



Does early-life income inequality predict self-reported health in later life? Evidence from the United States



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ABSTRACT

We investigate the association between adult health and the income inequality they experienced as children up to 80 years earlier. Our inequality data track shares of national income held by top percentiles from 1913 to 2009. We average those data over the same early-life years and merge them to individual data from the Panel Study of Income Dynamics data for 1984–2009. Controlling for demographic and economic factors, we find both men and women are statistically more likely to report poorer health if income was more unequally distributed during the first years of their lives. The association is robust to alternative specifications of income inequality and time trends and remains significant even when we control for differences in overall childhood health. Our results constitute prima facie evidence that adults' health may be adversely affected by the income inequality they experienced as children.

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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, evidence is mixed (Deaton, 2003, 2013; Wilkinson and Pickett, 2006; Kondo et al., 2009, 2012).

Although most studies focus on the relationship between contemporaneous health and contemporaneous income inequality, our work links to an emerging and smaller subset of studies that estimate the relationship between current health and exposure to past inequality in one or several years. We investigate whether later-life health systematically varies with income inequality at early ages. We combine Panel Study of Income Dynamics (PSID)

data on adult health reported on the 1984 to 2009 surveys with data on national income held by top percentiles from 1913 to 2009 (Piketty and Saez, 2003). We find that adults are more likely to report poorer health if income was more unequally distributed during the first years of their lives. The association is robust to alternative specifications. The evidence is mixed when we control for differences in childhood health. It remains statistically strong with one set of controls but disappears for men and weakens for women with another set. However, the latter results are difficult to interpret because those data are only available for a selected sample. In general, the association is robust to alternative specifications.

Most studies relating current health to past inequality measure inequality in a given calendar year (or an average of a given set of calendar years). In contrast to our analysis, in these studies, each individual is “treated” with inequality at a different chronological age. Blakely et al. (2000) relate U.S. Current Population Survey (CPS) data on self-reported health of individuals aged 15 and older in 1995 and 1997 to state-level measures of income inequality measured contemporaneously and at several intervals, up to 18 years in the past. They conclude that, for individuals aged 45 and

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older, income inequality experienced up to 15 years previously may be more strongly associated with self-rated health than income inequality measured contemporaneously.

Mellor and Milyo (2003) relate self-reported health data from CPS respondents who were aged 25–47 in 1995–1999 to state-level income inequality measured in U.S. census years. In these data inequality is measured in a past year that is temporally separated from the year health is observed by between 5 and 29 years. In their models that control for regional fixed-effects, current health is uncorrelated with lagged income inequality.

Karlsson et al. (2010) use 2006 cross-sectional data on self-assessed health, activities of daily living, and life expectancy of adults aged 40–49 living in 19 countries. They relate health to each country's Gini coefficient in 2006 and 1990 (or the closest available year). They find no consistent evidence of an association between health and income inequality but do find a negative correlation in high-income countries.

de Vries et al. (2013) draw on 2006–07 English Longitudinal Study of Aging, Survey of Health Ageing and Retirement in Europe, and Health and Retirement Study data covering 16 countries to examine the association between physical functioning of older people (median age was 64) and the mean of the Gini coefficient in each country, averaged over 46 years—from 1960 to 2006. Because they only measure health in one year, they rely on cross-country variation in averaged income inequality to estimate the association. They find physical functioning is negatively correlated with inequality, but that self-reported health is uncorrelated with average income inequality.

Using data from 12 rich countries, Leigh and Jencks (2007) find little evidence of a relationship between life expectancy, infant mortality, homicide, and suicide and the share of taxable income held by the top 10 percent of tax units measured either concurrently with health or lagged by up to five years. None of the above studies examines the relationship between adult health and income inequality experienced as a child over comparable years for all observations. We do.

We focus on early life exposure 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 childhood that affect health. For evidence on later-life health, 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 adult achievement, employment, health and childhood poverty. For evidence that productivity of medical resources will plausibly vary according to when a person receives those inputs see Almond et al., 2012 and Wüst, 2012.

A small literature suggests some mechanisms that might generate a connection between income inequality experienced in early life and adult health. 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 literature with new empirical evidence on the relationship between self-reported health and income inequality measured over the same early-life periods for every person—birth to age 4, birth to age 9, and birth to age 19. Because we cannot test for possible mechanisms in our data, we do not speculate further about them. Instead we aim to establish evidence about the basic association.

We find that U.S. men and women are more likely to report

being in worse health as adults if they experienced greater income inequality in childhood. In our full sample, these associations are robust when we change the period over which we measure income inequality, and control for demographics, current and past economic status, and time trends. The relationship is robust to controls for childhood poverty and overall childhood health. In a smaller and possibly selected sample we find that the association weakens or disappears when we control for specific health conditions people experienced as children.

2. Data

Our primary data come from the Panel Study of Income Dynamics (PSID). The PSID data are, in many ways, ideal for this analysis because the survey follows individuals from the year they first participate until they die or attrite from the sample. The family head (or a designated proxy) reports data for all family members. When children establish families, the PSID follows and interviews them. From 1968 to 1997, the PSID administered the survey annually. Since 1997, the PSID fields its survey biennially. Today, the PSID includes data on individuals who represent up to three generations of the originally sampled families.

We draw data from all U.S.-born (SEO, SRC, and Latino) sample members with valid data on any of the 1984–2009 surveys that collected the self-reported health data. From the 1970–2009 surveys we draw all available data on each person's contemporaneous family size and household income and retrospectively reported information on the education of each person's mother and father, their family's economic status when the person was a child, and each person's self-reported childhood health.

We measure inequality using the Piketty–Saez top income data series from 1913 to 2009.

We next describe these data. For more details, see the [Data Appendix](#).

2.1. Dependent variable

Our dependent variable measures each adult's self-reported health. On the 1984–2009 surveys, the PSID asks respondents to rate their own and their spouse's current health. The survey asks respondents to assign their health into one of five Likert-scale categories that range from “Poor” (value 1) to “Excellent” (value 5). Table 1 reports the distribution of men's and women's current health status for 1984–2009 across five categories in our full sample. Slightly more men report being in better health than women.

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 and researchers have used them to

Table 1
Distribution of self-reported current health (% of adults aged 21 and older).

Current health status	Men	Women
Poor (1)	3.75	4.33
Fair (2)	9.68	12.07
Good (3)	26.13	30.57
Very good (4)	33.80	32.50
Excellent (5)	26.64	20.52
N (person-years)	87,339	108,274

Notes: Numbers in parentheses refer to coding of variable.
Source: PSID (1984–2009).

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