Jo Blanden, Robert Haveman, Timothy Smeeding and Kathryn Wilson

Intergenerational mobility in the United States and Great Britain: a comparative study of parent-child pathways

Article (Accepted version) (Refereed)

Original citation:
Blanden, Jo, Haveman, Robert, Smeeding, Timothy M. and Wilson, Kathryn (2014) *Intergenerational mobility in the United States and Great Britain: a comparative study of parent-child pathways.* Review of Income and Wealth, 60 (3). pp. 425-449. ISSN 0034-6586

DOI: 10.1111/roiw.12032

Intergenerational Mobility in the United States and Great Britain: A Comparative Study of Parent-Child Pathways

Jo Blanden[1], Robert Haveman, [2] Timothy Smeeding[2] and Kathyrn Wilson[3]

[1] School of Economics, University of Surrey

[2] Department of Economics, Robert M. La Follette School of Public Affairs, University of Wisconsin-Madison.

[3] Department of Economics, College of Business Adminstration, Kent State University.

ABSTRACT

We build on cross-national research to examine the relationships underlying estimates of relative intergenerational mobility in the United States and Great Britain using harmonized longitudinal data and focusing on men. We examine several pathways by which parental status is related to offspring status, including education, labor market attachment, occupation, marital status, and health, and perform several sensitivity analyses to test the robustness of our results. We decompose differences between the two nations into that part attributable to the strength of the relationship between parental income and the child's characteristics and the labor market return to those child characteristics. We find that the relationships underlying these intergenerational linkages differ in systematic ways between the two nations. In the United States, primarily because of the higher returns to education and skills, the pathway through offspring education is relatively more important than it is in Great Britain; by contrast, in Great Britain the occupation pathway forms the primary channel of intergenerational persistence.

JEL Codes: I24, J24, J62
Key words: Intergenerational Mobility, Education, Occupation

I. INTRODUCTION AND BACKGROUND

Research efforts to understand the processes underlying the transmission of economic position from parents to their offspring have a long and distinguished history. Quantitative sociologists were the first to empirically explore the linkage between parental economic position and that of their children using occupational status as the indicator of position; their contributions in the 1960s and 1970s (see Haveman 1987) form the foundation on which subsequent efforts rest.

Few economists addressed issues of intergenerational mobility until the late 1980s. In 1986, the model of intergenerational investment introduced by Becker and Tomes set out a framework that has motivated dozens of economic studies of parental-offspring linkages. This research emphasized earnings and income rather than occupation as indicators of economic position. Solon (1992) and Zimmerman (1992) were simultaneously early contributors to a long stream of empirical economic mobility research using longitudinal data. Björklund and Jäntti (2009) and Black and Devereux (2010) provide recent summaries of economic research into intergenerational mobility.

Over the last ten years numerous cross-national studies have attempted to measure and compare the extent of social mobility across nations with different economic systems and values; this work is reviewed in Solon (2002), Corak (2006), Björklund and Jäntti (2009), and Blanden (2011). These studies, along with recent cross-national studies by sociologists (Erikson and Goldthorpe 2002; Gangl and Ziefle 2009; Breen and Jonsson 2005; Beller and Hout 2006), provide evidence that the overall level of social mobility in the United States and Great Britain, once thought to be greater than elsewhere, is little different and arguably lower than that in other western rich nations. The estimates also indicate an underlying positive relationship between income inequality and intergenerational income persistence, as explored by Corak (2006), Björklund and Jäntti (2009), Blanden (2011), Smeeding, Erikson, and Jäntti (2011), and Ermisch, Jäntti, and Smeeding (2012).

In this study, we build on this cross-national research by using harmonized longitudinal data to study the mechanisms underlying estimates of relative intergenerational mobility in the United States and Great Britain, concentrating on the effects of family background on men's earnings. We examine several pathways by which parental status is related to offspring status,

specifically education, labor market attachment, occupation, marriage, and health. We begin by describing our conceptual model and methodology, and then present results and robustness tests.

II. CONCEPTUAL FRAMEWORK

Our empirical decomposition of the parent-offspring linkage is based on the intergenerational human capital investment framework first proposed by Becker and Tomes (1986). In this model, parents are altruistic and benefit from both their own consumption and that of their offspring. The earnings (wages) of offspring depend upon their innate ability (which, by assumption, is positively correlated with parental ability/earnings because of genetic transmission and environmental culture) and the value of their human capital (for example, educational attainment). Parents forego some of their own consumption in order to invest in offspring human capital; investment faces diminishing marginal returns and (by assumption) the returns to parental investment are positively related to offspring ability.

With smoothly functioning capital markets, parents equate the market interest rate on borrowing with the present value of the marginal return to investing in offspring. If borrowing is not possible, the opportunity cost of investing (for example, via reducing parental own-consumption) is increased. With or without credit constraints, the level of investment in children—and hence offspring income—depends upon both offspring ability (by assumption) and parental income. And with credit constraints, the link between parental and offspring income is stronger.

In this context, we would expect some societies to have greater intergenerational mobility than others. Comparing two otherwise identical societies, the Becker-Tomes model would suggest greater mobility in the country with: a) the more smoothly functioning capital market, b) weaker intergenerational transmission of education/occupation preferences, c) more equal quality of schooling for children, and d) more homogenous levels of education (limiting the inherent advantages of dual highly educated parents in providing guidance, mentoring, and financial support to their children).

Our decomposition approach separates total intergenerational persistence into 1) the relationship between parental income and the child's characteristics (e.g., education, health, and occupation), and 2) the monetary returns to those characteristics. This framework has clear parallels with the Becker-Tomes model; investments are to some extent influenced by parental

income, and this, combined with the return on those investments, determines the final link between incomes across generations.

Our priors indicate some important differences between these nations, which will guide our empirical explorations. For example, the model highlights the linkage between parents' income and offspring's wages through offspring human capital (for example, education and health). Differences in the education systems between the two countries are large, especially at the tertiary level. For example, while Great Britain allocates about 1.3 percent of its GDP to the support of tertiary schooling, the United States allocates more than double this level. Nearly two-thirds of United States spending is private, while about two-thirds of Great Britain tertiary spending is public.[1] The model combines this linkage with the returns to human capital, implying that nations with fewer constraints on market wage differences and hence large and growing earnings and income inequality are likely to have high rates of return on human capital investment, relative to nations with less innovation and more rigid labor markets.

These considerations pose several interesting questions. Is the connection between parental resources and offspring schooling closer in the United States than in Great Britain, as the reliance on private spending for tertiary schooling in the United States would imply? Is the offspring-earnings return to schooling in Great Britain greater than that in the United States, as the constrained supply of tertiary resources would suggest? Or does the less restrictive labor market and relatively high and faster growing wage and income inequality in the United States suggest higher returns to education there than in Great Britain?

Health status is also an element of human capital, and while health status is in part behavioral (e.g., smoking) the health systems in the two nations are also vastly different. The OECD reports that in the United States, 25 percent of above median income people forego health care because of cost, while only 8 percent forego care in Great Britain. For those with less than median income, the percentages are 52 percent and 9 percent for the two countries, respectively.[2] Access to health care for youths in the United States is largely dependent on parental health insurance and public programs such as Medicaid; lower-income youths tend to have less and lower quality health care than those from higher-income families. This implies a positive

[1] From OECD Web site: http://stats.oecd.org/Index.aspx?DataSetCode=CSP2010.

[2] From OECD Web site: http://stats.oecd.org/Index.aspx?DatasetCode=CSP2009.

relationship between parental income and offspring earnings through links in health status and health care access.

The framework also suggests that differences between the two countries in occupational structure are relevant to understanding intergenerational linkages. Historically it was commonly believed that class is less subject to intergenerational transmission in the United States than in Europe (see for example the writings of Tocqueville and Marx and Engels). However, empirical evidence suggests that any difference that was present in the past had narrowed by the second half of the twentieth century (Long and Ferrie 2007; Erikson and Goldthorpe 1985). Nonetheless, there is still a perception among some sociologists (for example, Devine 1997) that social class background has a greater influence on life chances in Great Britain compared with the United States. In addition, recent work by Jonsson and colleagues (2009) uses the United States as an exemplar nation for weak "big-class" identification, such that social class matters less for inheritance than it does in other nations.[3] Is offspring occupation more closely linked to parental economic status in Great Britain compared to the United States? Is the association between earnings and occupational prestige also larger?

Is it possible that the linkage between parental and offspring status may also operate through the marriage market? While both nations have seen major changes in marital and cohabitation status over recent decades, the rate of single parenthood and the rate of out-of-wedlock births in Great Britain exceed those in the United States.[4] Is the link between single parenthood among the offspring of low-status parents and offspring status in Great Britain greater than this relationship in the United States? Is the return to marriage in Great Britain smaller than that in the United States, as the difference in single parenthood between the two nations would suggest?

It should be noted that we are not able to model or control for many types of difference across families that also affect mobility. These will be captured mainly by the independent effect of parental income and the error terms in our estimates. For instance, if parental education is

---

[3] Jonsson et al. (2009) contrast two schools of thought in the social mobility literature; a graduation approach, which regards socioeconomic status as essential for inheritance, and a "big-class" approach, where it is the broad occupation group that is transmitted. Our measure of occupational status is of the "big-class type."

[4] From http://family.jrank.org/pages/1216/Nonmarital-Childbearing-Nonmarital-Childbearing-in-Developed-Nations.html. Accessed December 15, 2010.

important for the educational attainment and economic well-being of children because of inherited and learned cognitive skills, we still cannot capture parents' neighborhood choices or the socio-emotional (noncognitive) effects of parental and home culture on child outcomes. There exist no data sources or complete structural model by which we can compare all aspects of parental inputs to child outputs from cradle to adulthood. Hence the best we can do is to isolate various channels by which status is transmitted from parent to child. We return to this point in section V below.

III. ESTIMATION METHODS

The standard approach to measuring intergenerational mobility follows from estimating the regression model shown in equation 1:

$$\ln Y_i^{child} = \alpha + \beta \ln Y_i^{parent} + \varepsilon_i , \qquad (1)$$

where Y_i^{child} is offspring earnings, Y_i^{parent} is parental income, and the estimated beta ($\hat{\beta}$) expresses the degree of intergenerational persistence (with the degree of intergenerational mobility = 1 - $\hat{\beta}$). For example, if β = 0.4, it is estimated that, on average, 40 percent of the difference between the incomes of parents is reflected in the difference in income of their offspring.

