Does Income Inequality in Early Childhood Predict Self-Reported Health In Adulthood? A Cross-National Comparison of the United States and Great Britain

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Abstract

In Lillard et al. (2015) we used Cross-National Equivalent File (CNEF) data from the United States to investigate the association between adults' health and the income inequality they experienced as children up to 80 years earlier. Here, we use CNEF data to compare this association in the U.S. and Great Britain, two countries with similar inequality trends over the last century. Our inequality data track shares of national income held by top income percentiles from the early 20th century. We average those data over the same early-life years and merge them to individual data from the CNEF data for all years between 1991 and 2007 available in both countries' data sets. We find that men and women in the U.S. and Great Britain are more likely to report being in worse health as adults if inequality was higher in their first five years of life. However, in the U.S. this finding is robust to controls for demographic characteristics as well as measures of permanent income and early-life socio-economic status. In contrast, in the British sample the association is far less robust to the inclusion of these controls.

1. Introduction

Social scientists have long focused on how health varies with income inequality within and across countries. Establishing this relationship matters for tax and redistribution policies and, more generally, for social welfare and public health policies. While a sizeable literature relates health outcomes to income inequality, this evidence is mixed and varies across countries (e.g. Deaton, 2003, 2013; Wilkinson and Pickett, 2006, 2015; Kondo et al., 2009, 2012).

In Lillard et al. (2015) we focus on a subset of this literature linking adults' current health to early-life events. While most studies relating current health to past inequality measure inequality in a past calendar year (or an average of past calendar years), in our analysis of the United States, each adult is "treated" with inequality at his or her same past chronological age. That is, we use U.S. data to investigate whether an adult's current health systematically varies with exposure to inequality when that person was young. While we do not develop an economic model linking later-life health to early-life inequality, we follow a series of empirical studies that suggest that early-life conditions play a role. To do so, we take advantage of Panel Study of Income Dynamics (PSID) data on self-reported adult health outcomes which we link to data on the share of income held by the richest U.S. tax units to measure income inequality at early ages. We find that men and women in the U.S. are more likely to report being in worse health as adults if inequality was higher in their first five years of life.

Here, we compare this association in the U.S. and Great Britain, two countries with similar inequality trends over the last century. Using the same years of data from the PSID and the British Household Panel Survey (BHPS) we find significant differences in this regard. We extend our earlier work using the PSID for the U.S. by exploiting similar self-reported health data for the same years in the BHPS from 1991 to 2007, and linking these country data sets with data beginning in 1913 that consistently track the share of taxable income held by the top 1 percent of tax units in the U.S. (Piketty and Saez 2003, updated) and Great Britain (Atkinson 2005, updated). We use these data to specify models that incorporate empirical evidence about the link between adults' current health and early-life conditions. In contrast to the survey-based income inequality data used in existing studies, our long tax-based time series allow us to relate adults' current health over long periods of their lives, including at very old ages, to the share of taxable income held by top income groups during critical and very early periods of each individual's life. With these data, we explore whether the current health of adults varies systematically and independently with income inequality experienced at lags of up to 80 years in both countries.

We focus on early-life exposure to inequality because evidence suggests it may matter. Early-life inequality may directly affect the level and mix of resources people have to produce health. It may

also proxy for conditions people faced in early childhood that affect health. For evidence on links between later-life health and mortality and health conditions experienced in childhood, see Elo and Preston, 1992; Hayward and Gorman, 2004; and Case et al., 2005. See Duncan et al. (2010, 2013) for evidence on links between adult achievement, employment and health and childhood poverty. For evidence that productivity of medical resources will plausibly vary according to when a person receives those inputs, see Currie & Rossin-Slater, 2015 and Wüst, 2012.

A small literature suggests some mechanisms that might generate a connection between adult health and income inequality experienced in early life. For example, Araujo et al. (2008) and Deaton (2013) suggest that income inequality is associated with the allocation of public goods related to health, such as immunizations and the provision of subsidized medical care. This line of reasoning suggests that children, especially those in families with few resources, will get fewer health inputs if they grow up during periods of greater income inequality. In principle, these mechanisms can operate in response to local or national income inequality.

Our analysis informs these literatures with new empirical evidence comparing differences between the U.S. and Great Britain (for the same years) in the relationship between self-reported health and income inequality measured over the same early-life period—from birth to age 4—for every person.

While we find that the self-reported health of men and women as adults is negatively associated with their current age, and positively associated with their permanent income and the socio-economic resources of their parents when they were young (as measured by parents' education in the U.S. and occupation in Great Britain), we find quite different relationships between the self-reported health of U.S. and British adults with respect to the inequality they experienced when they were 0 to 4 years old.

In the U.S. and Great Britain men and women are more likely to report being in worse health as adults if inequality was higher in their first five years of life. However, in the U.S. these associations are robust to controls for demographics, current and past economic status, and time trends. In contrast, in the British sample the association is far less robust to the inclusion of these controls. These different country findings with respect to the robustness of our inequality measure at ages 0-4 continue even when we treat the two countries as separate case studies and use all available years of data for each country.

2. Data

We use data from the United States Panel Study of Income Dynamics (PSID) and the British Household Panel Study (BHPS) samples of the Cross-National Equivalent Files (CNEF). The CNEF reworks data from each of these surveys so they are comparable across countries.[1] From each wave of these surveys we draw data on self-reported health, post-government household size-adjusted income, age, sex, parents' educational attainment (PSID only), and parents' occupation (BHPS only). The household income measure is a measure that CNEF labels "post-government" income because it adds government transfer income to gross household (market) income and subtracts income taxes. We adjust post-government household income for household size assuming a scale elasticity of 0.5. In both samples, we exclude respondents age 20 or younger in the year they report their health status.

The CNEF data are, in many ways, ideal for this analysis because each survey follows individuals from the year they first participate until they die or attrit from the sample. In the PSID, the family head (or a designated proxy) reports data for all family members. The BHPS interviews all adult household members (aged 16 and above). Both surveys follow and interview children when they leave their home to establish their own families. From 1968 to 1997, the PSID administered the survey annually. Since 1997, the PSID fields its survey biennially. The BHPS has been administered annually since 1991.

We restrict our US sample to U.S.-born respondents who belong to the PSID's Survey Research Center (SRC) sample. We include all SRC respondents in the original households and all members of those households (and their spouses) who participated in any PSID survey from 1984 to 2009. From this sample, we retain respondents with valid information on self-reported health and our control variables.[2] We construct our control variables using data from the 1970-2009 surveys, include each person's contemporaneous household size and income as well as that person's retrospectively reported information on the education of his or her mother and father.

We restrict our Great Britain sample to British-born respondents who belong to the original BHPS sample and all their descendants who participated in the BHPS. We limit this sample to respondents for whom we observe valid data in any of the 1991-2009 surveys.

[1] For more details see Burkhauser et al. (2001); Frick et al. (2007); Burkhauser and Lillard (2005, 2007) and http://cnef.ehe.osu.edu/

[2] Lillard et al. (2015) report that the estimated correlation between inequality and health does not vary when one includes or excludes PSID respondents in the Survey of Economic Opportunity and Latino subsamples.

However, because the purpose of this paper is to compare outcomes in the U.S. with outcomes in Great Britain, in the body of the paper we report findings from subsamples of these two data sets, comprising the years between 1991 and 2007 when both the PSID and the BHPS surveyed their populations. This includes all years from 1991-1996 and every other year from 1997 through 2007 (except 1999). We begin with 1991 because that is the first wave of the BHPS. We drop BHPS data from 1999, 2000, 2002, 2004, and 2006 because the PSID did not administer surveys in those years. We drop 1999 in both the PSID and BHPS because the BHPS asked questions about health in 1999 that substantially differ from the set they ask in other years. To characterize income inequality, we use the top income data series from 1913 to 2009 from Piketty-Saez (2003, updated) for the U.S. and Atkinson et al. (2011) for the UK. We next describe these data.[3]

2.1 Dependent variable

Our dependent variable measures each adult's health. While both the PSID and the BHPS include a question that captures self-reported health in multiple waves of their data, the stem of the question used is not exactly the same nor are the allowed responses.[4]

On the 1984-2009 surveys, the PSID asks respondents to rate their own and their spouse's current health using the following stem:

> *Would you say your (or wife's/husband's/friend's) health in general is…*

On the 1991-2009 surveys, the BHPS asks every adult sample member to rate their own health in every year from 1991 to 2009 using the following stem:

> *Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been…*

Both surveys restrict reported health to one of five Likert-scale categories, although the category descriptors are somewhat different. For the PSID, the categories are 'Excellent',' Very Good', 'Good', 'Fair' and 'Poor', while in the BHPS the categories are 'Excellent', 'Good', 'Fair', 'Poor' and 'Very poor'. To analyse this variable, we estimate ordered probit models of the probability that a person reports being in each one of the five categories.

A common problem for cross-national studies arises when questions are worded differently, even when surveys are written in English. However, studies establish that self-reported health correlates

[3] A Data Appendix with more details is available on request.

[4] Because the PSID only interviews the head of the family while the BHPS interviews every member of the family aged 16 and over, in all cases in the PSID heads provide a self-report on their own health and the health of their spouse.

well with measured health, see Idler and Benyamini, 1997; Jürges et al., 2008; Miilunpalo et al. 1997; Sacker et al. 2007; van Doorslaer & Jones, 2003).

Table 1 reports the distribution of men's and women's current health status across the five health status categories drawn from our PSID and BHPS subsamples. In both countries, the lowest two health categories are the least reported and the fourth category is the most reported. Women are also underrepresented in the higher health categories in both countries. However, U.S. men and women are more likely to report being in the bottom three categories and less likely to report being in the top two categories than their British counterparts.

Table 1: Distribution of self-reported current health status—Native-born adults aged 21 and older (%)

U.S.			Great Britain		
Current Health Status	Men	Women	Current Health Status	Men	Women
Poor (1)	3.12	3.17	Very Poor (1)	1.71	2.11
Fair (2)	8.15	9.32	Poor (2)	5.87	7.49
Good (3)	24.98	28.20	Fair (3)	19.00	21.24
Very good (4)	36.17	36.60	Good (4)	46.94	47.65
Excellent (5)	27.58	22.70	Excellent (5)	26.48	21.50
N (person-years)	36,522	41,238	N (person-years)	38,329	44,101

Sources: Same-years subsamples of PSID (1991-2007) and BHPS (1991-2007).
Notes: Numbers in parentheses refer to coding of variable.

2.2 Income inequality

We take advantage of a relatively new measure of income inequality that is based on administrative tax records. Such data are available for 28 countries, including the U.S and Great Britain, and researchers have used these data to measure the share of all reported income held by various percentiles of tax units. As with any such data there are breaks in each country's top income data over time and differences in the types of taxable income that are taxed and the tax units across countries. For instance, the U.S. tax unit is the family. For Great Britain, the tax unit varies over time. From 1913 to 1989 taxes are measured for families. In 1990 and all subsequent years, Great Britain's tax unit is the person.

In the U.S. we can measure income inequality as either the share of taxable income held by the top 1 percent (with or without capital gains) or the top 0.1 percent (with or without capital gains) of all tax units. In Lillard et al. (2015) we show that our results are not sensitive to either our choice of top income group or the inclusion or exclusion of capital gains. There are fewer top income data options for Great Britain, and even the data series that do exist do not have values for every year. Here we focus solely on the top 1 percent series without capital gains in both countries. We impute income share values in some years for Great Britain because the data are missing. To impute, we use a

simple average and straight-line interpolation between bracketing years for which values are available.[5]

For reviews of the top income data and the literatures using these data, see Atkinson et al. (2011) and Alvaredo et al. (2013). The World Top Income Database can be accessed at: http://topincomes.parisschoolofeconomics.eu/. We average top income shares over birth year to age 4, where we compute birth year as survey year minus age.

As a measure of income inequality, the tax record data are imperfect. The share of taxable income held by a given percentile varies with who is taxed and the data are not adjusted for tax evasion and tax avoidance. Further, because the data measure national income inequality, it only varies temporally and may reflect trends in other factors that temporally vary, such as changes in medical technology. While it might be preferable to use other measures of inequality, such as the Gini coefficient, these measures cannot be constructed with the tax record data.

Overall, these shortcomings are more than counter-balanced by three attractive features of tax record data. First, the administrative data measure income for samples that, over time, are more consistent in whom they include than other data sets—because the data include all taxes paid and all tax-paying units. Second, the data cover more years than other time series researchers commonly use. For example, researchers often use CPS data to construct Gini coefficients for the U.S., but data on incomes of families of two or more are only available for the period 1947-present and data on incomes of consistently defined households are available only from 1967 (www.census.gov/hhes/www/income/data/historical/inequality/). Third, because the top income share data cover so many years, we can produce averages of inequality over various years. This feature helps to mitigate problems that might arise from associations between health and specific historical events (e.g. World War II). Finally, the measure correlates well with a country's Gini coefficient (Leigh, 2007).

Figure 1 reports a rolling five-year average of top income share levels in each year from 1913 to 2009. For both the U.S. and Great Britain, they form a U-shaped pattern—dramatic declines over the first part of the 20th century, a levelling off in the second half of the century after WWII, then increases, especially between the 1980s and the start of the Great Recession in 2007. While our five-year average smooths some variation away, plenty remains.

[5] A detailed discussion of the imputation procedure is available in the Data Appendix that is available on request.

Figure 1: Share of taxable income held by top 1 percent of tax units, U.S. and Great Britain,1913-2008

Source: Top 1 percent income series without taxable realized capital gains from Piketty and Saez (2003, updated) and Atkinson (2005, updated). Authors' calculations of mean annual value of top 1 percent share over first five years of life of those born in years between 1913 and 2006.

2.3 Other control variables

We control for sex, age, race, time, "permanent" income, and parents' education (U.S.) or occupation (Great Britain). We estimate separate models for men and women. To control for age,

we define and categorize each respondent into one of 13 five-year age categories from age 21 to age 80 and older in the current year. We exclude 20-year-olds from the first group so it only includes people age 21-24. The omitted category includes everyone aged 80 and older.

We control for time because, even though our sample period is short, medical technology changed substantially over the periods examined. We specify models with a linear trend, a quadratic trend, and indicator variables for survey years in the 1990s (relative to surveys from 2000 to 2007) in our same-years subsample and in the 1980s and 1990s in our full PSID sample.

