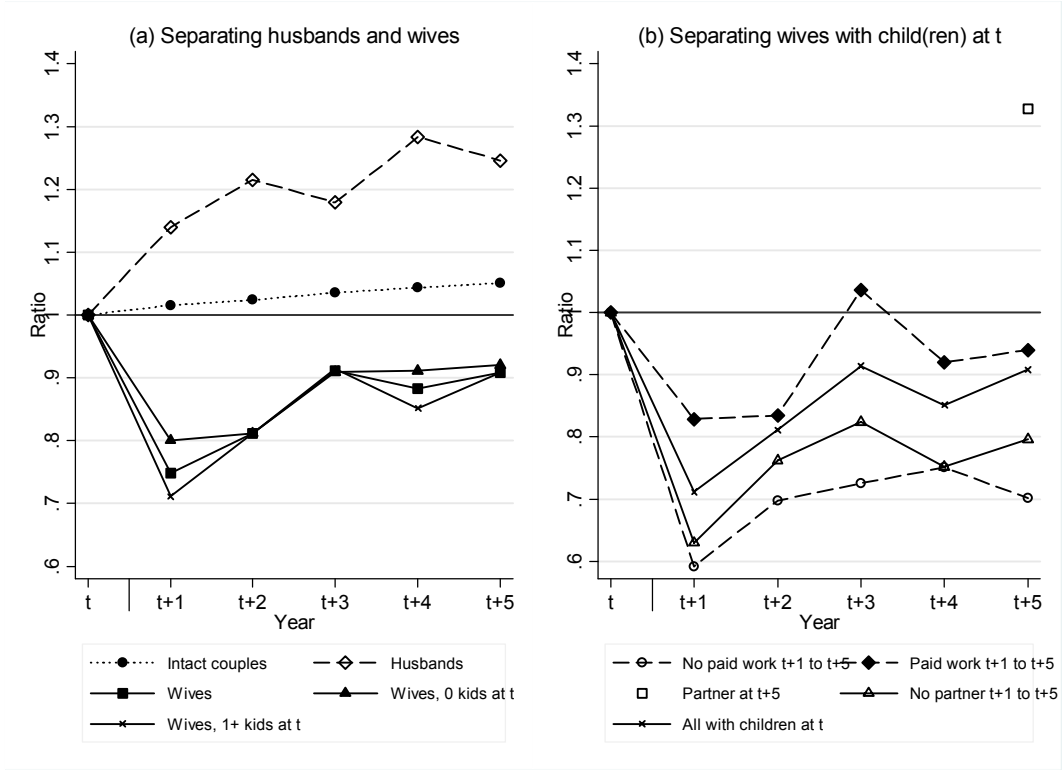
[13] The number of separating husbands with valid household net income data at waves *t* through *t*+5 is 181. For separating wives, the corresponding number is 260, and for separating wives with dependent children at *t*, it is 161. Of these 90 have no partner at each wave *t* to *t*+5; 38 are not in paid work at each wave *t* to *t*+5; 56 are in paid work at each wave *t* to *t*+5; 97 are in paid work at *t*+5, and 61 have a partner at *t*+5. These sample numbers are similar to those in Duncan and Hoffman's (1985) analysis of 14 waves of PSID data.

[14] E.g. there are only 29 separating wives with children with six-year trajectories beginning in 1998 (wave 8 interview).

[15] I also experimented with separate regressions for men and for women, but analysis undertaken with weights derived from these regressions led to conclusions that differed little from those reported.

income ratios for intact couples in Figure 2(a). Overall, average incomes increased by one to two percentage points per year in real terms.

Figure 2
Net income of selected groups after a marital split
as a fraction of net income in year prior to marital split (wave *t*)



Note. The ratio for year *t*+*s* is the median ratio among the relevant group. 'Intact couples' are persons in the same marital partnership at wave *t* through wave *t*+5. Data weighted by inverse probability of remaining in panel and having valid net income waves *t* through *t*+5 (see text).