We also report an alternative measure of intergenerational persistence; the correlation of parents' and children's incomes. This adjusts for differences in income variance between the two generations. As before, the extent of mobility can be thought of as measured by 1-*r*:

$$r = \mathrm{Corr}_{y_p^*, y_c^*} = \beta\left(\frac{SD^{y_p^*}}{SD^{y_c^*}}\right), \qquad (2)$$

where y_c is offspring earnings, y_p is parental income, and SD is standard deviation. The intergenerational correlation provides a measure of rank mobility between the generations, and provides an interesting comparison with the intergenerational elasticity. As argued by Björklund

and Jäntti (2009), it provides a measure that is not mechanically affected by changes in inequality across generations.

Decomposition Approach

In similar spirit to the analysis in Blanden, Gregg, and Macmillan (2007), we decompose the intergenerational β into two parts:

(a) The extent to which intergenerational persistence is transmitted through a pathway factor (for example, education), which is the product of two measures:
   i. the strength of the relationship between parental income and the pathway factor, and
   ii. the earnings payoff of a pathway factor to the offspring.

(b) A non-pathway effect of parental income on sons' earnings, indicating the independent effect of income not mediated through the measured pathways.

To simplify, assume there are only two pathway variables, say, education and occupation, for convenience both represented here by continuous variables although, in fact, we use categorical variables in our estimation. In a first step, we estimate the association between education and parental income, as shown in equation (3):

$$Ed_i^{child} = \alpha_{ed} + \lambda_{ed} \ln Y_i^{parent} + e_{1i}, \quad (3)$$

where Ed_i^{child} is the child's education level. We then estimate a regression equation that relates offspring earnings to the level of education. We include parental income in this model to estimate its effect on offspring's income independent of that measured in equation (3):

$$\ln Y_i^{child} = \omega_1 + \rho_{ed} Ed_i^{child} + \gamma_{inc} \ln Y_i^{parent} + \nu_{1i}. \quad (4)$$

The overall intergenerational elasticity is then decomposed by the formula:

$$\beta = \lambda_{ed} \rho_{ed} + \gamma_{inc}. \quad (5)$$

The first term of equation 5, $\lambda_{ed}\rho_{ed}$, is the explained component of β (in this case, by education); the second term is the unexplained component of β.

In order to consider the role of variables observed at older ages (occupation in this example), we must first estimate the relationship between the pathway variables and parental income, as follows:

$$Occ_i^{child} = \alpha_{occ} + \lambda_{occ} \ln Y_i^{parent} + e_{2i}\,, \tag{6}$$

where Occ_i^{child} is the occupation of the offspring. In the second step, we estimate a regression equation that relates offspring earnings to both of the pathway factors, offspring education and occupation.

$$\ln Y_i^{child} = \omega_2 + \gamma_{ed} Ed_i^{child} + \gamma_{occ} Occ_i^{child} + \gamma_{inc} \ln Y_i^{parent} + v_i\,. \tag{7}$$

This provides estimates of the returns to each pathway variable, conditional on the other variables. The decomposition then becomes:

$$\beta = \lambda_{ed}\gamma_{ed} + \lambda_{occ}\gamma_{occ} + \gamma_{inc}\,. \tag{8}$$

The first term of equation 8, $\lambda_{ed}\gamma_{ed}$, is the component of β associated with (in this case) education, while $\lambda_{occ}\gamma_{occ}$ gives the component related to occupation. The difference between the education elements ($\lambda_{ed}\rho_{ed} - \lambda_{ed}\gamma_{ed}$) is a measure of the extent to which the influence of education is transmitted through occupation.

Our analysis is sequential, recognizing that variables reflecting status at younger ages (e.g., education) influence variables reflecting status at older ages (e.g., occupation). Therefore, the decomposition model adds the pathway variables in the order in which they occur in the aging process. We begin by estimating equation (4), in which education is the only independent pathway. We then estimate models that add pathways measured when the youth is in his early twenties, late twenties, and eventually through age 34. This sequential analysis enables an assessment of the interaction of the variables, as the portion of β accounted for by the pathway becomes significantly smaller when later pathway variables are included. This suggests that

some of the impact of the earlier pathways is transmitted through those pathways reflecting attainments that occur later in the offspring's life.

IV. THE UNITED STATES AND BRITISH DATA AND VARIABLES

We use two prominent longitudinal panel survey data sources, the 1970 British Cohort Study (BCS) for Great Britain and the Panel Study of Income Dynamics (PSID) for the United States. The BCS began with a target sample of the population of individuals (around 18,000) born in a week in April 1970, and has a usable sample of 7,665 for our intergenerational income analysis. Although information on births in Northern Ireland was collected in the first sweep, these individuals were not followed up. This means that the data refers to Great Britain, rather than the United Kingdom. The gap between the target and usable samples is largely due to attrition; by the age 34 survey, the number of observations had fallen to 9,665. The extract we use from the PSID includes the cohort born between 1960 and 1970, yielding a sample size of 1,448. This sample includes the Survey of Economic Opportunity component and is appropriately weighted to account for this. We also estimated the model omitting these individuals, and the results do not substantively change any of the estimates in the paper. We devote a great deal of effort to making the two datasets as comparable as possible across all of the important variables for the analysis.

It is important to have reliable measures of parent and child economic status. To this end, we balance data quality, comparability, and sample size. We focus on parental income as our measure of family background, and average earnings at ages 30 to 34 as the final outcome measure for adult children. Using averaged measures has the benefit of maximizing the sample size used as we include all individuals who had at least one parental income report at age 10 or 16 and at least one earnings report at age 30 or 34.

The standard approach in measuring intergenerational mobility is to use earnings as the economic status variable for both parents and offspring (Björklund and Jäntti 2009). This is not possible here as the British data do not contain separate information on parental earnings. However, it can be argued that parental income is a more appropriate variable, as it includes the impact of transfers, which will clearly matter for available parental resources. We study offspring earnings on the belief that individual earned income better reflects offspring adult

attainment than does offspring household income. In a robustness test, we also examine the effect of using offspring household income as the dependent variable.

Solon (1989) and Zimmerman (1989) emphasize the importance of using as many observations as possible to generate an estimate of permanent parental income; in the BCS we have income observed at ages 10 and 16, so we use data from these ages in both surveys to generate a measure of average gross parental income. Because parental income in the BCS is reported in categories, we group PSID income into categories that are comparable to those in the BCS.[5]

We include in our sample all individuals with at least one observation of parental income and at least one observation of offspring adult earnings.[6] A total of 8,992 of the BCS observations have information on individual offspring earnings at ages 30 or 34, and 13,503 have information on parental income at offspring ages 10 or 16. Blanden (2005) and Blanden, Gregg, and Macmillan (forthcoming) present evidence suggesting that attrition and nonresponse tend to lead to final samples with slightly higher parental and child status than average. By including all observations with information on parental earnings at age 10 or 16, we have mitigated these problems to the extent possible. Evidence on the PSID (Fitzgerald, Gottschalk, and Moffitt 1998) similarly suggests that the children who do not attrite come from better backgrounds. These authors consider the impact of attrition in the twenties on estimates of intergenerational mobility and find that such attrition does tend to bias persistence upwards slightly. However, it should be

[5] The availability of additional parental income data in the PSID allows us to examine the potential impacts of the data limitations in the BCS. When equation 1 is estimated in the PSID with parental income comparable to the BCS definitions (average of age 10 and 16 income that is reported in categories), the estimated β is 0.39. If income at only one age is used, the β estimate varies between .28 and .39, depending on what age between 10 and 16 is used. However, once the average of income is taken at two ages, the estimate of β is between .38 and .40 regardless of what two ages are averaged (for example, ages 10 and 16, 10 and 14, 12 and 16, etc.). If childhood income is averaged over all seven years, ages 10 to 16, the estimated β increases to .43. Unfortunately, we have no way to judge what would happen to the British estimates if we were able to use an average of more years of childhood income. In order to attempt to minimize the differences in measurement error, we code the US data exactly the same as the British data, averaging income banded using midpoints at ages 10 and 16.

[6] Because those with only one earnings or income measure may differ in important dimensions (e.g., they have been unemployed), we include indicator variables for missing values in our analysis.

noted that these results are based on older cohorts than those who are considered here and patterns may therefore be different.

Like the parental and offspring economic status variables, the definitions and measures of the pathway variables are harmonized. Offspring education is measured at age 30, and classified as less than high school graduate, high school graduate, attend college, and graduate from college for the United States; for Great Britain, education measured at age 30 is classified as less than O level, O level or equivalent, A level, or degree or equivalent. These definitions reflect similar educational attainment according to the ISCED categorization (see tables 1 and 2 at: http://www.oecd.org/dataoecd/11/18/2765339.xls).

In our estimation, the categorical variables are defined as "at least high school," "at least some college," and "completed college." If exclusive dummies were used this would lead to ambiguity in the expected relationship between parental income and the middle categories when estimating equation 3; for example, those with high school education are well educated compared to those with no high school but poorly educated compared to those with "some college" or "completed college."[7] Appendix A2 indicates that, by these definitions, our United States sample is better educated, with a larger proportion of college graduates and fewer of the sample in the bottom education group.

We have transformed PSID occupation data into the eight-category version of the National Statistics Socio-economic Classification (NS-SEC) system; the BCS includes NS-SEC classification code.[8] The categories that we use are:

- Higher managerial and professional,
- Lower managerial and professional,

[7] The categorizing of variables as "at least high school" does not change the estimation of equation 7 because the other education levels are also controlled for. However, it does change the interpretation of the coefficient estimate, as the estimate is the "incremental" return of that education level compared to the next lower education level, rather than that compared to the omitted education level (i.e., college graduate compared to attend college rather than graduate compared to high school dropout; the effect of college graduate compared to high school dropout is the sum of the coefficient estimates on all of the education variables).

[8] The PSID three-digit occupation codes were converted to the NS-SEC by manually comparing each of the three-digit occupation codes with the criteria for the NS-SEC codes. We are thankful to Lawrence Miller for his assistance in converting the data. The NS-SEC is based broadly on the Goldthorpe social class schema; see Rose and Pevalin (2005).

- Intermediate,
- Small employers or self-employed,
- Lower supervisory and technical,
- Semi-routine,
- Routine,
- Missing.

