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EMPLOYMENT AFTER CHILD BEARING IN POST-WAR BRITAIN: COHORT STUDY EVIDENCE ON CONTRASTS WITHIN AND ACROSS GENERATIONS

by

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ABSTRACT

In post-War Britain, mothers have been returning to the labour market after diminishing breaks around childbearing. Longitudinal data, mainly from two generations in the National Survey of the 1946 cohort, are used to describe and help explain the trend. Class and regional differences diminish over time, in simple two-way analyses and multiple (hazard) regression. Women's education and occupational attainments retain a positive effect on their chances of entering employment over the two generations. The weakening of class differentials is taken to signal a reduction in the income effect of a shifting labour supply function. Evidence on continuing job downgrading provides a cautionary note on interpreting increased employment as an improvement in female status.

I Introduction

This paper is about the break in a woman's employment after becoming a mother, its socio-economic correlates and its changing aspects in post-War Britain. It draws on longitudinal data gathered in National Cohort studies and uses the techniques of event history analysis. Any break in employment around the birth of a child is a crucial aspect of the relationship between women's employment and childbearing. How old a child needs to be for its mother to contemplate paid work outside the home, is, at least in the British context, a key indicator of the woman's attachment to market work.[1] Rising labour force attachment has economic, social and, perhaps, demographic significance. It is often seen as a major determinant of the secular decline in fertility in industrial societies.[2] This paper documents aspects of change (and one of continuity), identifies correlates of mothers' employment and discusses its changing determinants.

The next section (II) places our analysis in the context of twentieth-century changes in the size and composition of the female labour force in Britain. Section III describes the main source of our data, the National Survey of Health and Development (the 1946 birth cohort - NSHD). This provides data on mothers' employment before and after bearing a child in 1946, and on a second generation of mothers (the cohort members themselves), who were mostly having their children in the 1970s. Some supplementary information is used about the mothers of the 1958 birth cohort, the National Child Development Study (NCDS).

The analysis of employment after childbearing proceeds in stages of complexity. First, in section IV, is cross tabular information on two groups of mothers, taken from the two cohort studies, NSHD and NCDS, whose children, born in 1946 and 1958 respectively, were their last. Second,

sections V to VII present bivariate and multivariate analyses of the length of gaps in the employment histories of mothers of the 1946 cohort, using survival analysis and hazard regression (and investigating, in Section VII, the possible bias involved in drawing a sample of last births). In section VII, we compare the two NSHD generations, women who gave birth in 1946 and women themselves born in 1946. In this case we take NSHD mothers whose survey child was their first-born, and compare them with all the female survey members who had had their own first child before 1978. This reveals changes which have occurred across a generation, and brings unique individual-level data to bear on the interpretation of changes in participation patterns between the 1950s and the 1970s, as discussed in Section IX.

The longitudinal data also provide rare evidence on another aspect of the resumption of employment after childbearing - occupational change. As shown in Section X, job downgrading occurred to a large minority of each generation, and is one feature that has changed little. The theme of the secondary nature of the paid part of mothers' dual role is taken up in the concluding section.

II The context

From the late nineteenth into the first half of the twentieth century, female labour force participation in Britain appears to have been roughly static, at around one third of those aged 20-64, with the temporary exception of the two World Wars. A sustained upswing occurred to a level near double this (61 per cent in 1981) between the second World War and the recession of the 1980s. The reasons for this upswing and its timing (why it did not happen earlier) are not yet well understood.

In an article which does not entirely answer the question posed in its

title, Joshi, Layard and Owen expressed this trend, over the period 1950-1974, as a cohort-specific increase in 'lifetime labour force attachment' - the propensity to be in paid employment for any given level of responsibility for children.[3] They failed to discover, in aggregate time series data, the source of this upswing because the variables suggested shared an upward trend. These included rising wage levels, higher educational attainment, improved health for women and children, reduced labour requirements in housework, the increasing availability of part-time work, and a shift in the industrial structure towards 'women's' jobs.[4] These factors would be indistinguishable from a general change in attitudes towards women's employment on either the supply or the demand side of the labour market. The fact that women's wages relative to men's did not fall (and later, in the mid 1970s, rose) suggest that supply-side factors could not have been operating alone: the pull of demand must have played a part.

Increases in wages are thought to play a major part in raising female labour force participation because of their positive effect in encouraging women to enter the labour force. This effect is likely to outweigh an opposite one operating through men's wages and family income which, other things being equal, would reduce the need for a second earner in the family. Mincer found that rising aggregate wage levels underlay the upward trend in the female employment rate in 16 out of 18 international cases with which he experimented.[5] One perverse case was one of two British experiments, where a labour supply model estimated on micro-data gathered in the 1970s was imposed on aggregate 'predictors' for 1960, resulting in the suggestion that employment should have fallen over a period when it actually rose.

In this paper we take what may be unique micro-data from the 1950s. They help to clarify the question of how far wage and income effects can explain

the post-War trend. As data on individuals are involved, changes in the participation behaviour of groups at different wage and income levels can be tracked, and we can see beyond the close correlation of the aggregate series. If it is merely a question of an unchanged labour supply function generating responses to a new set of circumstances, cross sectional analyses of two periods should yield similar parameters with samples of changing compositions. If the labour supply function itself had changed, our analyses should show changing parameters.

To understand the overall trend it should be helpful to look at concealed trends for sub-groups. At the beginning of the century, the pattern of women's work outside the home was that of the Victorian period: the wives of the labouring classes also laboured; the wives of the middle classes did not.[6] During the early decades of the century, however, two conflicting trends are thought to have been taking place. The first was a rise in the attachment of middle class women to paid work. Other things being equal, this should have led to rising participation rates provided that employment opportunities were available. The second trend was a decrease in the willingness of working class wives to undertake paid work outside the home if they could avoid it. On the basis of oral evidence collected in north-west England, Elizabeth Roberts concluded, '[p]re-war working class women in so far as they consciously thought about the question at all, perceived their emancipation as a movement away from outside paid employment and towards domesticity.'[7]

Cross-sectional analysis, and perhaps the lack of trend in the pre-war era, shows a clear negative influence of other family income on female employment. Immediately before the second World War, female employment behaviour was still class-specific and, despite a slight increase during the 1930s, participation rates were at levels not substantially above those

obtaining 40 years earlier.

It has been suggested that the failure of rising wages to draw women into the inter-war labour market might be attributable to a lack of job opportunities in the 1920s and 1930s.[8] Cross-sectional analyses of Survey data from London around 1930 and of towns from the 1931 census, by Hatton and Bailey, suggest other leading explanations.[9] The negative income effect was stronger than estimates from after 1970, though wage effects may not have been weaker. The influence of local industrial structure was also more marked, as was the inhibiting effect of the married state (married women having very low attachment to employment even when they were not responsible for children). These contrasts in cross-sectional parameters suggest a change in attitudes changing the labour supply function over time. Our data from the early part of the post war period should help identify when that shift took place.

A striking feature of the post-War period is that the increase in the level of married women's work has been much greater amongst the wives of the middle classes than amongst the wives of the working classes. Given the major part in the upswing played by the employment of mothers, this means a convergence of the employment patterns of mothers from different social classes (as shown in Table 1, discussed further in section IV below). Income effects could explain the original gap, but cannot account for either the convergence or the upward trend (income has not equalized around a falling average). Social class (as measured by husband's occupation) is, however, not the only factor expected to influence the extent to which women take paid work outside the home. We might also expect women's own educational and occupational attainments to exert an upward influence: a 'wage effect' in economic parlance. Geographical differentials, due partly to long-standing regional differences in female employment and partly to

more recent variations in regional labour markets, should also exist.

III The data

Our main source of data is the Medical Research Council's National Survey of Health and Development (NSHD), which assembles data on a sample of people born in a week in March 1946.[10] The information includes various social and economic characteristics of the parents and the cohort members. The data collected during follow-up surveys permit the construction of dated employment and fertility histories for the survey members' mothers between 1946 and 1961, and for their daughters, (the survey members born in 1946) from their school-leaving age in 1961 to 1977-78, around the time of their 32nd birthday. Eighty-two per cent of the mothers were traced to 1961, and seventy-eight per cent of the daughters were traced from age 15 to age 32. Investigation of what is known on the lost cases suggests no serious bias from survey attrition.[11]

The follow-up sample is a subset, of 5,362 cases, of the original 12,827 legitimate births in a week in March 1946. This takes only one in four of those whose fathers were urban manual workers or non-professional workers on their own account. In view of this, some results are reported in re-weighted form, to reflect more accurately the social composition of the original cohort.

One value of the NSHD is that it already allows comparison of two generations of mothers. The first were survey members' mothers, facing the labour market of the late 1940s and 1950s; the second, their daughters, who were bearing children from the mid-1960s onwards and, mainly, facing employment as mothers during the late-1960s and 1970s. Looking at these two generations should illuminate the changes in the practice of returning to

work after childbearing over the period, when it formed a major component of the total increase in female labour supply.[12] We have also brought in some information about the return to work in the intervening period, taken from the mothers of the cohort born in 1958, the National Child Development Study (NCDS).[13]

IV Changing Patterns of Mothers' Employment

This section reviews evidence on changing patterns over the post-war period using cross tabular methods and both national cohorts. First we take two groups of women: those who had their last child in 1946, from NSHD, and those who had their last child in 1958, from NCDS. The selection of samples with no further births means that in each all the women have youngest children of the same age at a given point after the cohort member's birth. The possible bias imposed by this procedure will be investigated in Section VII below. Figure 1 shows the percentage of these mothers with any paid job during different periods since their last birth (at points dictated by the availability of data in NCDS). Once the child had reached the age of five

[Figure 1 about here]

(in 1963), the mothers of NCDS children had a greater propensity to work than did their predecessors in the 1950s. The national increase in female labour force participation rates is thus reflected in these samples of mothers. During pregnancy and the early years of the last baby's childhood, however, the 1946 mothers show the greater tendency to be employed; this is probably because the British economy in 1946 still bore the traits of wartime, and many women were still at work in the jobs they had taken during the War years. Overall employment rates probably fell back during the late 1940s before the upswing apparent in data starting in 1950.