Figure 2(a) highlights stark differences in the experiences of separating husbands and wives. Differentials between the sexes remain in the longer-term. Five years after a marital split, separating husbands have an income that is 25 per cent higher on average than their income prior to the marital split, whereas for separating wives, income at *t*+5 is 9 per cent lower on average. If poverty is defined as having an income less than 60 per cent of the whole-sample median in the relevant year, then the poverty rate among separating husbands at *t*+5 is 10 per cent, just below the poverty rate for intact couples of 13 per cent. For separating husbands, incomes appear to rise almost continuously on average in the years following the marital split whereas, for separating women, the sharp fall in income

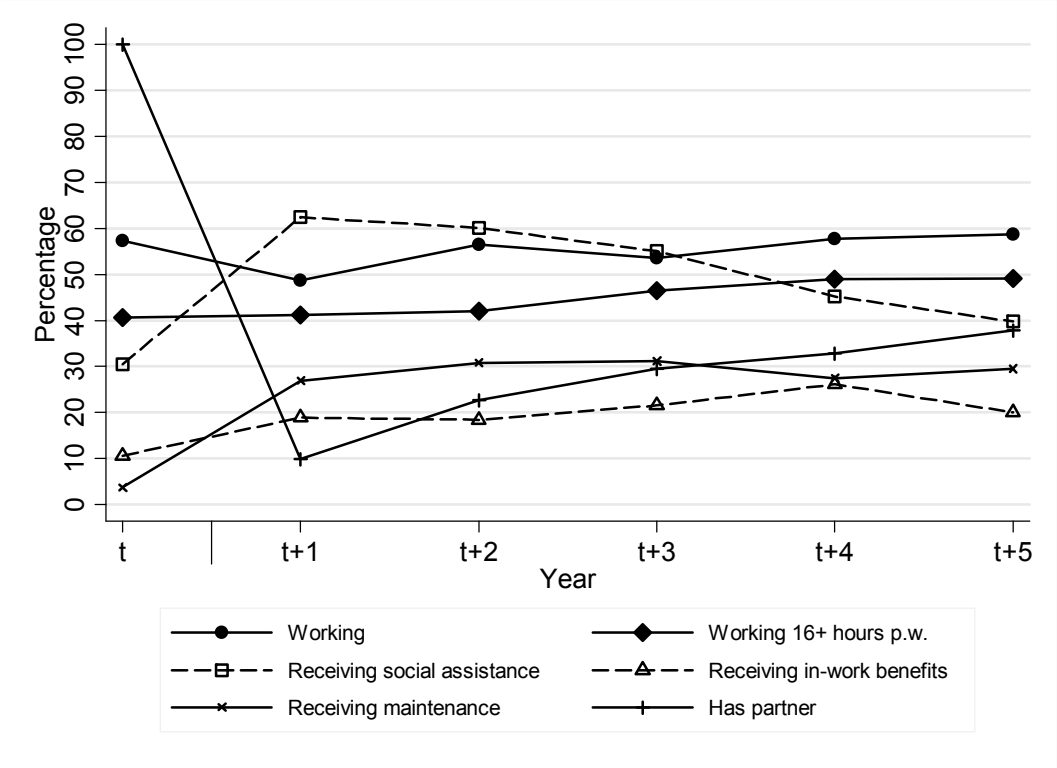
experienced immediately after the marital split is followed by a gradual improvement in the subsequent four years, but not to pre-split levels. The poverty rate among separating wives at *t*+5, is 27 per cent, almost three times that of separating husbands. Interestingly, the income trajectories for women who have children at *t* appear quite similar to those without children.

Figure 2(b) examines the circumstances of separating wives with children in more detail, showing differences related to participation in paid work and partnership. The figure shows that women who are not in paid work in any of the five years after a marital split experience the largest income fall initially and, although their incomes subsequently improve slightly, they remain worse off than the other groups. In fact, all of them have incomes below the poverty line for each of the five post-split years. At the opposite extreme, women in paid work at every interview following the split experience relatively small income falls initially and almost recover their original income by *t*+5. None of them have incomes below the poverty line in any year. (The subsample size of 56 means that these estimates should be treated with caution.) Lack of partner is not as deleterious as lack of paid work: the income trajectory for those without a partner at all five waves following the marital split lies between that for all mothers and all who do not have a job at any of the post-split interviews. Almost no women are observed with a partner at every wave after the split. However, some indication of the possibilities of regaining income through repartnering are illustrated by the income ratio for women who have a partner at *t*+5, for whom income at *t*+5 is one third higher than their pre-split income.