For both countries, occupation is measured at ages 30 and 34. As with the education variables, we define the dummy variables as equal to one for all those who are at the relevant occupation level or above; thus the coefficient estimate is interpreted as the incremental effect of that occupation level compared to the occupation one classification lower (rather than the effect compared to the omitted category of "Routine" occupation). The distribution of the sample across occupations is shown in Appendix A2 and is broadly comparable across the two nations. The main exception is that the United States has more men in the "small employers and own account" category, which includes those who are self-employed. This occurs because of weaknesses in gathering earning information on the self-employed in Great Britain; we return to this issue in footnote 11. Descriptive statistics showing earnings by occupational class are provided in Appendix A3. These demonstrate that there are similar relative earnings gaps between the highest and lowest status occupational groups in the two nations. For example, at age 34 the higher managerial and professional category has average earnings 184 percent higher than routine occupations in the United States; the corresponding number in Great Britain is 182.2 percent. It is noticeable that the ranking of the classes by earnings is not monotonic throughout the ordering, and this is a point we return to when discussing our decomposition results.

Two measures of labor market attachment are used. The first captures the percentage of years during the ages of 22 to 25 and 26 to 29 when the offspring is primarily *not* in the labor market and *not* in school, while the second equals the percentage of years during the same age periods when the observation is engaged in full-time (or close to full-time) work or education. In the United States there are more young men with weak labor market attachment at the earlier ages than in Great Britain, while in the late twenties the reverse is true.

In both surveys, self-reported health status (excellent, good, fair, or poor) measures the health of the offspring at age 30. Being married at age 30 and age of first marriage are used as indicators of the marital status of the offspring. Marriage rates are much higher in the United

States among this cohort while the proportion reporting being in excellent health is almost identical across the two nations.

Our parental and offspring economic status variables are shown in Appendix A1, as are our pathway variables—including education, labor market attachment, occupation, marital status, and health variables. Descriptive statistics for our sample are presented in Appendix A2. Mean income/earnings are higher in the United States in both generations (we can obtain a rough comparison by multiplying the weekly British results by 52). The results also indicate, as we would expect, that inequality in the United States is higher with coefficients of variation for sons' earnings at 0.66 for the Great Britain and 0.90 for the United States. The comparison of parental income and sons' earnings will necessarily understate the growth of inequality within nations.

V. ASSUMPTIONS AND LIMITATIONS

Assumptions Required for Identification

In our estimation of the model underlying the decomposition, we use equations (3), (6), and (7) to identify the contributions of education and occupation. These estimates enable the decomposition of the intergenerational components into the education pathway, the occupation pathway, and the direct effect, as shown in equation (8). In order to consistently estimate the coefficients on education and occupation in equation (7), it is necessary to assume that the error term in the returns equation (v_i) is uncorrelated with e_{1i} and e_{2i}, the errors which determine the level of education and occupation, respectively.

As discussed in Hirvonen (2010), this is a stringent assumption, which is unlikely to be met in reality. In fact, earnings, educational achievement, and occupational choice are all likely to be influenced by ability, luck, and other unobserved factors. A positive correlation between v_i and e_{1i} will lead to an overestimate of the importance of education in intergenerational transmissions. It follows that, if $Cov(e_{1i}, v_i) > Cov(e_{2i}, v_i)$, then the importance of education relative to occupation will be overestimated.

Three mitigating factors blunt this concern regarding our ability to meet the identification requirements required for consistent estimation. First, Hirvonen (2010) shows that the problem

of bias is reduced when more pathway covariates are included in the estimation. Hence, rather than focusing on a single pathway, we examine a number of different pathways simultaneously, thereby reducing potential bias. Second, given that our interest is in international comparisons, we further weaken this condition by assuming that the correlations between v_i and the e_i errors have the same magnitude in both nations. Thus as long as the model captures the same pathways and error biases in both nations, our results will be robust with respect to cross-national differences in effects. Finally, we exclude a variety of cognitive and noncognitive variables because they are not available in the PSID. However, some measures of this type are available in the BCS and were considered by Blanden, Gregg, and Macmillan (2007), who show that most of the effects of cognitive and noncognitive abilities are minimized once education is included in the analysis.

We follow most prior literature in assuming a linear model of intergenerational persistence and its moderating relationships. While a number of recent studies recognize the potential importance of nonlinearity (Bratsberg et al. 2007, Torche 2010, Björklund et al. 2010, and Hirvonen 2010), the PSID data used for the estimation of the United States relationships lacks sufficient observations for the proper investigation of nonlinear patterns. Moreover, the decomposition framework that we employ requires constant returns to the pathway variables and, in particular, their independence from parental income.

Ordering of the Variables

Our analysis, which is sequential in nature, relies on assumptions about the ordering of individual decisions and the relationship between them. It is assumed that variables that are entered into the model earlier are exogenous to those entered later. For example, this means that education is determined independently of occupation, but that occupation depends on educational achievement. This may not be the case if individuals take education with a specific career goal in mind. However, we believe that the broad educational and occupation groups specified make this endogeneity problem less likely than if we were using more specific occupations and qualifications such as “law degree” and “lawyer.”

Measurement Error and Measures of Economic Status

As noted above, we use parental income as our measure of family economic position, and average earnings at ages 30 and 34 as the attainment measure for adult children. These are the adult ages that are available for the BCS and replicable in the PSID. Measurement error in parental income is a potential problem. As Solon (1992) has shown, it will result in a downward biased estimate of β. In our case, the British estimate may be relatively more downward biased because of greater transitory variation in the British data than in the data used for the United States. This is likely because the British Cohort Study asks parents to provide information on the "combined gross income of the child's mother and father" on either a weekly or monthly basis; in the United States PSID, income is captured by adding up all sources of reported income from the previous year.

Classical measurement error in the dependent variable—offspring attainment—will not lead to any bias in the estimated β. Analysis of classical measurement error implies that time averaging is less important when measuring the dependent variable than for the independent variable. However, analysis of life-cycle bias (Haider and Solon 2006) reveals that it is also important to use a representative measure of income for offspring, an issue we will return to below.

However, if measurement error is related to parental income, then its effects might be quite different. Haider and Solon (2006) note that income at young ages is likely to be a particularly poor measure of permanent income for the most educated members of the sample. We measure offspring earnings at ages 30 and 34, which may understate permanent income for college graduates. If offspring education and parental income are related, measuring offspring income at a young age will lead to a downward biased estimate of intergenerational persistence. Again, our results will be most seriously affected if the magnitude of this bias is different across the two nations.

VI. ESTIMATION RESULTS

In Table 1, we report the total βs measured as the elasticity of individual offspring earnings with respect to parental family income from estimates of equation (1). These estimates are for males in our sample, as our primary results focus on them. All of these estimates are highly statistically

significant. The elasticity for the United States is .385, with a lower elasticity of .294 for Great Britain. The finding of lower mobility in the United States is consistent with some (but not all) of the recent research on this topic. In their explicit international comparison, Bratsberg et al. (2007) find mobility in the United States to be lower than in Great Britain. This is supported by the literature reviews of Blanden (2011) and Björklund and Jäntti (2009). Corak (2006) reads the literature differently, ranking the countries the other way round, although the difference is not great. This difference between the two countries is reduced when the intergenerational partial correlation is considered (.301 for the United States and .283 for Great Britain). Referring back to equations (1) and (2), it appears that some of the difference in β is due to the very rapid growth in male earnings inequality in the United States over the period of study.[9]

[Table 1 here]

Decomposition Analysis

Our sequential decomposition model adds the pathway variables into the model in the order in which they occur in the aging process. Tables 2 and 3 summarize this analysis for United States and British men, with bootstrapped standard errors included in parentheses.

Column 1 includes only a single pathway—offspring education. This specification explains rather more of the observed persistence in the United States than in Great Britain, 48 percent compared to 29 percent; as β is larger in the United States, the absolute difference is even larger. In the second specification (column 2), we add the early marriage and early labor market attachment variables. These add very little to the explanation of persistence.[10] In the third specification (column 3), offspring occupation, health, and marriage at age 30 are included along with offspring labor market attachment in the late twenties.

[9] As noted by Blanden, Gregg, and Macmillan (forthcoming), the impact of measurement error is different across the two measures of persistence; *r* will be less downward biased by measurement error in parental income than is β, but *r* will be downward biased by measurement error in the child's earnings.

[10] In the United States, the mediating relationship with early labor market attachment has an unexpected negative relationship between parental income and offspring full-time labor market work. The relationship through early marriage is also negative for Great Britain men. However, neither pathway is statistically significant.

The impact of the labor market attachment variables is slightly greater in the United States than in Great Britain, explaining 4.5 percent of β in the United States and 3.1 percent in Great Britain. The marriage and health variables have very little explanatory power for either country. In both the United States and Great Britain, however, offspring occupation has a large and positive linkage between parental income and offspring earnings, explaining 19 percent of β in the United States and slightly more in Great Britain. Occupation is clearly correlated with education in both nations; the addition of offspring occupation reduces the share of persistence accounted for by education by 18 percentage points (48 percent to 30 percent) in the United States and from 29 percent to 17 percent in Great Britain.

Column 4 is our complete decomposition; offspring occupation at age 34 is added to the other pathway linkages. As the two occupational variables are somewhat collinear, it is difficult to fully distinguish between the occupation effects at age 30 and 34. However, our results indicate that occupation at age 34 accounts for an important portion of persistence, 10 percent in the United States and 20 percent in Great Britain. Again, some of this explanatory effect is working through education and occupation at age 30, as the contributions of these variables fall. It is noteworthy that adding the offspring occupation linkages substantially increases the proportion of β explained by the model for Great Britain, whereas in the United States adding these linkages only marginally increases the total fraction of persistence that is explained. The addition of the offspring occupation linkages in the United States tends to absorb explanatory power that had been attributed to the education linkage, without contributing substantially to the overall level of persistence that is explained. Moving from the column 1 to the column 4 specification increases the explained portion of persistence from 48 percent to 55 percent for the United States; for Great Britain, the increase is from 30 percent to 52 percent.

[Tables 2 and 3 here]

In Tables 4 and 5 we present the regression estimates that lie behind the education-only and full decompositions for men. In Table 4 the first pair of columns report the λ coefficients from the series of regressions linking educational attainment to log parental income, equation 3. The second pair of columns presents the γ coefficients from the single regression of log offspring earnings on the education variables, equation 4. The results indicate that the greater contribution

of the education pathway to explaining total β in the United States is primarily due to the greater "returns" to college graduation in the United States relative to Great Britain, and the stronger relationship between income and college attendance/graduation in the United States when there are no other control variables.