We construct a measure of real "permanent" family income. We use the "post-government" income measure from the Cross-National Equivalent File version of the PSID and BHPS. That measure starts with gross family income from all private sources, adds government transfer income, and subtracts estimated income taxes (based on NBER's tax simulation model for the U.S. and a similar University of Essex tax simulation model for Great Britain).(For details and data see: http://cnef.ehe.osu.edu/). We adjust for inflation and divide by the square root of the number of family members in that year. Then we average observed income over all years from the first year we observe it (1970 for the U.S.; 1991 for Great Britain), up to and including the year prior to the year a person reports his or her health status. We exclude income in the most recent year to avoid changes in income that result from changes in health. Because the number of valid observations differs across people, we separately control for the number of years over which we average income. We also create a dummy variable for persons that have zero, negative or missing permanent incomes.

We use available data to control for childhood socio-economic status that may directly or indirectly determine childhood health. We control for mother's and father's education in the U.S. sample and mother's and father's occupation in the British sample. Few existing studies on lagged income inequality and health do so.

For the PSID sample we include two indicators to identify respondents whose fathers completed a college degree or more and fathers who either completed high school or high school plus some vocational education (the reference category is respondents whose fathers did not complete high school). We similarly create two indicators for mothers' education. For the BHPS sample, we create an indicator for respondents whose father worked in a managerial or professional occupation and respondents whose father worked in some other skilled occupation when the respondent was aged 14 years. Here the reference group is respondents whose father worked in a non-skilled occupation or who did not report an occupation for his father. We similarly create two indicators for mothers' occupation.

While we have data on parents' education for most of our U.S. sample, we do not have data on parents' occupations for a significant and selected subset of our Great Britain sample. In the BHPS, information on parents' occupation only began to be collected in 1998. Hence, this information is missing for persons no longer in the sample in 1998. To retain the integrity of our sample we keep these individuals in the estimation sample, but control for missing values in parents' occupation with a dummy variable. We also control for missing values in parents' education in the U.S. sample.[6]

2.4 Sample selection and descriptive statistics

We restrict our sample to native-born adult men and women who are 21 years or older in the year that they report their health and who have complete data on our control variables. Our selection rule drops individuals born before 1913 because 1913 is the first year in which our top income share time series is available in both countries. Although the PSID and BHPS are panel data, we treat the data as pooled cross-sectional measures of health. Some people contribute multiple observations. That fact will matter because our measure of top-income shares varies only by birth year. To control for systematic differences in health of people who appear multiple times, we cluster standard errors for all people born in the same calendar year. Our results are robust when we do not cluster standard errors by birth year. (See the Appendix for more details on this and other robustness checks.)

Table 2 reports the distribution of our observations by 10-year birth cohort and age group for both men and women for our same-years subsamples of the U.S. and Great Britain. In each age range, we observe the current health of up to three cohorts, each of which likely experienced different levels of inequality as children.

Table 3 reports the means of the independent variables for each of our subsample. On average, early-life income inequality is lower than average contemporaneous inequality in both countries. This difference reflects the fact that top income shares were relatively low over the 1940s to 1970s in both the U.S. and Great Britain. The sample is distributed fairly evenly across a wide range of five-year age groups between 25 and 54 but is less evenly distributed in the younger and older age groups. In both the U.S. and British samples, the average man and the average woman have similar values of all other covariates.

[6] As a check on the robustness of our results, we estimated each of our main models excluding observations with missing values for parents' education in the U.S. and parents' occupation in Great Britain. Our findings are not qualitatively different.

Table 2: Distribution of same-years subsamples by age group and birth cohort (%)

	Age group							
	21-29	30-39	40-49	50-59	60-69	70-79	80+	All ages
U.S.								
Men								
Born 1913-1919						1.3	0.8	2.1
Born 1920-1929					3.2	3.7	0.7	7.6
Born 1930-1939				2.8	4.4	1.1		8.3
Born 1940-1949			7.2	8.6	2.1			17.9
Born 1950-1959		9.1	13.9	4.1				27.1
Born 1960-1969	5.6	12.6	4.3					22.5
Born 1970-1979	7.7	4.8						12.5
Born 1980-1986	2.1							2.1
All cohorts	15.3	26.5	25.4	15.6	9.6	6.1	1.5	100.0
Women								
Born 1913-1919						1.8	1.3	3.1
Born 1920-1929					3.2	4.1	0.9	8.2
Born 1930-1939				2.8	4.5	1.3		8.5
Born 1940-1949			6.1	7.3	1.9			15.4
Born 1950-1959		8.6	13.8	4.3				26.6
Born 1960-1969	5.7	12.6	4.4					22.7
Born 1970-1979	8.4	4.4						12.8
Born 1980-1986	2.8							2.8
All cohorts	16.9	25.6	24.3	14.4	9.5	7.2	2.2	100.0
Great Britain								
Men								
Born 1913-1919						2.0	1.0	3.0
Born 1920-1929					4.2	5.0	1.0	10.2
Born 1930-1939				4.5	5.6	1.6		11.8
Born 1940-1949			7.1	8.6	2.3			18.0
Born 1950-1959		7.3	9.5	2.8				19.6
Born 1960-1969	7.5	11.8	3.7					23.0
Born 1970-1979	9.1	3.4						12.5
Born 1980-1986	2.0							2.0
All cohorts	18.6	22.5	20.4	15.8	12.2	8.6	2.0	100.0
Women								
Born 1913-1919						2.6	1.6	4.3
Born 1920-1929					4.2	5.8	1.3	11.4
Born 1930-1939				4.2	5.7	1.6		11.5
Born 1940-1949			6.9	8.4	2.3			17.6
Born 1950-1959		6.7	9.3	2.7				18.7
Born 1960-1969	7.6	11.6	3.7					22.9
Born 1970-1979	8.5	3.2						11.7
Born 1980-1986	2.0							2.0
All cohorts	18.0	21.5	19.9	15.3	12.2	10.1	3.0	100.0

Sources: Same-years subsamples of PSID (1991-2007) and BHPS (1991-2007).

Note: Blank cells are zeros. The total number of person-year observations is 36,522 for U.S. males, 41,238 for U.S. females, 38,329 for British males and 44,101 for British females. Individuals can appear more than once. In the U.S. samples, on average each of the 5,678 unique males and 6,050 unique females appears 6.4 and 6.8 times, respectively. In the British samples, on average each of the 6,129 unique males and 6,542 unique females appears 6.3 and 6.7 times, respectively.

Table 3: Mean values of variables in same-years subsamples

	U.S.		Great Britain	
Variable	Men	Women	Men	Women
Income share of top 1% of tax units				
Current year as adult	14.75 (1.93) [b]	14.75 (1.93) [b]	11.75 (1.61) [b]	11.77 (1.63) [b]
Mean value for years from birth to age 4	10.40 (3.06)	10.48 (3.15)	11.27 (4.39)	11.54 (4.57)
Log of permanent family income [a]	10.41 (0.60)	10.32 (0.62)	9.22 (1.72)	8.97 (2.10)
Years used in permanent income measure	5.71 (3.45)	5.82 (3.46)	4.98 (3.33)	4.92 (3.36)
Age Groups				
21-24	0.04	0.06	0.08	0.07
25-29	0.11	0.11	0.10	0.11
30-34	0.13	0.13	0.12	0.11
35-39	0.14	0.13	0.11	0.10
40-44	0.13	0.13	0.10	0.10
45-49	0.12	0.11	0.10	0.10
50-54	0.09	0.08	0.09	0.08
55-59	0.07	0.06	0.07	0.07
60-64	0.05	0.05	0.06	0.06
65-69	0.05	0.05	0.06	0.06
70-74	0.04	0.04	0.05	0.06
75-79	0.03	0.03	0.03	0.04
80 and older	0.02	0.02	0.02	0.03
Race				
White	0.90	0.89	0.988	0.988
Black	0.06	0.08	0.004	0.006
Other	0.04	0.04	0.008	0.006
Parents' education				
Father: BA degree or more	0.17	0.17		
Father: High school degree	0.42	0.42		
Father: Less than high school degree	0.41	0.41		
Mother: BA degree or more	0.12	0.12		
Mother: High school degree	0.56	0.53		
Mother: Less than high school degree	0.32	0.35		
Parents' occupation				
Father: Professional, managerial, technical			0.21	0.21
Father: Skilled and semi-skilled			0.56	0.56
Father: Other or no occupation			0.23	0.23
Mother: Professional, managerial, technical			0.09	0.10
Mother: Skilled and semi-skilled			0.28	0.29
Mother: Other or no occupation			0.63	0.61
N (person-years)	36,522	41,238	38,329	44,101
N (persons)	5,678	6,050	6,129	6,542

Sources: Same-years subsamples of PSID (1991-2007) and BHPS (1991-2007).
Notes: [a] A person's permanent family income is the family size-adjusted post-tax post-government transfer income averaged over all years from a person's first year up to 1 year before a person reported his/her health status. We use the estimates of yearly family income in the CNEF data. Our yearly income values are adjusted for inflation to 2011 dollars.

Table 4 isolates the sample of respondents who report being in the lowest two health categories—"Poor" and "Fair" for the U.S. and "Very Poor" and "Poor" for Great Britain. It presents the proportion reporting these low health values for cells defined by birth cohort and age group. Comparing cells in the same row allows us to see how the share of persons in each birth cohort who report lower health values changes as the cohort ages. Comparing cells in the same column allows us

to see how the share of persons who report lower health values in each age group differs across birth cohorts – that is, compare the prevalence of low health values across cohorts when at the same ages. Note that the specific ages that can mathematically be captured within each of our age groups will vary depending on the birth cohort we are considering. For example, for those born in the 1960s, the youngest age at which they are observed (in 1991) is 22, and the oldest age (in 2007) is 47. Hence to more consistently measure the cohort effect down the various age group columns, we only include persons whose age is within the age range which can be mathematically captured in all the relevant cohorts for that age group. Thus, the 21-29 column includes only persons aged 22-27, the 30-39 column includes only those aged 32-37, and so on.[7]

The pattern of differences in the level of lowest two health categories reported in the U.S. and Great Britain by age is not surprising since the stem of the U.S. question asks respondents to rate their health without qualifications while the stem of the British question asks them to rate their health "compared to people of your own age". The age-conditioned responses in Great Britain result in higher reported health problems in the youngest age category relative to the unconditional U.S. responses and progressively lower responses relative to the U.S. at older ages. Nonetheless, it is reassuring that the percentage reporting worse health increases at older ages in both countries, despite the country differences in stem question and descriptors in their five-category Likert-scale. Holding age constant, the pattern is less clear. In the U.S. for the cohorts of older men and most of the cohorts of older women (those aged 50 and older), the prevalence of poor health is lower for more recent birth cohorts. In Britain, the pattern is less clear.

[7] However, we in fact find that inclusion of all people observed in each age-cohort cell does not qualitatively affect the results.

Table 4: Percentage ranking their health in the lowest two health categories, by age and birth cohort[a]

	Age group[b]							
	21-29	30-39	40-49	50-59	60-69	70-79	80+	All ages
U.S.								
Men								
Born 1913-1919						38.2	44.5	40.9
Born 1920-1929					21.0	31.8	38.9	28.5
Born 1930-1939				18.5	22.1	32.1		22.0
Born 1940-1949			8.9	13.9	17.6			12.2
Born 1950-1959		5.2	8.5	12.0				7.9
Born 1960-1969	3.4	4.6	8.8					5.1
Born 1970-1979	4.0	6.0						4.7
Born 1980-1986	3.3							3.3
All cohorts	3.7	5.1	8.7	14.3	20.9	33.4	41.6	11.1
Women								
Born 1913-1919						35.2	41.0	38.0
Born 1920-1929					24.7	31.1	43.2	30.8
Born 1930-1939				19.3	23.5	34.3		23.6
Born 1940-1949			9.3	15.7	19.6			13.5
Born 1950-1959		6.3	10.3	16.2				9.9
Born 1960-1969	3.7	5.4	9.4					5.7
Born 1970-1979	5.6	7.7						6.3
Born 1980-1986	5.2							5.2
All cohorts	5.0	6.1	9.9	16.6	23.3	32.7	42.0	12.8
Great Britain								
Men								
Born 1913-1919						13.0	13.8	13.3
Born 1920-1929					9.5	12.2	15.7	11.6
Born 1930-1939				8.4	11.5	11.8		10.3
Born 1940-1949			6.2	10.1	9.9			8.5
Born 1950-1959		4.4	8.4	10.0				7.1
Born 1960-1969	4.0	5.0	5.2					4.7
Born 1970-1979	4.7	4.8						4.7
Born 1980-1986	4.3							4.3
All cohorts	4.4	4.8	7.0	9.6	10.5	12.4	14.8	7.5
Women								
Born 1913-1919						19.1	19.3	19.2
Born 1920-1929					10.5	13.8	19.9	13.8
Born 1930-1939				12.1	10.3	13.4		11.4
Born 1940-1949			9.1	11.1	11.1			10.3
Born 1950-1959		6.5	9.0	11.3				8.4
Born 1960-1969	6.3	8.2	10.8					8.0
Born 1970-1979	6.3	7.9						6.7
Born 1980-1986	5.7							5.7
All cohorts	6.2	7.6	9.4	11.4	10.5	15.2	19.6	9.9

Sources: Same-years subsamples of the PSID (1991-2007) and BHPS (1991-2007).
Notes: [a] The two lowest categories for the U.S. are 'poor' or 'fair' health. For Great Britain they are 'very poor' or 'poor' health. [b] The actual ages considered within the age groups have been made consistent across birth cohorts. The actual age groups are 22-27, 32-37, 42-47, 52-57, 62-67, 72-77 and 80-87. The row and column totals only include these ages.

3. Empirical strategy

Our data vary across adults (i) who belong to one of 75 birth cohorts (c) and who report their health in successive calendar years (t). Our self-reported health data, h_{ict}, represent the continuously distributed underlying state of true health, h_{ict}^{*}, in five categories ranging from poor ($h_{ict} = 1$) to excellent ($h_{ict} = 5$). We therefore estimate ordered probit models of self-reported health as a

function of early-life income inequality, $\hat{I}_c$, as well as various controls, Z_{it}. Thus, the probability individual *i* belonging to cohort *c* in year *t* is observed in health state *j* is modelled as:

$$P\left(h^*_{ict} = h_{ict}(j)\right) = Pr(\mu_{j-1} < \gamma_1 \hat{I_c} + \beta Z_{ict} + \epsilon_{ict} \leq \mu_j) \quad (1)$$

where: ϵ_{ict} is a normally distributed error term with mean zero that captures stochastic, individual-specific shocks to health in each period.