[Table 1 about here]

Table 1 looks at broad social class differences, taking from the measures in Figure 1 the prevalence of employment during the period of the last child's first eleven years, (that is before s/he reached the age of secondary schooling). It draws on the two cohorts, and also takes an approximately comparable measure from histories collected retrospectively in 1980 by the Women and Employment Survey. Overall between the period up to 1955 and that culminating in 1980, the proportion of mothers ever joining the labour market before the child reached eleven went up from 61 to 87 per cent. For the 1946 cohort, there was a difference of more than 20 percentage points between the proportion of the wives of manual workers taking paid work and the wives of non-manual workers. This difference was reduced to five percentage points for the 1958 cohort and had all but vanished for the mothers of children born between 1966 and 1972.

Figure 2 expresses the increase in mothers' employment between cohorts in terms of the proportional changes in the rate of taking paid work at various stages following a last birth in 1946 and 1958. It controls for six social classes (using the Registrar General's classification of husband's occupation). Nearly all social groups show an increase once the child is

[Figure 2 about here]

five, but this varies by class. Social class I (wives of professional and managerial workers) shows by far the largest increase of any group (45 per cent comparing the years when the child was aged 7-11), and increases which are above average for the earlier stages. The negligible change among mothers from Social Class V, whose husbands were in unskilled manual occupations means a narrowing of the gap between Social Classes I and V. This was 55 percentage points between the proportions of mothers ever employed in the eleven years to 1957, and had closed to 22 points over the period up to 1969. In general, there is a monotonic class gradient in the pattern of increases: the higher the social class, the greater the increase

over the 12-year period, moving towards the class convergence of maternal employment depicted for 1980 in Table 1.

The richer data available to us on the 1946 cohort permit further exploration of contrasts within that generation. Figure 3 shows two measures of employment (point and period prevalence) among mothers whose last birth was in 1946, controlling for their educational attainment. It shows percentages actually in work when their child was at the

[Figure 3 about here]

specified age (point prevalence) and the total percentage who had ever worked during a specified period up to that age (period prevalence). The former is represented by the bars, and the latter by the superior 'trumpet keys'. There are three levels of educational attainment: 'low' attended primary school only; 'medium' attended secondary school but had not gained any formal qualifications; 'high' one or more formal educational qualifications. The width of the bars reflects the relative size of these categories among the women in the (re-weighted) sample. In the immediate post-War period, education beyond the primary school level for women was a rarity[14]. A very small proportion of the mothers have what we have termed 'high-level' qualifications.

Differences in the pattern of returning to work between mothers with 'low-level' and 'high-level' education are not very great (under ten per cent in most cases). Nevertheless there is a pattern: during the first two years of the last child's life 'highly educated' mothers were more likely to be employed. During later stages, the position was reversed, with the less well educated mothers employed more, possibly out of economic necessity. In the intervening period (when the child was about five) the association between educational attainment and the propensity to enter the labour force was U-shaped.

Figure 3 also shows that the return to work is not irreversible: the difference between the height of the bars and the height of the 'trumpet keys' shows the percentage of women who had left jobs since the beginning of the period specified. Between the seventh and 11th, and between the 11th and 15th birthdays, over ten per cent of the mothers left paid work. Nevertheless, the majority of re-entrants remain in employment for a considerable length of time once they have made the transition in which we are interested - their first entry to employment after childbearing.

V The return to paid work and its covariates: definition of variables

Our dependent variable is the time between a birth and the next entry to paid work, for short 'the return to work'.[15] As independent variables we took from the material available a number of social, economic and demographic indicators.

We infer women's own earning power from information on their education and their occupation prior to the birth, while recognizing that each variable may have social and psychological as well as economic significance. The level of women's education has risen since the second World War. The mothers of the 1946 cohort came from a generation in which the vast majority did not experience any education beyond primary school and most left school with no formal qualifications. By the late 1960s and 1970s, however, a far greater proportion of women were gaining at least some formal qualifications. The variability of education among our samples and its power to discriminate between women thus increases over time. All else equal, we expect better-educated women to return more rapidly than their less well-educated counterparts to the labour force, for which they should be better equipped.

The occupation of the mother prior to the birth is another measure of her potential earning capacity. We therefore expect, all else equal, that women in the highest paid jobs would tend to return soonest after a birth. Paid jobs can only be broadly categorized. Those we call "professional" in this paper are mainly teachers and nurses, not the more narrowly defined better paid occupations put into Registrar General's Social Class I, also sometimes labelled "professional". The next category is office work. By the 1970s we know that office work was on the whole better paid than factory work, itself better paid than most service jobs like shop assistant, cleaner or hairdresser. Whether these categories rank with earnings as closely in the 1940s we cannot tell for certain.[16]

The mothers of the 1946 cohort who had worked during or up to their 1945-6 pregnancy (mainly those having their first child) were asked what job they were doing, but the only information on the remaining mothers is their occupation at the time of their marriage. We have created a composite variable which refers to any job done during the pregnancy preceding the 1946 birth and if no job was done, to the occupation at the time of their marriage.

Husband's occupation is a proxy for family income and social class. The hypothesis is that, all else equal (including mother's education), entry to employment would come sooner for the wives of manual workers than for those of non-manual workers. The need for a second earner would be greater in working-class households - an "income effect". There may also be some residual 'cultural' effects deriving from the time when paid work was viewed as inappropriate for 'respectable' women.

Region captures geographical differences in both the demand for female

labour and in its supply. Variations in the industrial structure helped establish regional variety in female participation before World War II.[17] Other things being equal, we expect women to return to paid work after childbearing sooner in areas where female occupations were plentiful and in which there was a strong tradition of paid work for married women outside the home (for example the textile area of north-west England) than in areas where the reverse was the case (such as in mining areas of Wales and north east England).

The number of older children in the family is given by the rank of the 1946 birth. Analysis of the second generation is confined to first births, where there are no older children by definition. The direction of any link between birth rank and the timing of the mother's return to work is ambiguous. Since children make extra claims on mothers' time, older children may reduce the chances of a woman entering employment. Conversely, if they contribute to domestic work (for example, minding younger siblings), or put extra demands on the household budget, the presence of several older children may make an early return to work more likely.

The age of the mother at the time of the birth could reflect otherwise unspecified social and physiological factors. In the case of the women who gave birth in 1946, age could capture any cohort effects that differentiated attitudes or the employability of women born at different dates around World War I. In the case of the second generation, by contrast, cohort is constant, but the age of the woman at the birth of her first child might pick up period-wise differences in the labour market between the 1960s and 1970s and cases of unmarried motherhood not identified by data on marital status at age 26.

VI A life-table approach to two-way analysis

Variations within the sample of mothers of the 1946 cohort can be examined further by using the technique of survival analysis. This makes more use of the information on the date of entering employment than do the tabulations presented in graphical form above. Table 2 presents a survival analysis of employment entry after childbearing by mothers of the 1946 cohort who had

[Table 2 about here]

their last child in 1946. As used here, survival analysis involves estimating a life table which women enter at the date of birth of their child, and leave when they return to work. The life table extends from March 1946 to March 1961.[18] Table 2 summarizes the effects of each of our covariates on the extent and timing of the return to work.

Overall, 69 per cent of the mothers took some form of paid work within 15 years of having their last child. The median gap between childbearing and return to work was about eight years. This compares with a median gap of about six years for the mothers whose last born was in the 1958 cohort, a fall of two years over the intervening period.

Differences in the return to work between the categories were significant for all six variables. In general, the highest propensity to return to work is shown by women in the south and east of England, north-west England and the West Midlands, women with minimal education (contrary to the earning power hypothesis), women who had their last child when they were aged under 30 years, women who had previously worked in manual occupations, and women whose husbands were manual workers. There are some large contrasts to be observed on certain of the covariates. The median return time varies from five years and three months for women in north-west England to over 15 years for women in Wales; and a similar range is evident across husband's

occupations. The contrast between women who had never worked and those who had had paid work at some time before the birth also stands out. The contrasts for different categories of the remaining variables are rather smaller, although still statistically significant.

VII Multivariate analysis of the return to work during the 1950s

Two-way survival analysis has some value as a descriptive tool, but as it controls for only one covariate at a time, it is difficult to put much of a causal interpretation. Unlike multivariate modeling, the bivariate exercise does not disentangle the separate 'effects' of the variables, holding the others constant. A multivariate approach may eliminate confounding effects, for example of social class on the 'perverse' association of woman's education and employment.[19]

In Table 3 we estimate Cox's proportional hazards model with five covariates, restricting our attention to women whose 1946 birth was their last, as in Table 2.[20] This is one way to handle the confounding effect of a subsequent birth on employment, an alternative approach is explored in Table 4. The problem about selecting a sample of last births is that it could introduce a selection bias if the propensity to have a further birth and to take paid work are both associated with unmeasured characteristics of the individual. It can further be objected that selecting cases on the basis of what happens (or in this case did not happen) to the individuals after the events analyzed violates normal assumptions about the temporal sequence of causality. We can call this problem "conditioning on the future".[21] The alternative approach of Table 4 is to draw a sample of all births (rather than last births only) and to censor the histories at the time of the next pregnancy for women who had another child before they returned to the labour market. Table 3 is thus a multivariate version of Table 2, after

allowing for some rationalization of categories; differences between Tables 3 and 4 reflect any specially select features of the sub sample of 1946 mothers who had no further births, after controlling for those we can measure, and which should not be present in the larger sample used in Table 4. Birth rank was dropped from the regressions as not significant, and various other categories were regrouped after preliminary explorations.[22]

[Tables 3 and 4 about here]

Controlling for other factors changes the sign on the education to employment relationship to the anticipated direction but with neither sample is the relationship at all strong, nor is it statistically significant. The coefficients on woman's own occupation are very similar in both of the multivariate models, with those in (lower) professional jobs being the most likely to take employment; in the bivariate analysis it was the former factory workers who returned soonest. Nevertheless, the factory workers appear to have a greater underlying propensity to re-enter employment than office workers, despite the likelihood that the latter could command higher wages. By contrast, all Tables 2, 3 and 4 show the same strong patterns by husband's occupation, which were also apparent in Table 1. The chances (hazard) of the wife of a salaried white collar worker entering employment were about one third those of the wife of an unskilled manual worker, other things being equal.