It is important to establish that the differences in education returns are consistent with the results from other datasets. We have investigated earnings differentials in the British Labour Force Survey (LFS) and U.S. Census micro-data and found patterns that are consistent with those found here. In the Census the incremental earnings differential for college graduates in 2002 is 58 percent above those with some college, while in the LFS the comparable figure is approximately 25 percent when university graduates are compared to those with A levels only (the corresponding estimates in Table 4 are 42.4 percent for the United States and 23.0 percent for Great Britain). Note that the United States returns might be relatively overstated by the use of annual earnings compared with weekly earnings in the United States as the effect of education on hours and weeks worked will also be included. Nonetheless it seems likely that returns in the United States are genuinely higher than those in Great Britain; the country differences in returns to schooling are also broadly consistent with findings in Psacharopoulos and Patrinos (2004).

Table 5 reports the underlying parameters for the full decomposition. The higher returns to education for the United States are even more pronounced when other control variables are included in the model. Although there is a statistically significant difference in the relationship between parental income and educational attainment in the two countries, the difference in returns to education between the United States and Great Britain largely accounts for the larger relative pathway effect of education in the United States.

The stronger effect of occupation in Great Britain is due to the relatively large earnings returns and the strong links to parental income of being in a managerial or professional occupation (especially at age 34) in Great Britain. As shown in Appendix A3, the ranking of occupation by average earnings deviates from the social class ranking, resulting in some negative coefficients in the earnings equation.[11] Given the broader set of criteria used to obtain the social

[11] The self-employed and small employer data present additional issues for both countries. There is poor earnings information for self-employed workers in Great Britain, such that the earnings for "small employers and own account workers" has serious missing problems for each age group. The returns for these categories reflect the influence of being in this category at one age on earnings in the other survey. For the United States, information on the earnings of the self-

class ordering together with the relatively young age at which earnings are measured, this pattern is not surprising (Goldthorpe and McKnight 2006, and Rose 2008). In this context, the coefficient estimates in Table 5 fit the theoretical prediction that, in both countries, higher parental income is associated with being in a higher social class; however, the earnings return to being in a higher social class will not always be positive. It is important to note that education brings high returns in the United States, while occupation does not have similarly higher returns in the United States. This difference may indicate that there is a poorer match of class to wage patterns in the United States data, something we return to in the robustness section of the paper.

In summary, for United States men, the linkage between parental income and offspring earnings is largely accounted for by the offspring-education pathway, whereas in Great Britain, offspring occupation plays a much stronger role. The difference in the strength of the education pathway is due to relative differences in the returns to education in the two countries rather than relative differences in the influence of parental income on educational attainment.

[Tables 4 and 5 here]

Reassigning Country Returns: A Counterfactual Exercise

Constructing Counterfactuals

To this point, we have focused on the percentage of β explained by the different pathways. An alternative way to look at the results is to compare the absolute amount of persistence that is explained, using the "Part of Total β" column. In our full sequential model, these results indicate that the absolute explanatory power of the pathways is rather similar across the two nations, apart from the education pathway.

One possible interpretation is that mobility between the two nations would be equal were it not for the higher returns to education in the United States. This interpretation, however, is somewhat problematic because of the difficulties in comparing the absolute levels of mobility across nations. We know that the estimates of β are likely to be affected by measurement error, and the extent of this error may not be equal across nations. With this caveat in mind, we are

---

employed is relatively good and these individuals are included. We have estimated our models omitting those ever observed as self-employed in both nations, with little effect on overall findings. These results are available from the authors.

able to interpret the results as absolute contribution to mobility of earnings returns, enabling us to answer a number of counterfactual questions. For example, what would be the extent of intergenerational persistence in Great Britain if the returns to education matched those of the United States, everything else held constant? This relationship can be calculated as:

$$\beta_{GB}^{counter} = \lambda_{GBed}\gamma_{USed} + \lambda_{GBocc}\gamma_{GBocc} + \gamma_{GBinc} \quad (9)$$

Alternatively, what would be the extent of persistence in the United States if the association between occupation and family background equaled that of Great Britain? This is estimated as:

$$\beta_{US}^{counter} = \lambda_{USed}\gamma_{USed} + \lambda_{USocc}\gamma_{GBocc} + \gamma_{USinc} \quad (10)$$

In other words, in this exercise we combine one country's coefficient estimates for the parental influence on the pathway (λ) with the estimated returns to the pathway (γ) for the other country.

As with all the decompositions included in this paper, the counterfactuals should be seen as accounting exercises, rather than estimates of the complex, general equilibrium relationships that underlie differences in intergenerational mobility between the nations. Nonetheless we believe that our estimates can add insights to the implications of the underlying relationships within and across the two countries.

Table 6 provides results that show the extent to which persistence in Great Britain would be increased if the pattern of returns to pathway variables observed for the United States also held for Great Britain. The first columns show the results from the full decomposition analysis in Tables 2 and 3; the second set of columns show simulated results when the pathway returns estimates for the United States are allocated to Great Britain, and vice versa.

The overall counterfactual calculation assigns all of the pathway returns to be those of the other country, and the results are reported in the last row of columns 3 and 4. This exercise allows us to calculate whether the smaller β measure of intergenerational persistence for Great Britain relative to the United States (.295 vs. .385) would be reversed if Great Britain had the United States patterns of returns to the pathways. Our analysis results in a decrease in the β for the United States (from 0.385 to 0.324) and an increase for Great Britain (from 0.295 to 0.358), each of these reflecting the relatively higher labor market returns to education in the United States. While the overall counterfactual exercise closes the gap between the two countries, assigning United States' returns to Great Britain is not enough to replicate the actual β for the

United States (.385). This is accounted for by the larger relative direct impact of paternal income on persistence in the United States (.175 vs. .140).

The results in Table 6 enable us to change the returns for some characteristics and not others, and therefore to calculate a variety of counterfactuals. Because β is a linear combination of the pathway parts of β, each pathway row can be interpreted as the portion of β for the pathway if that pathway's returns were those of the other country. It is therefore possible to change the returns to education, and not alter those for the other pathways. If this is done the results for the total β are almost identical to those for the full counterfactual estimate. The first row of Table 6 shows that if the returns to education in the United States matched those of Great Britain, the education pathway would only increase β by .040 compared to the actual increase of .101; similarly, if the returns to education in Great Britain matched those of the United States, the education pathway would triple from .032 to .096. It is very clear that education is playing a large role in explaining the difference in the absolute size of the pathway component. It should be noted that these results are based on the conditional decomposition with all the variables included, performing this exercise for the first (unconditional) decomposition in Tables 4 and 5 would lead to a β of .299 for the United States (with education explaining 32.2 percent) and a β of .376 for Great Britain (with education explaining 44.7 percent).

We can also use this table to look at the impact of occupation, as our main results highlight the stronger effects of occupation in Great Britain, as a proportion of the total β. If the United States returns to occupation are applied to Great Britain, the British β would be slightly reduced, although the impacts are substantially smaller than for the education results. Keeping everything else constant, a change from the Great Britain returns to occupation to those for the United States would reduce the proportion of variance accounted for by β very little and the overall β by just 0.016 to .279. It is very clear that occupation plays a fairly small role in explaining the difference in the absolute size of the pathway component; the difference in the returns to education is a much more important driver.

[Table 6]

VIII. SOME ROBUSTNESS TESTS

The results we have presented are our preferred comparisons of intergenerational mobility between the United States and Great Britain, and of the mediating pathways from parental

income to offspring earnings that assist in understanding the underlying sources of intergenerational persistence. In addition to these results, we tested a number of other specifications and definitions; here we summarize some of these findings.

Analysis for Women

We have chosen to focus on men in this paper. For women, the large variation in labor market attachment during the peak child-rearing years makes estimation of female earnings elasticity problematic (see Solon 2002, and Raaum et al. 2007). However, if the between-country differences that we find for men are the result of structural differences between the two countries, it would be expected that similar cross-country patterns would be seen for women as well. In Appendix B we present the results for the female sample in both countries.

Unlike for men, for women the levels of intergenerational persistence are similar between the countries (β = .349 in the United States, and β = .368 in Great Britain). Also, in both countries, the pathway variables we analyze explain substantially more of total β for women than they do for men. However, similar to the patterns found for men, education accounts for a larger component of β in the United States, while occupation accounts for a larger portion in Great Britain. It should be noted that the women's estimates demonstrate the very sizable effect of the labor market attachment component in both countries, accounting for 24 percent of β in the United States, and 18 percent in Great Britain. The second and third columns of the table show that while the overall patterns remain, there is a stronger direct effect of occupation on intergenerational transmission for United States women relative to men.

Measure of Income

As already discussed, the intergenerational mobility literature (as reviewed by Björklund and Jäntti 2009) has tended to concentrate on individual earnings as the primary measure of offspring's outcomes. However, total family income is perhaps more pertinent for living standards. Appendix C1 reports estimates for both the intergenerational elasticity and correlation between family incomes across generations. For both men and women, persistence is greater in the United States than Great Britain, and in the United States persistence is much greater for women than men.

Appendix C2 summarizes the pathway estimation using family income. For these estimates we must take account of differences in the dependent variables; in Great Britain

earnings and income are current weekly or monthly measures, whereas in the United States they are annual. This means that in Great Britain income is observed for more individuals than earnings. Because those who are not working at either of the survey dates will tend to have lower family incomes, we include employment variables among the pathways for Great Britain to account for this. If we do not do this then being out of employment would be reflected in the missing occupation category and counted as "unexplained variation." The results indicate that this is an imperfect solution, as the missing variables (and particularly the missing social class indicators) account for more of the transmission in this model than they did in the models for men's earnings. However, taken as a whole, the results based on family income for men are very similar to those for earnings, with a relatively greater role for education in the United States and for occupation in Great Britain.

Measure of Occupation

The NS-SEC occupation code is matched to the British data using occupation and information on managerial and supervisory duties, as it is designed to do. In the United States, the occupation code is assigned based on three-digit occupation information. If there is error in the assignment of these codes, the coefficient estimates for occupation in the United States could be biased downward. In addition to errors in assignment, a second potential issue with using the NS-SEC for the United States is that it may not capture occupational differences as well there as in European countries (see Erikson and Goldthorpe 1992).

