Education's Contribution to
Social Mobility Trends in the United States

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Abstract

Modern education systems are expected to fulfill two fundamental functions: equipping students with knowledge that allows them to take part in economic, social, and political life as well as providing individuals with opportunities for social mobility. Much of educational policy focuses on the former goal. The social mobility goal certainly also receives great attention in public and political discourse but research has been much less rigorous in studying the complex relationship between education and social mobility. Based on nationally representative data (General Social Survey and Current Population Survey) and using a recent methodological innovation (Breen 2010), this paper assesses how education accounts for trends in social mobility in the United States across the 20th and 21st century. In particular, it demonstrates the role of the changing distribution of educational degrees and educational opportunities for long-term trends in social mobility.

Topic and contribution to the existing literature

Up until the 1980s, the study of intergenerational class mobility used to be quite an industrious field of empirical research (Beller and Hout 2006). Apart from establishing a gradual trend towards a more mobile U.S. society up until the mid 20th century (DiPrete and Grusky 1990), this line of investigation also made important methodological contributions. In particular, it established adequate measures (i.e. measures that are insensitive to changes in the marginal distributions of occupations) for a society's level of openness in terms of mobility opportunities (see below). Conclusions about mobility trends in the U.S. since then, however, are elusive. This paper will fill this gap by providing a description of long term trends in social class mobility.

Research on the role of education in the process of intergenerational mobility has mostly focused on two topics: trends in inequality in educational opportunities and the expansion of educational participation. This research has established overall stability in class inequality in education for the United States throughout the 20th century (Hout and Dohan 1996, Roksa et al. 2007) and the failure of educational expansion in reducing educational inequality (Raftery and Hout 1993, Shavit et al. 2007). However, while largely ineffective for reducing class inequality in education, educational expansion may still contribute to increasing opportunities for mobility. Drawing on earlier waves of the General Social Survey, Hout (1988) was the first to detect the "compositional effect" according to which class destinations are no longer tied to class origins among those who manage to graduate from college (who, of course, are a socio-economically selective group). Hout even hypothesized that the entire observed increase in social mobility may be due to the increasing importance of the compositional effect implied by educational expansion (1988: p. 1385). In this project, I am able to provide the first precise statistical test of this hypothesis and based on a much wider time window of observation. Doing so becomes even more pressing and promising since ongoing research has been able to confirm the "compositional effect" for more recent cohorts (Torche forthcoming).

The main research question answered by this project is how and how much education contributes to an intergenerationally mobile society. I hypothesize that educational expansion and lacking equalization of educational opportunities were the main factors that have shaped social mobility in the United States throughout the 20th and early 21st century.

Data and measures

I am the first to be able to combine data from three nationally representative surveys that provide both a large enough sample size and a long enough time window of observation to reliably establish time trends in the relationship between education and social mobility. Focusing on individuals born between 1898 and 1985, I can study the relationship between educational processes and social mobility for the entire 20th century and the beginning of the 21st century. To do so, I draw on 28 repeated cross-sectional surveys from the General Social Survey (GSS) administered between 1972 and 2010 and the two "Occupational Changes in a Generation" (OCG) supplements to the March 1962 and March 1973 Current Population Survey (CPS). Together, these surveys cover close to 110,000 individuals.

The analytic sample consists of individuals aged 25 to 64 in the year of data collection with valid responses on these key variables: their highest educational degree, their current occupational position, as well as retrospectively collected information on the main occupation of their father