We order health categories from poor/very poor (1) to excellent (5). Consequently, if γ_1 statistically differs from zero, we can reject the hypothesis that an adult's current health does not vary with early-life income inequality (holding constant all factors in Z). If γ_1 is negative and statistically differs from zero, we can reject the hypothesis that an adult is not more likely to report being in poorer health when income inequality was greater during early-life. In an Appendix, we also predict the marginal change in the probability of reporting each health category for a 1 percent change in the top percentile income share.

Depending on the specification, the vector Z_{it} includes age group indicators, race indicators, permanent family income, parental education, parental occupation, contemporaneous income inequality as an adult, and a time trend. We estimate a series of models that successively add controls to explore how the association between current adult health and early-life income inequality varies.

Model 1 includes only the top income share averaged over ages 0 to 4. Model 2 adds a quadratic time trend. Model 3 additionally controls for age using our age-group categories and race using our indicator variables—'black' and 'other', with 'white' as the excluded category. Model 4 additionally controls for permanent income, and Model 5 adds controls for father's and mother's education (U.S.) or parents' occupation (Great Britain).[8]

We estimate other models to test whether health is more strongly associated with income inequality averaged over the first 10- and 20-years of each person's life. As a robustness check, we also estimate models with income shares of the top 0.1 percent instead of the top 1 percent.

In all our analyses, we cluster standard errors by birth year because the average of income shares experienced in early-life years is the same for all individuals born in the same-years and because many adults contribute multiple observations. We do not use sample weights. Results do not qualitatively change when we use sample weights or when we do not cluster the standard errors.

[8] The PSID contains information on parental occupation, but the occupational classification system differs from that for the BHPS and, moreover, changes over time.

4. Results

4.1 Main specifications

Table 5 reports results for U.S. men. Since our health measure varies from 1 for poor to 5 for excellent health, the negative and statistically significant at the 1 percent level association between our early-life income inequality variable in Model 1 shows that U. S. men are less likely to report being in better health as adults if income inequality was higher in their first five years of life. When we control for time in Model 2, the association between current health and early-life income inequality is almost unchanged (or even slightly larger) and still significant at the 1 percent level. When we control for age and race in Model 3, the coefficient on early-life income inequality remains significant at the 5 percent level but its absolute value falls by 80 percent. The absolute value of the coefficient rises when we control for permanent income in Model 4 but falls again in Model 5 when we control for parental education (which partially control for individual differences in economic resources available in early life). Adult men are more likely to report being in better health as adults if they are younger, white, have greater permanent income, and grew up with better educated parents.

Table 6 reports results for U.S. women. Results for women are similar to those of U.S. men. In all five models, women are less likely to report being in better health as adults when they experienced higher average income inequality when aged 0-4. This association statistically differs from zero at the 1 percent significance level in the first four models and at the 5 percent level in Model 5. Adult women are also more likely to report being in better health if they are younger, white, have greater permanent income, and grew up with better educated parents.

Hence across all our specifications we find a robust, statistically significant negative relationship between better self-reported health U.S. men (Table 5) and U.S. women (Table 6) as adults and their experiencing greater levels of income inequality in early-life.

Tables 7 and 8 respectively report results for British men and women. As in the U.S., in Model 1 the result reveals a negative and statistically significant, at the 1 percent level, association between better self-reported health for adult British men and their experiencing greater levels of income inequality in early-life. This result does not change when we control for time in Model 2. However, adding controls for age and race in Model 3 causes the absolute value of the coefficient early-life inequality variable to fall by 73 percent and the standard error increases so the association is not statistically different from zero at the 10 percent level. Adding economic controls for permanent income (Model 4) and parents' occupations (Model 5) does not affect the estimated relationship.

British men are less likely to report being in worse health as adults if they are younger and have greater permanent income. Because we limit our sample to those adults born in Great Britain, 98.8 percent of our CNEF sample are coded as white, while only about 0.4 percent are coded as black and 0.8 percent as 'other'. Those coded as 'other' are significantly more likely to report poorer health at the 1 percent level. This is not the case for blacks, where the coefficient is not significantly different from whites. Men whose fathers worked in professional or managerial occupations are less likely, as adults, to report being in worse health.

We find similar results for British women. Results for women are similar to those of British men. In Models I and 2, British women are less likely to report being in better health as adults when they experienced higher average income inequality when aged 0-4. This association statistically differs from zero at the 1 percent significance level. However, adding controls for age and race in Model 3 causes the absolute value of the coefficient early-life inequality variable to fall by 80 percent and the standard error increases so the association is not statistically different from zero, at the 10 percent level. Adding economic controls for permanent income (Model 4) and parents' occupations (Model 5) does not affect the estimated relationship. Adult British women are also more likely to report being in better health if they are younger, have greater permanent income, and grew up with better educated parents.

The results using our same-years PSID-BHPS sample show that for both U.S. men and women reported health as an adult is related to inequality experienced when aged 0-4. This result is robust across all five models. We find evidence of a similar association for British men and women in models that estimate only the simple correlation. But the relationship is not robust to controls for demographic and economic factors. While the coefficient on the income inequality variable continues to be negative in these models, it does not statistically differ from zero at the ten percent level.

Table 5: Ordered probit coefficient estimates for U.S. men

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged 0-4	-0.1016***	-0.1064***	-0.0208**	-0.0334***	-0.0244**
	(0.0058)	(0.0061)	(0.0102)	(0.0103)	(0.0099)
Time trend		-0.0075	0.0894*	0.0829	0.0824
		(0.0598)	(0.0488)	(0.0536)	(0.0536)
Time trend squared		-0.0000	-0.0005*	-0.0005*	-0.0005*
		(0.0003)	(0.0002)	(0.0003)	(0.0003)
Age Groups (reference age: 80 years and older)					
21-24			1.1273***	1.2497***	1.1453***
			(0.0991)	(0.1071)	(0.1044)
25-29			1.1230***	1.1369***	1.0405***
			(0.1013)	(0.1074)	(0.1042)
30-34			1.0266***	0.9718***	0.8886***
			(0.1018)	(0.1064)	(0.1032)
35-39			0.9054***	0.8235***	0.7583***
			(0.0977)	(0.1011)	(0.0983)
40-44			0.8421***	0.7206***	0.6685***
			(0.0900)	(0.0941)	(0.0911)
45-49			0.7426***	0.5796***	0.5382***
			(0.0823)	(0.0875)	(0.0846)
50-54			0.6398***	0.4594***	0.4332***
			(0.0735)	(0.0772)	(0.0755)
55-59			0.5317***	0.3351***	0.3206***
			(0.0666)	(0.0691)	(0.0656)
60-64			0.4127***	0.2367***	0.2349***
			(0.0628)	(0.0685)	(0.0658)
65-69			0.3644***	0.2382***	0.2276***
			(0.0664)	(0.0694)	(0.0681)
70-74			0.1843***	0.1340**	0.1294**
			(0.0526)	(0.0570)	(0.0546)
75-79			0.0749	0.0369	0.0341
			(0.0604)	(0.0620)	(0.0633)
Race (reference: White)					
Black			-0.4215***	-0.2224***	-0.1793***
			(0.0512)	(0.0502)	(0.0510)
Other			-0.1714***	-0.0816*	-0.0394
			(0.0557)	(0.0486)	(0.0474)
Log of permanent family income				0.5790***	0.5181***
				(0.0228)	(0.0249)
Years used in permanent measure				0.0016	-0.0021
				(0.0052)	(0.0052)
Parents' Education (reference: Less than High School Degree)					
Father: BA degree or higher					0.1918***
					(0.0443)
Father: High school degree					0.1060***
					(0.0315)
Mother: BA degree or higher					0.2264***
					(0.0456)
Mother: High school degree					0.1302***
					(0.0302)
N (person-years)	36,522	36,522	36,522	36,522	36,522

Source: Same-years subsample of PSID (1991-2007).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents did not receive a high school degree. We do not drop observations because of missing values in the log of permanent family income or parental education but rather add three dummy variables that indicate missing values in these variables. The coefficients of these dummy variables are not shown here but are available in the appendix.

Table 6: Ordered probit coefficient estimates for U.S. women

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged 0-4	-0.1015***	-0.1071***	-0.0311***	-0.0320***	-0.0216**
	(0.0049)	(0.0051)	(0.0100)	(0.0104)	(0.0103)
Time trend		0.0383	0.1198**	0.1161**	0.1217**
		(0.0546)	(0.0472)	(0.0581)	(0.0571)
Time trend squared		-0.0003	-0.0006***	-0.0007**	-0.0007**
		(0.0003)	(0.0002)	(0.0003)	(0.0003)
Age Groups (reference age: 80 years and older)					
21-24			0.9923***	1.1016***	1.0020***
			(0.1060)	(0.1144)	(0.1158)
25-29			0.9767***	0.9763***	0.8884***
			(0.1079)	(0.1158)	(0.1172)
30-34			0.9405***	0.8925***	0.8208***
			(0.1034)	(0.1111)	(0.1127)
35-39			0.8609***	0.7715***	0.7184***
			(0.1007)	(0.1082)	(0.1104)
40-44			0.8138***	0.6834***	0.6448***
			(0.0962)	(0.1003)	(0.1030)
45-49			0.7146***	0.5366***	0.5090***
			(0.0885)	(0.0934)	(0.0968)
50-54			0.6234***	0.4055***	0.3985***
			(0.0830)	(0.0878)	(0.0921)
55-59			0.5562***	0.3312***	0.3276***
			(0.0746)	(0.0770)	(0.0814)
60-64			0.4489***	0.2420***	0.2439***
			(0.0829)	(0.0851)	(0.0885)
65-69			0.3255***	0.1744***	0.1732***
			(0.0628)	(0.0576)	(0.0634)
70-74			0.1914***	0.1102*	0.1124*
			(0.0654)	(0.0614)	(0.0672)
75-79			0.1159*	0.0825	0.0886
			(0.0670)	(0.0621)	(0.0638)
Race (reference: White)					
Black			-0.5935***	-0.3122***	-0.2689***
			(0.0511)	(0.0507)	(0.0500)
Other			-0.2142***	-0.1507**	-0.1079*
			(0.0674)	(0.0594)	(0.0578)
Log of permanent family income				0.5425***	0.4730***
				(0.0240)	(0.0232)
Years used in permanent measure				0.0068	0.0025
				(0.0056)	(0.0055)
Parents' Education (reference: Less than High School Degree)					
Father: BA degree or higher					0.2498***
					(0.0325)
Father: High school degree					0.1420***
					(0.0283)
Mother: BA degree or higher					0.2018***
					(0.0499)
Mother: High school degree					0.1644***
					(0.0313)
N (person-years)	41,238	41,238	41,238	41,238	41,238

Source: Same-years subsample of PSID (1991-2007).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents did not receive a high school degree. We do not drop observations because of missing values in the log of permanent family income or parental education but rather add three dummy variables that indicate missing values in these variables. The coefficients of these dummy variables are not shown here but are available in the appendix.

Table 7: Ordered probit coefficient estimates for British men

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged 0-4	-0.0406***	-0.0444***	-0.0120	-0.0088	-0.0084
	(0.0025)	(0.0025)	(0.0099)	(0.0102)	(0.0102)
Time trend		-0.2983***	-0.2726***	-0.3417***	-0.3350***
		(0.0490)	(0.0439)	(0.0473)	(0.0482)
Time trend squared		0.0014***	0.0013***	0.0016***	0.0016***
		(0.0002)	(0.0002)	(0.0002)	(0.0002)
Age Groups (reference age: 80 years and older)					
21-24			0.4465***	0.5025***	0.5118***
			(0.1524)	(0.1584)	(0.1571)
25-29			0.4876***	0.5125***	0.5220***
			(0.1467)	(0.1521)	(0.1509)
30-34			0.4780***	0.4974***	0.5051***
			(0.1402)	(0.1458)	(0.1448)
35-39			0.4333***	0.4461***	0.4551***
			(0.1340)	(0.1384)	(0.1368)
40-44			0.4322***	0.4377***	0.4479***
			(0.1277)	(0.1312)	(0.1301)
45-49			0.3686***	0.3517***	0.3632***
			(0.1165)	(0.1209)	(0.1199)
50-54			0.3245***	0.2871***	0.2990***
			(0.1026)	(0.1057)	(0.1054)
55-59			0.2165**	0.1738*	0.1860*
			(0.0946)	(0.0961)	(0.0955)
60-64			0.1797**	0.1646**	0.1750**
			(0.0787)	(0.0821)	(0.0810)
65-69			0.1518**	0.1563**	0.1638**
			(0.0672)	(0.0715)	(0.0716)
70-74			0.0772	0.0771	0.0829
			(0.0499)	(0.0525)	(0.0515)
75-79			0.0317	0.0398	0.0402
			(0.0328)	(0.0339)	(0.0336)
Race (reference: White)					
Black			-0.0339	0.0616	0.0625
			(0.1255)	(0.1398)	(0.1407)
Other			-0.1664***	-0.1731***	-0.1717***
			(0.0575)	(0.0629)	(0.0631)
Log of permanent family income				0.3749***	0.3571***
				(0.0224)	(0.0226)
Years used in permanent measure				0.0077**	0.0068*
				(0.0038)	(0.0040)
Parents' Occupation (reference: Other or no occupation)					
Father: Professional, managerial, technical					0.1219***
					(0.0377)
Father: Skilled and semi-skilled					-0.0135
					(0.0338)
Mother: Professional, managerial, technical					-0.0282
					(0.0429)
Mother: Skilled and semi-skilled					-0.0286
					(0.0285)
N (person-years)	38,329	38,329	38,329	38,329	38,329

Source: Same-years subsample of BHPS (1991-2007).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents had other or no occupation. We do not drop observations because of missing values in the log of permanent family income or parental occupation but rather add three dummy variables that indicate missing values in these variables. The coefficients of these dummy variables are not shown here but are available in the appendix.