One way to address these issues is to use the three-category classification of the SEC occupation code (rather than the eight-category); results are shown in Appendix D. This reduces the possibility of measurement error; and while there may be incorrect assignment to the more narrowly defined categories, this procedure would not be expected to affect the broader classification codes. However, using the broader classification also eliminates information if the categories are correctly assigned.

When the model is estimated using the three-category SEC occupation codes, the percentage of β accounted for by the occupation pathway in the United States falls (from 23.8 percent to 13.8 percent). For Great Britain, the magnitude of the change is similar (the proportion explained by occupation falls from 34 percent to 27 percent). We conclude that any bias due to misclassification is approximately equal across the two nations. While not conclusive, this

suggests that the relatively lower effect of the occupation pathway in the United States is not being driven by measurement error.

Education-Only Model

One of our core findings is that the education pathway variable is more important than other pathways (especially occupation) in the transmission of intergenerational inequality in the United States, while the occupation pathway has the strongest linkage in Great Britain. One concern might be that the education variables are not strictly comparable across nations. If education is poorly measured in Great Britain, then again this could lead to an underestimate of the importance of education. To address this concern, Appendix E uses a more detailed breakdown of qualifications, which better reflects the British education system; this increases the proportion of β accounted for by the education pathway by less than two percentage points for men and even less for women compared to the comparative education-only models in Table 3 and Appendix B, supporting our primary findings.

VIII. SUMMARY AND CONCLUSION

Our analysis adopts a cross-national framework for analyzing the linkages between parental and offspring economic position that may lead to social persistence or immobility. Using harmonized data from the United States and Great Britain and a common econometric model, we explore several pathways that link offspring status to parental status—offspring education, labor market attachment, occupation, marital status, and health status. For each of these pathways, we estimate both the linkage between parental income and the pathway outcome (offspring education, labor market attachment, and so on) and the offspring earnings payoff of the attainment level achieved in each pathway variable.

We find important differences across the key mechanisms that help explain intergenerational mobility in the two nations. In the United States, primarily because of the higher returns to education and skills, the pathway through offspring education is relatively more important than it is in Great Britain. Education is relatively less important in Great Britain in spite of rapid growth in demand for highly educated workers in both nations (see Machin 2009, for a good review of various aspects of these differences; see Katz and Autor 1999, and Goldin and Katz 2008, on the United States). By contrast, we find that the relative strength of the

linkage through occupation is more important in Great Britain than in the United States. Labor market attachment, health, and marital status have relatively little explanatory power in understanding the linkage between parental income and offspring earnings in either country.

However, we must recall the caveats discussed in Section V. Our conclusions rely on the fact that the correlation between our pathway variables and the unobservables that are correlated with offspring earnings are the same across the two nations. In particular, our main findings would perhaps not hold if unobservables were more strongly correlated with education in the United States and with occupation in Great Britain.

Our overall findings are supported when we carry out a number of robustness tests using family income (rather than earnings) and alternative occupation and education definitions. The patterns we observe suggest that structural factors related to cultural behaviors, labor market operation, and the characteristics of educational systems play a larger role in understanding patterns of social mobility for women relative to men in these countries. While this is reassuring, none of these exercises is a direct test of the impact of omitted variables, so a caution remain when interpreting our results.

While our approach takes its cue from the intergenerational income mobility literature, there are clear ties to the broader literature that considers the intergenerational mobility of education and occupation groups. International comparisons of income, education, and social class mobility are all considered by Blanden (2011) in an attempt to understand if the results from different approaches provide a similar picture of mobility. She finds that those countries with high persistence in income also tend to have a strong link between education levels across generations, but that social class mobility is less well correlated. In the same paper, an investigation of data from the BCS and PSID (on slightly different samples to those used here) reveals that the United States is less mobile in terms of income and education, but more mobile than Great Britain based on social class. This supports the results here that the influence of family background on occupation is greater in Great Britain, despite it having relatively more income mobility than the United States.

Ideally, our findings would be based on true causal relationships behind the mechanisms we consider, and a growing body of work seeks to understand the causal mechanisms that underlie the intergenerational relationships (for a recent review, see Black and Devereux 2010). However, performing a causal analysis that explores multiple mechanisms across two countries

seems unattainable. Instead, our aim is to highlight how different parental status characteristics impact on intergenerational mobility, and to provide evidence on how some of the dimensions differ between these two nations.

References

Becker, G., and N. Tomes. 1986. "Family Capital and the Rise and Fall of Families." *Journal of Labor Economics*, 4(3), Part 2: S1–S39.

Beller, E., and M. Hout. 2006. "Intergenerational Social Mobility: The United States in Comparative Perspective." *The Future of Children*, 16(2): 19–36.

Björklund, A., and M. Jäntti. 2009. "Intergenerational Income Mobility and the Role of Family Background." In *Oxford Handbook of Economic Inequality*, W. Salverda, B. Nolan, and T. Smeeding, eds. Oxford: Oxford University Press.

Black, S., and P. Devereux. 2010. "Recent Developments in Intergenerational Mobility." In *Handbook of Labor Economics* Volume 4B, Orley Ashenfelter and David Card, eds. New York: North Holland.

Blanden, J. 2005. "Essays on Intergenerational Mobility and Its Variation over Time, Place, and Family Structure." PhD diss. University College London.

———. 2011. "Cross-National Rankings of Intergenerational Mobility: A Comparison of Approaches from Economics and Sociology." *Journal of Economic Surveys*, doi: 10.1111/j.1467-6419.2011.00690.x

Blanden, J., P. Gregg, and L. Macmillan. 2007. "Accounting for Intergenerational Persistence: Noncognitive Skills, Ability and Education." *Economic Journal* Conference Volume, March: C43–C60.

———. Forthcoming. "Intergenerational Persistence in Income and Social Class: The Impact of Within-Group Inequality." *Journal of the Royal Statistical Society*, Series A.

Bratsberg, B., K. Røed, O. Raaum, R. Naylor, M. Jäntti, T. Eriksson, and E. Österbacka. 2007. "Nonlinearities in Intergenerational Earnings Mobility: Consequences for Cross-Country Comparisons." *Economic Journal* 117(519): C72–92.

Breen, R., and J. Jonsson. 2005. "Inequality of Opportunity in Comparative Perspective: Recent Research on Educational Attainment and Social Mobility." *Annual Review of Sociology*, 31: 223–43.

Corak, M. 2006. "Do Poor Children Become Poor Adults? Lessons from a Cross Country Comparison of Generational Earnings Mobility." *Research on Economic Inequality*, 13: 143–88.

Devine, F. 1997. *Social Class in America and Britain.* Edinburgh: Edinburgh University Press.

Erikson, R., and J. Goldthorpe. 1985. "Are American Rates of Social Mobility Exceptionally High? New Evidence on an Old Issue." *European Sociological Review*, 1(1): 1-22.

Erikson, R., and J. Goldthorpe. 1992. *The Constant Flux – A Study of Class Mobility in Industrial Societies*. Oxford: Clarendon.

Erikson, R., and J. Goldthorpe. 2002. "Intergenerational Inequality: A Sociological Perspective." *Journal of Economic Perspectives*, 16 (3, Summer): 31–44.

Eriksson, T., B. Bratsberg, and O. Rauum. 2005. "Earnings Persistence Across Generations: Transmission through Health?," Memorandum No. 35, Department of Economics, University of Oslo.

Ermisch, J., M. Jäntti, and T. Smeeding, eds. 2012. *From Parents to Children: The Intergenerational Transmission of Advantage.* New York: Russell Sage Foundation, May.

Fitzgerald, J., P. Gottschalk, and R. Moffitt. 1998. "An Analysis of the Impact of Sample Attrition on the Second Generation of Respondents in the Michigan Panel Study of Income Dynamics." *The Journal of Human Resources*, 33: 300–44.

Gangl, M., and A. Ziefle. 2009. "Motherhood, Labor Force Behavior, and Women's Careers: An Empirical Assessment of the Wage Penalty for Motherhood in Britain, German, and the United States." *Demography*, 46(2): 341-369.

Goldin, C., and L. Katz. 2008. *The Race between Education and Technology.* Cambridge, MA: Harvard University Press.

Goldthorpe, J., and A. McKnight. 2006. "The Economic Basis for Social Class." In *Mobility and Inequality: Frontiers of Research in Sociology and Economics*, S. Morgan, D. Grusky, and G. Fields, eds. Palo Alto: Stanford University Press.

Haider, S., and G. Solon. 2006. "Life-cycle Variation in the Association between Current and Lifetime Earnings." *American Economic Review*, 96: 1308–20.

Haveman, R. 1987. *Poverty Policy and Poverty Research: The Great Society and the Social Sciences*. Madison, WI: University of Wisconsin Press.

Haveman, R., and T. Smeeding. 2006. "The Role of Higher Education in Social Mobility." *The Future of Children*, 16 (2, Fall): 125–50.

Hirvonen, L. 2010. "Accounting for Intergenerational Earnings Persistence: Can We Distinguish between Education, Skills, and Health?" SOFI Working Paper 2/2010.

Jonsson, J., D. Grusky, M. Di Carlo, R. Pollak, and M. Brinton. 2009. "Microclass Mobility: Social Reproduction in Four Countries." *American Journal of Sociology*, 114(4): 977–1036.

Katz, L., and D. Autor. 1999. "Changes in the Wage Structure and Earnings Inequality." In *Handbook of Labor Economics*, Orley Ashenfelter and David E. Card, eds. North-Holland, Amsterdam: Elsevier.

Long, J. and J. Ferrie. 2007. "The Path to Convergence: Intergenerational Occupational Mobility in Britain and the US in Three Eras." *The Economic Journal*, 117(519): C61-C71.

Machin, S. 2009. "Education and Inequality." In *The Oxford Handbook of Economic Inequality*, W. Salverda, B. Nolan, and T. Smeeding, eds. Oxford: Oxford University Press.

Psacharopoulos, G., and H. Patrinos. 2004. "Returns to Investment in Education: A Further Update." *Education Economics*, 12: 111–34.

Raaum, O., B. Bratsberg, K. Røed, E. Österbacka, T. Eriksson, M. Jäntti, and R. Naylor . 2007. "Marital Sorting, Household Labour Supply and Intergenerational Earnings Mobility Across Countries." *The B.E. Journal of Economic Analysis & Policy*, 7(2): (Advances), Article 7.

