Session Number: 2B
Session Title: Intergenerational Transmissions of Inequality
Paper Number: 3
Session Organizers: Miles Corak and Dean Lillard
Discussant: Stephen Jenkins

Paper Prepared for the 28th General Conference of
The International Association for Research in Income and Wealth
Cork, Ireland, August 22 – 28, 2004

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Intergenerational Mobility and Assortative Mating in the UK

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Version 1: July 2004
Submitted to IARIW Conference Cork

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Abstract

This paper provides a thorough consideration of the intergenerational mobility of household income in two British cohorts, one born in 1958, and the other in 1970. I link the education, employment, earnings and income of the child and their partner to the cohort member's parental income. The most powerful result found is a strong rise in the relationship between son's parental income and both his earnings and his partner's earnings, these trends are more muted for daughters. These effects combine to mean that household earnings mobility has fallen much more sharply for sons than daughters. The use of a household income as the measure of child's status rather than individual earnings shows that the fall in intergenerational mobility in the UK has been even greater than is indicated by looking at earnings mobility alone.

Acknowledgements
The author would like to thank the Treasury's Evidence Based Policy Fund for financial assistance. In addition, I am grateful to Stephen Machin, Steve Gibbons and Sandra McNally for helpful comments.

1. Introduction

In recent years economists have become increasingly interested in studying the links between children's success and their family background. Researchers have studied the extent to which parental income and wealth have influenced educational attainment, earnings and income. A strong relationship between parental income and children's outcomes is frequently interpreted as demonstrating an unacceptably closed society where individuals may not achieve their full potential.[1]

These studies have tended to consider adult children in isolation, however, and very few have taken into account the role of partnership formation in determining the economic and social status of the grown-up child (exceptions are Chadwick and Solon, 2002 and Peters, 1992 for the US and Ermisch and Francesconi, 2002 for the UK). As a result of economies of scale, household public goods and income pooling it is easy to argue that household income is a more important measure of welfare than individual earnings. Indeed, poverty is measured at the household, rather than individual, level. Consequently, if we are concerned with the persistence of welfare across generations we may think that the association between household incomes across generations is the most relevant measure.

It is immediately clear that an individuals' choice of partner will have an important bearing on intergenerational persistence at the household[2] level. If individuals choose partners with similar economic characteristics to their parents then the child's household income may be more strongly related to parental income than individual earnings are. In this way assortative mating (where individuals choose partners with similar characteristics to their own) can be an important mechanism adding to the persistence of income across generations. In this case, estimates of intergenerational mobility obtained at the individual level will underestimate the full extent of intergenerational income persistence.

This paper is the first to estimate intergenerational income mobility at the household level in the UK, and to begin to understand how assortative mating contributes to intergenerational income links. I use data from two cohorts one born in

[1] A summary of this general literature can be found in Solon (1999), while Corak (2004) explicitly considers the policy implications that can be gained through comparisons across countries.

[2] From this point on "household income" refers to the income of the household head and any partner, it does not, in fact, include the contributions of any other members of the household. This is nature of the data available in the cohort studies.

1958 and one born in 1970. This allows the very first investigation of how intergenerational mobility and assortative mating interact and change over time.

This analysis is operating against a background of great change in household formation and women's labour market participation. Individuals in the second cohort are forming partnerships and having children later. Women are participating more and earning a larger share of household income. It is a difficult task, but one of the motivations of the paper is to begin to understand how these changes influence intergenerational mobility and assortative mating.

The approach taken here is closest to those used by Chadwick and Solon (2002) and Ermisch and Francesconi (2002). Chadwick and Solon (2003) explore family income mobility and assortative mating in the US. They argue that the connection between intergenerational mobility and assortative mating is particularly important for women, where own earnings are frequently a minority contribution to family income. Chadwick and Solon examine assortative mating by estimating the relationship between daughters' husbands' earnings and parental income, they find this relationship to be as strong as the relationship between parental income and daughters' own earnings.

Ermisch and Francesconi (2002) use the British Household Panel Survey to consider these issues in the UK. As the BHPS does not include measures of parental income, the analysis is based upon the relationship between own and spouses' occupation and recalled parents occupation at age 14. Occupations are converted into the Hope-Goldthorpe scale of occupational prestige to enable a cardinal analysis. On this basis Ermisch and Francesconi find OLS coefficients of parents' on children's occupations of .25 for daughters and .30 for sons while partner-parent coefficients are .20 for both sexes. So partner-parent relationships are strong, but smaller than those between parents and children. The two estimates are closer for daughters. These results hold for the other estimation approaches attempted in the paper.

Work by Blanden et al (2002) explores the change in individual mobility in the UK for the cohort datasets used in this paper. They find a substantial decrease in the extent of mobility in the UK when individual earnings (when cohort members are in their early 30s) are linked with parental income (at age 16). The question asked in this paper is: Are the trends for individual mobility are reinforced when the earnings of partners are included in the measure of child's income?

In order to motivate the analysis I present a simple model of intergenerational mobility and the marriage market. Assortative mating occurs on the basis of human capital. Parental income is related to child's human capital and earnings due to the investments parents make in their children, and assortative mating leads to a relationship between parental income and the education level and earnings of spouses.

As human capital is the building block of the theoretical model, I also treat this as the starting point of my empirical analysis. To this end I measure the links between the educational levels of partners in the two cohorts and the intergenerational relationships between both the cohort member's education and his parent's income and his partner's education and his parent's income. I find that parental income has a growing association with the education level of both the cohort member and their partner.

In the model it is clear that the link between parental income and earnings in the next generation is a consequence of the earnings return to human capital. Variations in these returns across genders lead to variations in the extent of intergenerational mobility. These variations will be dependent, in part, upon the extent of participation.

Intergenerational earnings research frequently overlooks the selection of individuals into work. With a few exceptions (Minnicozi, 2002 and Chadwick and Solon, 2002) research has focused much more on sons than daughters precisely because of the complications caused by the more complex labour supply decisions of women. I attempt to be explicit as possible about the role of participation. My results show that for women, high education has become increasing associated with employment. In addition, I find that the partners of men from more favourable backgrounds are participating more; this will tend to reinforce intergenerational persistence.

Having built up a picture of how education and participation might contribute to income persistence, I then estimate models of intergenerational mobility for both household earnings and household income. I attempt to quantify the contribution that the correlation between parental income and partner's earnings makes to intergenerational earnings persistence. I also consider the links between parental income and the full household income of cohort members. This includes benefit income, and enables the inclusion of households in the sample where no individuals work.

My findings show that there has been a large increase in the association between son's partner's earnings and his parents' income. It is possible to argue that this is due to the increased participation and earnings of married women. There is also evidence that using a household measure of income reveals less income mobility in Britain than is found by the individual analysis, and a larger fall over time. For the 1970 cohort, the inclusion of partner's earnings increases the extent of estimated intergenerational persistence for sons and daughters. For couples in both cohorts, the inclusion of other income from non-work sources reveals a closer correlation between parent and child incomes.

In the following section I introduce the simple theoretical model I use to motivate my analysis. In Section 3 I outline the estimation approaches used. In Section 4 I briefly describe the data. Section 5 describes my results, with some robustness exercises described in Section 6. A discussion of the interpretation of the results in the light of my theoretical model is provided in Section 7 and Section 8 concludes.

