Three-generational associations in socio-economic outcomes. New Evidence from the Panel Study of Income Dynamics

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This contribution analyzes three-generational associations for a broad range of socio-economic outcomes, namely education, occupation, earnings, income, and wealth, based on nationally representative data for the United States. I apply two distinct but complementary perspectives on multigenerational associations: First, I document the degree of similarity in socio-economic standing among individuals of the third generation (G3) via cousin correlations. This "horizontal approach" captures the sum of all sources of three-generational factors involved in the socio-economic attainment of a current generation of adults. Second, to assess whether these multigenerational associations can be traced to the direct effects of selected socio-economic characteristics of grandparents (G1), I apply three-generational status attainment models. This "vertical approach" reveals the relative importance of measurable socio-economic characteristics of grandparents and parents. Finally, this paper begins to document sources of heterogeneity in multigenerational associations that may point towards the underlying social mechanisms.

Motivation

Early interest in and theoretical work on social mobility across three generations can be found in both sociology and economics (for a review see Warren and Hauser 1997). A few empirical assessments (e.g., Mukherjee 1954) and the predominant theoretical model (Becker and Tomes 1979) at the time suggested negative three-generational associations (for instance, an improvement in status from one generation to the next appeared to make a decrease in status in the next generation more likely), which were soon identified as statistical artifacts (Blau and Duncan 1967, Goldberger 1989). The recent rejuvenation of interest in multigenerational social mobility, further stimulated by Robert Mare's recent PAA presidential address (Mare 2011), has produced evidence of positive and sizeable multigenerational associations as well as evidence in favor on non-Markovian mobility processes (e.g. contributions in Pfeffer 2014a). For the United States, a recent contribution by Jaeger (2012) has added important evidence on multigenerational associations and significantly expanded earlier research on this topic (Warren and Hauser 1997, Biblarz et al. 1996, Kiker and Condon 1981) by providing a detailed picture of multigenerational determinants of educational attainment for three subsequent generations of Wisconsin families[1]. In this paper, I apply the same analytic approach used by Jaeger to expand the empirical evidence for multigenerational social mobility in the United States along three lines. First, as Mare pointed out, "mid-twentieth century Wisconsin families may be a population in which multigenerational effects are unusually weak" (2011: p.16) – replicating prior findings on multigenerational mobility in the U.S. with nationally-representative data is thus imperative. Second, I expand the range of socio-economic outcomes studied beyond that of educational attainment, and include additional individual-level outcomes, such a earnings and occupational status, as well as family-level outcomes, such as family income and wealth. Third, I document heterogeneity in multigenerational associations across the socio-economic distribution (i.e. whether they are stronger at the bottom and top) and assess whether they differ by basic indicators of grandparental proximity. The latter perspective paves the way for a further move from the description of multigenerational associations towards their explanation.

Data and Measures

The Panel Study of Income Dynamics (PSID) is ideally suited – and in fact the only available nationally representative survey – to carry out this study thanks to its genealogical design, which follows all individuals born to original sample households. Now in its 45th year, the PSID contains a large number of individuals originating from the same grandparental household (N=11,049 in 2009). I will compare the socio-economic wellbeing of these individuals at a similar life stage by restricting the analytic sample to those aged 25 to 35 years in the latest two available PSID waves, 2009 and 2011 (based on 2009 estimates: N=1,762-2,217 individuals and 1,244-1,472 cousin pairs depending on the outcome analyzed).

[1] Although Jaeger's main analyses are based on the Wisconsin Longitudinal Study, a subset of analyses also draws on the National Survey of Youth (NLSY79).

I will draw on harmonized versions of the following five indicators of socio-economic standing for all three generations: (1) years of education completed, (2) earnings (averaged across five years), (3) occupational status (SEI), (4) family income (averaged across five years), and (5) family wealth / net worth (averaged across two waves; only available for G2 and G3). Information on outcomes (2)-(5) is restricted to those individuals who have established their own households (i.e. become PSID "heads/wives"), which is the case for the great majority of that age group. Furthermore, while (1)-(3) are individual-level outcomes, (4) and (5) are family-level measures. The latter therefore also imply a perspective on socio-econonomic wellbeing as partly arising from demographic processes, namely marriage and marital homogamy (see also Mare 2011).

Approach and Methods

First, I document the degree of similarity in socio-economic standing among individuals of the third generation (G3) via cousin correlations. The idea to study the similarity of cousins as an indicator of the potential impact of grandparental family environments is a direct extension of a more widely used approach that uses sibling correlations to reveal the potential importance of parental family environments (Jencks et al. 1972; Hauser and Mossel 1985; Björklund and Jäntti 1997; Solon 1999). Following recent work (Jaeger 2012; Hällsten 2014; Björklund et al. 2013), I draw on variance component models of the following form:

$$y_{cpg} = \alpha + n_g + m_{pg} + \epsilon_{cpg} \tag{1}$$

where y_{cpg} describes the variance in a socio-economic outcome (education, occupation, earnings, income, wealth) for child c belonging to parental family f and grandparental family g. In model 1, the random intercept n_g captures variation in the outcome resulting from sharing the same grandparental family (i.e. siblings and cousins) and m_{pg} captures variation resulting from the same parental family (i.e. siblings). In equation 2, the total variance is then separated into that arising from shared grandparental origins (σ_n^2) and shared parental origins (σ_m^2). The relative importance of each can be expressed through an inter-class correlation coefficient.

$$var(y_{cpg}) = \sigma_n^2 + \sigma_m^2 + \sigma_\epsilon^2 \tag{2}$$

The cousin correlations approach can also be used to assess the assumption of a Markovian mobility process by investigating the sensitivity of cousin correlations to controls for parental socio-economic characteristics (sensitivity should be low if cousin correlations capture mostly direct effects of grandparents).

Cousin correlations may be viewed as upper-bound estimates of the potential impact of grandparents. In fact, rather than identifying the impact of specific grandparental characteristics, they sum up the influence of *any* characteristics and environments of the grandparental family (neighborhood, genes, etc.). Therefore, in a second analytic approach, I attempt to identify the direct influences of grandparents' socio-economic

characteristics and those mediated by parental socio-economic characteristics. I draw on status attainment models that simultaneously assess the direct associations between grandparental education, occupation, and income with their grandchildren's education and occupation as well as the the indirect associations through parental education, occupation, income, and wealth (see also Warren and Hauser 1997).

Third, I investigate two different sources of heterogeneity in multigenerational associations: I assess whether multigenerational associations differ across the socio-economic spectrum, more specifically, whether they are concentrated at the low and high points of the socio-economic distribution (see also Chan and Boliver 2013, Pfeffer 2014b). I also investigate whether cousin correlations rise with the amount of lifetime shared by grandparents and their grandchildren, as we should expect if there are direct impacts of grandparents. Generational overlap is a rough indicator of grandparental proximity, that future research may expand by drawing on indicators such as geographic proximity, grandparental health, and others. The empirical asssessment of these types of heterogeneity occurs through a separate estimation of the cousin correlations and status attainment models (in multi-group models) for different groups identified by their socio-economic status and generational overlap.

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