Rose, D., and D. Pevalin. 2005. "The National Statistics Socio-Economic Classification: Origins, Development and Use" National Statistics. http://www.ons.gov.uk/ons/guide-method/classifications/archived-standard-classifications/soc-and-sec-archive/the-national-statistics-socio-economic-classification--origins--development-and-use.pdf

Rose, D. 2008. "Socio-economic Classifications: Classes and Scales, Measurement and Theories." ISER,University of Essex. http://www.iser.essex.ac.uk/files/esec/presentations_and_publications/Measurement_Socstrat.doc

Smeeding, T., R. Erikson, and M. Jäntti, eds. 2011. *Persistence, Privilege and Parenting: The Comparative Study of Intergenerational Mobility*. New York: Russell Sage Foundation.

Solon, Gary. 1992. "Intergenerational Income Mobility in the United States." *American Economic Review*, 82 (3): 393–408.

———. 2002. "Cross-Country Differences in Intergenerational Earnings Mobility." *Journal of Economic Perspectives*, 16: 59–66.

Torche, F. 2010. "Educational Assortative Mating and Economic Inequality: A Comparative Analysis of Three Latin American Countries." *Demography*, 47(2): 481-502.

Western, B., D. Bloome, and C. Percheski. 2008. "Inequality among American Families with Children, 1975 to 2005." *American Sociological Review*, 73:903-920.

Zimmerman, D. 1992. "Regression towards Mediocrity in Economic Status." *American Economic Review*, 82 (3): 409–29.

Table 1: Comparison of Individual Earnings Persistence across Countries

	United States	Great Britain
βs (elasticities)	.385 (.047)	.294 (.017)
Partial correlations	.301 (.037)	.283 (.017)

Note: The sample sizes used in the estimations are 647 for the U.S. and 3,899 for the U.K.

Table 2: Sequential Decompositions – United States

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.185	48.1%	0.191	49.6%	0.116	30.1%	0.101	26.3%
	(0.027)	(8.7)	(0.029)	(9.2)	(0.029)	(8.1)	(0.030)	(8.5)
Early marriage			0.006	1.6%	0.006	1.5%	0.007	1.8%
			(0.013)	(3.4)	(0.011)	(3.0)	(0.011)	(2.9)
Labor market attachment, ages 22-25			-0.007	-1.9%	-0.011	-2.8%	-0.011	-2.7%
			(0.009)	(2.4)	(0.008)	(2.2)	(0.008)	(2.2)
Labor market attachment, ages 26-29					0.017	4.5%	0.016	4.2%
					(0.014)	(3.5)	(0.014)	(3.4)
Marriage and health at 30					0.003	0.9%	0.005	1.2%
					(0.008)	(2.1)	(0.008)	(2.0)
Occupation at 30					0.073	18.9%	0.052	13.5%
					(0.020)	(5.3)	(0.019)	(5.0)
Occupation age 34							0.040	10.3%
							(0.022)	(5.8)
Missing value dummies	0.000	0.1%	-0.003	-0.8%	0.012	3.1%	0.016	4.1%
	(0.003)	(0.8)	(0.008)	(2.1)	(0.014)	(3.6)	(0.15)	(3.9)
Pathway Component of β	0.185	48.1%	0.190	49.3%	0.204	52.9%	0.210	54.6%
	(0.027)	(8.7)	(0.266)	(8.8)	(0.036)	(8.9)	(0.039)	(9.5)
Non-pathway Component of β	0.199	51.8%	0.198	51.5%	0.169	44.0%	0.159	41.3%
	(0.056)	(8.8)	(0.057)	(9.0)	(0.052)	(9.6)	(0.051)	(10.3)
Total β	0.385		0.385		0.385		0.385	

Table 3: Sequential Models: Great Britain

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.086	29.3%	0.090	30.5%	0.050	17.0%	0.034	11.6%
	(0.006)	(2.4)	(0.007)	(2.5)	(0.005)	(1.9)	(0.005)	(1.7)
Early marriage			-0.001	-0.4%	-0.001	-0.2%	-0.001	-0.2%
			(0.001)	(0.3)	(0.001)	(0.3)	(0.001)	(0.3)
Labor market attachment, ages 22-25			0.011	3.7%	0.006	2.1%	0.007	2.3%
			(0.004)	(1.3)	(0.002)	(0.8)	(0.003)	(0.9)
Labor market attachment, ages 26-29					0.009	3.1%	0.008	2.9%
					(0.003)	(1.0)	(0.003)	(1.0)
Marriage and health at 30					0.004	1.2%	0.003	1.1%
					(0.002)	(0.6)	(0.002)	(0.6)
Occupation at 30					0.065	21.9%	0.044	15.0%
					(0.005)	(2.0)	(0.005)	(1.7)
Occupation age 34							0.057	19.3%
							(0.005)	(1.9)
Missing value dummies	0.001	0.4%	0.002	0.8%	0.002	0.7%	0.002	0.8%
	(0.001)	(0.4)	(0.002)	(0.5)	(0.001)	(0.5)	(0.001)	(0.5)
Pathway Component of β	0.086	29.3%	0.100	33.8%	0.133	45.2%	0.153	51.8%
	(0.006)	(2.4)	(0.007)	(2.6)	(0.009)	(2.9)	(0.010)	(3.1)
Non-pathway Component of β	0.207	70.3%	0.193	65.3%	0.159	54.1%	0.140	47.4%
	(0.017)	(2.3)	(0.017)	(2.6)	(0.015)	(2.9)	(0.015)	(3.1)
Total β	0.295		0.295		0.295		0.295	

Table 4: United States and Great Britain Men, Education Decomposition Results

	Parent Income Influence on Factor (λ)		Return to Factor (γ)		Decomp. of total β: Percent Variation Explained	
Factors	U.S.	G.B.	U.S.	G.B.	U.S.	G.B.
High school grad/O levels	0.095 (.020)	[a] 0.159 (.014)	0.270 (.092)	0.124 (.019)	6.7%	6.2%
Attend college/A levels	0.304 (.030)	[a] 0.225 (.016)	0.191 (.073)	0.099 (.021)	15.1%	7.1%
Graduate college/Degree	0.239 (.027)	0.193 (.013)	0.424 (.075)	[a] 0.227 (.022)	26.3%	13.9%
Education total					**48.1%**	**27.2%**
Education missing	0.022 (0.007)	0.007 (.007)	0.131 (.235)	0.169 (.034)	0.1%	0.5%
Missing variables total					**0.1%**	**0.5%**

The superscript [a] indicates the coefficient estimates for the two countries are statistically different from each other at a 5% significance level; the superscript [b] indicates they are statistically different at a 10% significance level.

Table 5: United States and Great Britain Men, Full Decomposition Results

	Parent Income Influence on Factor (λ)		Return to Factor (γ)		Decomp. of total β: Percent Variation Explained	
Factors	U.S.	G.B.	U.S.	G.B.	U.S.	G.B.
High school grad/O levels	0.095 (.020)	[a] 0.159 (.014)	0.177 (.083)	[b] 0.033 (.018)	4.4%	1.8%
Attend college/A levels	0.304 (.030)	[a] 0.225 (.016)	0.021 (.070)	0.019 (.019)	1.6%	1.5%
Graduate college/Degree	0.239 (.027)	[a] 0.193 (.013)	0.326 (.073)	[a] 0.126 (.021)	20.3%	8.3%
Education total					**26.3%**	**11.6%**
Married age 22 or less	-0.156 (.026)	[a]-0.025 (.007)	-0.045 (.063)	0.025 (.029)	1.8%	-0.3%
Ages 22-25 No labor/educ.	-0.002 (.019)	[b]-0.035 (.006)	0.122 (.123)	[b]-0.156 (.066)	-0.1%	1.8%
Ages 22-25 Full-time work/educ.	-0.032 (.017)	[a] 0.018 (.008)	0.319 (.132)	[a] 0.070 (.050)	-2.7%	0.4%
Ages 26-29 No labor/educ.	-0.015 (.012)	-0.016 (.004)	-0.118(.202)	-0.243 (.071)	0.5%	1.4%
Ages 26-29 Full-time work/educ.	0.025 (.016)	0.011 (.004)	0.563 (.142)	0.412 (.059)	3.7%	1.5%
Labour Market Attachment Total						**5.2%**
Married at age 30	-0.008 (.030)	0.014 (.016)	0.053 (.063)	0.074 (.014)	-0.1%	0.4%
Health poor	-0.010 (.012)	-0.024 (.011)	-0.433 (.131)	[a]-0.044 (.020)	1.1%	0.4%
Health excellent	0.068 (.030)	0.063 (.015)	0.013 (.055)	0.017 (.014)	0.2%	0.4%
Marriage and Health at 30 Total					**3.1%**	**1.2%**
Higher managerial or professional at 30	0.089 (.022)	0.099 (.012)	0.089 (.098)	0.054 (.021)	2.1%	1.8%
At least lower managerial and prof at 30	0.156 (.029)	[a]0.224 (.016)	-0.053 (.105)	0.101 (.025)	-2.4%	7.7%