2. The Theoretical Framework

Despite the importance of bringing participation decisions into the empirical framework the following motivating theoretical framework (owed to Ermisch and Francesconi, 2002) assumes, in the first instance, the participation of both partners. The extent of assortative mating between partners is assumed to be exogenous to the model, and can be represented as a linear relationship between their human capital.

$$H_t^P = \alpha_0 + \alpha_1 H_t + v_t^P \qquad (1)$$

We can assume that the income of both partners increases with their human capital.

$$y_t = \gamma_{01} + \gamma_1 H_t + e_t \qquad (2)$$

$$y_t^P = \gamma_{02} + \gamma_2 H_t^P + e_t^P \qquad (3)$$

Parents have Cobb-Douglas preferences over their child's family earnings ($y_t + y_t^P$) and own consumption.

$$U = \pi \log(E[y_t + y_t^P]) + (1-\pi)\log(C_{t-1}) \qquad (4)$$

and a budget constraint

$$y_{t-1} = C_{t-1} + p_H H_t . \qquad (5)$$

Consequently in the regression

$$y_t = \beta_0 + \beta_1 y_{t-1} + u_{1t} \qquad (6)$$

$\beta_1 = \pi\gamma_1 / p_H$ where p_H is the cost of human capital and

$$y_t^P = \delta_0 + \delta_1 y_{t-1} + u_{2t} \qquad \delta_1 = \alpha_1 \pi\gamma_2 / p_H \qquad (7)$$

It is therefore clear that investing in the human capital of children has rewards through both the labour market and the marriage market. The extent to which parents will make investments in children's outcomes will depend upon the expected returns from both these markets. While changes in the relationship between child's earnings and parent's income (β_1) can come about solely through the investment mechanism which connects parents and children, changes in the relationship between the cohort member's parent's income and his/her partner's earnings (δ_1) can be a consequence of either changes in the costs or returns to investment, or from changes in the extent of assortative mating. If the earnings returns to human capital rise for women compared with men, one would expect to see a rise in β_1 for daughters compared with sons and δ_1 for daughter-in-laws compared with son-in-laws.

The relationship between the family income of parents and children will clearly be affected by both β_1 and δ_1. In fact this can be formalised into a decomposition where the elasticity between family incomes depends upon β_1, δ_1 and the share of income contributed by the two partners; this idea is used by Chadwick and Solon (2003).

The equation we are interested in is the relationship between the household income of parents and children.

$$(y_t + y_t^P) = \mu_0 + \mu_1 y_{t-1} + u_{3t} \qquad (8)$$

If all these variables are measured in logs then

$$\mu_1 = \frac{\partial(Y_t + Y_t^P)}{\partial Y_{t-1}} \cdot \frac{Y_{t-1}}{(Y_t + Y_t^P)}, \qquad (9)$$

i.e. the elasticity of child's family income with respect to family income.

Equally $\beta_1 = \frac{\partial Y_t}{\partial Y_{t-1}} \cdot \frac{Y_{t-1}}{(Y_t)}$ and $\delta_1 = \frac{\partial Y_t^P}{\partial Y_{t-1}} \cdot \frac{Y_{t-1}}{(Y_t^P)}$. $\qquad (10)$

It is simple to show that

$$\frac{\partial(Y_t + Y_t^P)}{\partial Y_{t-1}} \cdot \frac{Y_{t-1}}{(Y_t + Y_t^P)} = \frac{\partial Y_t}{\partial Y_{t-1}} \cdot \frac{Y_{t-1}}{Y_t} \cdot \frac{Y_t}{(Y_t + Y_t^P)} + \frac{\partial Y_t^P}{\partial Y_{t-1}} \cdot \frac{Y_{t-1}}{Y_t^P} \cdot \frac{Y_t^P}{(Y_t + Y_t^P)} \qquad (11)$$

Which is equivalent to

$\mu_1 = s\beta_1 + (1-s)\delta_1$, where s is the share of own income in $Y_t + Y_t^P$.

In an estimation setting all of these variables will be expected values and therefore the decomposition will not be precise, nevertheless this is a useful concept to keep in mind.

Household earnings mobility, therefore, will be a weighted average of the elasticity of the child's earnings with respect to parental income and the elasticity of partner's earnings with respect to parental income, where the weight depends on the share of earnings contributed by each partner. As an example, assume that the contribution of wife's earnings to household earnings rises but β_1 and δ_1 remain unchanged. As a consequence her elasticity with respect to parental earnings will become more important in determining μ_1. If this is lower than the son's own elasticity ($\beta_1 \rangle \delta_1$) we will observe a fall in μ_1, if it is greater ($\beta_1 \langle \delta_1$) then μ_1 will rise.

This model can also be extended to take account of differential participation. If women are less likely to participate than men then this will influence the returns to human capital for women over the lifecycle. If the participation of women becomes more closely associated with education then the returns to human capital for women will rise.

A strengthening in the relationship between participation and human capital for women will lead to a rise in the average γ_1 (the income return from own education) for women and γ_2 for daughters-in-law. This will lead to an increase in the relationship between daughter's earnings and parental income and in the relationship between son's partner's earnings and son's parental income. A rise in γ_1 will increase β_1 and a rise in γ_2 will lead to an increase in δ_1, *ceterus paribus*. It would also be expected that the relationship between women's participation and parents/parents-in-laws income will change in the same direction.

While this is a useful extension, it falls far short of a complete model of intergenerational mobility and the marriage market with endogenous participation. A substantial literature has shown that women's labour supply decisions within marriage are based on complex optimisation (for a survey see Killingsworth and Heckman, 1986) where the presence of children, husband's earnings and other income sources are important variables. A complete model would explicitly consider the role of

children and treat women's participation as endogenous with respect to her husband's earnings and possibly both sets of parents' incomes as well.

3. Estimation Approaches

The analysis that follows takes a variety of approaches to measuring and understanding intergenerational mobility and assortative mating. The structure of the analysis is to move from education, to participation, to earnings, and finally to a measure of family income persistence which takes into account both earned and unearned incomes.

Initially a simple measure of educational assortative mating is obtained by tabulating the education level of partners by cohort and sex. Second, an intergenerational component is added to this analysis as I use ordered probit models to relate parental income to the education levels of cohort members and their partners. Next, to lay the ground for understanding the earnings and income relationship, a similar approach is used to understand how participation is related to both own education and parental income, and how this has changed over time.

The results of most interest focus on obtaining estimates of β_1, δ_1 and μ_1 (also referred to as β, δ, and μ from now on) by using traditional linear models to relate own earnings, partner's earnings and combined earnings to parental income. All models control for parent's age and age-squared and also partner's age and age-squared where appropriate. In order to account for the different variances between generations I also report the partial correlation coefficient. This will account for the different variance of earnings due to life-cycle effects (see Grawe 2003), as well as due to gender and secular changes in earnings inequality.

$$(\mathrm{Corr}_{\ln Y^{PARENTS}|\mathrm{Age},\ln Y^{SON}|Age}) = \beta * (\frac{SD^{\ln Y^{PARENTS}|Age}}{SD^{\ln Y^{SON}|Age}}) \qquad (12)$$

As I have already noted these models suffer from their inability to model participation decisions, as β and δ are only estimated for working populations. One option is to use selectivity corrections to adjust the model for selection into the sample, the difficulty here is in finding valid exclusion restrictions; that is variables which influence participation but do not impact upon earnings. An alternative approach is to model the relationships in levels rather than logs. In order to recognise the censoring of earnings at zero this is modelled using tobit models. The disadvantage of this approach is that the participation decision is not modelled as a

separate process, but it does allow non-earners to be included in the analysis in a meaningful way.

4. Data

The data used in this paper is taken from the two British cohort studies, the National Child Development Study (NCDS) and British Cohort Study (BCS). The NCDS includes all individuals born in a week in March 1958 and the BCS includes all individuals born in a week in April 1970. The surveys are ongoing and so far detailed data has been collected about many aspects of the cohort members' lives at birth and ages 7, 11, 16, 23, 33 and 42 for the NCDS and at birth, ages 5, 10, 16 and 30 for the BCS.

The parental income data used here is taken from both surveys at age 16, although it is necessary to manipulate the data slightly to ensure full comparability. One disadvantage of the cohort datasets is that while the BCS has parental income measured additionally at age 10 the NCDS has only the single income measure taken at age 16. Solon (1989, 1992) and Mazumder (2001) have both highlighted the importance of obtaining multiple measures of parental income in order to reduce measurement error, as the true variable of interest is permanent parental income. A defence here is that we are interested in changes over time between the cohorts, so if one assumes that measurement error is not systematically worse in one dataset than the other the results should stand. The plausibility of this assumption is discussed in more detail in other papers which use this data (Blanden et al 2002).