Regional contrasts, also very marked, appear in all three tables. The chances of returning to work after the last child were considerably lower in Wales and in a broad swathe of the country stretching from the East Midlands through Yorkshire and the Borders to Scotland than in the more prosperous areas to the south and east. The areas where the hazard rate is depressed are mostly the same as those which were receiving support during the 1950s from government regional policy because of their declining industrial base. In north-west England, however, the hazard is similar to that in the south,

despite the region's less favourable economic situation: the effects of the industrial traditions of the north-west England seem to be compensating for those of its industrial decline.

Finally, in Tables 2 and 3, the chance of entering employment varies inversely with the age of the mother at the time of the birth, rising with each successive cohort. This could reflect cohort labour force attachment, physiological factors associated with age, or the social selectivity of those who finished childbearing early or late. The fact that most age terms are not significant in Table 4 suggests that selectivity is a big part of the story. For otherwise unmeasured reasons, women who had particularly high employment attachment tended to finish childbearing unusually young. The fact that age differences have disappeared in Table 4 reinforces the suggestion made by Joshi, comparing women of the same generation giving birth to their last child in 1946 and 1958, either early or late for their own cohort, that these women were selected as far as employment attachment was concerned.[23] It also reduces the credibility of cohort effects in labour force attachment posited above, and elsewhere. The interpretation of the upward trend in the post-war period as period rather than a cohort phenomenon is strengthened. The fact that there are no other appreciable differences between the two models in Table 1 suggests that the socio-economic and geographical variables are not spuriously associated with maternal employment, through some unidentified factor which inhibits subsequent births.

To summarize, most of the variables which seem important in the bivariate analysis are also significant in the multiple regressions. Mothers' employment propensity in the fifteen years following 1946 was still dominated by the class and regional differentials which marked the pre-War period.

VIII Changes since the War: the 1950s compared with the 1970s

Table 5 presents a comparison of the factors affecting the timing of the return to work after a first birth for two generations, women themselves born in 1946, and those of the cohort's mothers who were bearing their first child in 1946, again using hazard regressions.[24] As with Table 4, the history is censored if there is a subsequent birth before any employment. The aim of Table 5 is to look for changes in the patterns and determinants of mothers' employment behaviour over the years since the second World War. Note that, overall, the incidence and speed of returning to work had increased greatly. In the earlier generation only around 1 in 20 had taken paid work before the first child was a year old; in the later generation the proportion was around 1 in 5.

The hazard regressions reported in Table 5 used a different procedure from the Cox proportional hazard regression used in Tables 3 and 4. Besides the 'effects' of the covariates we estimated the value of the baseline hazard in piece wise constant segments, in order to quantify changes between the generations, as discussed below. First we consider the two sets of parameter estimates for the covariates (which are more or less the same as those entering the analysis in Tables 3 and 4, as far as possible).

[Table 5 about here]

The estimated parameters are shown in Table 5. Educational attainment has virtually no effect on the generation who were first mothers in 1946 ('mothers'), but the expected positive, and significant, sign among the daughter generation, with a relative risk of entering employment, all else equal, 26 per cent higher for those with some qualifications compared to those with none. In other analyses not reported here in full we found relative risks of returning to employment close to 2.0 for women whose

qualifications went to A-level or beyond.

The effect of a woman's previous employment seems to have become attenuated across the generations, but the estimates for the older generation may not be very reliable. It can be seen that 1946 mothers display rather different parameters when sampled as bearing their first child, than in Tables 3 and 4. The coefficient for the small group of first-time mothers with no occupation was particularly unstable.

Changes in the parameters for husband's occupation are very clear. They are much reduced. The large negative effect of having a husband in a white-collar occupation (a member of the middle classes) on the hazard rate disappeared between the 1940-50s and the 1960-70s. There was not even a significant difference between those with and without husbands in the second generation.

There were considerable changes in the regional parameters. The negative effects on the hazard of returning to work of residence in Wales and the area north of the Tees, prominent for the mothers, are much reduced in magnitude and significance for the daughters. Conversely, the positive effect of residence in the north-west of England is much enhanced. Living in north-west England increases the risk of returning to work after the first child by 1.61 times (relative to south and east England).

Finally, there is a major difference in the effect of age between the two groups of women. The daughters who had their first child at a young age have a very much higher hazard of returning to work than do those who had their first child later (the hazard for teenage mothers being more than double that for those who were at least 25 before starting a family). The age effects are insignificant for the first generation.

Besides providing unique evidence on the employment of mothers around 1950, the NSHD offers the opportunity to link the behaviour of the cohort generation with that of their own mothers. It might be thought that if a woman's own mother had been in paid work when she was a child, she might be more inclined to follow suit when she herself became a mother. Certainly, there were signs that Survey members' own family formation was affected by the timing of marriage in the previous generation.[25] A variable was constructed from the full NSHD sample of mothers which indicated whether or not they had taken paid employment at any time between 1946 and 1961. For the female survey members with a first birth, this indicator was included in models similar to the one presented in Table 5. The results showed that it made no difference to employment behaviour, and it was therefore dropped from the analysis. It is also worth noting that retrospective data on mother's employment during childhood also made no significant contribution to the analysis of participation in the Women and Employment Survey.[26] That family tradition has less impact on employment than family building is not entirely surprising. It could indicate that employment behaviour is more pragmatic and economically motivated than marriage and fertility.

We can now summarize the main findings of Table 5. It is clear that, since 1946, not only have a woman's chances of returning to paid work after childbearing increased but also the factors affecting those chances have changed substantially. Whereas just after the War where a woman lived and what and her husband did were among the most important determinants of her employment behaviour, by the 1970s, they were not. Multi-variate analysis of individual data confirms a picture of class and regional class convergence in women's employment behaviour.

IX Accounting for change

- Figures 4 and 5 here

Have the models explained the change across generations? Consider Figures 4 and 5. In the raw data, the daughter's generation had a higher chance of entering employment than the older generation in every month after the first birth. Their median gap in the life table (built up from the censored histories used in Table 5) was around four years and the previous generation's was nine years. The plotted hazards also show both generations' entries peaking around the child's fifth birthday, when schooling becomes compulsory, but the peak is much more marked in the second generation. There is also a peak in the latter's hazard at the first month which has no substantive significance. It reflects the coding of a number of cases in continuous employment (129) where the actual duration of maternity leave was not known. In the case of the mothers' generation, since all the births were at the same time, each month corresponds to a particular calendar month. We looked for aggregate demand effects by including the national unemployment rate as a time-varying covariate, but found no association.

Figure 5 also shows the hazards for the baseline case in each generation, a woman in the reference category on all covariates. Controlling for the explanatory variables in Table 5 brings the plots much closer together, and, in a few months, puts the daughters' chances of entering employment below those of similar women in the previous generation. On balance there is still an unexplained gap between generations, of about 3 years at the median, when viewed in cumulative perspective. Hence for these people in the combination of categories whose parameters are fixed (at zero), unidentified features of the passage of time do shift the chances of employment entry, though not as much as the total average shift. Other

factors accounting for the shift are changes in the composition of the sample and changes in the value of the parameters.

[Table 6 about here]

Turning first to changes in composition, we see in Table 6 that there has been some shift towards categories with higher chances of employment entry . 55 per cent of the months of observation in the second generation were of women with some educational qualifications compared to 47 per cent of the first generation; 12 per cent of the second generation months were to women with a (semi-)professional occupation before birth, compared to 5 per cent the first; and the proportion of months observed in the second generation following a birth to a woman under 25 was 66 per cent as compared with 39 per cent. There are difficulties making exact comparisons of the class structure of the husbands in the two samples because of differences in the grouping of male occupational categories (in our data), and the existence of never-married mothers in the second generation but not the first. However the differing age structures of the two samples would mean that comparisons of husbands' occupations could be misleading for another reason. As men in better qualified non-manual occupations tend to marry when they and their brides are older they will be under-represented in the second generation, where the exposure is dominated by early marriages and incomplete childbearing (witness the age structure differences noted above). At the time the first generation was observed, more men's jobs were manual, but the slice of women's lives that is being followed is more mature. Hence there is probably not much of a change in the husband's occupational structure that might generate change either way in wives' employment propensities.

To consider the importance of changing parameters, recall the discussion of Table 5 in the previous section. Perhaps the most striking result is that the parameters which used to suppress the labour force participation of the

wives of the middle class have dwindled in strength and significance. The same goes for regional variation. Between the generations the relatively low labour-force attachment of mothers in Wales, the north-east and Scotland had merged with the national average. The increase in female employment is partly due to the weakening of negative influences, and a 'catching up' by 'backward' classes and regions, reflected in the narrowing differentials presented at the beginning of the paper, and accommodated by a shift in industrial structure towards less regionally specialized service industries. The positive coefficients on women's education and early childbearing also increased. Apart from the weakening coefficients on the women's occupation, the change between generations reflects some strengthening of the influences that draw women into to paid work as well as the weakening of those that inhibit participation.

The change over time can neither be characterized as a shift along a supply function, nor as just an outward shift alone, though Figure 4 would be compatible with independent shifts in tastes being part of the story, given the outward shift for the baseline case, holding other factors constant. The changing parameters also suggest that 'tastes' or attitudes have changed in such a way as to reduce inhibiting income effects. The reduction in regional variation also probably reflects changing norms, associated with changing industrial structures, away from local economies dominated by mining and heavy engineering. It is not so clear from our results whether the positive influence of women's own wages has actually strengthened. We have only proxied their earning power by education (where the parameter has gone up) and pre-birth occupation (where the significant parameters have weakened). Perhaps some special factors, such as the skills women factory workers gained during the war, or inappropriate grouping of occupations, is obscuring a clear story on 'wage effects', but in some form they would appear to have been operating in the 1950s as well as the 1970s, and are

clearly part, though not all, of the story of why more women were working in Britain.

The results can be placed in the context of the contrast considered by Hatton and Bailey.[27] Our estimated effects of the covariates of the 'return to work' by the second generation reveal the same general picture as more conventional cross sections of female participation estimated on various data sets from 1971 to 1980.[28] Our results for the generation giving birth in 1946 yield effects on husband's occupation and region that resemble, as far as they can be compared, Hatton and Bailey's for the 1930's. It seems that most of the weakening of the income effect came during the 1950s or very early 1960s. More tentatively, the emergence of positive wage effects may have come sooner. We found evidence consistent with them in both post-war generations of mothers, but Hatton and Bailey found no significant wage effect for married women in the London working class in 1931.