Table 8: Ordered probit coefficient estimates for British women

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged 0-4	-0.0376***	-0.0407***	-0.0080	-0.0059	-0.0046
	(0.0023)	(0.0024)	(0.0080)	(0.0088)	(0.0086)
Time trend		-0.3654***	-0.3273***	-0.3948***	-0.3910***
		(0.0510)	(0.0438)	(0.0475)	(0.0491)
Time trend squared		0.0018***	0.0016***	0.0019***	0.0019***
		(0.0003)	(0.0002)	(0.0002)	(0.0002)
Age Groups (reference age: 80 years and older)					
21-24			0.5494***	0.5673***	0.5648***
			(0.1226)	(0.1309)	(0.1305)
25-29			0.5871***	0.5835***	0.5791***
			(0.1195)	(0.1289)	(0.1287)
30-34			0.6048***	0.5989***	0.5917***
			(0.1116)	(0.1197)	(0.1194)
35-39			0.5736***	0.5637***	0.5585***
			(0.1051)	(0.1137)	(0.1130)
40-44			0.5489***	0.5217***	0.5192***
			(0.0992)	(0.1069)	(0.1067)
45-49			0.4745***	0.4111***	0.4121***
			(0.0895)	(0.0952)	(0.0943)
50-54			0.3987***	0.3272***	0.3339***
			(0.0690)	(0.0763)	(0.0756)
55-59			0.3796***	0.3196***	0.3262***
			(0.0637)	(0.0718)	(0.0712)
60-64			0.4188***	0.3762***	0.3837***
			(0.0524)	(0.0584)	(0.0580)
65-69			0.2768***	0.2529***	0.2586***
			(0.0467)	(0.0494)	(0.0491)
70-74			0.2182***	0.2083***	0.2122***
			(0.0440)	(0.0479)	(0.0473)
75-79			0.0746	0.0741	0.0771*
			(0.0453)	(0.0453)	(0.0447)
Race (reference: White)					
Black			0.0394	0.0965	0.1222
			(0.1231)	(0.1322)	(0.1345)
Other			-0.3223***	-0.1964**	-0.1789**
			(0.0844)	(0.0800)	(0.0825)
Log of permanent family income				0.3699***	0.3462***
				(0.0213)	(0.0225)
Years used in permanent measure				0.0078*	0.0072
				(0.0046)	(0.0045)
Parents' Occupation (reference: Other or no occupation)					
Father: Professional, managerial, technical					0.1641***
					(0.0409)
Father: Skilled and semi-skilled					0.0673**
					(0.0324)
Mother: Professional, managerial, technical					0.0485
					(0.0399)
Mother: Skilled and semi-skilled					0.0332
					(0.0261)
N (person-years)	44,101	44,101	44,101	44,101	44,101

Source: Same-years subsample of BHPS (1991-2007).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents had other or no occupation. We do not drop observations because of missing values in the log of permanent family income or parental occupation but rather add three dummy variables that indicate missing values in these variables. The coefficients of these dummy variables are not shown here but are available in the appendix.

4.2 Alternative specifications

Focusing on Model 5, Table 9 shows that our early-life income inequality coefficient estimates are, for the U.S. samples, robust to how we control for time trends. For British men and women, our early-life inequality estimates did not affect results. They continued to be not significantly different from zero at the 10 percent level using a quadratic specification, a linear time trend, or decade dummies.

In the U.S. samples our results are robust to the inclusion of current top income share as an adult. But in results reported in the appendix we find no robust association between current reported health as an adult and current year top income share as an adult. In the British samples, when we include the current year top income share in the model, the sign and statistical significance of the the coefficient on inequality does not change. In both the U.S and British samples, the coefficient on current year top income is unstable across specifications that do and do not control for time trends and age. (See the appendix for details.)

Table 9: Sensitivity of coefficient estimates for early-life (aged 0-4) income share of top 1 percent to alternative time trend specifications and the inclusion of the current top 1 percent income share

	U.S.		Great Britain	
	Men	Women	Men	Women
Quadratic time trend	-0.0244**	-0.0216**	-0.0084	-0.0046
	(0.0099)	(0.0103)	(0.0102)	(0.0086)
Quadratic time trend + current income share	-0.0240**	-0.0214**	-0.0083	-0.0045
	(0.0099)	(0.0104)	(0.0101)	(0.0086)
Linear time trend	-0.0248**	-0.0222**	-0.0065	-0.0018
	(0.0099)	(0.0103)	(0.0106)	(0.0090)
Linear time trend + current income share	-0.0241**	-0.0216**	-0.0069	-0.0020
	(0.0100)	(0.0104)	(0.0105)	(0.0089)
Decade dummies	-0.0203**	-0.0182*	0.0085	0.0112
	(0.0098)	(0.0104)	(0.0090)	(0.0076)
Decade dummies + current income share	-0.0237**	-0.0214**	0.0057	0.0080
	(0.0099)	(0.0105)	(0.0098)	(0.0083)
N (person-years)	36,522	41,238	38,329	44,101

Sources: Same-years subsamples of PSID (1991-2007) and BHPS (1991-2007).

Notes: Coefficient estimates and their standard errors in each of our six specifications are based on Model 5 in Tables 5-8 but using alternative time trend specifications with or without the addition of a current year measure of the share of income held by the top 1 percent. Current income share is the value of the top 1 percent share in the year health is reported. Values for the quadratic time trend were previously reported in Tables 5-8. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively.

4.3 Exploring the sources of the different findings for the U.S. and Great Britain

In both our U.S. and British subsamples adult men and women are more likely to report being in better health if they are younger, have greater permanent income and had greater economic resources as a child (as measured by parents' education in the U.S. and their occupation in Great Britain). Furthermore, in our first two models that do not control for these individual demographic and economic factors, better health as an adult is negatively correlated with higher inequality when aged 0-4 in both countries. However, in our preferred models that include these controls, this negative relationship remains robust only in the U.S. The relationship is not statistically different from zero at the 10 percent level in Great Britain, even though, as seen in Figure 1, the U-shaped trend in taxable income held by the top 1 percent of tax units is remarkably similar in the two countries over the 1913-2006 period. What explains this difference in the relationship between health as an adult and inequality when aged 0-4?

Deaton (2013) suggests that income inequality is associated with the allocation of public goods related to health, such as immunizations and the provision of subsidized medical care. If this is the case, the relatively early creation of the National Health Service in Great Britain may explain the difference, since this major British public health initiative may have offset some of the adverse effects of income inequality at younger ages that we find in the U.S. Since the British National Health Service did not come into existence until 1948, we would expect that, other things equal, this additional provision of services to all residents of Great Britain would have had an offsetting effect on income inequality for those born in Great Britain in the post-World War II period.

In Table 10 we crudely account for this differential effect by including an interaction term on our inequality at ages 0-4 measure for those born before 1950 and those born in 1950 or later in both the U.S. and Great Britain. This interaction term is never significant in the British models. In Models 1 and 2 it reduces the magnitude of the coefficient on the variable for inequality at younger ages, but this variable remains significant at the 1 percent level. It also reduces the magnitude of this coefficient in the other three models, and it remains not significant at the 10 percent level. In the U.S., this placebo interaction term is also never significant. As in Great Britain, the addition of this interaction term does reduce the size of the coefficient on the variable for inequality at younger ages in Models 1 and 2, but it remains significant at the 1 percent level. However, in the rest of the models it now not only reduces the size of the coefficient, but also reduces its level of significance to below the 10 percent level.

Table 10: Sensitivity of coefficient estimates for early-life (aged 0-4) income share of top 1 percent to major change in public health system for persons born before 1950 and 1966

	(1)	(2)	(3)	(4)	(5)
U.S.					
Men					
Birth to age 4	-0.0772***	-0.0707***	-0.0221**	-0.0324***	-0.0236**
	(0.0087)	(0.0091)	(0.0099)	(0.0103)	(0.0100)
Birth to age 4 x born before 1966	-0.0170***	-0.0259***	0.0040	-0.0026	-0.0020
	(0.0035)	(0.0041)	(0.0050)	(0.0048)	(0.0047)
Women					
Birth to age 4	-0.0922***	-0.0854***	-0.0328***	-0.0322***	-0.0227**
	(0.0077)	(0.0083)	(0.0100)	(0.0105)	(0.0104)
Birth to age 4 x born before 1966	-0.0066*	-0.0157***	0.0043	0.0006	0.0025
	(0.0035)	(0.0042)	(0.0045)	(0.0046)	(0.0046)
U.S. (1950 as "placebo")					
Men					
Birth to age 4	-0.0875***	-0.0913***	-0.0162	-0.0233*	-0.0158
	(0.0130)	(0.0137)	(0.0144)	(0.0137)	(0.0128)
Birth to age 4 x born before 1950	-0.0068	-0.0073	-0.0025	-0.0055	-0.0047
	(0.0054)	(0.0058)	(0.0064)	(0.0054)	(0.0053)
Women					
Birth to age 4	-0.1080***	-0.1119***	-0.0369***	-0.0272**	-0.0178
	(0.0108)	(0.0115)	(0.0134)	(0.0139)	(0.0131)
Birth to age 4 x born before 1950	0.0031	0.0023	0.0032	-0.0026	-0.0020
	(0.0047)	(0.0050)	(0.0052)	(0.0049)	(0.0044)
Great Britain					
Men					
Birth to age 4	-0.0423***	-0.0510***	-0.0238	-0.0128	-0.0131
	(0.0091)	(0.0090)	(0.0149)	(0.0149)	(0.0147)
Birth to age 4 x born before 1950	0.0009	0.0038	0.0055	0.0019	0.0022
	(0.0050)	(0.0049)	(0.0047)	(0.0050)	(0.0049)
Women					
Birth to age 4	-0.0391***	-0.0466***	-0.0106	0.0036	0.0035
	(0.0071)	(0.0073)	(0.0126)	(0.0137)	(0.0136)
Birth to age 4 x born before 1950	0.0009	0.0034	0.0012	-0.0045	-0.0038
	(0.0038)	(0.0039)	(0.0040)	(0.0044)	(0.0043)
Great Britain (1966 as "placebo")					
Men					
Birth to age 4	-0.0478***	-0.0461***	-0.0105	-0.0071	-0.0065
	(0.0053)	(0.0052)	(0.0100)	(0.0104)	(0.0103)
Birth to age 4 x born before 1966	0.0053	0.0013	-0.0021	-0.0024	-0.0026
	(0.0035)	(0.0033)	(0.0033)	(0.0035)	(0.0035)
Women					
Birth to age 4	-0.0447***	-0.0430***	-0.0032	-0.0024	-0.0005
	(0.0057)	(0.0057)	(0.0084)	(0.0090)	(0.0089)
Birth to age 4 x born before 1966	0.0053	0.0017	-0.0067	-0.0048	-0.0056
	(0.0041)	(0.0042)	(0.0050)	(0.0052)	(0.0052)
Controls					
Time trend		X	X	X	X
Age group			X	X	X
Race			X	X	X
Log permanent family income				X	X
Parents' education/occupation					X

Sources: Same-years subsamples of PSID (1991-2007) and BHPS (1991-2007).

Notes: Coefficient estimates and their standard errors are from model specifications that correspond to those used for Tables 5-8. Sample sizes are N=36,522 for U.S. males, N=41,238 for U.S. females, N=38,329 for British males and N=44,101 for British females. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively.

When we repeat this exercise, but instead focus on 1966, the year that Medicare and Medicaid were implemented in the U.S., as expected, adding this interaction term has no impact on the results for men or women in Great Britain. In the U.S., it reduces the inequality coefficient in all five models, but its significance remains robust. Hence, at least using this crude measure of the importance of the each country's most important public health initiative, we find no evidence that its inclusion explains the lack of robustness in our British findings, and at best suggests that its inclusion can affect the robustness of our U.S. results.

4.4 Comparing same-years subsample results with full-sample results

Because the focus of this paper is a comparison of the relationship between self-reported health in adulthood and inequality as a child in the U.S. and Great Britain, we restricted our sample to years when both the PSID and BHPS launched new waves of data. In the top two panels of Table 11, we reproduce the early-life inequality coefficient estimates for the same-years U.S. subsamples first presented in Tables 5 and 6. In the next two panels we report these coefficient values when we use all waves of PSID data. In all five models we find a negative relationship that remains significant at the 1 percent level. In this case-study style analysis of the U.S. data, the increase in years of data improves the level of significance to 1 percent in all cases.

In the next four panels, we repeat this exercise for men and women in Great Britain, reproducing the values found in Table 7 and 8 for our same-years sample and then reporting the values for the inequality at ages 0-4 variable using all available waves of the BHPS (except 1999, which uses a different measure of self-reported health). In this case-study style analysis of the British data, the increase in years of data does not improve the robustness of our findings. The coefficient in Models 3, 4, and 5 remains negative but does not statistically differ from zero.[9]

[9] We report a full set of results in the appendix. Neither the sign nor statistical significance of the coefficients on control variables change much when we estimate the models on the full sample. This is also the case with respect to our findings in the robustness tables with one exception. In Table 10 when we use 1950 as our placebo year the coefficient on our inequality variable for the U.S. returns return to being significant at the 5 percent level or better. This is not the case for Great Britain.

Table 11: Sensitivity of coefficient estimates for early-life (aged 0-4) income share of top 1 percent to using same-years subsamples and full country samples

	(1)	(2)	(3)	(4)	(5)
U.S.[1]					
Men (1991-2007 respondents)					
Mean top 1% income share when aged 0-4	-0.1016***	-0.1064***	-0.0208**	-0.0334***	-0.0244**
	(0.0058)	(0.0061)	(0.0102)	(0.0103)	(0.0099)
N (person-years)	36,522	36,522	36,522	36,522	36,522
Women (1991-2007 respondents)					
Mean top 1% income share when aged 0-4	-0.1015***	-0.1071***	-0.0311***	-0.0320***	-0.0216**
	(0.0049)	(0.0051)	(0.0100)	(0.0104)	(0.0103)
N (person-years)	41,238	41,238	41,238	41,238	41,238
Men (1984-2009 respondents – Full sample)					
Mean top 1% income share when aged 0-4	-0.0945***	-0.1053***	-0.0233***	-0.0308***	-0.0221***
	(0.0052)	(0.0058)	(0.0079)	(0.0072)	(0.0075)
N (person-years)	62,389	62,389	62,389	62,389	62,389
Women (1984-2009 respondents – Full sample)					
Mean top 1% income share when aged 0-4	-0.0959***	-0.1047***	-0.0340***	-0.0380***	-0.0283***
	(0.0045)	(0.0048)	(0.0079)	(0.0074)	(0.0074)
N (person-years)	70,347	70,347	70,347	70,347	70,347
Great Britain[2]					
Men (1991-2007 respondents)					
Mean top 1% income share when aged 0-4	-0.0406***	-0.0444***	-0.0120	-0.0088	-0.0084
	(0.0025)	(0.0025)	(0.0099)	(0.0102)	(0.0102)
N (person-years)	38,329	38,329	38,329	38,329	38,329
Women (1991-2007 respondents)					
Mean top 1% income share when aged 0-4	-0.0376***	-0.0407***	-0.0080	-0.0059	-0.0046
	(0.0023)	(0.0024)	(0.0080)	(0.0088)	(0.0086)
N (person-years)	44,101	44,101	44,101	44,101	44,101
Men (1991-2008 respondents – Full sample)					
Mean top 1% income share when aged 0-4	-0.0428***	-0.0467***	-0.0131	-0.0101	-0.0098
	(0.0024)	(0.0024)	(0.0097)	(0.0100)	(0.0099)
N (person-years)	58,055	58,055	58,055	58,055	58,055
Women (1991-2008 respondents – Full sample)					
Mean top 1% income share when aged 0-4	-0.0405***	-0.0436***	-0.0037	-0.0023	-0.0002
	(0.0022)	(0.0023)	(0.0079)	(0.0085)	(0.0085)
N (person-years)	67,096	67,096	67,096	67,096	67,096
Controls					
Time trend		X	X	X	X
Age group			X	X	X
Race			X	X	X
Log permanent family income				X	X
Parents' education/occupation					X

Sources: Same-years subsamples of PSID (1984-2009) and BHPS (1991-2008), and full country samples of PSID (1991-2007) and BHPS (1991-2007).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over, those whose parents did not receive a high school degree.