The data on adult children and their partners is obtained from the age 33 survey in the NCDS and the age 30 survey in the BCS. In the adult surveys information is obtained about employment, hours, earnings and other sources of income for the cohort members. There is also detailed information about educational and relationship history. For the cohort members' partners there is information in both cohorts about employment and earnings, and some weaker information about education.

Table 1 shows the main characteristics of the data used, by gender, cohort and partnership status. Throughout the paper I shall speak about partners, this includes both those who are married and cohabiting. The first thing to note is that rather more of the NCDS cohort were in a partnership at the time the adult information was obtained. Indeed, when the 1958 cohort was observed at age 33, 82% of men were living with a partner, when the 1970 cohort was observed at age 30, 65% of men were

cohabiting. Comparable numbers for women are 84% and 76%[3]. The changes that have occurred are illustrated in even more stark relief in Figures 1 and 2. They show the age at which individuals moved in with their current partner (for those that have one). It is clearly the case that both males and females are forming partnerships later. This, combined with the three year difference in when the data was obtained will mean that the sample of those with partners in the BCS, as well as being smaller, is likely to contain individuals who form partnerships relatively early, while the NCDS sample is likely to be more representative. The potential implications of these selections will be returned to in the robustness section.

Table 1 demonstrates a number of other differences between the cohorts and between those individuals with partners compared to those without. In both datasets men with partners are more likely to be employed and have higher wages (there is a growing literature on understanding this married-man wage premium, for example, Korenman and Neumark, 1991) The pattern with respect to education has switched however; in the NCDS partnered men are more likely to have higher education, whereas in the BCS those who do not have partners are more likely to be highly educated. This is likely due to the fact that the BCS sample of those with partners will include more of those who formed partnerships relatively early.

For women there is little difference in the education levels of those with and without partners in the NCDS, while in the BCS those with partners are less likely to have either very low or very high education. Women with partners have lower earnings in both cohorts. It seems that this is related to different employment patterns. The overall employment rates are higher in the BCS than the NCDS for both groups. But the relatively small differences across partnership status mask larger differences for full and part-time work. Women with partners are much less likely to work full time and much more likely to work part time than single women, although this gap has closed somewhat between the two cohorts. The choice of full-time or part-time work is closely associated with the presence of children. Once again, there are very marked differences between the cohorts with almost 70% of men with partners having children in the household in the NCDS compared with 50% in the BCS. For women with partners the proportion with children is 78 % in the NCDS and 59% in the BCS. Many women without partners also have children in the household in both cohorts,

[3] These proportions refer to those individuals for whom we have family income information as these are those used in the main analysis.

this is 47% in the NCDS and 35% in the BCS. Given what we know about partnership formation it is likely that more single mothers in the NCDS have come into this state through the dissolution of a partnership than is the case in the BCS.

A further difference between the cohorts is the proportion of couples who are legally married. In the NCDS this is 86% for men and 89% for women, in the BCS it is much smaller at 60% for men and 67% for women. This change is a potential worry as the degree of commitment in a cohabiting relationship has a considerable amount of variability. Ermisch and Francesconi (2000) explore patterns of cohabitation using data from the British Household Panel. The evidence that cohabitation is a very temporary state is mixed. Cohabiting unions do tend to be short with 70% lasting less than 3 years, but 62% of those who end their cohabitation are moving into marriage. There is a however a strong negative relationship between the age at which the cohabitation began and the chances of dissolution, this means that the relatively young sample in the BCS are more likely to have temporary cohabitations. This issue is explored further in the robustness section.

5. Results

Summary

As already described the empirical approach used builds upon several approaches to show the dimensions contributing to household income persistence. In order to help the reader put these into context I shall first present a summary of the partial correlations obtained from the full household income analysis (which includes the unearned and unearned income of the cohort member and any partner) compared with the usual individual earnings results. Table 2 presents these results by sex and partnership status.

For both groups of sons (those with and without partners), there has been a large rise in intergenerational earnings persistence. For sons without partners, there is very little difference between the results using earnings as the dependent variable and those using a wider version of income. In contrast, for sons with partners there is an even larger increase in the fall in intergenerational mobility when household income is used as the outcome of interest rather than sons' earnings. In the later cohort, estimates of intergenerational persistence are larger when household income is used as the dependent variable rather than own earnings. As we shall see, this is substantially because of the rise in the association between partners' earnings and the parental income of sons.

For daughters, as we shall see throughout the analysis, results are more mixed. While the rise in intergenerational earnings persistence is larger for single daughters than those with partners, in neither case is this change significant. For single daughters, there is even less evidence of a fall in mobility when income is used as the dependent variable. For daughters with partners household income appears to be a much better measure of economic status, for both cohorts larger intergenerational correlations are observed. There is also a significant rise in this correlation between the cohorts, but this is approximately half of the size of the change observed for sons with partners.

Educational Matching

With these broad-brush results in hand, we can now turn to the detail and begin to understand the mechanisms behind them. Tables 3A and 3B, take a first pass at assessing the extent of assortative mating in the cohorts by demonstrating the connection between the school-leaving ages of partners in the two cohorts, by gender. The matrices and summary statistics presented here follow the simple approach of Pencavel (1998). Unfortunately, all we know about the cohort members' partner's education is the age at which they left school, this means that this measure is missing substantial differences in human capital by ignoring the different qualifications that can be obtained at the same school-leaving age. It is clear from the tables that school leaving ages in the UK are heavily clustered around age 16 and there has been some general increase in the level of education between the cohorts.

Although we may think that these education categories are rather poor measures of H_t and H_t^P the evidence from these matrices points, if anything, to a fall in the extent of assortative mating. As shown in the notes to the Table the odds of marrying someone in the same education category (educational homogamy) have decreased for both men and women, as have the odds of marrying someone in the same or adjacent education category. The picture is the same if we abstract from the general rise in the level of education. For men who left at age 16 85% of their partners left school at age 17 or before in the NCDS compared with 77% in the BCS. Similarly, for women who left school at age 20 or later 75% of their partners left at 18 or older in the NCDS compared with 65% in the BCS.

These results for the UK therefore show a fall in assortative mating by education group. This is in contrast to the results of similar exercises found in

Pencavel (1998) and Mare (1991) for the US. Both Pencavel and Mare use data on young husbands and wives from the 1940 census onwards to consider the educational associations across couples. He uses a specification which is robust to changes in the marginal distributions of men and women. Naturally, if male and female education levels become more dispersed it will be less likely that couples will fall into the same category, this would not necessarily tell us very much about underlying matching on human capital.

Chan and Halpin (2003) use data from the General Household Survey in 1973, 1986 and 1995 to consider educational matching within marriage in the UK, and compare this with data from a number of sources for Ireland. Like Mare, Chan and Halpin use log-linear models to account for the changes in overall educational distributions. Although their data focuses on earlier cohorts than those considered here Chan and Halpin also find a decrease in educational assortative mating for the UK. The authors argue that that this may be explained by the rise in the difference between school leaving and ages at first marriage from the 1970s onwards (meaning that individuals are less likely to marry their class-mates), but are unable to offer further evidence on this.

Although interesting, the result that educational homogamy has fallen between the cohorts does not prove conclusively that assortative mating on a purer measure of human capital has also fallen, and this should be borne in mind as we proceed.

Table 4 introduces an intergenerational component to the story. Here ordered probit models are used, where the four education levels shown previously are regressed on parental incomes, for both the cohort member and their partner. In order to make the results tractable marginal effects are calculated which show the percentage point change in being in the lowest and highest education groups as a consequence of a change in parental income of .4 log points (approximately a 30% shock to income). These results show a striking increase in the relationship between the education levels of the cohort members and their own parents' income when the two cohorts are compared. This is true for both men and women, regardless of partnership status (similar results have been found in other related papers, see Blanden and Machin, 2004 and Blanden and Gregg, 2004). The new result presented here is that the relationship between parental income and partner's education has also increased. If we return to the model presented earlier it is easy to see that the

relationship between parental income and partner's human capital is even simpler to derive than the relationships between income and earning.