Does this evidence help to answer the question of why more women "worked" in post-war Britain? It suggests that a mono-causal account in terms of the inducement of better wages cannot be the whole story, though it is almost certainly part of it. There also appears to have been a change in the respectability of work outside the home represented by the weakening of aspirations to the one-earner family among any who could afford it. To understand how this might have come about, it may help to consider the sorts of paid work to which mothers were returning, and whether over the generation there were more opportunities for the combining of paid work and motherhood which were compatible with family roles, and hence 'respectable'. Of course the change in the industrial structure, generating more jobs in service occupations, thought suitable for women, must not be dismissed. What is of concern here is how 'suitable' jobs were combined with domestic 'duties'.

The use of outside childcare increased somewhat across the NSHD generations, but is unlikely to have been a decisive factor raising the employment of the second generation. Wadsworth's study of survey members' first-born children at age four (mostly in the 1970s) found 25% in nursery school or other local authority facilities, and 57% attending other facilities out of home, mainly playgroups.[29] These are compared with the experience of the previous generation, at age four in 1950, when 6% of first-borns were in local authority facilities, and 7% in others.[30] The data from the 1970s showed that the majority of these children were attending the facilities for their educational and social benefits, 9% of the mothers with a four-year-old attending a facility said the main reason was for her benefit. Perhaps more conclusive of the limited relevance of pre-school care and education as facilitating maternal employment is the finding that most of the mothers with paid work did not make use of them (43% of those employed full-time and 7% of the part-timers used a nursery [school] or a childminder, relatives, friends or neighbours were most commonly used).

What may have been a more important 'facility' was the availability of part-time employment, much greater in the British labour market of the 1970s than in the 1940s and 1950s. It has been shown elsewhere that daughters taking up paid work after childbearing were fairly often doing so in a lower graded occupation than the one current before the first birth.[31] The proportion experiencing job downgrading was comparable to that found in the Women and Employment Survey and particularly high for those who took a part-time job. One way to think of job downgrading after childbearing is as evidence of the compromises that are made by women to combine motherhood and employment. Although data problems make detailed examination of part-time work across the generations difficult, it is possible to compare the two generations' experience of occupational change. Has the new respectability

of mothers' paid work been bought at the price of more frequent compromises between the home and the labour market?

X Occupational Change after Childbearing

[Tables 7 and 8 around here]

Tables 7 and 8 take samples from each generation for whom it is possible to compare occupation before and after childbearing. In Table 7 are the women for whom occupational information was reported at the pregnancy preceding the 1946 birth, and also at some point after it. In most cases these were women having their first birth, and there is up to fifteen years in which a post-birth job may be observed. In Table 8 the pre-birth information is all about the job before the first birth, and on the whole a good deal less than fifteen subsequent years were available in which to observe a post-birth job. Note that these returns to work include not only those events analyzed in Table 5, which preceded any subsequent birth, but also any resumption of employment after a subsequent birth but before 1961 or 1978.

The rows of the tables arrange the occupational categories available for the mothers into four levels, on the basis of the ranking of more detailed categories done by Newell and Joshi using rates of pay in the 1970s.[32] The top level,'professional', are largely teachers and nurses. White collar jobs (and the tiny category of self-employment) are ranked above factory work, which is in turn classed above the bottom category of service work (and agricultural labour). The classification is rather rough and ready, and mobility between levels may not always be perfectly recorded. Nevertheless, with this imperfect instrument, each woman's second job can be classified relative to her earlier (pre-birth) job, as shown in the column headings of Tables 7 and 8: same category, same level but other category, higher level and lower level. For example 41 per cent of the first

generation had their later job in the same category as the first; 11 per cent the later job at the same level but different category; 12 per cent went to a higher level and 36 per cent went to a job at a lower level.

Turning to the bottom row of Table 8, we find the same proportion, 36 per cent, were downwardly mobile in the second generation. On the face of it, as far as job downgrading goes, there has been continuity rather than change. The increase in job downgrading hypothesized above does apply in the major category of office work as a starting point, 45 per cent of the first generation returned to a job graded lower, compared to 57 per cent of the second. The contrary trend from factory jobs (54 per cent returning to level 4 jobs in the first generation and 43 per cent in the second) must be partly due to the drop in factory jobs available post-War compared with 1945.

Tables 7 and 8 provide a mixed picture of changes in female economic status over the two generations. On the one hand the minority in 'professional' jobs before childbearing has gone up (5 percent to 10 per cent), with 79 per cent to 84 per cent managing to return to the same level after childbearing. On the other, roughly half those starting from the intermediate levels 2 and 3 in both generations appear to have made an occupational compromise on entering employment as a mother. Adjustment for structural changes could make the direction of change look like an increase in downgrading. Here is yet another class difference in the experience of change. Developments experienced by the middle class are not universal, but they may help reinforce misleading generalizations about how much women's economic status has changed.

XI Conclusions

How much has mothers' employment changed in post war Britain? In terms of numbers, our longitudinal perspective suggests that the break after childbearing had at least halved between the years around 1950 and those around 1970. In terms of composition, we have shown that the biggest proportional increases were from the previously under-represented regions and the under-represented middle classes. Women's own occupational and educational attainments were positive influences in both generations, though more immediately apparent as the countervailing effects of husband's occupation weakened.

The question of why these changes came about is still a question for speculation. Improvements in women's education and earning power seem to be only part of the story. The labour supply function has also shifted, and inhibiting income effects weakened. It is suggested that the employment of mothers has become more respectable, and acceptable to their husbands, as types of employment have emerged which are less incompatible with domestic roles. The income effect weakens as a stay-at-home housewife becomes less of a luxury. Alongside undoubted improvements in domestic technology, part-time employment has burgeoned in the growing service sector, where there are modest opportunities for a mother to augment the family budget, without challenging the role of the main breadwinner, nor neglecting the care of his home and children. The evidence presented here on the occupations to which both generations of women returned, and their common experience of job downgrading is consistent with this interpretation, though hardly firm evidence.

It is also possible to present the weakening of the influence of the husband's job on the woman's in a more positive light. It could be

indicative of changes in the way in which society views women. During the 1950s, social class was still an important factor in affecting a woman's labour force participation. A woman's social class, indeed her identity, were defined according to what her husband did. By the 1970s, this was changing, even if Britain had not quite reached the stage described by Kingsley Davis, '[i]n industrial societies, it used to be that a woman would be asked what her husband does for a living. Now, increasingly, men are being asked what their wives do.'[33]

Whichever perspective one is inclined to take in the debate about how much women's economic status has changed, and whatever interpretation one puts on the changing patterns of the covariates of mothers' employment, we can offer a few technical conclusions for further research. It should be clear that demographic and economic research over the post war period should, where possible, look into changing regional and class differentials. On a technical issue, we have demonstrated that "conditioning on the future" does indeed bias event history analysis, but these effects were not important in the case of the socio-economic covariates of employment after a last birth. Though following the consequences of a last birth is a convenient descriptive tool, it should be used with caution.

This paper is historical, but the study could be brought up to date. The framework used here is a promising one to analyze change among young mothers of the 1946 and 1958 cohort. The latter's histories to 1991 will bear witness to further changes in mothers' propensity to take, or stay in, paid work. By 1988, employment of mothers of the under three had risen to 33 per cent, in 1980 it was 18 per cent.[34] The NCDS employment and fertility histories will probably contain some further instructive contrasts Perhaps the power as well as the level of female education will become more apparent, and there will be information on child care. It might also, in

principle, be possible to extend the employment histories of the women born in 1946 beyond 1978, to improve comparability with their own mothers, and to study labour force transitions beyond the first one after the first baby.

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NOTES

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1 H E Joshi, "Motherhood and employment: change and continuity in post-War Britain",in British Society for Population Studies, Measuring Socio Demographic Change OPCS Occasional Paper 34 (London:1985 OPCS); M Ni Bhrolchain "Female employment and fertility: what relationship?" C P S Research Paper 80-1, (London: 1980, London School of Hygiene and Tropical Medicine).

2 K Davis, 'Wives and work: the sex role revolution and its consequences, Population and Development Review 10 (1984) pp. 397-417.

3 H E Joshi, P R G Layard and S J Owen, "Why are more women working in Britain?" Journal of Labour Economics 3 (1985, supplement), pp. S147-S176.

4 Changes in industrial structure towards the service sector have been cited as a major cause of increased female employment in the United States and, for the period 1960-1980, in Britain. See C Goldin Understanding the gender gap: an economic history of American Women, (New York and Oxford: 1990, Oxford University Press), and V K Borooah and K C Lees, "The effect of changes in the industrial structure on female relative pay and employment", Economic Journal, 98 (1988) pp 818-832.

5 J Mincer, "Intercountry comparisons of labor force trends and of related developments: an overview", Journal of Labor Economics, 3 (1985 supplement) pp S1- S32. Table 4. The experiment used parameters estimated on cross sections near the end of the period to see if a model in the wage rates for both men and women, and indicators of female education and non-labour income could explain at least the direction of aggregate change between 1960 and 1980.

6 J Lewis, Women in England 1870-1950: Sexual Divisions and Social Change, (Brighton: 1984, Wheatsheaf Books).

7 E Roberts, "Working wives and their families", in T Barker and M Drake (eds.) Population and Society in Britain 1850-1980, (London: 1982, Batsford) p. 148.

8 T J Hatton, "Female labour force participation: the enigma of the interwar period", University of Essex Working Paper 71, (Colchester: 1986, University of Essex), and loc. cit. in Note 3.

9 T J Hatton and R E Bailey "Female Labour Force Participation in Interwar Britain" Oxford Economic Papers, 40 (1988) pp 695-718.

10 See Maternity in Great Britain: a Survey of Social and Economic Aspects of Pregnancy and Childbirth Undertaken by a Joint Committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee (London: 1948, Oxford University Press), and J W B Douglas, "The use and abuse of national cohorts", in M. Shipman (ed.), The Organization of Social Research (London: 1976, Routledge and Kegan Paul) pp. 3-21; and E Atkins, N Cherry, J W B Douglas, K E Kiernan and M E J Wadsworth, "The 1946 British birth cohort: an account of the origins, progress and results of the National Survey of Health and Development", in S A Mednich and A E Baert (eds.), Prospective Longitudinal Research (Oxford: 1981, Oxford University Press), pp. 25-30. The most recent contact with the survey members was in 1989-90, but only data up to the 1977-78 postal sweep are used here.