[1] The following two panels repeat the early-life inequality coefficients and sample sizes N from Tables 5 and 6.

[2] The following two panels repeat the early-life inequality coefficients and sample sizes N from Tables 7 and 8.

5. Discussion and conclusion

In Lillard et al. (2015) we find that the health of U.S.-born adult men and women is worse if they experienced higher average levels of income inequality during the early years of their lives. Here we find similar results for the U.S. using a subsample of their data over PSID waves limited to the same calendar years for which BHPS data are available

Measuring inequality as the average share of income held by the top 1 percent of tax units in each country, we compare the relationship between the self-reported health of U.S. and British adults and the inequality they experienced when aged 0-4,. Despite similar trends in inequality in each country over the period from 1913 to 2007, we find quite different relationships between self-reported health and early-life inequality.

In both countries the simple correlation is negative and statistically different from zero. That is, the unconditional correlation suggests that adults are less likely to report being in better health if inequality was higher in their first five years of life. This association remains statistically significant among U.S. men and women when we control for individual differences in demographic and economic factors and control for time trends. But in Great Britain, the simple association vanishes when we control for similar individual differences in other determinants of health.

There are reasons to be cautious about interpreting these results. The most obvious limitation is our use of an income inequality measure that only varies over time and not across individuals living in different geographical sub-divisions. Because our measure only varies over time, it is probably correlated with trends in many other factors that developed in similar ways to the ones we capture with our income inequality trend measure. Hence we may have omitted variable bias in our models. For the most part, we simply lack long time-series data on factors such as medical technology, spending on health, and similar inputs to health production. Despite our efforts to crudely capture the introduction of the National Health Service in Great Britain and Medicare/Medicaid in the U.S., our results in this regard require caution in their interpretation. The changes in our top income time series may, and even plausibly will, be correlated with the evolution of these other factors.

While it is premature to conclude that health as an adult is adversely affected by exposure to early-life income inequality in the U.S., our finding that they statistically linked is all the more striking given the absence of evidence of such a linkage in Great Britain, using the same models over the same set of years. Future research should focus on understanding the nature of this relationship and the difference we find in it between two countries that have experienced similar top income trends over the last 100 years.

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Appendix

1. Description of data sources and variables

Data sources

Our analysis uses data from the Panel Study of Income Dynamics (PSID) and the British Household Panel Survey (BHPS). It uses data from the respective U.S. and British Cross-National Equivalent Files (CNEF). The CNEF provides internationally harmonized variables that are based on the PSID and the BHPS.

The PSID, unlike the BHPS, only interviews one member each of each of its families. Further, the PSID does not gather information on every member of a family but focuses on family heads and their partners. We follow the PSID terminology and refer to "heads" and "wives". Because important variables such as self-reported health status are only asked with respect to the head and wife of a family, we are forced to restrict our analysis to these family members only.

From the 1970-2009 U.S. CNEF, we extract sex, age, race, post-tax post-transfer family income (labelled "Household Post-Government Income (TAXSIM)") and self-reported health status. We then merge PSID data on the educational attainment of a person's parents (henceforth: father and mother's education).

The BHPS interviews every family member aged 16 years and older. From the 1991-2008 British CNEF, we extract sex, age, race, post-tax post-transfer family income (labelled "Household Post-Government Income") and self-reported health status. We then merge BHPS data on the occupation of a person's parents (henceforth: father and mother's occupation).

We finally merge the Piketty and Saez (2003, updated) top 1 percent and 0.1 percent income series without taxable realized capital gains to our U.S. sample. We merge the Atkinson (2005, updated) top 1 percent and 0.1 percent income series to our British sample. From these series we create our measures for current and early-life inequality.

Sample restrictions

Our U.S. sample consists of family heads aged 21 years and older and their partners aged 21 years and older. It is restricted to the 1984-2009 waves of PSID data, because questions about health status are not asked before 1984. But we are able to use pre-1984 income data for our permanent income measure. We have data for every year until 1997 and then for every other year until 2009.

Our British sample consists of all family members aged 21 and older. We have data for every year from 1991 to 2008. However, we excluded the 1999 wave because the health status question in 1999 is different from that in all other years.

In both our U.S. and British samples, we exclude everyone who is aged 20 years and younger at the time current health is asked, everyone who was not born in the U.S. and Great Britain, and everyone who was born before 1913. We do this because we cannot create consistent income inequality measures for these persons: we cannot create 20-year averages for those that are aged less than 21 years; early-life inequality measures for those that are born outside the U.S. and Great Britain and therefore not exposed to U.S. and British early life-inequality; and early-life inequality measures for those born before 1913 because the U.S. top income series start only in 1913. Although the British top income share data goes back as far as 1908, for comparison purposes, we excluded those born before 1913 from our British sample.

The PSID consists of four samples: the SRC sample (1968-2009); the SEO or Census sample (1968-2009); the Latino sample (1990-1995), and the New Immigrant sample (1997-2009). The SEO or Census sample over-samples low-income families in the PSID. We restrict our U.S. analysis to the SRC sample to avoid oversampling issues with oversampling.

The BHPS consists of five samples: the original BHPS sample (1991-2008), the European Community Household Panel (ECHP) low-income sample (1997-2001); the Welsh extension (1999-2008); the Scottish extension (1999-2008), and the Northern Ireland extension (2001-2008). All samples apart from the original BHPS sample oversample their members. We restrict our British analysis to the original BHPS sample to avoid issues with oversampling.

In the main paper, we use same-years subsamples, i.e. we restrict the U.S. and British samples to years that are available in both the BHPS and the PSID. Because the BHPS starts in 1991, ends in 2008, and asks a different self-reported health question in 1999 and because the PSID is only administered every other year from 1997 onwards, we restrict the samples to respondents to surveys in the following years: 1991, 1992, 1993, 1994, 1995, 1996, 1997, 2001, 2003, 2005, and 2007.

Description of variables

Self-reported health status (dependent variable)

In the PSID, self-reported health status is only asked of family heads and wives. In 1984-2009, the PSID asks: 'Would you say your (or head's) health in general is…' with respect to heads and 'Would you say your (or wife's/friend's) health in general is…' with respect to partners. The responses are coded as 'Excellent (1)', 'Very good (2)', 'Good (3)', 'Fair (4)' and 'Poor (5)'.

In 1991-98 and 2000-2008, the BHPS asks 'Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been ...'. The responses are coded as 'Excellent (1)', 'Good (2)', 'Fair (3)', 'Poor (4)', and 'Very poor (5)'.

In 1999, the BHPS asks a different question: 'In general would you say your health is...'. The responses are coded as 'Excellent (1)', 'Very good (2)', 'Good (3)', 'Fair (4)', and 'Poor (5)'.

Table A1 shows the distribution of the BHPS self-reported health status in 1998, 1999 and 2000.

Table A1: Distribution of self-reported health status in the BHPS data

		1998		2000		1999		
	Value label	Freq.	%	Freq.	%	Value label	Freq.	%
1	Excellent	2,358	21.6	3,310	21.2	Excellent	2,394	15.8
2	Good	5,101	46.8	7,162	45.9	Very good	4,474	30.6
3	Fair	2,263	20.8	3,443	22.1	Good	4,847	31.0
4	Poor	879	8.1	1,246	8.0	Fair	2,414	15.5
5	Very poor	297	2.7	435	2.8	Poor	755	4.8
	Total	10,898		15,596		Total	15,184	
	Missing values							
-9	Missing	6	0.1				1	0.0
-7	Proxy respondent						435	2.8
-1	Not answered	2	0.0	7	0.0		3	0.0
	Question text in 1998 and 2002					*Question text in 1999*		
	Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been ...					In general would you say your health is...		

Source: BHPS codebooks for 1998, 1999, and 2000.

Self-reported health status in 1999 is inconsistent compared to the other years. We therefore exclude the 1999 wave from our British sample and, for comparison purposes, from our same-years U.S. subsample.

Year

This variable relates to the current year when a person's interview took place.

Birth year

Birth year is defined as a person's age in years minus the year.

Time trend

We create three specifications to model time: a linear time trend (year); a quadratic time trend (year plus year squared) and decade dummies [1980s (only in the full PSID sample), 1990s, 2000s (reference year)]. Our preferred specification is the quadratic time trend. We use the others for robustness checks (see Table 9 in the main paper or Table A5 in this appendix).

Age dummies

Rather than using age in years in our regression models, we use age dummies to allow for flexible and non-linear age effects. We create 13 five-year age dummies: 21-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, and 80 years and older. '80 years and older' is the reference age group. Because we exclude everyone aged less than 21 from our sample (see below) the 21-24 dummy only covers 4 years.

Race

For the U.S. sample, we use the race variable in the U.S. CNEF and create three race dummies referring to Whites, Blacks and Others. Others contains: American Indians, Aleuts, Eskimos, Asians, Pacific Islanders, Hispanics, and Other Ethnicities. We use Whites as our reference race.

For the British sample, we use the race variable in the British CNEF and create three race dummies referring to Whites, Blacks and Others. Others contains: Indian, Pakistani, Bangladeshi, Chinese and Other Ethnicities. We use Whites as our reference race.

Permanent income (real permanent family-size adjusted post-government income)

To construct our U.S. permanent income measure, we first retrieve post-tax post-transfer family income which in U.S. CNEF is labelled "Household Post-Government Income (TAXSIM)". All family members contribute to this family income aggregate. It is defined as the "sum of total family income from labor earnings, asset flows, the imputed rental value of owner occupied housing, private transfers, public transfers, and social security pensions minus total household taxes" (Lillard et al., 2008). The method for estimating "Total household taxes" is described in Butrica and Burkhauser (1997).

To construct our British permanent income measure, we first retrieve post-tax post-transfer family income which in British CNEF is labelled "Household Post-Government Income". All family members contribute to this family income aggregate. It is similarly defined as the U.S. income measure.

We adjust this post-tax post-transfer family income measure for inflation and the number of family members in that year (we divide by the square root of the number of persons). We exclude persons with negative and zero family incomes. We then average the adjusted annual income of each person's family for all available years of data - up to and including the year that is one year prior to the survey year (when a person reports his or her current health status). When constructing this measure of "permanent" family income, we exclude the just prior to the year a person reported his or her health status to avoid capturing variation in income that is caused by a person's health status. This derived measure of average family income is a proxy for an individual's permanent income. In our regressions we use the logarithm of this variable.

Number of years used to create permanent income

Our permanent income measure can be averaged over different number of years for each person and for the same person captured in different waves of the data. To control for any bias caused by this averaging procedure, we create a variable that measures the number of years over which we create our average income measure.

Permanent income data missing

We create a dummy variable that is 1 when a person's permanent income data are missing and 0 otherwise. We do so to keep persons that have missing permanent income data in our samples to avoid selectivity issues of, for example, persons with negative or zero permanent incomes. For example, business owners, who sometimes report negative incomes, are a select group and excluding them could affect our results.

Father's education (PSID)

We expect that for the great majority head's or wife's in our sample, their response to the PSID question regarding their father's education will not change over time since by the time they become a head or a wife, their father's education was long since completed. . The PSID first asked about the educational attainment of the head's father in 1968. The PSID first asked about the educational attainment of the wife's father in 1974. Until 1995, the PSID asks: 'How much education did your (head's) father have?' and 'How much education did your wife's father have?' As is characteristic for the PSID, typically one person, who often is the head, answers on behalf of the head and the wife. Father's education is only asked for new heads and new wives. The PSID carries forward data on father's education from previous years when there are no family composition changes with respect to family heads or wives. In 1976 and 1985 the PSID family questionnaire features a special extended section on wives. In both these years, data on father's education are collected for all (new and old) wives.

Hence in our analysis for 1984 to 1995 we use the father's education variables for both the head and spouse as they are provided by the PSID. We then create three dummy variables: "Bachelor's (BA) degree or higher", "High school degree", and "Less than high school degree." The first dummy variable is 1 for everyone whose father completed at least a Bachelor's degree and 0 otherwise. The second dummy variable is 1 for everyone whose father completed at least high school but did not complete a Bachelor's degree (the father may have attended college but did not graduate) and 0 otherwise. The third dummy variable is 1 for everyone whose father did not graduate from high school and 0 otherwise. Missing values (e.g. don't know father's education) are not used in our analysis.

Beginning in 1997 the PSID changed the way it asks about father's education to: 'Where did your father receive his education – in the United States, outside the United States or both?' (question 1). If the father received any education in the United States the PSID asks: 'How much education did your (Head's) father complete (in the United States)?' (question 2). If the father received any education outside the United States, the PSID asks: 'How many years of school did he complete outside of the U.S.?' (question 3) and 'What was the highest degree or certificate he earned outside the U.S.?' (question 4). Question 4 is not asked in 1999, 2001, and 2003.

The post-1995 questions are only asked for those families with new heads or new wives. For all other families, the data from the previous years are carried forward. But for the subset of families who are asked these four questions, we need to make adjustments to create consistent and comparable variables.

For those whose father's education was all attained in the U.S., we use the responses to question 2 and create the same three dummy variables as before.