If we linearise the education model:

$$H_t = b_o + b_1 y_{t-1} + e_t \qquad (13)$$

$$H_t^P = d_o + d_1 y_{t-1} + e_t^P \qquad (14)$$

It is now unnecessary to take account of the earnings returns to human capital for both partners and so according to the earlier framework it is the case that $d_1 = \alpha b_1$ (where α is assortative mating) . In light of the finding that α has fallen (for this measure of education, at least) while b_1 has increased it is therefore in concordance with the model to find that d_1 rises between the cohorts but by less than b_1. A prediction of this model is that if $\alpha < 1$ then $d_1 < b_1$, this is true in all cases except for NCDS sons. For this group the impact of parental income on partner's education is stronger than for sons themselves. This suggests that parental income has a direct effect on daughter-in-laws income, in addition to the one which works through assortative mating on education[4].

The first step in building up a picture of intergenerational mobility and assortative mating in the UK has been to consider the relationships between the education levels of couples and education and parental income. I find that while the link between the education of couples appears to have declined, there is strong evidence that the educational level of partners has become more closely related to parental income in the later cohort.

Participation

In the theoretical section I explained how the changing relationship between participation and human capital has the potential to influence the intergenerational parameters of interest for individuals, partners and couples. Table 5 considers, again using our rough measures of human capital, whether the data indicates any changes between the cohorts in the relationship between education and employment at a point in time, for both men and women. Some interesting patterns emerge. For men, (sons and daughters' partners) the impact of leaving education older than age 16 on employment appears to be falling, although in no cases are these changes significant. It may be that this result is a consequence of the general rise in education; as more

[4] It is not the case that this result is simply a consequence of the non-linear models used, it remains when all the parameters are derived from OLS models of age left education.

people have further education it is less valuable at guarding against unemployment. For daughters with partners and sons' partners, the effect is reversed. For these "married" women the impact of own education on participation was zero in the NCDS, compared to a strongly positive impact for single women. In the BCS, however, education has a significantly positive relationship with the employment probability of married women, as well. In some cases the change in the impact is statistically significant. Given the argument made earlier we would expect these changes to translate to an increase in the income return from human capital for women and therefore a rise in the association between daughter's earnings and her parents' income and daughter-in-law's earnings and son's parent's income.

An additional prediction from this approach is that we would expect to see a relationship between participation and parental and parents-in-laws incomes. Table 6 shows results from a similar approach to Table 4, for probit models of employment at the survey date on parental income. For single daughters and sons parental income has an unambiguous positive impact on employment probability in both cohorts with the strongest effects found for single daughters. There are no significant changes in the extent of these relationships between the cohorts. There is also evidence of significant relationships between parental incomes and daughters' partners' employment, while the marginal effect rises slightly over the cohorts, from .044 to .069, but this change is not significant.

Once again, the most interesting relationships are found for women with partners. As with education, in the NCDS parental income had essentially no impact on the probability of married daughters working, however for the 1970 cohort the marginal effect of parental income was to increase the probability of married daughters working by .092 (.022). A similar impact is found for sons' partners. In the NCDS husbands' parents income had a negative (although insignificant) relationship with employment, for the more recent cohort the marginal effect is .101 (.039). This is even higher than the effect of parental income on own daughters' employment, and is a striking change which is likely to affect the intergenerational mobility of family income. These results therefore show that changes in the intergenerational influences on participation are large; we would expect these to influence the intergenerational income correlations.

Earnings and Work

As the focus of this paper is on the interaction between family formation and intergenerational mobility I again present the results for earnings correlations separately for single individuals and couples. Tables 7A and 7B demonstrate the strength of the relationship between earnings and family income for single sons and daughters.

Table 7A takes the usual log-log approach and therefore excludes cohort members who are not working. For sons there is a clear message. As found in Blanden et al (2004), intergenerational mobility has declined, in this sample this is by .085 when measured by coefficients and by .104 (.067) when measured by partial correlation[5]. For daughters the picture is slightly more complicated, the coefficients suggest slightly more mobility in the BCS than the NCDS, but when the partial correlations are used there is a rise of slightly smaller magnitude than was found for sons. The adjustment has a strong impact because while inequality has risen between the parents of the two cohorts, for single daughters the variance of earnings has fallen. The descriptive statistics presented in Table 1 give a clue to why this has happened, single women in the NCDS are more likely to work part-time and have children. This poses the question of how these results look if we consider only women without children; the results suggest much less change with the coefficients .245 (.064) in the NCDS and .265 (.054) for the BCS and correlations of .230 (.061) and .250 (.061) respectively.

Earlier results highlighted how parental income influences participation. By using tobit models on levels and including those with zero earnings Table 7B aims to assess the combined importance of earnings and work on intergenerational transmissions. These models have not been adjusted for variance changes, but it is clear that the rise in intergenerational associations persists for men and more importantly, that there is an increase in the unadjusted association for women. While this change is not significant it appears that this is picking up the increase in the relationship between participation and parental income.

Tables 8A and 8B repeat this exercise for couples, and extend the analysis to include the relationship between partners and parents-in-law and between parents' income and household earnings. Sons with partners show a rise in the partial

[5] The fact that this rise is insignificant is likely to be a consequence of the smaller sample size when I restrict to only single sons. The magnitude is very similar to the .095 (.031) found for all sons in Blanden et al (2002).

correlation between log(earnings) and log(parental income) of a very similar magnitude to that which was found for single sons. For daughters however, there is a very small change in this relationship.

The most interesting results in this Table are those for δ (partner mobility). In the NCDS there is no relationship at all between the son's partner's earnings and his parental income; whereas for NCDS daughters this relationship is strong and significant. This is what we might expect if husbands generate a larger share of household income than wives. By the later cohort though, a large change has occurred. While δ remains unchanged for daughters there has been a very large rise in this parameter for sons. In the BCS, the correlation between sons' partners' earnings and his incomes of sons' parents is almost as strong as it is for his own earnings (.226 compared with .277). Consequently the rise in adjusted δ for sons is extremely large and strongly significant at .195 (.042).

This change in partner mobility feeds through to changes in family income mobility. For daughters there is a small (but significant) rise in household earnings mobility (μ) of .070 (.031) from .174 (.022) to 243 (.022) whereas for sons this change is twice as large at .154 (.036) from .137 (.025) to .291 (.027). The precise mechanisms through which changes in individual and partner mobility impact total mobility can be thought through in light of decomposition discussed in Section 2. There are three types of couples in our analysis; those where only the cohort member works, for whom total mobility will depend only upon individual mobility ($\mu = \beta$); those where only the partner works where total mobility will depend only upon partner mobility ($\mu = \delta$); and those where both members of the couple work where total mobility will depend on both parameters ($\mu = s\beta + (1-s)\delta$). The relative importance of β and δ in μ will therefore depend on the size of the three groups and the share of income contributed by each partner.

	1958 sons	1970 sons	1958 daughters	1970 daughters
% of couples where just CM works	36.65	23.87	4.67	3.12
% of couples where just partner works	60.89	73.60	64.78	74.36
% of couples where both work	2.46	2.53	30.56	22.52
Share of cohort members' earnings in family income when both work	67.90	61.57	32.18	39.18

This Table makes it clear that over time the proportion of couples where both partners work has increased somewhat, as has the share of family earnings contributed by women. For sons, these two changes help to magnify the impact on total mobility of the increase in the association between parental income and partners' earnings.