At least intermediate at 30	0.191 (.029)	0.228 (.015)	0.403 (.130)	[a]-0.055 (.076)	20.0%	-4.3%
At least small employers or own account at 30	0.169 (.029)	[b]0.225 (.015)	-0.349 (.116)	[a] 0.066 (.074)	-15.3%	5.1%
At least lower supervisory or technical 30	0.168 (.026)	0.157 (.013)	0.190 (.108)	0.105 (.026)	8.3%	5.6%
At least semi-routine at 30	0.085 (.020)	0.076 (.010)	0.035 (.106)	-0.039 (.029)	0.8%	-1.0%
Occupation at age 30 total					**13.5%**	**15.0%**
Higher managerial or professional at 34	0.116 (.023)	0.136 (.013)	0.202 (.093)	0.176 (.021)	6.1%	8.1%
At least lower managerial and prof at 34	0.176 (.030)	0.196 (.014)	-0.054 (.100)	[a] 0.161 (.030)	-2.5%	10.7%
At least intermediate at 34	0.192 (.031)	0.184 (.015)	0.190 (.126)	[a]-0.097 (.052)	9.5%	-6.1%
At least small employers or own account at 34	0.209 (.030)	0.185 (.015)	-0.079 (.114)	0.015 (.048)	-4.3%	-1%
At least lower supervisory or technical 34	0.191 (.027)	0.187 (.014)	0.087 (.104)	0.158 (.029)	4.3%	6.5%
At least semi-routine at 34	0.094 (.020)	0.121 (.012)	-0.114 (.106)	-0.059 (.029)	-2.8%	-1.0%
Occupation at age 34 total					**10.3%**	**19.3%**
Education missing	0.022 (0.007)	0.007 (.007)	0.283 (0.227)	0.234 (.139)	0.2%	0.5%
Labor force part. missing	0.010 (0.011)	0.006 (.006)	0.154 (0.161)	-0.334 (.398)	0.4%	-0.7%
Married at age 22 or less missing	0.015 (0.024)	0.012 (.007)	-0.146 (0.086)	0.128 (.047)	-0.6%	0.5%
Married at age 30 missing	-0.002 (0.012)	0.009 (.007)	0.193 (0.175)	-0.003 (.053)	-0.1%	0.0%
Health missing	0.005 (0.016)	0.006 (.006)	0.590 (0.164)	0.105 (.418)	0.8%	0.2%
Occupation at 30 missing	-0.013 (0.019)	-0.002 (.006)	-0.669(0.133)	[a] -0.003 (.047)	2.3%	0.0%
Occupation at 34 missing	-0.014 (0.013)	-0.029 (.008)	-0.305(0.125)	[a]-0.018 (.030)	1.1%	0.2%
Missing variables total					**4.1%**	**0.8%**

Note: The omitted, comparison factor for each of the categories are: high school dropout/no O levels, part-time worker, occupation=1, and health good/very good. As discussed in the text, the categorical variables are coded as "at least" high school, etc. Standard errors are in parentheses. The superscript [a] indicates the coefficient estimates for the two countries are statistically different from each other at a 5% significance level; the superscript [b] indicates they are statistically different at a 10% significance level.

Table 6: Counterfactuals: Experimenting with Varying Returns

	Estimated Decompositions		Counterfactual Decomposition	
	United States	Great Britain	United States with Great Britain Returns	Great Britain with United States Returns
	Part of β	Part of β	Part of β	Part of β
Education	0.101	0.032	0.040	0.096
Early marriage	0.007	-0.001	-0.004	0.001
Labor market attachment, ages 22-25	-0.011	0.007	-0.002	0.001
Labor market attachment, ages 26-29	0.016	0.008	0.014	0.008
Marriage and health at 30	0.005	0.003	0.001	0.012
Occupation at 30	0.052	0.044	0.036	0.043
Occupation age 34	0.040	0.057	0.058	0.042
Missing value dummies	0.016	0.002	0.004	0.016
Pathway Component of β	0.210	0.153	0.142	0.223
Non-Pathway Component of β	0.159	0.140	0.175	0.139
Total β	0.385	0.295	0.324	0.358

Appendix A1: Description of Pathway Variables

	United States Data	Great Britain Data
Education at age 30	High school graduate Some college College completion	O level or equivalent A level Degree or equivalent
Early marriage	Year of first marriage age 22 or younger	Year of first marriage is before 1992
Labor market (ages 22-25, ages 26-28)	Percent years working < 500 hours and not attending school; Percent of years working 1,500+ hours or primary role is student	Percent of years where < 6 months are spent in full-time work or full-time education; Percent of years with 12 months full-time work or at least six months full-time education
Health at age 30	Excellent Poor or very poor	Excellent Poor or fair
Marriage	Married at age 30	Married at age 30
Occupation at age 30	7-category occupation code based on NS-SEC	7-category occupation code based on NS-SEC
Occupation at age 34	7-category occupation code based on NS-SEC	7-category occupation code based on NS-SEC

Appendix A2: Descriptive Statistics for Main Variables

	United States Men	Great Britain Men
Average parental income at 10 and 16 (standard deviation)	72,017 (48,723)	391.62 (190.73)
Average sons' earnings at 30 and 34 (standard deviation)	44,527 (38,642)	475.96 (314.57)
At least high school grad/O levels	88.7%	74.1%
At least some college/A levels	53.0%	43.7%
Graduate college/Degree	29.1%	23.4%
Education missing	1.4%	6.4%
Married age 22 or less	31.3%	5.4%
Missing married at 22	17.3%	5.2%
Ages 22-25 No labor/educ.	22.9%	5.8%
Ages 22-25 Full-time work/educ.	64.5%	88.1%
Ages 26-29 No labor/educ.	7.5%	2.8%
Ages 26-29 Full-time work/educ.	84.5%	71.5%
Missing labor market info	2.3%	6.2%
Married at age 30	66.7%	38.3%
Missing married at 30	2.0%	7.6%
Health excellent at 30	34.2%	33.2%
Health poor (plus fair for Great Britain) at 30	4.2%	13.0%
Health missing at 30	3.8%	6.2%
Higher managerial and professional at 30	16.3%	15.4%
Lower managerial and professional or higher at 30	40.0%	45.7%
Intermediate or higher at 30	49.0%	55.6%
Small employers and own account or higher at 30	58.9%	56.6%
Lower supervisory and technical or higher at 30	71.7%	77.7%
Semi-routine or higher at 30	85.9%	88.2%
Missing occupation at 30	12.5%	9.2%
Higher managerial and professional at 34	17.7%	22.4%
Lower managerial and professional or higher at 34	41.0%	51.9%
Intermediate or higher at 34	51.2%	59.3%
Small employers and own account or higher at 34	60.3%	63.1%
Lower supervisory and technical or higher at 34	73.9%	81.1%
Semi-routine or higher at 34	88.3%	90.4%
Missing occupation at 34	5.4%	19.5%
Sample size	647	3899

Notes: The means of the variables are the means of the observations that are not missing. This is appropriate because in the main analysis missing values are replaced with these mean values. Monetary amounts for the U.K. are in 2000 £ and for the U.S. are in 2000 $.

Appendix A3: Earnings by Occupational Group

NCSEC Code	Occupation Group	United States Annual Earnings	Great Britain Weekly Earnings at Point Occupation Measured
1.1 and 1.2	Higher managerial and professional at 30	$60,379	£551.67
2	Lower managerial and professional at 30	$53,150	£444.33
3	Intermediate at 30	$54,393	£298.12
4	Small employers and own account at 30	$28,092	Missing
5	Lower supervisory and technical at 30	$32,850	£335.32
6	Semi-routine at 30	$29,046	£215.49
7	Routine at 30	$30,085	£250.67
1.1 and 1.2	Higher managerial and professional at 34	$85,445	£707.28
2	Lower managerial and professional at 34	$59,125	£476.43
3	Intermediate at 34	$49,567	£295.91
4	Small employers and own account at 34	$32,245	Missing
5	Lower supervisory and technical at 34	$35,012	£382.85
6	Semi-routine at 34	$32,215	£221.88
7	Routine at 34	$29,408	£276.77

Notes:
Great Britain earnings are weekly measures, in June 2000 pounds sterling.
Some of the gap between the semi-routine and routine workers' earnings in Great Britain is explained by the fact that those in routine occupations work more hours. When earnings are computed on the basis of a 40-hour week, those in routine occupations earn just £9 less than those in semi-routine jobs at age 30 and £14 less at age 34.
The patterns in earnings found above are in line with results from Goldthorpe and McKnight (2006), who find that in 1999 the mean earnings of those in "Lower supervisory" jobs exceed those in the "Intermediate" class up until men are in their early 30s, the mean earnings of those in "Routine" and "Semi-routine" jobs are close throughout the life cycle.

Appendix B1: United States Results for Women

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.168	48.3%	0.147	42.3%	0.083	23.7%	0.079	22.7%
	(0.030)	(11.4)	(0.032)	(11.2)	(0.028)	(8.7)	(0.027)	(8.4)
Early marriage			0.017	4.9%	-0.008	-2.4%	-0.009	-2.5%
			(0.013)	(4.1)	(0.011)	(3.4)	(0.012)	(3.5)
Labor market attachment, ages 22-25			0.075	21.5%	0.029	8.3%	0.029	8.4%
			(0.020)	(6.0)	(0.015)	(4.3)	(0.015)	(4.5)
Labor market attachment, ages 26-29					0.061	17.5%	0.055	15.6
					(0.023)	(6.2)	(0.021)	(5.9)
Marriage and health at 30					-0.005	-1.3%	-0.004	-1.1%
					(0.011)	(3.4)	(0.011)	(3.5)
Occupation at 30					0.071	20.4%	0.057	16.3%
					(0.020)	(6.9)	(0.022)	(7.4)
Occupation age 34							0.045	13.0%
							(0.025)	(7.4)
Missing value dummies	0.001	0.4%	-0.017	-4.9%	0.008	2.3%	0.0013	3.6%
	(0.004)	(1.1)	(0.010)	(3.3)	(0.015)	(4.3)	(0.021)	(6.1)
Pathway Component of β	0.168	48.3%	0.239	68.7%	0.231	66.1%	0.252	72.4%
	(0.030)	(11.4)	(0.036)	(13.6)	(0.041)	(12.3)	(0.043)	(13.4)
Non-pathway Component of β	0.179	51.4%	0.126	36.3%	0.110	31.6%	0.083	23.9%
	(0.063)	(11.6)	(0.057)	(13.0)	(0.053)	(12.4)	(0.053)	(13.8)
Total β	0.349		0.349		0.349		0.349	

Appendix B2: Great Britain Results for Women

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.178	48.3%	0.163	44.2%	0.075	20.4%	0.054	14.6%
	(0.012)	(4.2)	(0.012)	(3.8)	(0.007)	(2.2)	(0.007)	(1.9)
Early marriage			0.003	0.7%	-0.002	-0.6%	-0.002	-0.4%
			(0.002)	(0.5)	(0.002)	(0.5)	(0.002)	(0.4)
Labor market attachment, ages 22-25			0.055	15.0%	0.006	1.6%	0.006	1.7%
			(0.008)	(2.2)	(0.004)	(1.0)	(0.004)	(1.0)
Labor market attachment, ages 26-29					0.067	18.1%	0.062	16.8%
					(0.011)	(2.5)	(0.010)	(2.3)
Marriage and health at 30					-0.001	-0.2%	-0.001	-0.4%
					(0.002)	(0.6)	(0.002)	(0.4)
Occupation at 30					0.103	28.0%	0.075	20.2%
					(0.009)	(2.5)	(0.007)	(2.0)
Occupation age 34							0.075	20.2%
							(0.008)	(2.0)
Missing value dummies	0.000	0.0%	0.003	0.7%	0.001	0.3%	0.001	0.1%
	(0.002)	(0.6)	(0.002)	(0.5)	(0.002)	(0.5)	(0.002)	(0.4)
Pathway Component of β	0.178	48.3%	0.221	59.8%	0.248	67.3%	0.268	72.8%
	(0.012)	(4.2)	(0.015)	(4.6)	(0.018)	(4.5)	(0.019)	(4.2)
Non-pathway Component of β	0.191	51.8%	0.148	40.0%	0.119	32.4%	0.100	27.1%
	(0.026)	(4.2)	(0.024)	(4.7)	(0.021)	(4.5)	(0.019)	(4.2)
Total β	0.368		0.368		0.368		0.368	

The sample size is 801 for the U.S. and 3,766 for Great Britain.