For those whose father's education was all attained outside the U.S., we use either question 3 or 4. Question 3 asks about the number of years that were completed and question 4 asks about the highest degree or certificate attained. We prefer data from question 4 to question 3 because it resembles the question that was asked prior to 1997, so we can use it without making any further adjustments. We only use question 3 data when question 4 data are missing.

From question 4, we create the three dummy variables ("Bachelor's (BA) degree or higher", "High school degree", and "Less than high school degree") as before. From question 3, we create the three dummy variables but we must use number of years to determine educational attainment. The first dummy variable is 1 if number of years is 15 or higher and 0 otherwise. The second dummy variable is 1 if number of years is at least 12 but less than 15 and 0 otherwise. The third

dummy variable is 1 if number of years is less than 12 and 0 otherwise. We use the set of dummies based on question 4, whenever possible.

For persons whose father completed some education inside and some outside the U.S., creating our three educational attainment dummies becomes more complicated. We still use the same procedure as discussed in the previous two paragraphs but before doing so, we must combine education completed inside the U.S (question 2) with education completed outside the U.S. (question 3 and 4).

For question 3, we convert the responses to question 2 into a number of years of education equivalent. We assume 5 years if the father completed "0-5 grades"; 8 years if he completed "6-8 grades"; 11 years if he completed "9-11" years; 12 years if he completed "12 grades"; 14 years if he completed "Some college, no degree; Associate's degree"; 15 years if he completed "College BA and no advanced degree mentioned"; and 17 years if he completed "College, advanced or professional degree, some graduate work; close to receiving degree". We then add "U.S. number of years" to "non-U.S. number of years (question 3)". This total provides the number of year values that we then use to create our three educational attainment dummies.

For question 4, we compare the responses to question 2 (education completed in U.S.) with the responses to question 4 (highest degree or certificate earned outside U.S.). By doing so, we determine the highest degree received, which may have happened either inside or outside the U.S. We then create our three educational attainment dummies.

Because we prefer data from question 4 to data from question 3, we only use the question 3-based results, if data from question 4 is missing.

Unfortunately, question 4 (our preferred measure of non-US education) is missing in 1999, 2001, 2003. So in these years, we use data from the other years (1997, 2005, 2007, and 2009) to fill-in the missing years.

Mother's education (PSID)

We create this variable in the same way as "Father's education" (see immediately preceding section).

Father's occupation (BHPS)

In 1998, the BHPS started to ask questions about a person's parents. We use the question "Thinking back to when you were 14 years old, what job was your father doing at that time?" From two resulting BHPS variables, we create a measure of a person's father's occupation. The first variable is paju ("father not working when resp. aged 14"); the second variable is pargsc ("rg social class: father's job"). We know whether a person's father worked at all, was deceased or lived with the respondent—from the first variable. We know a person's father's occupation—from the second variable.

From these information, we create three dummy variables. The first variable is 1 if a person's father had a professional, managerial or technical occupation and 0 otherwise; the second variable is 1 if a person's father had a skilled non-manual, skilled manual or partly skilled occupation and 0 otherwise; the third variable is 1 if a person's father had an unskilled, armed forces or unknown occupation, or if a person's father did not work at all, was deceased or did not live with that person and 0 otherwise. In all other cases, these three variables are set to missing.

Unfortunately, the BHPS did not ask the parental background questions of new respondents that turned 16 in 1998 or later. But, it is possible to determine their father's occupation by going back to the wave in which the person was 14 years old. We use a 14-year-old person's father's cross-wave id to match two variables containing data on the father's job to that person. The first variable is jboff ("no work last week but has job"). The second variable is jbrgsc ("rg social class: present job"). We know whether a person's father worked at all—from the first variable. We know a person's father's occupation—from the second variable. We know whether a person lived with his or her father: a non-missing father's cross-wave id indicates that the person lived with his or her father.

From this information, we create the same three dummy variables as described before. We then combine the earlier created set of dummy variables with this newly created set of dummy variables. In our regressions, we use the third dummy variable, "Other occupation", as the reference group.

Unfortunately, because the BHPS asked the parental background questions only from 1998 onwards, we lack these parental data for earlier respondents that responded in any wave between 1991 and 1997 but did not respond in 1998. If we excluded these respondents from our sample, it would introduce selectivity bias to our analysis. We therefore do not exclude these respondents but add to our regressions a dummy variable that is 1 if a person's father's occupation is missing and 0 otherwise.

Mother's occupation (BHPS)

We create this variable in the same way as "Father's occupation" (see immediately preceding section). The corresponding source variables are maju ("mother not working when resp. aged 14"), margsc ("rg social class: mother's job), jboff ("no work last week but has job"), and jbrgsc ("rg social class: present job").

Missing data on father's educations (PSID), mother's education (PSID), father's occupation (BHPS), or mother's occupation (BHPS)

For the British sample, for reasons described above, we create two dummy variables indicating missing data on parents' occupations: the first variable is 1 if a person's father's occupation is missing and 0 otherwise; the second variable is 1 if a person's mother's occupation is missing and 0 otherwise. We add these two dummy variables to our British regression analysis.

For the U.S. sample, for comparison purposes, we create two dummy variables indicating missing data on parents' education: the first variable is 1 if a person's father's education is missing and 0 otherwise; the second variable is 1 if a person's mother's education is missing and 0 otherwise. We add these two dummy variable to our U.S. regression analysis.

Current and early-life inequality (top income shares)

We use the U.S. top 1 percent and top 0.1 percent income series developed by Piketty and Saez (2003, updated) and the British top 1 percent and top 0.1 percent income series developed by Atkinson (2005, updated). We retrieved the data from:

http://topincomes.g-mond.parisschoolofeconomics.eu (Alvaredo et al. 2013).

For the US, we use the top 1 percent and 0.1 percent series that start in 1913 and end in 2009. The series we use excludes realised taxable capital gains.

Unfortunately, the British top 1 percent series is discontinuous: we have data for 1918-19; 1937; 1949; 1951-60; 1962-79; 1981-2007; and 2009. We use linear interpolation to fill the gaps for 1950, 1961, 1980, and 2008, which gives us a continuous series from 1949-2009. For the years before 1949, we adopt a different approach. We use information from higher quantiles - the top 0.5% and 0.1% - to fill the remaining gaps. For the British top 0.1 percent series, which has gaps in 1961, 1980, 1987-1992 and 2008, we use a similar approach. Both series we use start in 1913 and end in 2009.

Let P_t^x denote the top *x* % income share at time *t*. For example, $P_{1948}^1$is the top 1 % income share in 1948.

For 1987-92, we use formula 1

$$P_t^{0.1} = P_{t-1}^{0.1} + \frac{P_t^{0.5} - P_{t-1}^{0.5}}{P_{1993}^{0.5} - P_{1986}^{0.5}} (P_{1993}^{0.1} - P_{1986}^{0.1}) ,$$

starting in $t = 1987$, to impute forward to $t = 1992$.
For 1943-48, we use formula 2

$$P_t^1 = P_{t+1}^1 - \frac{P_{t+1}^{0.5} - P_t^{0.5}}{P_{t+1}^{0.5}} P_{t+1}^1 ,$$

starting in $t = 1948$, to impute backward to $t = 1943$.
For 1938-42, we use formula 3

$$P_t^1 = P_{t-1}^1 + \frac{P_t^{0.1} - P_{t-1}^{0.1}}{P_{1943}^{0.1} - P_{1937}^{0.1}} (P_{1943}^1 - P_{1937}^1) ,$$

starting in $t = 1938$, to impute forward to $t = 1942$.
For 1920-36, we use formula 4:

$$P_t^1 = P_{t-1}^1 + \frac{P_t^{0.1} - P_{t-1}^{0.1}}{P_{1937}^{0.1} - P_{1919}^{0.1}} (P_{1937}^1 - P_{1919}^1) ,$$

starting in $t = 1920$, to impute forward to $t = 1936$.
For 1913-17, we use formula 5:

$$P_t^1 = P_{t+1}^1 - \frac{P_{t+1}^{0.1} - P_t^{0.1}}{P_{t+1}^{0.1}} P_{t+1}^1 ,$$

starting in $t = 1917$, to impute backward to $t = 1913$.

Table A2 shows the results of our imputation procedure.

Table A2: Imputation for the British top 1% and 0.1% income shares

Year (t)	***Top 1 %*** ($\boldsymbol{P_t^1}$)	Top 0.5% ($P_t^{0.5}$)	**Top 0.1%** ($\boldsymbol{P_t^{0.1}}$)	Imputation method Top 1%	Imputation method Top 0.1%
1913	***24.91***		11.24	Formula 5	
1914	***23.74***		10.71	Formula 5	
1915	***23.87***		10.77	Formula 5	
1916	***23.21***		10.47	Formula 5	
1917	***20.53***		9.26	Formula 5	
1918	19.24	15.46	8.68		
1919	19.59	15.69	8.98		
1920	***18.55***		8.03	Formula 4	
1921	***18.61***		8.08	Formula 4	
1922	***19.69***		9.07	Formula 4	
1923	***19.93***		9.29	Formula 4	

Year (t)	***Top 1 %*** $(\boldsymbol{P_t^1})$	Top 0.5% $(P_t^{0.5})$	**Top 0.1%** $(\boldsymbol{P_t^{0.1}})$	Imputation method Top 1%	Imputation method Top 0.1%
1924	***19.67***		9.05	Formula 4	
1925	***19.38***		8.79	Formula 4	
1926	***19.25***		8.67	Formula 4	
1927	***19.05***		8.49	Formula 4	
1928	***19.11***		8.54	Formula 4	
1929	***18.88***		8.33	Formula 4	
1930	***18.31***		7.81	Formula 4	
1931	***17.61***		7.17	Formula 4	
1932	***17.29***		6.87	Formula 4	
1933	***17.15***		6.75	Formula 4	
1934	***17.19***		6.78	Formula 4	
1935	***17.38***		6.96	Formula 4	
1936	***17.46***		7.03	Formula 4	
1937	16.98	13.07	6.59		
1938	***16.94***		6.57	Formula 3	
1939	***16.55***		6.35	Formula 3	
1940	***15.34***		5.67	Formula 3	
1941	***14.14***		5.00	Formula 3	
1942	***13.14***		4.44	Formula 3	
1943	***12.77***	9.04	4.23	Formula 2	
1944	***12.67***	8.97	4.13	Formula 2	
1945	***13.25***	9.38	4.23	Formula 2	
1946	***14.13***	10.00	4.48	Formula 2	
1947	***13.25***	9.38	4.10	Formula 2	
1948	***12.54***	8.88	3.86	Formula 2	
1949	11.47	8.12	3.45		
1950	***11.18***	8.51	3.59	Linear interpolation	
1951	10.89	7.69	3.21		
1952	10.20	7.15	2.95		
1953	9.72	6.78	2.77		
1954	9.67	6.71	2.72		
1955	9.30	6.48	2.65		
1956	8.75	6.03	2.42		
1957	8.70	5.96	2.37		
1958	8.76	5.98	2.38		
1959	8.60	5.85	2.30		
1960	8.87	6.08	2.45		
1961	***8.65***		**2.37**	Linear interpolation	Linear interpolation
1962	8.43	5.76	2.29		
1963	8.49	5.76	2.23		
1964	8.48	5.77	2.26		
1965	8.55	5.79	2.28		
1966	7.92	5.32	2.04		
1967	7.69	5.11	1.91		
1968	7.54	5.00	1.87		
1969	7.46	4.96	1.85		
1970	7.05	4.59	1.64		
1971	7.02	4.56	1.67		
1972	6.94	4.52	1.61		
1973	6.99	4.59	1.68		
1974	6.54	4.29	1.58		
1975	6.10	3.92	1.40		
1976	5.89	3.75	1.30		
1977	5.93	3.75	1.27		
1978	5.72	3.60	1.24		
1979	5.93	3.76	1.30		
1980	***6.30***		**1.42**	Linear interpolation	Linear interpolation
1981	6.67	4.27	1.53		
1982	6.85	4.40	1.61		
1983	6.83	4.36	1.58		
1984	7.16	4.59	1.67		
1985	7.40	4.83	1.82		
1986	7.55	4.92	1.86		
1987	7.78	5.04	**1.92**		Formula 1
1988	8.63	5.80	**2.33**		Formula 1
1989	8.67	5.90	**2.39**		Formula 1
1990	9.80	6.72	**2.83**		Formula 1
1991	10.32	7.18	**3.08**		Formula 1
1992	9.86	6.74	**2.84**		Formula 1

Year (t)	***Top 1 %*** ($\boldsymbol{P_t^1}$)	Top 0.5% ($P_t^{0.5}$)	**Top 0.1%** ($\boldsymbol{P_t^{0.1}}$)	Imputation method Top 1%	Imputation method Top 0.1%
1993	10.36	7.20	3.09		
1994	10.60	7.36	3.10		
1995	10.75	7.49	3.24		
1996	11.90	8.59	4.13		
1997	12.07	8.72	4.15		
1998	12.53	9.11	4.44		
1999	12.51	9.15	4.54		
2000	12.67	9.33	4.64		
2001	12.71	9.28	4.51		
2002	12.27	8.87	4.22		
2003	12.12	8.79	4.23		
2004	12.89	9.40	4.57		
2005	14.25	10.49	5.19		
2006	14.82	11.00	5.55		
2007	15.44	11.60	6.05		
2008	***14.66***		**5.58**	Linear interpolation	Linear interpolation
2009	13.88	10.23	5.11		

Notes: A bold and italic formatting indicates imputed values. See text for further explanations.

From these series we create two measures for current inequality (current top 1 percent and current top 0.1 percent top income shares) and six measures for early-life inequality (top 1 percent and top 0.1 percent income shares averaged from birth year to age 4, from birth year to age 9, and from birth year to age 19). The top 1 percent and 0.1 percent top income series start in 1913. We therefore exclude everyone who is born before 1913 from our sample because we cannot create a consistent early-life inequality measure for them.

To create the top 1 percent five-year (age 0-4) early-life inequality measure - for those born in 1913 for example - we average the 1913 (age 0), 1914, 1915, 1916, and 1917 (age 4) top 1 percent income shares and use this value for everyone born in 1913. We do the same for later birth cohorts. The other early-life inequality specifications are created in the same way.