In Table 8A the importance of considering partners' incomes is made extremely clear when one notes that for the more recent, BCS, cohort the relationship between household earnings and parental income is stronger than between individual earnings and household income. This is true for both sons and daughters. It is certainly the case that including partner's earnings increases the extent of measured intergenerational persistence.

Table 8B adopts a tobit model approach to earnings regressions for couples. Zero earnings are included for all three outcomes, including family earnings, so these models include individuals where no one in the household works. The standard errors are rather larger here, meaning that less of the changes are significant. What is important to note, however, is that the large change in the relationship between son's partners and in-laws is, if anything, magnified, as is the relationship between family earnings and parental income for sons. This is expected given the huge growth in the relationship between the sons' partners' employment and his parental income.

Total Household Income

The final part of the jigsaw in relating parents and children's incomes is to include unearned income; this includes benefits, capital gains, rent and grants. By far the most important component of this is benefits. For those who have positive unearned income 80% of this comes from benefits in the NCDS and 90% in the BCS. By attempting to capture this we are therefore able to consider the intergenerational income relationship for those who are not working. Table 9 shows the log income relationships between parents and children, broken up by partnership status and gender. The first two panels of the Table show the results for single sons and daughters. The large rise in persistence for sons is magnified slightly when other income is included, whereas there is no change for daughters using this measure.

The second half of the table shows results for sons and daughters and their partners. To see the impact of including other income these results should be compared with those for μ in Table 8A. In Table 8A adjusted μ rises from .137 (.025) to .291 (.027) for sons and from .174 (.022) to .243 (.022) for daughters. The

inclusion of other income increases both of these changes, from .138 (.024) to .303 (.025) for sons and .182 (.023) to .263 (.023) for daughters.

What is also true is that for both cohorts the intergenerational correlation of income is higher when the full range of income is included. This confirms that parental income acts to influence children's later welfare through many channels; through education, participation, earnings and benefit receipt. In addition, this paper has shown convincingly that any thorough consideration of intergenerational income mobility must consider the education, employment and earnings of the cohort member's partner as well as their own.

6. Selection Problems and Robustness

In order to understand whether the changes that have been found are really interesting it is important to begin to consider whether they will persist. As noted at the beginning of this paper there has been many changes in partnership formation between the two cohorts. It is possible that the differences between the cohorts will not remain when more of the BCS cohort members form partnerships and have children. There are two sources of possible difficulty. The first is that the selection into partnership is different in the two sources of data. I have already noted that the couples observed in BCS are those who have formed partnerships relatively early; they may therefore be rather different types of people than those observed in couples in the NCDS. A possible way of dealing with this difficulty is to estimate the models for couples using a Heckman selectivity adjustment. The difficulty here is in finding an identifying variable which is correlated with the probability of being in a partnership but not with earnings. In both cohorts information on religious affiliation and observance are available, but I find that these are only weakly correlated with the probability of being in a partnership.

The second source of difficulty is that the behaviour of couples may have changed. I have already noted that the second cohort is less likely to have children, women are more likely to be working more hours and less likely to be legally married. There is more possibility for assessing the impact of these changes.

The first issue I deal with is part time work for daughters and female partners. Results are shown in Table A1 in the appendix. First I compare results for own earnings persistence for the full sample of all those employed to a sample of full time workers only. It appears that the inclusion of part-time workers is depressing

estimates of the β correlation for daughters[6]. We know that part-time workers have lower earnings, so this result suggests that their parents tend to be slightly better off. This effect is more pronounced in the NCDS than the BCS (there are more part-time workers in the NCDS) so excluding part-time workers tends to reduce the increase in β. As this approach is introducing yet another sample selection, an alternative is to estimate full-time earnings for part-time workers, this done by multiplying their hourly wage rate by 40. The third row of Table A1 shows the results when this is used as the dependent variable, again estimates are higher and there is less change between the cohorts.

The lower panel of this Table considers the same question for son's partners. Unfortunately the information available for partners does not allow the calculation of hourly wages, therefore only the first option of excluding part-time workers is open. This exclusion raises r_1 for both cohorts, in fact it does so slightly more for the BCS than the NCDS, this means the rise in r_1 is even stronger when this selection is made, .188 compared with .167.

Table A2 tries to assess the concern that the prevalence of cohabitation in the BCS might mean that partnerships in the second cohorts are of a fundamentally different nature. It is difficult to believe that this switch to more informal partnerships could be responsible for the growing importance of partners in intergenerational mechanisms, if anything, we would imagine the effect would work the other way. Nonetheless, this Table repeats the analysis of Table 7A just for those partners who are legally married. While it appears that all associations are stronger for those who are married this restriction does not make a substantial difference to the results for changes over time, with the most dramatic change between the two cohorts continuing to be the rise in the association between son's parents' income and his partner's earnings.

7. Discussion

The main results of the paper are that parental income has a clear and growing association with sons' earnings. For sons in couples the impact of this on the change in family income mobility is magnified by an even larger increase in the relationship

[6] For daughters the variance adjustment gained by using the correlation rather than the coefficient is particularly important. The standard deviation of earnings for daughters is much larger for part-time workers and estimates which account for this show much less difference between the coefficients and correlations.

between sons' partners' earnings and his parental income. This impact is even larger when we take into account the new strong association between parental income and sons' partners' employment.

Changes for daughters are much more muted. While there is evidence from the partial correlation that individual earnings mobility has increased this is not robust to limiting the analysis to women who work full-time, or those without children. There is no change in β for daughters with partners. Equally, the relationship between daughters' partners' earnings is strong in both cohorts; there has only been a slight (insignificant) rise in δ. How can we use theory to begin to explain these patterns and their asymmetry between sons and daughters? There are a number of candidate explanations.

The Ermisch and Francesconi model presented in Section 2 showed that individual mobility, $\beta_1 = \pi\gamma_1 / p_H$ and partner mobility, $\delta_1 = \alpha_1\pi\gamma_2 / p_H$, where α_1 is the extent of assortative mating on human capital, π is the Cob-Douglas parameter on children's income in the parental utility function, γ_1 and γ_2 are the earnings returns to cohort member and partner education, respectively, and p_H is the investment cost of human capital. Within this framework $\delta_1 = \alpha \frac{\gamma_2}{\gamma_1}\beta_1$, so the most likely explanation for the changes observed for sons is that the increase in β_1 is magnified to larger rises in δ_1 due to increases in the relative returns for daughters-in-law or increases in assortative mating.

Taking changes in returns first; the increase in women's labour market attachment will result in an increase in γ_2 (the return to daughter-in-law's human capital) compared with γ_1 (the return to son's human capital). We have observed that women's participation is more strongly associated with education in the latter cohort.

Increased assortative mating can also lead to rises in partner mobility. The preliminary tabulations in Tables 2A and 2B seem to provide evidence against an increase in educational homogamy but this does not prove that individuals are becoming less well matched on a finer measure of human capital, or indeed, on wages. Becker's (1974) analysis showed that in a marriage market equilibrium couples will be negatively matched on wage rates, controlling for non-market productivity. This prediction has been difficult to find in practice and indeed, Lam

(1988) has shown that it does not necessary hold in the presence of household public goods. Under the initial Becker model wages will appear to be more closely matched if non-market productivity is becoming more closely associated with market productivity. This effect could also be contributing to the pattern of results found.

The results for sons therefore fit in well with several plausible hypotheses about assortative mating and intergenerational mobility. What would these predict about the results for daughters? The rising labour market return to women's human capital should lead to growing investments in own daughters and a rise in β_1, but this is not found, particularly for daughters in couples where the change in participation may be most important. If a rise in assortative mating were the key then if we believe men and women from the same cohorts are engaged in the same marriage market we would expect to see a rise for δ_1 for daughters as well as sons. In fact, this change is much smaller than the one observed for sons.