Underlying these income trajectories are changes in the sources of income. These variations are summarized in Figure 3 for women with dependent children at wave *t*. After the initial rise in receipt of social assistance including housing benefits associated with the marital split, from 31 per cent at *t* to 62 per cent at *t*+1, there is then a decline in to 40 per cent at *t*+5. The proportion in paid work increases from 48 per cent to 58 per cent between *t*+1 and *t*+5, and the proportion working at least 16 hours per week increases from 41 per cent to 49 per cent. The proportion receiving in-work benefits increases from 11 per cent before the marital split to 19 per cent in the year after the split, but then stays much the same: the proportion is 20 per cent at *t*+5. This may simply reflect the fact that most of the sample trajectories cover the early- to mid-1990s (see above). The chances of receiving maintenance from a former partner also increase most noticeably between the year before and the year after the split – the proportion in receipt increases from 4 per cent to 27 per cent – but hardly

changes thereafter (it is 30 per cent at *t*+5). Repartnership rates rise steadily after the marital split, from 10 per cent to 38 per cent.

Figure 3
Percentage working, receiving benefits, and with a partner: wives with dependent children at wave *t* who experienced a marital split between waves *t* and *t*+1



Note. Percentages shown for year *t*+*s*, for *s* = 1–5, are median ratios among the relevant groups. Data weighted by inverse probability of remaining in panel and having valid net income waves *t* through *t*+5 (see text). Social assistance includes housing benefits. See main text for definitions of social assistance, housing benefits, and in-work benefits.

These trajectories in income sources are consistent with the short-term picture painted earlier, in that a rising income trajectory is associated with increasing participation in paid work combined with growing receipt of in-work benefits, and declining receipt of social assistance. What is different between the longer-term and short-term pictures is that, over the longer term, repartnership appears to play a larger potential role in securing income. I return to this issue shortly.

These six-year trajectories for Britain may be compared with the six-year trajectories estimated for US men and women by Duncan and Hoffman (1985), using waves 1–14 of the Panel Study of Income Dynamics (income years 1967–1981). There are similarities and differences between their results and mine. Both studies find that incomes after a marital split

rise for separating husbands but, for separating women, fall initially though subsequently recover even if not to pre-split levels (see their Figures 14.3 and 14.4). The principal difference between us is that they emphasise repartnership rather than work as a source of income replacement.[16] An explanation for this emphasis could be that the labour force participation rates for separating women in the US were high in the years after a marital split – and higher than those for comparable British women – and hence there was less opportunity to increase income by raising labour force participation rates further.

Given their emphasis, Duncan and Hoffman were motivated to develop an empirical model of the gains for remarriage for women. They estimate jointly an equation for the probability of repartnership within the five years after the marital split and, for women who do repartner, an equation for the new partner's labour income, using the Heckman (1979) sample selection modelling approach.

For Britain, my results about the longer-term changes after a marital split suggest that a different approach would be more appropriate – one that examines the correlates of not only repartnership but also of labour force participation, and the interrelationships between the processes. And it would be of interest to examine not only whether there is a repartnership or (re-)employment, but also how long it takes for these these events to occur for women with different characteristics. All of these aspects can be estimated using a bivariate duration model: see e.g. the discussion of multivariate mixed proportional hazard models by van den Berg (2001). One would not need to limit the observation window to a fixed width – spells may be shorter or longer than five years – and this would also lead to larger sample sizes. Another potential advantage is that sample drop out can be modelled jointly with the other processes of substantive interest. Development of this approach is the subject of my current research and will be reported elsewhere in due course. The work complements that of Paull (2007) who examined the timings of partnership and employment transitions relative to each using monthly history data, but with separate univariate duration models for each process.

5. Concluding remarks

Fourteen waves of BHPS panel data reveal interesting new findings about the economic consequences of a marital split in Britain. First, the short-term income loss associated with a marital split has declined over time for women with dependent children, and for the children

[16] In their study, like mine, 'divorce' refers to separations of legally married as well as cohabiting partners.

of separating parents, and by a substantial amount. The most plausible explanations for these trends are the secular rise in women's labour force participation rates and, related, the changes to the social security system, especially to in-work benefits, introduced by the Labour government in the late 1990s which stimulated lone mothers' employment rates and made work pay. Second, women's income trajectories over the longer-term follow a distinct upward trend on average after the initial fall associated with the marital split. Women with children who have a job in the year after their marital split and retain it in each of the following five years come close to recovering their pre-split incomes after five years.

These findings can be interpreted as Good News. There is also some Bad News. There remain large gaps on average between the short-term income losses of separating husbands and of separating women. This is despite the improvement in the circumstances of women with children. Observe too that the average short-term income loss for childless separating women has remained fairly constant over the last fifteen years. Gender remains a good predictor of whether an adult's income rises or falls after experiencing a marital split.

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