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2. Tables

Additional table for same-years subsamples

Table A3: Mean predicted marginal effects on current health of a 1 percentage point increase in mean early-life income inequality (birth to age 4), by model specification, U.S. and Great Britain (1991-2007)

Current Health	(1)	(2)	(3)	(4)	(5)
U.S.					
Men					
Excellent	-0.0327***	-0.0341***	-0.0066**	-0.0101***	-0.0074**
Very good	-0.0036***	-0.0037***	-0.0007**	-0.0011***	-0.0008**
Good	0.0180***	0.0188***	0.0036**	0.0056***	0.0041**
Fair	0.0117***	0.0122***	0.0024**	0.0037***	0.0027**
Poor	0.0066***	0.0069***	0.0013**	0.0020***	0.0014**
Women					
Excellent	-0.0294***	-0.0309***	-0.0088***	-0.0087***	-0.0058**
Very good	-0.0080***	-0.0084***	-0.0024***	-0.0023***	-0.0015**
Good	0.0178***	0.0188***	0.0054***	0.0054***	0.0036**
Fair	0.0129***	0.0136***	0.0038***	0.0038***	0.0025**
Poor	0.0067***	0.0070***	0.0020***	0.0019***	0.0013**
Great Britain					
Men					
Excellent	-0.0131***	-0.0143***	-0.0039	-0.0028	-0.0026
Good	-0.0000	-0.0000	0.0000	-0.0000	-0.0000
Fair	0.0074***	0.0081***	0.0022	0.0016	0.0015
Poor	0.0040***	0.0044***	0.0012	0.0008	0.0008
Very poor	0.0017***	0.0018***	0.0005	0.0004	0.0003
Men					
Excellent	-0.0108***	-0.0117***	-0.0023	-0.0017	-0.0013
Good	-0.0022***	-0.0024***	-0.0005	-0.0003	-0.0003
Fair	0.0067***	0.0073***	0.0014	0.0010	0.0008
Poor	0.0044***	0.0048***	0.0009	0.0007	0.0005
Very poor	0.0019***	0.0020***	0.0004	0.0003	0.0002
Controls					
Time trend		X	X	X	X
Age group			X	X	X
Race			X	X	X
Log permanent family income				X	X
Parents' education/occupation					X

Sources: Same-years subsamples of PSID (1991-2007) and BHPS (1991-2007).
Notes: Results in each column based on mean predicted marginal effects using coefficient estimates from the corresponding columns in Tables 5-8 of the main paper. Sample sizes are N=36,522 for U.S. males, N=41,238 for U.S. females, N=38,329 for British males and N=44,101 for British females. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively.

Results using full country samples

Table A4: Distribution of self-reported current health status in full country samples—Native-born adults aged 21 and older (%)

U.S.			Great Britain		
Current Health Status	Men	Women	Current Health Status	Men	Women
Poor (1)	2.95	3.18	Very Poor (1)	1.74	2.24
Fair (2)	8.06	9.58	Poor (2)	5.99	7.73
Good (3)	24.62	28.24	Fair (3)	19.62	21.43
Very good (4)	35.93	35.74	Good (4)	47.21	47.72
Excellent (5)	28.44	23.26	Excellent (5)	25.44	20.87
N (person-years)	62,389	70,347	N (person-years)	58,055	67,096

Source: Full samples of PSID (1984-2009) and BHPS (1991-2008).
Notes: Numbers in parentheses refer to coding of variable.

Table A5: Distributions of full country samples by age group and birth cohort (%)

	Age group							
	21-29	30-39	40-49	50-59	60-69	70-79	80+	Total
U.S.								
Men								
Born 1913-1919					0.5	1.8	0.6	2.9
Born 1920-1929				0.9	4.5	2.6	0.6	8.6
Born 1930-1939			0.8	4.4	3.1	1.0		9.2
Born 1940-1949		2.1	9.2	6.1	2.0			19.3
Born 1950-1959	2.0	13.2	9.7	3.6				28.5
Born 1960-1969	7.1	8.9	3.7					19.6
Born 1970-1979	5.4	4.3						9.7
Born 1980-1986	2.2							2.2
Total	16.7	28.4	23.3	15.0	10.0	5.4	1.2	100.0
Women								
Born 1913-1919					0.6	2.4	0.9	3.9
Born 1920-1929				0.9	4.6	2.9	0.8	9.1
Born 1930-1939			0.8	4.4	3.2	1.1		9.4
Born 1940-1949		1.8	7.7	5.3	1.7			16.5
Born 1950-1959	2.1	12.6	9.7	3.7				28.1
Born 1960-1969	7.9	8.8	3.7					20.4
Born 1970-1979	5.9	3.9						9.9
Born 1980-1986	2.8							2.8
Total	18.6	27.2	21.9	14.2	10.0	6.4	1.7	100.0
Great Britain								
Men								
Born 1913-1919						1.4	1.2	2.5
Born 1920-1929					2.9	5.1	1.4	9.4
Born 1930-1939				3.1	5.8	2.4		11.3
Born 1940-1949			4.8	9.2	3.5			17.4
Born 1950-1959		5.0	10.2	4.1				19.2
Born 1960-1969	5.1	12.3	5.5					22.8
Born 1970-1979	9.8	4.9						14.6
Born 1980-1986	2.8							2.8
Total	17.7	22.1	20.4	16.4	12.2	8.8	2.5	100.0
Women								
Born 1913-1919						1.8	1.9	3.6
Born 1920-1929					2.8	5.8	1.9	10.5
Born 1930-1939				2.9	5.9	2.4		11.2
Born 1940-1949			4.6	9.0	3.5			17.1
Born 1950-1959		4.5	9.7	4.0				18.2
Born 1960-1969	5.1	12.1	5.5					22.7
Born 1970-1979	9.3	4.7						14.0
Born 1980-1986	2.7							2.7
Total	17.1	21.3	19.8	15.8	12.2	9.9	3.8	100.0

Sources: Full samples of PSID (1984-2009) and BHPS (1991-2008).
Note: Blank cells are zeros. The total number of person-year observations is 62,389 for U.S. males, 70,347 for U.S. females, 58,055 for British males and 67,096 for British females. Individuals can appear more than once. In the U.S. samples, on average each of the 6,521 unique males and 6,839 unique females appears 9.6 and 10.3 times, respectively. In the British samples, on average each of the 6,315 unique males and 6,717 unique females appears 9.2 and 10.0 times, respectively.

Table A6: Mean values of variables in the full country samples

	U.S.		Great Britain	
Variable	Men	Women	Men	Women
Income share of top 1% of tax units				
Current year as adult	13.82	13.83	12.25	12.28
	(2.60) [b]	(2.60) [b]	(1.60) [b]	(1.61) [b]
Mean value for years from birth to age 4	10.69	10.76	11.00	11.26
	(3.16)	(3.25)	(4.33)	(4.52)
Log of permanent family income [a]	10.37	10.31	9.32	9.08
	(0.47)	(0.50)	(1.55)	(1.94)
Years used in permanent income measure	18.30	18.92	7.40	7.31
	(8.9)	(8.80)	(4.93)	(4.96)
Age Groups				
21-24	0.05	0.06	0.08	0.07
25-29	0.12	0.12	0.10	0.10
30-34	0.14	0.14	0.11	0.11
35-39	0.14	0.13	0.11	0.11
40-44	0.13	0.12	0.10	0.10
45-49	0.11	0.10	0.10	0.10
50-54	0.08	0.08	0.09	0.08
55-59	0.07	0.06	0.08	0.07
60-64	0.05	0.05	0.06	0.06
65-69	0.05	0.05	0.06	0.06
70-74	0.03	0.04	0.05	0.06
75-79	0.02	0.02	0.04	0.04
80 and older	0.01	0.02	0.03	0.04
Race				
White	0.90	0.89	0.987	0.987
Black	0.06	0.08	0.005	0.006
Other	0.04	0.03	0.008	0.007
Parents' education				
Father: BA degree or more	0.16	0.16		
Father: High school degree	0.41	0.40		
Father: Less than high school degree	0.44	0.44		
Mother: BA degree or more	0.11	0.11		
Mother: High school degree	0.55	0.52		
Mother: Less than high school degree	0.34	0.37		
Parents' occupation				
Father: Professional, managerial, technical			0.22	0.22
Father: Skilled and semi-skilled			0.55	0.55
Father: Other or no occupation			0.23	0.23
Mother: Professional, managerial, technical			0.10	0.10
Mother: Skilled and semi-skilled			0.29	0.30
Mother: Other or no occupation			0.61	0.59
N (person-years)	62,389	70.347	58,055	67,096
N (persons)	6,521	6,839	6,315	6,717

Sources: Full samples of PSID (1984-2009) and BHPS (1991-2008).

Notes: [a] A person's permanent family income is the family size-adjusted post-tax post-government transfer income averaged over all years from a person's first year up to 1 year before a person reported his/her health status. We use the estimates of yearly family income in the CNEF data. Our yearly income values are adjusted for inflation to 2011 dollars.

Table A7: Percentage ranking their health in the lowest two health categories, by age and birth cohort – full country samples

	Age group[b]							
	21-29	30-39	40-49	50-59	60-69	70-79	80+	Total
U.S.								
Men								
Born 1913-1919					29.7	39.5	42.2	39.2
Born 1920-1929				13.9	25.3	32.0	38.7	27.8
Born 1930-1939			11.8	19.6	22.6	31.8		21.3
Born 1940-1949		4.1	8.2	14.0	17.1			10.6
Born 1950-1959	3.6	5.1	8.7	12.9				7.2
Born 1960-1969	3.1	4.6	8.8					4.8
Born 1970-1979	4.0	6.9						5.2
Born 1980-1986	4.7							4.7
Total	3.7	5.1	8.6	15.5	23.1	34.6	40.2	11.1
Women								
Born 1913-1919					38.4	38.3	39.3	38.6
Born 1920-1929				22.0	28.4	31.4	44.6	30.9
Born 1930-1939			14.5	20.1	23.5	32.9		22.3
Born 1940-1949		7.9	9.4	15.8	18.9			12.3
Born 1950-1959	6.4	6.7	10.2	17.2				9.2
Born 1960-1969	4.2	5.5	10.0					5.7
Born 1970-1979	5.6	8.1						6.5
Born 1980-1986	5.5							5.5
Total	5.1	6.5	10.0	17.9	25.7	34.3	41.9	13.0
Great Britain								
Men								
Born 1913-1919						13.0	15.1	14.1
Born 1920-1929					9.5	12.6	14.6	12.1
Born 1930-1939				8.4	11.9	13.3		11.2
Born 1940-1949			6.2	9.8	9.9			8.9
Born 1950-1959		4.4	8.0	10.0				7.5
Born 1960-1969	4.0	5.3	5.8					5.1
Born 1970-1979	4.4	4.6						4.4
Born 1980-1986	4.3							4.3
Total	4.3	4.9	7.0	9.6	10.8	12.9	14.8	7.7
Women								
Born 1913-1919						19.1	20.0	19.6
Born 1920-1929					10.5	15.0	20.1	15.3
Born 1930-1939				12.1	11.3	13.2		11.9
Born 1940-1949			9.1	11.6	11.8			10.9
Born 1950-1959		6.5	9.0	10.8				8.8
Born 1960-1969	6.3	8.3	10.3					8.4
Born 1970-1979	6.5	7.4						6.8
Born 1980-1986	5.3							5.3
Total	6.2	7.8	9.4	11.5	11.2	15.3	20.1	10.2

Sources: Full samples of PSID (1984-2009) and BHPS (1991-2008).
Notes: [a] The two lowest categories for the U.S. are 'poor' or 'fair' health. For Great Britain they are 'very poor' or 'poor' health. [b] The actual ages considered within the age range-rows have been made consistent across birth-year groups. The actual age groups are 22-27, 32-37, 42-47, 52-57, 62-67, 72-77 and 80-87. The row totals only include these ages.

Table A8: Ordered probit coefficient estimates for U.S. men (1984-2009 full sample)

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged	-0.0945***	-0.1053***	-0.0233***	-0.0308***	-0.0221***
0-4	(0.0052)	(0.0058)	(0.0079)	(0.0072)	(0.0075)
Time trend		-0.0487*	0.0225	0.0293	0.0220
		(0.0273)	(0.0241)	(0.0271)	(0.0273)
Time trend squared		0.0002	-0.0001	-0.0002	-0.0002
		(0.0001)	(0.0001)	(0.0001)	(0.0001)
Age Groups (reference age: 80 years and older)					
21-24			1.0559***	1.3496***	1.2204***
			(0.0894)	(0.0872)	(0.0873)
25-29			1.0547***	1.2365***	1.1157***
			(0.0903)	(0.0850)	(0.0843)
30-34			0.9658***	1.0933***	0.9884***
			(0.0878)	(0.0824)	(0.0817)
35-39			0.8867***	0.9886***	0.8994***
			(0.0818)	(0.0782)	(0.0779)
40-44			0.8001***	0.8735***	0.7984***
			(0.0786)	(0.0741)	(0.0731)
45-49			0.7044***	0.7526***	0.6882***
			(0.0714)	(0.0659)	(0.0652)
50-54			0.5861***	0.6091***	0.5589***
			(0.0642)	(0.0596)	(0.0586)
55-59			0.4922***	0.4794***	0.4450***
			(0.0613)	(0.0570)	(0.0548)
60-64			0.3738***	0.3503***	0.3264***
			(0.0598)	(0.0586)	(0.0559)
65-69			0.2650***	0.2375***	0.2176***
			(0.0565)	(0.0559)	(0.0538)
70-74			0.1527***	0.1466***	0.1342***
			(0.0372)	(0.0427)	(0.0416)
75-79			0.0150	0.0256	0.0181
			(0.0562)	(0.0613)	(0.0621)
Race (reference: White)					
Black			-0.4351***	-0.1923***	-0.1569***
			(0.0520)	(0.0529)	(0.0543)
Other			-0.1684***	-0.0861*	-0.0433
			(0.0543)	(0.0519)	(0.0506)
Log of permanent family income				0.6676***	0.5799***
				(0.0275)	(0.0305)
Years used in permanent measure				-0.0007	-0.0011
				(0.0014)	(0.0015)
Parents' Education (reference: Less than High School Degree)					
Father: BA degree or higher					0.1813***
					(0.0446)
Father: High school degree					0.1158***
					(0.0291)
Mother: BA degree or higher					0.2240***
					(0.0442)
Mother: High school degree					0.1289***
					(0.0286)
N (person-years)	62,389	62,389	62,389	62,389	62,389

Source: Full sample of PSID (1984-2009).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents did not receive a high school degree. We do not drop observations because of missing values in the log of permanent family income or parental education but rather add three dummy variables that indicate missing values in these variables.