A possible explanation for what is happening to partner mobility is that these two effects are offsetting. While for sons, the effects of assortative mating and increasing relative labour market returns to women are both operating to increase δ_1, for daughters these effects are influencing δ_1 in opposite directions. In other words, the relationship between the daughter's partner and her parents is becoming less important as her own contribution to family income is growing. However, this does not explain the fact that β_1 does not rise for daughters as we might expect. This may be the consequence of perverse selection effects. There is evidence that the impact of parental income on educational attainment has increased and that parental income has had a rising impact on the participation probability for daughters with partners, so it is very surprising that β_1 does not also increase.

At the moment, the theoretical model is symmetric. Parents invest in the human capital of their children, husbands and wives match on the basis of this human capital, and the same variable then provides returns in the labour market. It is these assumptions which lead to the expectation of similar results for daughters and son's partners. It is possible that the current model is too simplistic. We might think that marital matching takes place on a number of characteristics. Some of these characteristics will also have returns in the labour market but not all of them can be influenced by parental investments. Within this more complex framework it is possible that direct intergenerational relationships may change in different ways than

those moderated by the marriage market. This possibility is, at this stage, left for further research.

8. Conclusion

While the study of intergenerational mobility in economics is an expanding area, few papers have considered the interaction between intergenerational mobility and family formation. This paper brings together evidence on household intergenerational mobility for two British cohorts, over a time when patterns of partnership formation and women's labour supply changed dramatically

It is clear from this study is that there are many facets that contribute to intergenerational mobility, particularly at the household level. This paper has shown that education, participation, earnings and other income all have strong intergenerational correlations, both between parents and children and partners and parents-in-law. In particular, I have highlighted how changes in assortative mating can add to the persistence of income across generations. There is evidence that for sons, the growing relationship between parental income and the earnings of their wives is adding to the persistence of household income across generations.

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Figure 1: Age when Current Partnership Formed, Sons

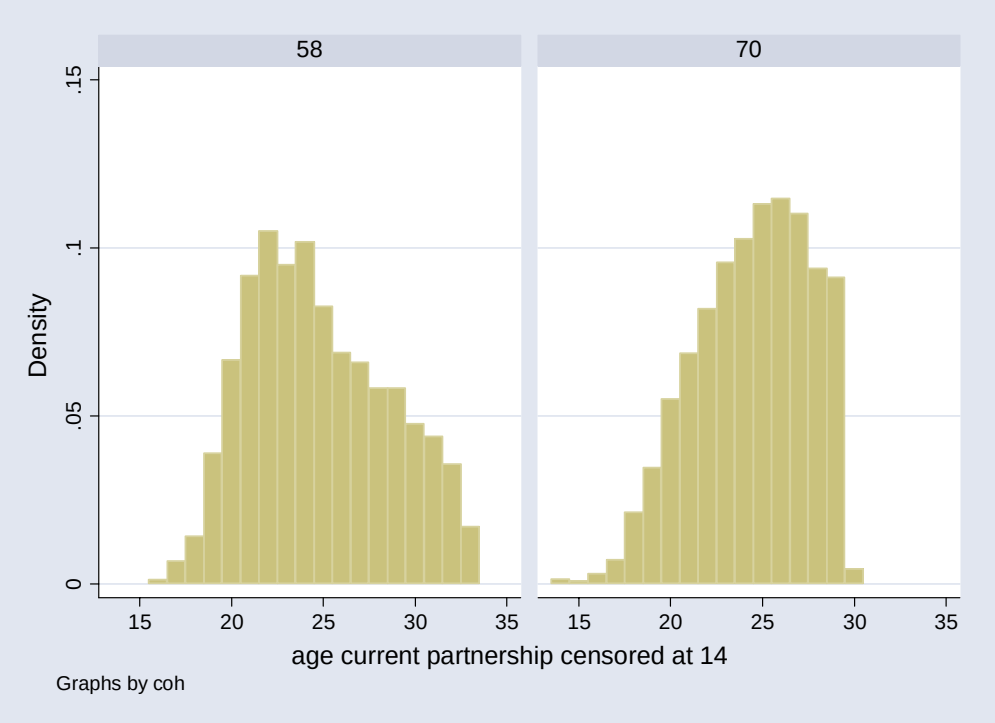

Figure 2: Age when Current Partnership Formed, Daughters

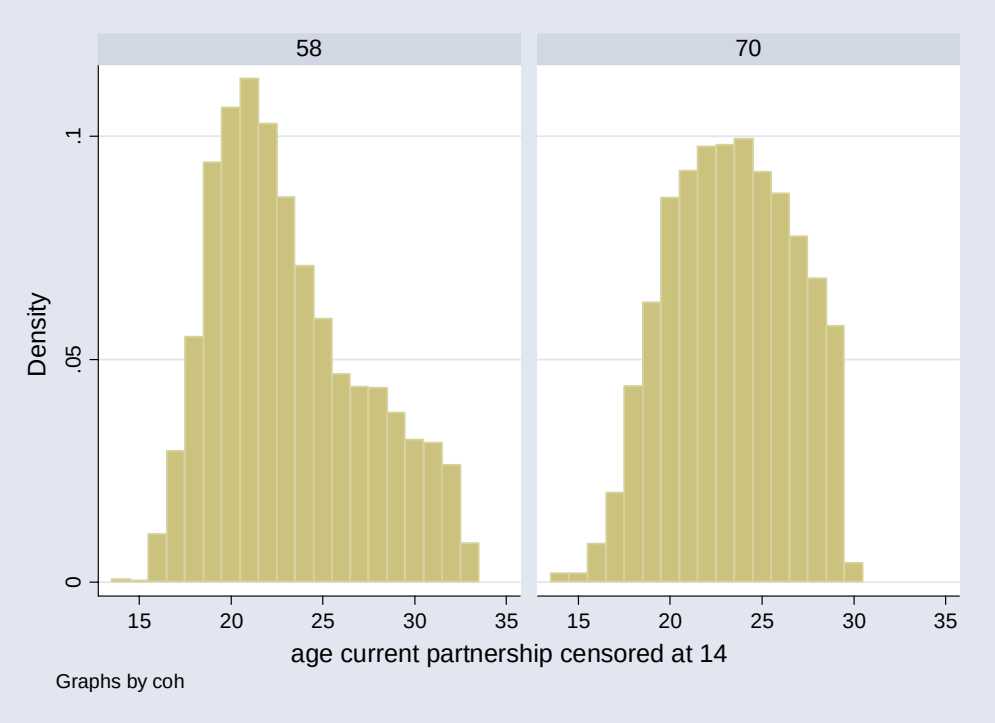

Table 1: Characteristics of Samples, By Partnership Status

	Sons			
	NCDS		**BCS**	
	No Partner	Has Partner	No Partner	Has Partner
< GCSE A-C	.323	.261	.247	.273
GCSE A-C	.256	.227	.194	.201
A level	.282	.361	.315	.294
Degree	.138	.151	.244	.232
Proportion employed	.792	.936	.852	.939
Weekly Earnings	267 (140)	314 (172)	307 (227)	345 (232)
Parental Income	292 (129)	306 (126)	334 (172)	334 (165)
Married	-	.858	-	.592
Has kids in the household	.065	.679	.055	.502
Total	731	2891	953	1642
	Daughters			
	NCDS		**BCS**	
	No Partner	Has Partner	No Partner	Has Partner
< GCSE A-C	.306	.267	.287	.269
GCSE A-C	.306	.334	.206	.242
A level	.279	.299	.260	.285
Degree	.109	.109	.247	.204
Proportion employed	.713	.673	.738	.751
Proportion full-time	.556	.316	.609	.496
Proportion part-time	.157	.357	.128	.255
Proportion unemployed	.039	.017	.039	.008
Weekly Earnings	185 (200)	143 (105)	246 (134)	214 (182)
Full time equivalent earnings	171 (79)	174 (294)	264 (132)	258 (289)
Parental Income	301 (138)	305 (131)	328 (173)	329 (160)
Married	-	.887	-	.670
Has kids in the household	.465	.780	.348	.594
Total	669	3137	812	2098

Table 2: Correlations of Parental Income with Individual Earnings And Household Income