11 The participation of C Newell and I Timaeus in these investigations is gratefully acknowledged.

12 See J Martin and C M Roberts, Women and Employment: A Lifetime Perspective (London: 1984, HMSO).

13 NCDS is a longitudinal study of all residents of Britain born in the week 3rd-9th March 1958. The cohort has been followed up at intervals up to 1991. We only used data collected up to 1974.

14 In pre-war days, all children attended primary school until age 11. A minority then proceeded to secondary school. The rest continued at primary school until the minimum leaving age of 14.

15 In the vast majority of cases a mother's entry to employment was correctly described as a return. Virtually all had been in paid work before childbearing, and very few in either NSHD generation remained continuously employed throughout, taking only maternity leave.

16 M-L Newell and H E Joshi, "The next job after the first baby: occupational transition among women born in 1946", Centre for Population Studies Research Paper No. 86-3 (London: 1986, London School of Hygiene and Tropical Medicine); J Martin and C Roberts, op cit in note 12 pp. 125-132; J Martin, "Returning to work after childbearing: evidence from the Women and Employment Survey", Population Trends 43 (1986), pp. 23-30. The latter documents also report that women who had previously worked in junior office and clerical jobs return to work more slowly than do those who had previously done paid manual work.

17 Hatton and Bailey, loc cit, in note 9.

18 Women who had not returned to work by March 1961 were censored at that point. Women who were lost from the survey before March 1961 were excluded from this survival analysis as we could not tell whether or not the survey child was their last.

19 For a simple introduction to hazard models, see P D Allison, Event History Analysis: Regression for Longitudinal Event Data (London: 1984, SAGE) More advanced treatments are contained in J D Kalbfleisch and R L Prentice, The Statistical Analysis of Failure Time Data (New York: 1980 John Wiley); N B Tuma and M D Hannan, Social Dynamics: Models and Methods (London: 1984 Academic Press); and J F Lawless, Statistical Models and Methods for Lifetime Data (New York: 1982, John Wiley). For a bibliography of demographic work using the method, see J Hobcraft and M J Murphy, "Demographic event history: a selective review", Population Index 52(1986), pp. 3-27.

20 Cox's proportional hazards model is described in D.R. Cox, "Regression models and life tables," Journal of the Royal Statistical Society, B34 (1972), pp. 187-220.

21 We are grateful to J M Hoëm for pointing out this problem. Since much of the work which has already been carried out on the return to work after childbearing also falls foul of this difficulty, for example that reported by Martin, loc. cit., in note 16, we felt it appropriate to present the results of the model in Table 3, to compare with those from a sample not 'conditioned on the future'.

22 Birth rank was also the only covariate to show signs of violating the proportionality assumed in Cox regression. Regrouping other factors was guided by the proximity of coefficients given their standard errors. Mother's own job prior to the birth combined factory, farm work and domestic and service into 'manual etc'. Among husband's occupations, salaried non-manual, professional, 'own account' and farmer were grouped together as 'white collar workers'; and skilled manual workers, semi-skilled manual workers and agricultural workers were combined to form a new category called 'skilled manual workers'. Region was recoded as follows: south-east England, southern England, East Anglia and the West Midlands were combined as 'South and East England'; East Midlands and Yorkshire and Humberside together became 'North Midlands'; and northern England and Scotland were amalgamated as 'North of the Tees'.

23 Joshi, loc cit in note 1.

24 Our reasons for choosing the first birth were practical, the daughter generation only being observed to age 32. There are, however, theoretical reasons why women's participation in the labour force around the time of their first birth is may be significant. Both E Bernhardt ("Women's home attachment at first birth: the case of Sweden", European Journal of Population 2 (1986), pp 23-30) and F.L. Mott and D. Shapiro, "Complementarity of work and fertility among young American mothers", Population Studies 37(1983), pp. 239-252 have pointed out that a woman's employment activity around the time of her first birth, and especially shortly afterwards, is a good predictor of her subsequent labour force participation, since the period shortly after her first birth is one in which there are strong disincentives to enter the labour force. Women who return to work quickly after the first birth may, therefore, be said to be particularly highly 'attached' to the labour market in the sense cited in note 1.

25 K E Kiernan and I Diamond, "The age at which childbearing starts - a longitudinal study", Population Studies37 (1983) pp.363-380.

26 H Joshi, Women's Participation in Paid Work: Further Analysis of the Women and Employment Survey (London: 1984, Department of Employment), Research Paper 45.

27 Loc. cit., in note 9.

28 See Joshi Layard and Owen, loc cit, in note 3 Appendix A; H Joshi "Participation in paid work: evidence from the Women and Employment Survey", in R Blundell and I Walker (eds) Unemployment, Search and Labour Supply, (Cambridge: 1986,Cambridge University Press), pp 217-242. It should be noted that these studies all find significant negative income effects, though of smaller magnitude than the estimate for 1931. The lack of any pattern in our analysis by occupation of husband could reflect the fact that we are concerned with a narrow age group. Earnings differentials between male occupations widen as the men get older.

29 M E J Wadsworth "Social class and generation differences in pre-school education" British Journal of Sociology 32 (1981) pp 560-582. This paper cites an intermediate figure of 15% for enrollment in nursery school of children born in 1958.

30 At earlier ages the cohort were even less likely to have attended any day-care facility, despite the recent war-time provision of nurseries. Up to age two in 1948 under three percent had ever attended any day-care (municipal, voluntary, factory etc). This unweighted figure was kindly supplied by B Rodgers.

31 H Joshi & M-L Newell "Job downgrading after childbearing", in M Uncles (ed) London Papers in Regional Science 18. Longitudinal Data Analysis: Methods and Applications. (London: 1987, Pion) pp 89-102.

32 Op cit in note 16.

33 Davis, loc. cit., in note 2, p. 397.

34 1988 Labour Force Survey and 1980 Women and Employment Survey.

Table 1. Percentages of mothers undertaking paid work while their youngest child was aged under 11 years: a comparison of three cohorts by broad social class.

Date last child born	Husband's occupation when child was aged 11 years		
	Manual	Non-manual	All
1946	65.8	45.0	61.0
1958	79.4	74.7	73.6
1966-72	86.6	85.9	86.5

Note. The column for all occupations includes cases where the husband's occupation could not be classified.

Source. H E Joshi, "Motherhood and employment: change and continuity in post-War Britain," in British Society for Population Studies, Measuring Socio-Demographic Change, Occasional Paper 34 (London: 1985, Office of Population Censuses and Surveys), Table 4, p. 76.

Table 2. Bivariate survival analysis of the return to work after the last child in 1946 (using weighted sample).

Controlling for	Percentage ever employed within 15 years	Median time before job		Number of women	
		years	months	weighted	unw'td
All women	69	8	1	4,191	1,851
EDUCATIONAL ATTAINMENT					
Primary school only	70	7	8	2,672	1,043
Above primary school	66	9	1	1,235	665
OWN OCCUPATION BEFORE THE BIRTH					
Factory or farm work	77	6	0	1,289	464
Domestic and service	70	7	9	1,673	719
Professional	67	8	4	195	128
Office	65	10	2	544	319
No job	49	15	0	378	162
HUSBAND'S OCCUPATION					
Unskilled manual	78	5	3	380	98
Agricultural	73	6	5	200	197
Skilled manual	73	7	8	1,762	475
Semi-skilled manual	72	6	3	591	153
Wage-earning non-manual	69	8	4	537	477
Salaried non-manual	53	13	0	212	197
Professional	50	15	0	131	125
Self-employed or farmer	48	>15	0	291	78
Employer	34	>15	0	35	35
REGION					
North-west England	79	5	3	469	193
South-east England	77	6	8	1,077	519
West Midlands	76	6	2	381	147
East Anglia	71	6	3	144	72
South-west England	71	8	8	252	108
Southern England	70	8	3	216	111
Yorkshire and Humberside	67	8	11	370	154
East Midlands	59	7	4	249	108
Scotland	56	12	10	457	205
Northern England	55	11	10	330	135
Wales	49	>15	0	246	99
AGE AT SURVEYED BIRTH					
Under 30 years	77	6	7	1,366	595
30-34 years	67	8	5	1,323	585
35 years and over	61	9	8	1,193	530

(cont.)

Table 2. (cont.)

Controlling for	Percentage ever employed within 15 years	Median time before job		Number of women	
		years	months	weighted	unw'td
RANK OF BIRTH					
First	73	7	7	1,122	519
Second	68	8	9	1,452	669
Third or higher	66	8	0	1,613	662

Note: The differences between the categories on each variable are significant at the 0.01 level

Source: MRC National Survey of Health and Development.

Table 3. (cont from p 40.)

Note. Women who lost contact with the survey before 1961 and before returning to work were censored at the date of their last usable interview. Relative risks are only displayed for significant categories. See footnote 22 for a description of the grouping of categories on the covariates.

Source. MRC National Survey of Health and Development.

Table 3. Proportional hazards model for the return to paid work after the last child for mothers who had their last child in March 1946.

Variable	Parameter	S.E.	Relative risk	N
EDUCATIONAL ATTAINMENT				
Primary school only			1.00	980
Above primary school	-0.11	0.08		631
OWN OCCUPATION PRIOR TO BIRTH				
Professional	0.55***	0.14	1.72	109
Office			1.00	281
Manual etc	0.17*	0.10	1.19	1,072
No job	-0.32**	0.15	0.72	149
HUSBAND'S OCCUPATION				
Salaried white-collar	-0.51***	0.11	0.60	292
Self-employed	-0.40**	0.18	0.67	72
Waged white-collar			1.00	427
Skilled manual	0.24***	0.08	1.27	739
Unskilled manual	0.58***	0.14	1.79	81
REGION				
South and east England			1.00	726
South-west England	-0.25*	0.13	0.78	97
Wales	-0.64***	0.16	0.53	85
North Midlands	-0.30***	0.09	0.74	238
North-west England	0.13	0.10		163
North of the Tees	-0.45***	0.09	0.64	302
AGE AT BIRTH				
Under 25 years	0.29***	0.11	1.33	154
25-29 years			1.00	405
30-34 years	-0.11	0.08		551
35-39 years	-0.28***	0.09	0.75	366
40 years and over	-0.41***	0.13	0.66	135

* $0.05 < p \leq 0.1$, ** $0.01 < p \leq 0.05$, *** $p \leq 0.01$.