Appendix C1: Comparison of Family Income Persistence across Countries

	United States	Great Britain
Men		
β (elasticities)	.381 (.040)	.318 (.021)
Partial correlation	.332 (.035)	.242 (.016)
Women		
β (elasticities)	.472 (.035)	.296 (.018)
Partial correlation	.437 (.033)	.238 (.015)

Note: Sample sizes are 710 for the U.S. and 4,231 for Great Britain.

Appendix C2: United States Offspring Family Income

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.151	39.5%	0.144	37.7%	0.101	26.5%	0.091	24.0%
	(0.023)	(7.3)	(0.024)	(7.4)	(0.024)	(6.7)	(0.025)	(7.0)
Early marriage			0.019	4.9%	0.020	5.2%	0.019	5.1%
			(0.011)	(2.9)	(0.010)	(2.7)	(0.010)	(2.8)
Labor market attachment, ages 22-25			-0.002	-0.5%	-0.002	-0.6%	-0.002	-0.7%
			(0.007)	(1.8)	(0.006)	(1.7)	(0.006)	(1.6)
Labor market attachment, ages 26-29					0.013	3.3%	0.012	3.0
					(0.012)	(3.0)	(0.011)	(2.7)
Marriage and health at 30					0.001	0.3%	0.002	0.6%
					(0.007)	(1.9)	(0.008)	(2.0)
Occupation at 30					0.048	12.5%	0.032	8.4%
					(0.016)	(4.0)	(0.016)	(4.3)
Occupation age 34							0.038	10.0%
							(0.019)	(4.9)
Missing value dummies	0.000	0.1%	-0.009	-2.4%	0.003	0.9%	0.006	1.7%
	(0.003)	(0.7)	(0.011)	(3.1)	(0.015)	(4.0)	(0.015)	(4.0)
Pathway Component of β	0.151	39.5%	0.160	42.1%	0.180	47.2%	0.192	50.4%
	(0.023)	(7.3)	(0.023)	(7.6)	(0.028)	(7.4)	(0.031)	(8.2)
Non-pathway Component of β	0.230	60.4%	0.230	60.4%	0.198	51.9%	0.183	47.9%
	(0.051)	(7.3)	(0.050)	(7.5)	(0.044)	(7.9)	(0.046)	(8.8)
Total β	0.381		0.381		0.381		0.381	

Appendix C3: Great Britain Offspring Family Income

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.086	27.9%	0.082	25.8%	0.036	11.5%	0.024	7.7%
	(0.006)	(2.7)	(0.007)	(2.5)	(0.005)	(1.8)	(0.005)	(1.7)
Early marriage			-0.002	-0.6%	0.000	0.2%	0.001	0.2%
			(0.001)	(0.4)	(0.001)	(0.3)	(0.001)	(0.3)
Labor market attachment, ages 22-25			0.049	15.4%	0.013	4.1%	0.011	3.5%
			(0.007)	(2.2)	(0.004)	(1.3)	(0.004)	(1.2)
Labor market attachment, ages 26-29					0.019	5.8%	0.011	3.4%
					(0.005)	(1.5)	(0.004)	(1.3)
Marriage and health at 30					0.009	2.9%	0.008	2.4%
					(0.004)	(1.3)	(0.004)	(1.2)
Occupation at 30					0.052	16.3%	0.036	11.2%
					(0.005)	(1.8)	(0.005)	(1.7)
Occupation age 34							0.041	12.9%
							(0.005)	(1.6)
Missing value dummies	0.000	0.1%	0.004	1.7%	0.015	4.7%	0.034	10.7%
	(0.001)	(0.2)	(0.003)	(0.8)	(0.009)	(2.7)	(0.009)	(2.9)
Pathway Component of β	0.086	27.9%	0.129	40.7%	0.160	50.3%	0.164	51.5%
	(0.006)	(2.7)	(0.010)	(3.3)	(0.014)	(4.2)	(0.014)	(4.1)
Non-pathway Component of β	0.231	72.0%	0.185	58.2%	0.143	44.9%	0.120	37.7%
	(0.019)	(2.6)	(0.019)	(3.3)	(0.016)	(3.5)	(0.017)	(3.9)
Total β	0.318		0.318		0.318		0.318	

The sample size is 710 for the U.S. and 4,231 for Great Britain. Note: employment at the survey time at age 30 and 34 is added as a pathway for the Great Britain data when occupation at each age is used. See text for more detail.

Appendix D1: United States with Aggregated Occupational Codes

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.185	48.1%	0.191	49.6%	0.142	36.8%	0.127	33.1%
	(0.027)	(8.7)	(0.029)	(9.2)	(0.030)	(8.9)	(0.030)	(8.6)
Early marriage			0.006	1.6%	0.005	1.2%	0.006	1.6%
			(0.013)	(3.4)	(0.011)	(2.9)	(0.011)	(2.8)
Labor market attachment, ages 22-25			-0.007	-1.9%	-0.010	-2.6%	-0.009	-2.4%
			(0.009)	(2.4)	(0.009)	(2.3)	(0.008)	(2.3)
Labor market attachment, ages 26-29					0.018	4.6%	0.017	4.4%
					(0.015)	(3.6)	(0.015)	(3.7)
Marriage and health at 30					0.002	0.5%	0.003	0.8%
					(0.008)	(2.1)	(0.008)	(2.1)
Occupation at 30					0.035	9.1%	0.022	5.7%
					(0.016)	(4.1)	(0.016)	(4.2)
Occupation age 34							0.031	8.0%
							(0.020)	(5.1)
Missing value dummies	0.000	0.1%	-0.003	-0.8%	0.011	2.8%	0.013	3.5%
	(0.003)	(0.8)	(0.008)	(2.1)	(0.013)	(3.5)	(0.15)	(3.9)
Pathway Component of β	0.185	48.1%	0.190	49.3%	0.191	49.7%	0.197	51.2%
	(0.027)	(8.7)	(0.266)	(8.8)	(0.035)	(8.7)	(0.036)	(8.7)
Non-pathway Component of β	0.199	51.8%	0.198	51.5%	0.183	47.5%	0.175	45.4%
	(0.056)	(8.8)	(0.057)	(9.0)	(0.052)	(9.7)	(0.053)	(9.8)
Total β	0.385		0.385		0.385		0.385	

Appendix D2: Great Britain with Aggregated Occupational Codes

	(1)		(2)		(3)		(4)	
	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β	Part of Total β	Percent of Total β
Explained Components of Total β								
Education	0.086	29.3%	0.090	30.5%	0.055	18.7%	0.044	15.0%
	(0.006)	(2.4)	(0.007)	(2.5)	(0.005)	(1.99)	(0.005)	(1.8)
Early marriage			-0.001	-0.4%	-0.001	-0.2%	-0.000	-0.1%
			(0.001)	(0.3)	(0.001)	(0.3)	(0.001)	(0.2)
Labor market attachment, ages 22-25			0.011	3.7%	0.006	2.1%	0.007	2.2%
			(0.004)	(1.3)	(0.003)	(0.9)	(0.003)	(0.9)
Labor market attachment, ages 26-29					0.009	3.1%	0.009	2.9%
					(0.003)	(1.1)	(0.003)	(1.0)
Marriage and health at 30					0.004	1.3%	0.004	1.2%
					(0.002)	(0.6)	(0.002)	(0.6)
Occupation at 30					0.054	18.4%	0.037	12.7%
					(0.005)	(1.7)	(0.004)	(1.6)
Occupation age 34							0.041	13.9%
							(0.005)	(1.6)
Missing value dummies	0.001	0.4%	0.002	0.8%	0.002	0.8%	0.003	1.1%
	(0.001)	(0.4)	(0.002)	(0.5)	(0.001)	(0.5)	(0.002)	(0.5)
Pathway Component of β	0.086	29.3%	0.100	33.8%	0.128	43.4%	0.141	47.7%
	(0.006)	(2.4)	(0.007)	(2.6)	(0.009)	(2.8)	(0.009)	(2.9)
Non-pathway Component of β	0.207	70.3%	0.193	65.3%	0.164	55.9%	0.151	51.2%
	(0.017)	(2.3)	(0.017)	(2.6)	(0.015)	(2.8)	(0.015)	(2.9)
Total β	0.295		0.295		0.294		0.294	

Appendix E: Robustness Check on Great Britain Education Measure

	Parental Income Influence on Factor (λ)		Return to Factor (γ)		Percent Variation Explained	
Alternative education measures	Men	Women	Men	Women	Men	Women
Low academic qualifications (below O level)	.084 (.009)	.083 (.010)	.001 (.051)	-.090 (.074)	0.24%	-2.02%
Low vocational qualifications (below O level equiv)	.109 (.010)	.102 (.011)	.092 (.056)	.174 (.080)	3.38%	4.80%
Vocational qualification (O level equiv)	.121 (.012)	.128 (.013)	-.019 (.041)	-.163 (.062)	-0.80%	-5.67%
O level qualification	.159 (.014)	.158 (.014)	.077 (.028)	.234 (.047)	4.16%	10.08%
Post-school level vocational qualification	.211 (.016)	.223 (.017)	.049 (.027)	.161 (.048)	3.54%	9.75%
A level	.225 (.016)	.227 (.016)	.071 (.034)	.059 (.056)	5.45%	3.66%
Degree level vocational qualification	.200 (.015)	.220 (.016)	-.005 (.033)	.139 (.048)	-0.32%	8.30%
Degree	.194 (.013)	.214 (.014)	.229 (.025)	.341 (.037)	15.06%	19.87%
Education total					**30.76%**	**48.77%**