	Partial Correlation Between Parental Income and Child's Earnings				Partial Correlation Between Parental Income and Child's Household Income			
	1958 Cohort	**1970 Cohort**	**Change**	**Sample**	**1958 Cohort**	**1970 Cohort**	**Change**	**Sample**
	Single Sons				**Single Sons**			
β (individual mobility)	.153 (.051)	.257 (.044)	.104 (.067)	1958: 381 1970: 712	.157 (.045)	.274 (.040)	.116 (.060)	1958: 501 1970: 716
	Single Daughters				**Single Daughters**			
β (individual mobility)	.240 (.055)	.332 (.045)	.092 (.071)	1958: 349 1970: 553	.244 (.043)	.284 (.039)	.040 (.058)	1958: 509 1970: 751
	Sons with Partners				**Sons with Partners**			
β (individual mobility)	.177 (.023)	.277 (.030)	.100 (.038)	1958: 1666 1970: 1270	.138 (.024)	.303 (.025)	.165 (.035)	1958: 1808 1970: 1361
	Daughters with Partners				**Daughters with Partners**			
β (individual mobility)	.143 (.027)	.178 (.026)	.036 (.038)	1958: 1250 1970: 1342	.182 (.023)	.263 (.023)	.081 (.032)	1958: 1939 1970: 1809

Table 3A: Assortative Matching on Age Left Full Time Education, Sons

	NCDS sons				
	Age Partner left Full-time Ed.				
Cohort Member	<=16	17	18-19	20+	All
<=16	.480	.066	.073	.025	.644
17	.046	.015	.015	.015	.098
18-19	.046	.019	.030	.033	.127
20+	.024	.014	.026	.077	.141
All	.596	.114	.143	.147	
	BCS sons				
	Age Partner left Full-time Ed.				
Cohort Member	<=16	17	18-19	20+	All
<=16	.391	.056	.096	.039	.582
17	.031	.019	.018	.011	.079
18-19	.062	.017	.045	.032	.105
20+	.044	.014	.131	.131	.234
All	.508	.101	.188	.204	

Odds of sons having partners in the same education group is .603/.397=1.519 in the NCDS and .585/.415=1.410 in the BCS.
Odds of sons having partners in the same or adjacent education group is .807/.193=4.181 in the NCDS and .771/.229=3.367 in the BCS.

Table 3B: Assortative Matching on Age Left Full Time Education, Daughters

	NCDS daughters				
	Age Partner left Full-time Ed.				
Cohort Member	<=16	17	18-19	20+	All
<=16	.472	.038	.040	.028	.579
17	.077	.016	.016	.016	.125
18-19	.082	.015	.032	.041	.170
20+	.026	.005	.016	.078	.125
All	.658	.074	.105	.163	
	BCS daughters				
	Age Partner left Full-time Ed.				
Cohort Member	<=16	17	18-19	20+	All
<=16	.385	.027	.053	.025	.486
17	.076	.019	.013	.009	.116
18-19	.101	.011	.041	.024	.177
20+	.061	.016	.031	.113	.221
All	.623	.072	.134	.171	

Odds of daughters having partners in the same education group is .599/.401=1.494 in the NCDS and .559/.441=1.268 in the BCS
Odds of daughters having partners in the same or adjacent education group is .801/.199=4.025 in the NCDS and .740/.260=2.846 in the BCS.

Table 4: Relationships between Education and Parental Income

	NCDS	BCS	Change	Sample
	Single Sons			
Coefficient	.425 (.091)	.719 (.077)		
Marginal effect leaving at 16	.063 (.016)	.104 (.009)	.041 (.018)	NCDS: 637 BCS: 955
Marginal effect staying till after 20	-.035 (.009)	-.061 (.007)	-.026 (.011)	
	Sons with partners			
Coefficient	.348 (.049)	.814 (.065)		
Marginal effect leaving at 16	.050 (.009)	.114 (.008)	.064 (.011)	NCDS: 2489 BCS: 1615
Marginal effect staying till after 20	-.028 (.005)	-.070 (.006)	-.042 (.006)	
	Sons' Partners			
Coefficient	.375 (.049)	.530 (.060)		
Marginal effect leaving at 16	.056 (.007)	.082 (.010)	.026 (.013)	NCDS: 2489 BCS: 1615
Marginal effect staying till after 20	-.031 (.004)	-.055 (.007)	-.024 (.008)	
	Single Daughters			
Coefficient	.411 (.091)	.696 (.080)		
Marginal effect leaving at 16	.061 (.013)	.104 (.012)	.043 (.018)	NCDS: 594 BCS: 817
Marginal effect staying till after 20	-.032 (.006)	-.062 (.007)	-.030 (.009)	
	Daughters with Partners			
Coefficient	.431 (.046)	.758 (.055)		
Marginal effect leaving at 16	.064 (.008)	.111 (.007)	.047 (.009)	NCDS: 2736 BCS: 2058
Marginal effect staying till after 20	-.031 (.004)	-.066 (.004)	-.035 (.005)	
	Daughters' Partners			
Coefficient	.319 (.048)	.579 (.057)		
Marginal effect leaving at 16	.045 (.006)	.082 (.007)	.037 (.010)	NCDS: 2736 BCS: 2058
Marginal effect staying till after 20	-.029 (.004)	-.052 (.005)	-.023 (.006)	

Note: All marginal effects show the percentage point change in outcome if parental income is reduced by .4 log points (approx. 30%).

Table 5: Relationships between Employment and Education

	Single Sons			
	dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	Sample
Left School at 17	.0550 (.0404)	.0488 (.0305)	.006 (.051)	1958: 634
Left School at 18 or 19	.1432 (.0299)	.0896 (.0230)	-.054 (.038)	1970: 952
Left School at 20+	.1569 (.0286)	.1017 (.0222)	-.055 (.036)	
	Sons with Partners			
	dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	Sample
Left School at 17	.0340 (.0145)	.0245 (.0175)	-.009 (.023)	1958: 1752
Left School at 18 or 19	.0600 (.0108)	.0262 (.0148)	-.034 (.018)	1970: 1343
Left School at 20+	.0485 (.0118)	.0570 (.0119)	.009 (.017)	
	Sons' Partners			
	dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	Sample
Left School at 17	.0091 (.0376)	.0947 (.0349)	.086 (.051)	1958: 1752
Left School at 18 or 19	.0300 (.0337)	.0737 (.0295)	.044 (.045)	1970: 1343
Left School at 20+	.0473 (.0340)	.1184 (.0273)	.071 (.044)	
	Single Daughters			
	dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	
Left School at 17	.1165 (.0449)	.1371 (.0343)	.021 (.057)	1958: 593
Left School at 18 or 19	.1363 (.0436)	.1918 (.0286)	.056 (.052)	1970: 812
Left School at 20+	.2330 (.0352)	.2430 (.0260)	.010 (.044)	
	Daughters with Partners			
	dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	
Left School at 17	.0447 (.0338)	.0761 (.0285)	.031 (.044)	1958: 1915
Left School at 18 or 19	-.0164 (.0308)	.0636 (.0245)	.080 (.039)	1970: 1786
Left School at 20+	.0367 (.0333)	.1496 (.0228)	.113 (.040)	
	Daughters' Partners			
	dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	
Left School at 17	.0264 (.0219)	.0170 (.0214)	-.009 (.031)	1958: 1915
Left School at 18 or 19	.0495 (.0164)	.0363 (.0147)	-.013 (.022)	1970: 1786
Left School at 20+	.0770 (.0129)	.0247 (.0142)	-.052 (.019)	

The omitted category in all cases is "left school at 16"