Model $\chi^2 = 224.6$ with 17 d.f.
Number of women in model = 1,611.
Number of events = 1,058.

(cont. in Note on page 39)

Table 4. Proportional hazards model of mothers entering employment after having a child in 1946 and before any further birth

Variable	Parameter	S.E.	Relative risk	N
EDUCATIONAL ATTAINMENT				
Primary school only			1.00	2,390
Above primary school	-0.09	0.06		1,549
OWN OCCUPATION PRIOR TO BIRTH				
Professional	0.59***	0.11	1.81	259
Office			1.00	686
Manual etc	0.18**	0.08	1.20	2,707
No job	-0.30**	0.13	0.74	287
HUSBAND'S OCCUPATION				
Salaried white-collar	-0.59***	0.09	0.55	664
Self-employed	-0.25*	0.14	0.78	175
Waged white-collar			1.00	986
Skilled manual	0.21***	0.06	1.23	1,876
Unskilled manual	0.35***	0.11	1.42	238
REGION				
South and east England			1.00	1,712
South-west England	-0.39***	0.12	0.67	216
Wales	-0.61***	0.12	0.54	216
North Midlands	-0.25***	0.07	0.78	615
North-west England	0.15*	0.08	1.17	404
North of the Tees	-0.64***	0.07	0.53	776
AGE AT BIRTH				
Under 25 years	0.06	0.07		965
25-29 years			1.00	1,201
30-34 years	-0.01	0.06		1,057
35-39 years	-0.12	0.08		547
40 years and over	-0.30**	0.12	0.74	169

* $0.05 < p \leq 0.1$, ** $0.01 < p \leq 0.05$, *** $p \leq 0.01$.

Model $\chi^2 = 224.6$ with 17 d.f.
Number of women in model = 1,611.
Number of events = 1,058.

Note. Women who had a subsequent child before returning to work were censored at the start of the subsequent pregnancy. Women who lost contact with the survey before 1961 and before returning to work were censored at the date of their last usable interview. Relative risks are only displayed for significant categories. The model was estimated using Cox's regression.

Source: MRC National Survey of Health and Development.

Table 5. Chances of taking paid work after a first birth before any second birth: hazard regression analysis of two generations.

Variable	Mothers: Parameter	Mothers: S.E.	Mothers: Relative risk	Survey members: Parameter	Survey members: S.E.	Survey members: Relative risk
EDUCATIONAL ATTAINMENT						
No qualifications			1.00			1.00
Some qualifications	0.01	0.09		0.23**	0.12	1.26
OWN OCCUPATION BEFORE MOTHERHOOD						
Professional	0.74***	0.19	2.10	0.43***	0.15	1.54
Office			1.00			1.00
Manual etc	0.30***	0.09	1.35	0.15	0.12	
No job	0.54	0.46		0.04	0.43	
HUSBAND'S OCCUPATION						
Classes I and II	--	--	--	-0.16	0.20	
Salaried white-collar	-0.66***	0.15	0.52	--	--	--
Self-employed	-0.18	0.27		--	--	--
Waged white-collar			1.00	--	--	--
Class III	--	--	--			1.00
Skilled manual	0.03	0.10		--	--	--
Unskilled manual	0.22	0.19		--	--	--
Classes IV and V	--	--	--	-0.11	0.10	
No husband	--	--	--	0.24	0.26	
REGION						
S and E England			1.00			1.00
SW England	-0.32	0.21		-0.13	0.20	
Wales	-0.52**	0.21	0.59	-0.24	0.22	
North Midlands	-0.09	0.12		-0.01	0.14	
NW England	0.11	0.13		0.48***	0.15	1.61
North of the Tees	-0.62***	0.13	0.54	-0.04	0.12	
AGE AT MOTHERHOOD						
Under 20 years	0.15	0.10		0.76***	0.15	2.14
20-24 years				0.48***	0.12	1.61
25-29 years			1.00			
30-34 years	-0.04	0.13				1.00
35-39 years	-0.03	0.17				
40 years and over	-0.56	0.37				
Model χ^2	158.30 with 31 d.f.			189.13 with 28 d.f.		
Number of time dummies also included	14			14		
Number of women in model	1,544			1,479		
Number of events	590			497		

* $0.05 < p \leq 0.1$, ** $0.01 < p \leq 0.05$, *** $p \leq 0.01$.

Source. MRC National Survey of Health and Development.(cont.)

Table 5. (cont.)

Notes. Censoring occurs either at the date of the second birth or at the date of the last usable interview if the woman lost contact with the survey. The mothers were observed between 1946 and 1961, and the survey members from the late 1960s until 1978. Relative risks are only displayed for significant categories. These models were estimated assuming a piece-wise constant hazard rate over time. Sales and miscellaneous occupations are grouped with manual jobs.

Table 6 Mean values of covariates in Table 5: Percentages of all woman-months entering the hazard regressions by characteristic in two generations.

	Mothers	Survey members
Months of observation	103501	27935
Entries	590	497
Average probability of entry	0.006	0.018
EDUCATIONAL ATTAINMENT	%	%
With some qualifications	47	55
No qualifictions	53	45
OWN OCCUPATION BEFORE MOTHERHOOD		
Professional	5	12
Office	53	50
Manual etc	41	37
No job	1	1
HUSBAND'S OCCUPATION		
Classes I and II	--	8
Salaried white-collar	20	--
Self-employed	3	--
Waged white-collar	31	--
Class III	--	44
Skilled manual	42	--
Unskilled manual	4	--
Classes IV and V	--	46
No husband	--	2
AGE AT MOTHERHOOD		
Under 20 years	} 39	{ 14
20-24 years		52
25 +	61	34

The regional composition was not much changed.

Table 7. Occupational change after childbearing: mothers of children born in 1946.

Broad category of pre-birth job (arranged into four levels)	Percentages of women with a job before the birth having a subsequent job				N (weighted)
	In the same category	In another category at the same level	At a higher level	At a lower level	
LEVEL 1					
Professional	79.4	--	--	20.6	131
LEVEL 2					
Office work	41.0	1.6	2.7	45.3	373
Self-employed	71.4	0.0	0.0	28.6	14
LEVEL 3					
Factory work	40.3	1.6	4.4	53.7	1,129
Miscellaneous	4.7	19.0	20.6	55.7	321
LEVEL 4					
Domestic work	50.6	27.1	22.3	--	346
Agricultural work	61.5	27.1	11.4	--	96
Shop and services	46.7	25.3	28.0	--	351
Homeworking	46.3	41.5	12.2	--	41
ALL WOMEN	41.2	10.7	11.7	36.4	2,802

Note. The figures in this table refer to mothers with a job during their 1945-46 pregnancy who resumed work during the period of observation.

Source. MRC National Survey of Health and Development.

Table 8. Occupational change after childbearing: female survey members.

Broad category of pre-birth job (arranged into four levels)	Percentages of women with a job before the birth having a subsequent job				N (weighted)
	In the same category	In another category at the same level	At a higher level	At a lower level	
LEVEL 1					
Professional	84.0	--	--	16.0	220
LEVEL 2					
Office work	39.4	1.1	2.7	56.8	816
Self-employed	92.3	0.0	0.0	7.7	13
LEVEL 3					
Factory work	48.1	3.2	6.2	42.5	595
Miscellaneous	24.1	13.8	3.4	58.6	58
LEVEL 4					
Domestic work	43.1	30.6	26.3	--	72
Agricultural work	53.8	38.5	7.7	--	13
Shop and services	58.4	24.2	17.4	--	380
Homeworking	100.0	0.0	0.0	--	19
ALL WOMEN	49.4	8.2	6.7	36.0	2,186

Note. The figures in this table refer to mothers with a job before their first birth who resumed work during the period of observation.

Source. MRC National Survey of Health and Development.**Figure captions**

FIGURE 1

Percentages of women employed during the childhood of their last child: mothers of the 1946 and 1958 birth cohorts.