Table A9: Ordered probit coefficient estimates for U.S. women (1984-2009 full sample)

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged	-0.0959***	-0.1047***	-0.0340***	-0.0380***	-0.0283***
0-4	(0.0045)	(0.0048)	(0.0079)	(0.0074)	(0.0074)
Time trend		0.0547**	0.1124***	0.1103***	0.1042***
		(0.0254)	(0.0224)	(0.0237)	(0.0238)
Time trend squared		-0.0004***	-0.0006***	-0.0006***	-0.0006***
		(0.0001)	(0.0001)	(0.0001)	(0.0001)
Age Groups (reference age: 80 years and older)					
21-24			0.9135***	1.1179***	1.0049***
			(0.0939)	(0.1040)	(0.1063)
25-29			0.9262***	1.0269***	0.9233***
			(0.0927)	(0.1017)	(0.1044)
30-34			0.8969***	0.9524***	0.8650***
			(0.0890)	(0.0980)	(0.1007)
35-39			0.8371***	0.8688***	0.7934***
			(0.0845)	(0.0928)	(0.0963)
40-44			0.7762***	0.7799***	0.7199***
			(0.0812)	(0.0885)	(0.0921)
45-49			0.6801***	0.6501***	0.6036***
			(0.0752)	(0.0820)	(0.0863)
50-54			0.5780***	0.5087***	0.4781***
			(0.0739)	(0.0793)	(0.0838)
55-59			0.5064***	0.4053***	0.3835***
			(0.0708)	(0.0748)	(0.0789)
60-64			0.3979***	0.2865***	0.2726***
			(0.0691)	(0.0731)	(0.0774)
65-69			0.2749***	0.1913***	0.1838***
			(0.0598)	(0.0614)	(0.0659)
70-74			0.1678***	0.1276**	0.1236*
			(0.0616)	(0.0630)	(0.0662)
75-79			0.0921*	0.0714	0.0702
			(0.0549)	(0.0575)	(0.0587)
Race (reference: White)					
Black			-0.5771***	-0.2425***	-0.2129***
			(0.0460)	(0.0434)	(0.0436)
Other			-0.2211***	-0.1353**	-0.0996*
			(0.0703)	(0.0607)	(0.0598)
Log of permanent family income				0.6562***	0.5618***
				(0.0272)	(0.0261)
Years used in permanent measure				0.0016	0.0011
				(0.0012)	(0.0012)
Parents' Education (reference: Less than High School Degree)					
Father: BA degree or higher					0.2298***
					(0.0308)
Father: High school degree					0.1221***
					(0.0263)
Mother: BA degree or higher					0.1941***
					(0.0461)
Mother: High school degree					0.1678***
					(0.0291)
N (person-years)	70,347	70,347	70,347	70,347	70,347

Source: Full sample of PSID (1984-2009).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents did not receive a high school degree. We do not drop observations because of missing values in the log of permanent family income or parental education but rather add three dummy variables that indicate missing values in these variables.

Table A10 : Ordered probit coefficient estimates for British men (1991-2008 full sample)

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged	-0.0428***	-0.0467***	-0.0131	-0.0101	-0.0098
0-4	(0.0024)	(0.0024)	(0.0097)	(0.0100)	(0.0099)
Time trend		-0.2628***	-0.2374***	-0.2611***	-0.2598***
		(0.0385)	(0.0357)	(0.0366)	(0.0368)
Time trend squared		0.0012***	0.0011***	0.0012***	0.0012***
		(0.0002)	(0.0002)	(0.0002)	(0.0002)
Age Groups (reference age: 80 years and older)					
21-24			0.4813***	0.5361***	0.5390***
			(0.1495)	(0.1538)	(0.1539)
25-29			0.4990***	0.5166***	0.5210***
			(0.1444)	(0.1482)	(0.1480)
30-34			0.4954***	0.5042***	0.5078***
			(0.1366)	(0.1413)	(0.1412)
35-39			0.4366***	0.4395***	0.4434***
			(0.1300)	(0.1339)	(0.1331)
40-44			0.4341***	0.4300***	0.4360***
			(0.1238)	(0.1269)	(0.1267)
45-49			0.3846***	0.3642***	0.3721***
			(0.1126)	(0.1165)	(0.1162)
50-54			0.3297***	0.2885***	0.2976***
			(0.0999)	(0.1030)	(0.1038)
55-59			0.2259**	0.1735*	0.1838**
			(0.0919)	(0.0935)	(0.0936)
60-64			0.2046**	0.1754**	0.1840**
			(0.0803)	(0.0836)	(0.0832)
65-69			0.1728**	0.1655**	0.1723**
			(0.0701)	(0.0745)	(0.0750)
70-74			0.0949**	0.0876*	0.0924*
			(0.0470)	(0.0498)	(0.0495)
75-79			0.0346	0.0403	0.0422
			(0.0374)	(0.0379)	(0.0380)
Race (reference: White)					
Black			0.0321	0.1323	0.1348
			(0.1261)	(0.1394)	(0.1403)
Other			-0.1558**	-0.1565**	-0.1549**
			(0.0657)	(0.0693)	(0.0687)
Log of permanent family income				0.4047***	0.3837***
				(0.0250)	(0.0249)
Years used in permanent measure				0.0038	0.0032
				(0.0029)	(0.0031)
Parents' Occupation (reference: Other or no occupation)					
Father: Professional, managerial, technical					0.1289***
					(0.0374)
Father: Skilled and semi-skilled					-0.0161
					(0.0326)
Mother: Professional, managerial, technical					-0.0193
					(0.0406)
Mother: Skilled and semi-skilled					-0.0237
					(0.0257)
N (person-years)	58,055	58,055	58,055	58,055	58,055

Source: Full sample of BHPS (1991-2008).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents had other or no occupation. We do not drop observations because of missing values in the log of permanent family income or parental occupation but rather add three dummy variables that indicate missing values in these variables.

Table A4: Ordered probit coefficient estimates for British women (1991-2008 full sample)

Variable	(1)	(2)	(3)	(4)	(5)
Mean top 1% income share when aged	-0.0405***	-0.0436***	-0.0037	-0.0023	-0.0002
0-4	(0.0022)	(0.0023)	(0.0079)	(0.0085)	(0.0085)
Time trend		-0.3657***	-0.3244***	-0.3483***	-0.3510***
		(0.0397)	(0.0342)	(0.0356)	(0.0360)
Time trend squared		0.0018***	0.0016***	0.0017***	0.0017***
		(0.0002)	(0.0002)	(0.0002)	(0.0002)
Age Groups (reference age: 80 years and older)					
21-24			0.6635***	0.6782***	0.6824***
			(0.1144)	(0.1220)	(0.1223)
25-29			0.6897***	0.6783***	0.6813***
			(0.1147)	(0.1238)	(0.1240)
30-34			0.7057***	0.6901***	0.6906***
			(0.1086)	(0.1159)	(0.1160)
35-39			0.6517***	0.6348***	0.6353***
			(0.1014)	(0.1095)	(0.1090)
40-44			0.6264***	0.5956***	0.5977***
			(0.0953)	(0.1026)	(0.1027)
45-49			0.5332***	0.4718***	0.4774***
			(0.0847)	(0.0905)	(0.0901)
50-54			0.4707***	0.3948***	0.4052***
			(0.0663)	(0.0736)	(0.0729)
55-59			0.4234***	0.3570***	0.3669***
			(0.0630)	(0.0701)	(0.0693)
60-64			0.4465***	0.3961***	0.4072***
			(0.0549)	(0.0624)	(0.0613)
65-69			0.3253***	0.2954***	0.3044***
			(0.0444)	(0.0478)	(0.0470)
70-74			0.2586***	0.2463***	0.2524***
			(0.0387)	(0.0408)	(0.0405)
75-79			0.1157***	0.1152***	0.1204***
			(0.0430)	(0.0434)	(0.0428)
Race (reference: White)					
Black			-0.0125	0.0374	0.0680
			(0.1200)	(0.1281)	(0.1298)
Other			-0.3022***	-0.1820**	-0.1659**
			(0.0805)	(0.0782)	(0.0818)
Log of permanent family income				0.3846***	0.3576***
				(0.0210)	(0.0225)
Years used in permanent measure				0.0042	0.0041
				(0.0035)	(0.0035)
Parents' Occupation (reference: Other or no occupation)					
Father: Professional, managerial, technical					0.1686***
					(0.0391)
Father: Skilled and semi-skilled					0.0787**
					(0.0316)
Mother: Professional, managerial, technical					0.0594
					(0.0392)
Mother: Skilled and semi-skilled					0.0398
					(0.0248)
N (person-years)					

Source: Full sample of BHPS (1991-2008).

Notes: Robust standard errors in parentheses. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively. Reference categories include those aged 80 and over and those whose parents had other or no occupation. We do not drop observations because of missing values in the log of permanent family income or parental occupation but rather add three dummy variables that indicate missing values in these variables.

Table A52: Sensitivity of coefficient estimates for early-life (aged 0-4) income share of top 1 percent to alternative time trend specifications and the inclusion of the current top 1 percent income share - full country samples

	U.S.		Great Britain	
	Men	Women	Men	Women
Quadratic time trend	-0.0221***	-0.0283***	-0.0098	-0.0002
	(0.0075)	(0.0074)	(0.0099)	(0.0085)
Quadratic time trend + current income share	-0.0221***	-0.0284***	-0.0098	-0.0001
	(0.0075)	(0.0074)	(0.0099)	(0.0084)
Linear time trend	-0.0229***	-0.0312***	-0.0075	0.0030
	(0.0075)	(0.0074)	(0.0103)	(0.0088)
Linear time trend + current income share	-0.0227***	-0.0306***	-0.0077	0.0029
	(0.0075)	(0.0073)	(0.0102)	(0.0087)
Decade dummies	-0.0171**	-0.0230***	0.0078	0.0119
	(0.0072)	(0.0069)	(0.0087)	(0.0074)
Decade dummies + current income share	-0.0197***	-0.0255***	0.0028	0.0086
	(0.0074)	(0.0072)	(0.0096)	(0.0082)
N (person-years)	62,389	70,347	58,055	67,096

Sources: Full samples of PSID (1984-2009) and BHPS (1991-2008).
Notes: Coefficient estimates and their standard errors in each of our six specifications are based on Model 5 in Tables A8 to A11 but using alternative time trend specifications with or without the addition of a current-year measure of the share of income held by the top 1 percent. Current income share is the value of the top 1 percent share in the year health is reported. Values for the quadratic time trend were previously reported in Tables A8 to A11. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively.

Table A6: Sensitivity of coefficient estimates for early-life (aged 0-4) income share of top 1 percent to major change in public health system for persons born before 1950 and 1966 – full country samples

	(1)	(2)	(3)	(4)	(5)
U.S.					
Men					
Birth to age 4	-0.0880***	-0.0747***	-0.0244***	-0.0309***	-0.0222***
	(0.0076)	(0.0086)	(0.0077)	(0.0072)	(0.0074)
Birth to age 4 x born before 1966	-0.0048	-0.0240***	0.0067	0.0004	0.0008
	(0.0030)	(0.0040)	(0.0048)	(0.0046)	(0.0043)
Women					
Birth to age 4	-0.0970***	-0.0843***	-0.0348***	-0.0379***	-0.0285***
	(0.0066)	(0.0075)	(0.0079)	(0.0075)	(0.0075)
Birth to age 4 x born before 1966	0.0008	-0.0160***	0.0047	-0.0005	0.0009
	(0.0030)	(0.0039)	(0.0040)	(0.0047)	(0.0046)
U.S. (1950 as "placebo")					
Men					
Birth to age 4	-0.0946***	-0.1018***	-0.0327***	-0.0417***	-0.0338***
	(0.0115)	(0.0123)	(0.0114)	(0.0109)	(0.0107)
Birth to age 4 x born before 1950	0.0000	-0.0017	0.0052	0.0060	0.0065
	(0.0046)	(0.0050)	(0.0057)	(0.0053)	(0.0053)
Women					
Birth to age 4	-0.1078***	-0.1124***	-0.0446***	-0.0455***	-0.0362***
	(0.0104)	(0.0109)	(0.0113)	(0.0110)	(0.0104)
Birth to age 4 x born before 1950	0.0058	0.0037	0.0058	0.0041	0.0043
	(0.0045)	(0.0046)	(0.0047)	(0.0046)	(0.0042)
Great Britain					
Men					
Birth to age 4	-0.0452***	-0.0538***	-0.0242	-0.0126	-0.0131
	(0.0089)	(0.0090)	(0.0148)	(0.0144)	(0.0142)
Birth to age 4 x born before 1950	0.0014	0.0041	0.0053	0.0012	0.0016
	(0.0050)	(0.0050)	(0.0051)	(0.0052)	(0.0051)
Women					
Birth to age 4	-0.0450***	-0.0524***	-0.0073	0.0059	0.0066
	(0.0069)	(0.0073)	(0.0115)	(0.0123)	(0.0123)
Birth to age 4 x born before 1950	0.0026	0.0051	0.0018	-0.0040	-0.0033
	(0.0039)	(0.0041)	(0.0039)	(0.0042)	(0.0041)
Great Britain (1966 as "placebo")					
Men					
Birth to age 4	-0.0460***	-0.0449***	-0.0130	-0.0102	-0.0096
	(0.0053)	(0.0054)	(0.0096)	(0.0100)	(0.0099)
Birth to age 4 x born before 1966	0.0024	-0.0013	-0.0002	0.0001	-0.0002
	(0.0032)	(0.0033)	(0.0036)	(0.0038)	(0.0038)
Women					
Birth to age 4	-0.0412***	-0.0401***	0.0008	0.0009	0.0037
	(0.0054)	(0.0055)	(0.0082)	(0.0087)	(0.0086)
Birth to age 4 x born before 1966	0.0005	-0.0026	-0.0063	-0.0044	-0.0053
	(0.0036)	(0.0038)	(0.0046)	(0.0047)	(0.0047)
Controls					
Time trend		X	X	X	X
Age group			X	X	X
Race			X	X	X
Log permanent family income				X	X
Parents' education/occupation					X

Sources: Full samples of PSID (1984-2009) and BHPS (1991-2008).

Notes: Coefficient estimates and their standard errors are from model specifications that correspond to those used for Tables A8 to A11. Sample sizes are N=62,389 for U.S. males, N=70,347 for U.S. females, N=58,055 for British males and N=67,096 for British females. Coefficient estimates that statistically differ from zero are denoted by ***, **, and * for p-values ≤.01, ≤.05, and ≤.10 respectively.