Table 6: The Relationship between Employment and Parental Income

	Single Sons			
	Dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	Sample
Impact of Parental Income on Employment	.070 (.038)	.080 (.022)	.010 (.043)	1958: 639 1970: 953
	Sons with Partners			
	Dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	Sample
Impact of Parental Income on Employment	.046 (.015)	.055 (.013)	.009 (.020)	1958: 1809 1970: 1361
	Sons' Partners			
	Dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	Sample
Impact of Parental Income on Employment	-.023 (.030)	.078 (.025)	.101 (.039)	1958: 1808 1970: 1361
	Single Daughters			
	Dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	
Impact of Parental Income on Employment	.155 (.046)	.216 (.032)	.061 (.056)	1958: 579 1970: 812
	Daughters with Partners			
	Dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	
Impact of Parental Income on Employment	.009 (.027)	.092 (.022)	.083 (.036)	1958: 1940 1970: 1815
	Daughters' Partners			
	Dprobit Marginal Effect			
	1958 Cohort	1970 Cohort	Change	
Impact of Parental Income on Employment	.044 (.018)	.069 (.013)	.025 (.022)	1958: 1940 1970: 1815

Table 7A: Estimates of Earnings Mobility for Working Cohort Members

	Single Sons					
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (individual mobility)	.160 (.054)	.245 (.042)	.153 (.051)	.257 (.044)	.104 (.067)	1958: 381 1970: 712
	Single Daughters					
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	
β (individual mobility)	.431 (.099)	.450 (.061)	.240 (.055)	.332 (.045)	.092 (.071)	1958: 349 1970: 553

Table 7B: Tobit Models on Levels for Single Cohort Members (includes those not employed)

	Single Sons			
	Coefficient			
	1958 Cohort	1970 Cohort	Change	Sample
β (individual mobility)	.308 (.089)	.380 (.055)	.072 (.104)	1958: 516 1970: 856
	Single Daughters			
	Coefficient			
	1958 Cohort	1970 Cohort	Change	
β (individual mobility)	.354 (.063)	.422 (.043)	.068 (.076)	1958: 524 1970: 770

Note:
Tobit models use earnings and incomes measured in levels rather than logs and adjust for lower censoring at zero for children's earnings.

Table 8A: Household Earnings Mobility for those with Partners

Sons with Partners						
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (individual mobility)	.182 (.024)	.259 (.028)	.177 (.023)	.277 (.030)	.100 (.038)	1958: 1666 1970: 1270
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
δ (partner mobility)	.051 (.051)	.292 (.036)	.031 (.031)	.226 (.028)	.195 (.042)	1958: 1082 1970: 992
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
μ (family mobility)	.166 (.030)	.312 (.029)	.137 (.025)	.291 (.027)	.154 (.036)	1958: 1708 1970: 1303
Daughters with Partners						
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	
β (individual mobility)	.261 (.051)	.254 (.038)	.143 (.027)	.178 (.026)	.036 (.038)	1958: 1250 1970: 1342
	Coefficient		Partial Correlation			
δ (partner mobility)	.193 (.026)	.226 (.025)	.170 (.023)	.216 (.024)	.047 (.033)	1958: 1716 1970: 1678
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
μ (family mobility)	.226 (.029)	.284 (.026)	.174 (.022)	.243 (.022)	.070 (.031)	1958: 1800 1970: 1732

Table 8B: Earnings Mobility Relationships for those with Partners – Tobit Models

	Sons			
	Coefficient			
	1958 Cohort	1970 Cohort	Change	Sample
β (individual mobility)	.253 (.034)	.303 (.036)	.050 (.050)	1958: 1809 1970: 1361
	Coefficient			
	1958 Cohort	1970 Cohort	Change	Sample
δ (partner mobility)	.053 (.038)	.261 (.049)	.208 (.062)	1958: 1809 1970: 1361
	Coefficient			
	1958 Cohort	1970 Cohort	Change	
μ (family mobility)	.304 (.047)	.497 (.059)	.193 (.075)	1958: 1809 1970: 1361
	Daughters			
	Coefficient			
	1958 cohort	1970 cohort	Change	
β (individual mobility)	.120 (.024)	.156 (.027)	.036 (.036)	1958: 1940 1970: 1815
	Coefficient			
	1958 Cohort	1970 Cohort	Change	
δ (partner mobility)	.322 (.065)	.333 (.039)	.011 (.076)	1958: 1940 1970: 1815
	Coefficient			
	1958 Cohort	1970 Cohort	Change	
μ (family mobility)	.408 (.067)	.484 (.049)	.076 (.083)	1958: 1940 1970: 1815

Note:
Tobit models use earnings and incomes measured in levels rather than logs and adjust for lower censoring at zero for children's earnings. This applies to all three dependent variables. These models therefore include households where neither member of the couple works.

Table 9: Estimates of Mobility for Cohort Members and Their Households, Including Other Income

Single Sons						
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (individual mobility)	.304 (.087)	.352 (.051)	.157 (.045)	.274 (.040)	.116 (.060)	1958: 501 1970: 716
Single Daughters						
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	
β (individual mobility)	.364 (.064)	.290 (.040)	.244 (.043)	.284 (.039)	.040 (.058)	1958: 509 1970: 751
Sons with Partners						
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
μ (household mobility)	.173 (.031)	.296 (.024)	.138 (.024)	.303 (.025)	.165 (.035)	1958: 1808 1970: 1361
Daughters with Partners						
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	
μ (household mobility)	.248 (.031)	.254 (.022)	.182 (.023)	.263 (.023)	.081 (.032)	1958: 1939 1970: 1809

Appendices

Table A1: Earnings Mobility - Exploring the Impact of Part-time Work

			Single Daughters			
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (for full sample)	.431 (.099)	.450 (.061)	.240 (.055)	.332 (.045)	.092 (.071)	1958: 349 1970: 553
β (for full time workers only)	.263 (.059)	.241 (.044)	.272 (.061)	.266 (.049)	-.005 (.078)	1958: 276 1970: 463
β (using full time equivalent earnings)	.303 (.053)	.272 (.044)	.301 (.054)	.266 (.043)	-.036 (.069)	1958: 348 1970: 552
			Daughters with Partners			
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (for full sample)	.261 (.051)	.254 (.038)	.143 (.027)	.178 (.026)	.036 (.038)	1958: 1250 1970:1342
β (for full time workers only)	.225 (.042)	.232 (.028)	.223 (.042)	.270 (.032)	.046 (.053)	1958: 613 1970: 883
β (using full time equivalent earnings)	.191 (.030)	.215 (.026)	.187 (.030)	.223 (.027)	.037 (.040)	1958: 1239 1970: 1334
			Sons' Partners			
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (for full sample)	.051 .051)	.292 (.036)	.031 (.031)	.226 (.028)	.195 (.042)	1958: 1082 1970: 992
β (for full time workers only)	.097 (.043)	.250 (.029)	.096 (.043)	.288 (.032)	.183 (.053)	1958: 579 1970: 691

Table A2: Estimates of Earnings Mobility for Cohort Members and Their Households, Just those Married

			Sons			
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (individual persistence)	.193 (.026)	.280 (.036)	.182 (.024)	.301 (.039)	.118 (.046)	NCDS: 1444 BCS: 774
δ (partner persistence)	.035 (.057)	.275 (.050)	.021 (.034)	.201 (.036)	.180 (.050)	NCDS: 906 BCS: 576
μ (family persistence)	.169 (.032)	.324 (.035)	.140 (.026)	.311 (.034)	.171 (.043)	NCDS: 1474 BCS: 790
			Daughters			
	Coefficient		Partial Correlation			
	1958 Cohort	1970 Cohort	1958 Cohort	1970 Cohort	Change	Sample
β (individual persistence)	.235 (.052)	.209 (.049)	.129 (.029)	.143 (.033)	.014 (.044)	NCDS: 1095 BCS: 893
δ (partner persistence)	.189 (.027)	.219 (.031)	.168 (.024)	.213 (.030)	.045 (.039)	NCDS: 1544 BCS: 1160
μ (family persistence)	.215 (.030)	.243 (.030)	.167 (.023)	.217 (.027)	.050 (.036)	NCDS: 1610 BCS: 1187