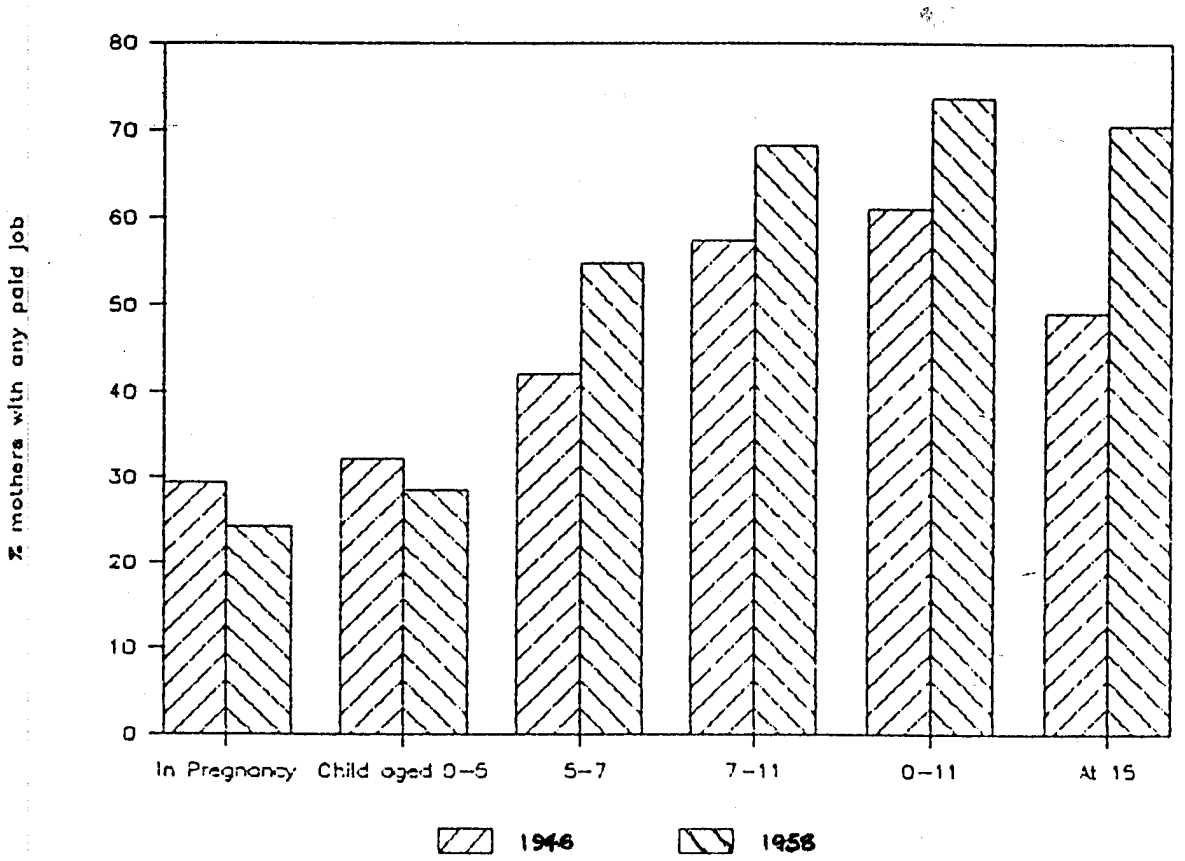
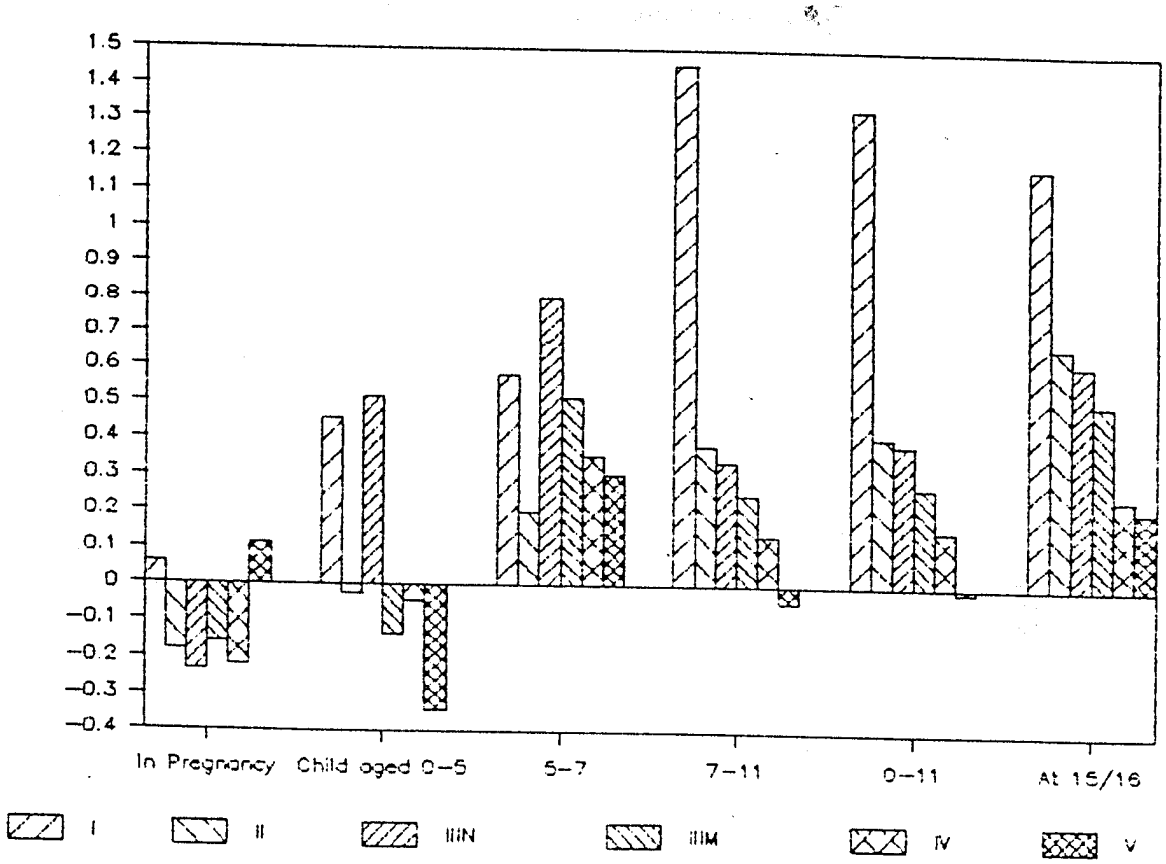


FIGURE 2

Ratios of the percentages of women employed during the childhood of their last child: mothers of 1946 and 1958 birth cohorts by social of husband



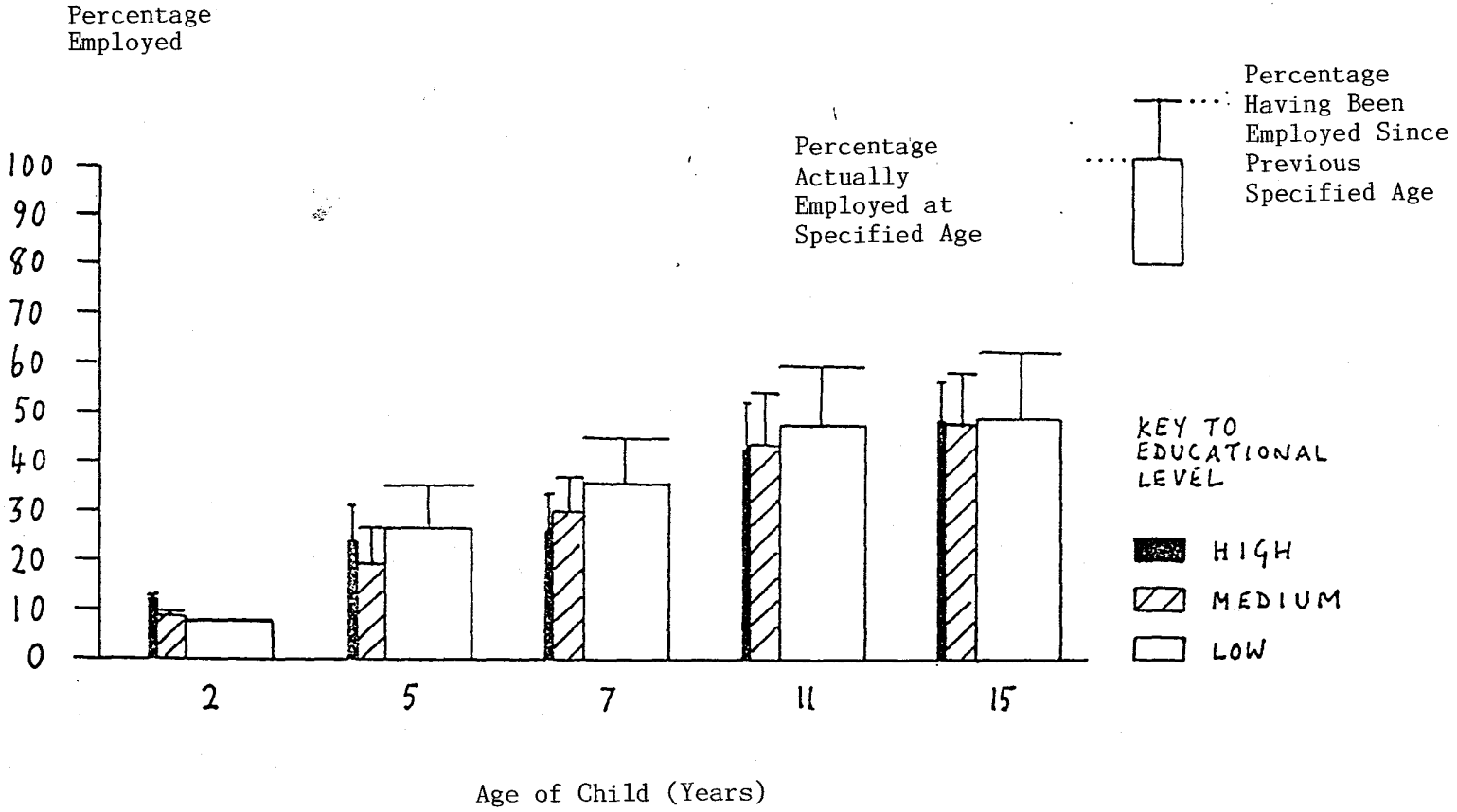
Husband's social class at child's age 11

Sources:

National Survey of Health and Development; National Child Development Study.

FIGURE 3

Percentages of women employed during the childhood of their last child by educational achievement: mothers of 1946 birth cohort.

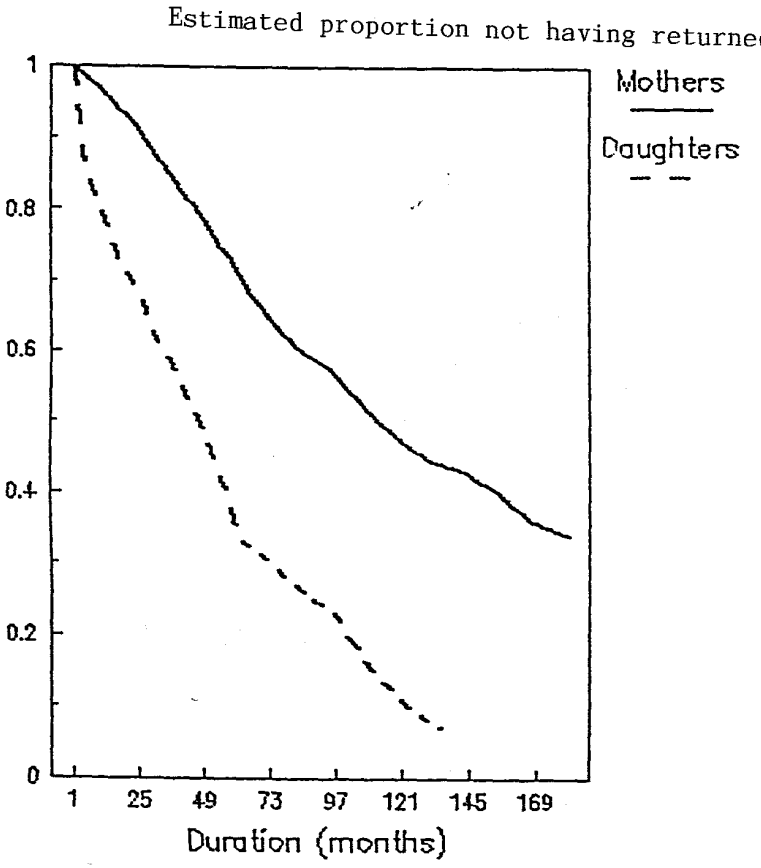


High = Qualifications
Medium = Other, Secondary School
Low = Primary School Only

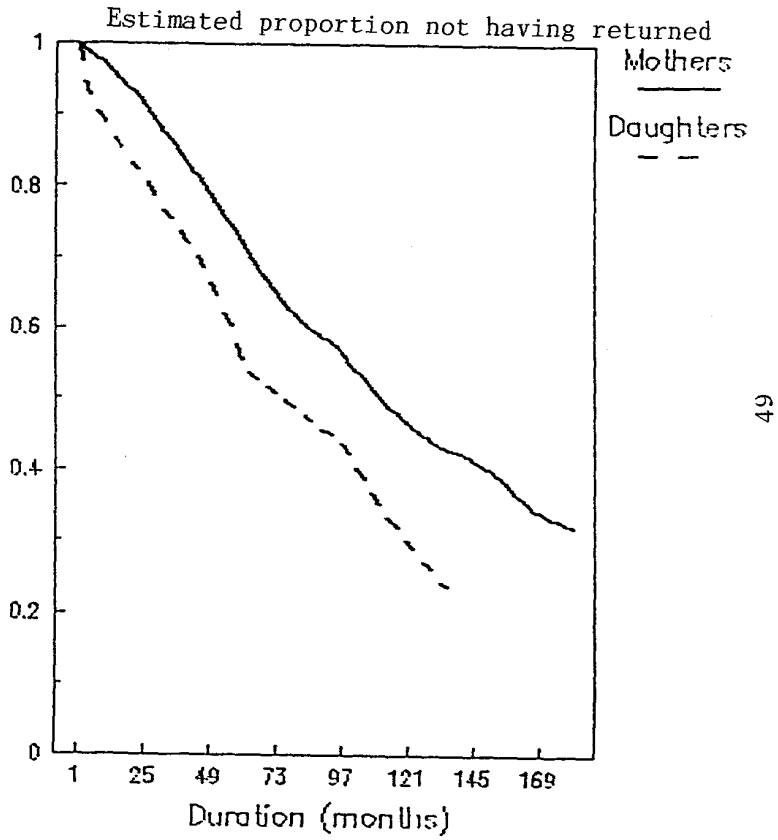
FIGURE 4

Proportion of women not having returned to employment in successive months afteir first child (and before any second pregnancy): mothers of 1946 birth cohort and members of that cohort, (before and after controlling for the covariates in Table 5).

A. All Women



B. Baseline category of women



Source: National Survey of Health and Development

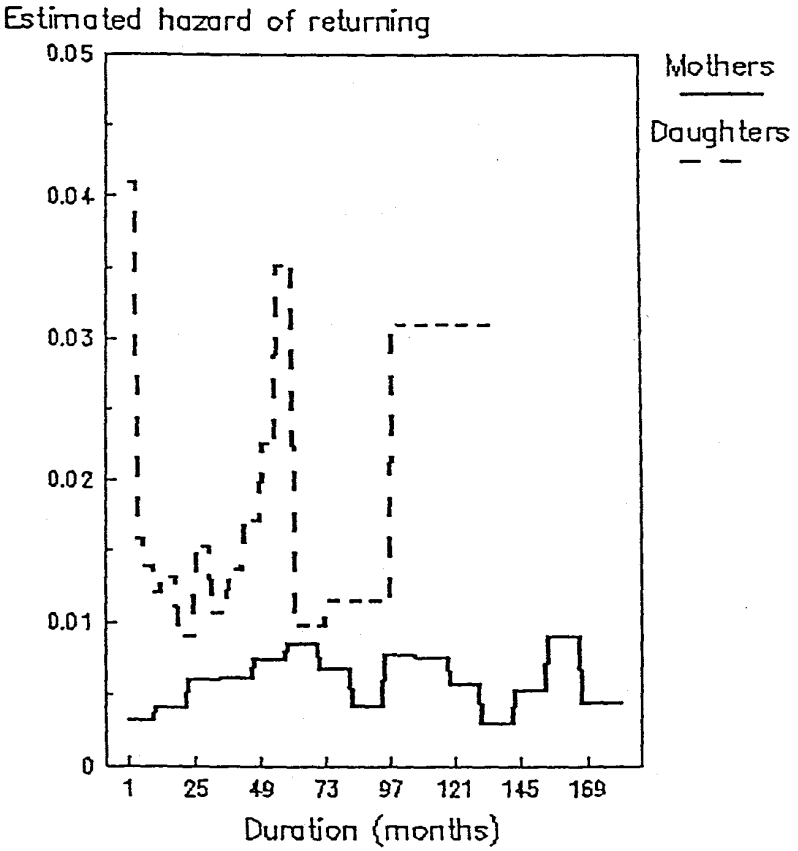
Note: Graph A was estimated from a model with no covariates.

Graph B refers to women in the reference category on all covariates included in the models. Both graphs were estimated using a piece-wise constant baseline hazard.

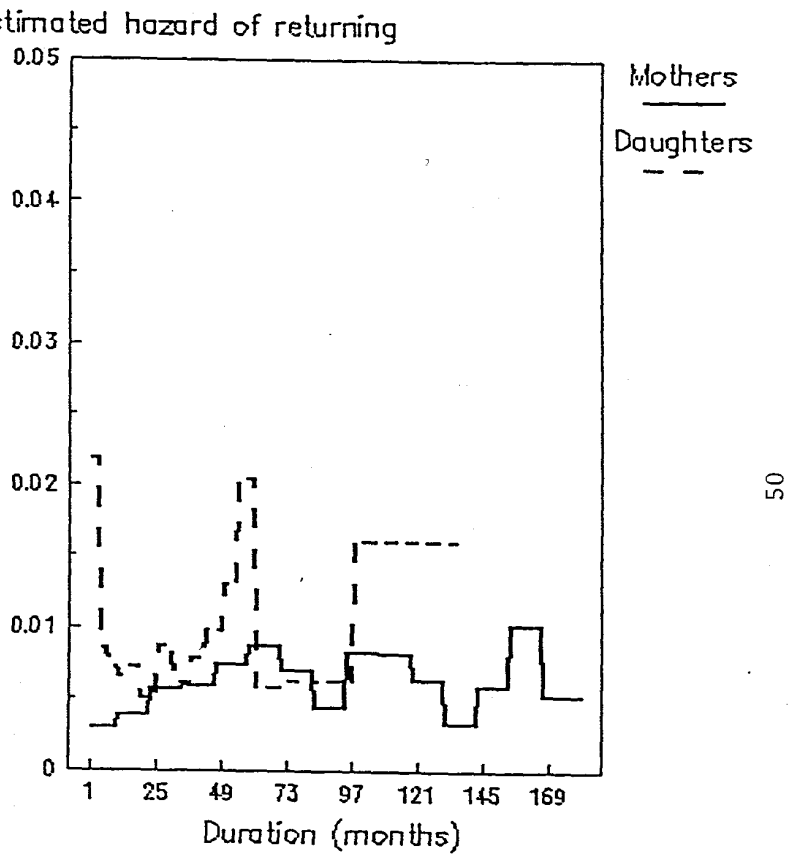
FIGURE 5

Hazards of returning to employment after the first chand (and before any second birth): mothers of 1946 birth cohort and members of that cohort, (before and after controlling for the covariates in Table 5).

A. All Women



B. Baseline category of women



Source: National Survey of Health and Development.

Note: Graph A was estimated from a model with no covariates.

Graph B refers to women in the reference category on all covariates included in the models. Both graphs were estimated using a piece-wise constant baseline hazard.

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National Child Development Study User Support Group, Working Paper No 35, August 1991. Social Statistics Research Unit, City University, Gloucester Building, Gloucester Way, London, EC1R 0BN. Telephone 071 253 4399.

N A T I O N A L C H I L D D E V E L O P M E N T S T U D Y

The National Child Development Study (NCDS) is a continuing longitudinal study which is seeking to follow the lives of all those living in Great Britain who were born between 3 and 9 March, 1958.

It has its origins in the Perinatal Mortality Survey (PMS). This was sponsored by the National Birthday Trust Fund and designed to examine the social and obstetric factors associated with the early death or abnormality among the 17,000 children born in England, Scotland and Wales in that one week.

To date there have been four attempts to trace all members of the birth cohort in order to monitor their physical, educational and social development. These were carried out by the National Children's Bureau in 1965 (when they were aged 7), in 1969 (when they were aged 11), in 1974 (when they were aged 16) and in 1981 (when they were aged 23). In addition, in 1978, details of public examination entry and performance were obtained from the schools, sixth-form colleges and FE colleges.

For the birth survey information was obtained from the mother and from medical records by the midwife. For the purposes of the first three NCDS surveys, information was obtained from parents (who were interviewed by health visitors), head teachers and class teachers (who completed questionnaires), the schools health service (who carried out medical examinations) and the subjects themselves (who completed tests of ability and, latterly, questionnaires). In addition the birth cohort was augmented by including immigrants born in the relevant week in the target sample for NCDS1-3.

The 1981 survey differs in that information was obtained from the subject (who was interviewed by a professional survey research interviewer) and from the 1971 and 1981 Censuses (from which variables describing area of residence were taken). Similarly, during the collection of exam data in 1978 information was obtained (by post) only from the schools attended at the time of the third follow-up in 1974 (and from sixth-form and FE colleges, when these were identified by schools). On these last two occasions case no attempt was made to include new immigrants in the survey.

All NCDS data from the surveys identified above are held by the ESRC Data Archive at the University of Essex and are available for secondary analysis by researchers in universities and elsewhere. The Archive also holds a number of NCDS-related files (for example, of data collected in the course of a special study of handicapped school-leavers, at age 18; and the data from the 5% feasibility study, conducted at age 20, which preceded the 1981 follow-up), which are similarly available for secondary analysis.

Further details about the National Child Development Study can be obtained from the NCDS User Support Group.