when they grew up[1]. These variables are coded consistently across all three datasets and the time window studied here. Educational attainment is assessed as the highest degree completed and measured in the following categories: less than high school, high school, some college (including associate's degree), bachelor's degree and higher. Social origins and destinations are measured as social class membership. I use the EGP or Goldthorpe class scheme (Erikson and Goldthorpe 1992), which has been established as the standard measure for quantitative studies of social class. Detailed codes for both respondents' and their fathers' occupation are translated into seven social classes, distinguishing professionals and managers (higher), professionals and managers (lower), clerical workers, self-employed, skilled manual workers, unskilled manual workers, and farmers. I am able to draw on a recent (and long sought after) extension of class assignment algorithms (Mitnik 2011) for the pre-1980 Census occupational classification schemes that were used in GSS waves before 1988 as well as both OCG surveys . I divide the sample into eight birth cohorts and analyze mobility trends separately for males and females, mostly because educational expansion has been much more pronounced for women (see DiPrete and Buchmann 2006). Additionally separating the sample by race will not be possible since doing so would result in sparse data in the cross-tabulations.

Methods

While this paper addresses big structural questions about education and social mobility, it draws on new quantitative methods that yield precise and parsimonious answers. I draw on log-linear models of cross-tabulated categorical data, namely cross-tabulations of cohort (C), class background / origin (O), class attainment / destination (D), and educational attainment (E).

To describe observed trends in social mobility, I apply a log-multiplicate model that is well established in the mobility literature (see Xie 1992):

$$f_{ijl} = \mu \gamma_i^C \gamma_j^O \gamma_l^D \gamma_{ij}^{CO} \gamma_{il}^{CD} exp(\Psi_{jl}\Phi_i) \tag{1}$$

where Φ_i describes the cohort-specific deviation in the association between class origin, O, and class destination, D (Ψ_{jl}). This model thus produces one parameter (Φ_i), which can be used to parsimoniously describe different levels of social mobility (margin-insensitive, i.e. independent of shifts in the overall occupational distribution) for each cohort based on a stable pattern of association across all categories of O and D (Ψ_{jl}).

Following this parsimoneous description of mobility trends, I move on to assess the role of education in shaping them. Here I draw on a new method developed by Breen (2010) that, in essence, compares the observed trend in social fluidity to a number of counterfactual trends. Breen demonstrated that the three-way probability distribution of cohort by origins by destinations (which is the basis for assessing trends in social mobility) derives most centrally from the following two saturated log-linear models:

$$f_{ijkl} = \alpha \beta_i^C \beta_j^O \beta_k^E \beta_l^D \beta_{ij}^{CO} \beta_{ik}^{CE} \beta_{il}^{CD} \beta_{jk}^{OE} \beta_{jl}^{OD} \beta_{kl}^{ED} \beta_{ijk}^{COE} \beta_{ijl}^{COD} \beta_{ikl}^{CED} \beta_{jkl}^{OED} \beta_{ijkl}^{COED} \tag{2a}$$

$$f_{ijk} = \mu \gamma_i^C \gamma_j^O \gamma_k^E \gamma_{ij}^{CO} \gamma_{ik}^{CE} \gamma_{jk}^{OE} \gamma_{ijk}^{COE} \tag{2b}$$

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[1]Ideally, I would also assess social origins based on not only fathers' but also mothers' social class, however, an indicator of mothers' occupation is unavaibable for most survey years.

Leaving out selected, theoretically meaningful parameters from Equations 2a and 2b produces counterfactual COED distributions, that is, predicted frequency distributions across the four-way cross-classification that do not perfectly coincide with the observed frequency distribution. Collapsing these counterfactual distributions over E yields an implied three-way relationship between O, D, and C, which serves as the basis for the assessment of counterfactual trends in social mobility. In other words, we can now answer the question: "What would the trend in social fluidity have looked liked, if [x] was not the case?" The theoretically meaningful parameters [x] assessed by Breen and used in this project are:

1. β_{ijl}^{COD} = changes in the direct effect of origins on destinations (O-D) across cohorts

2. β_{ikl}^{CED} = changes in the returns to education (E-D) across cohorts

3. β_{ijk}^{COE} = changes in class inequality in education (O-E) across cohorts

4. γ_{ik}^{CE} and β_{jkl}^{OED} = educational expansion and the compositional effect

The final step and central focus of this method is the comparison of the observed trend in social mobility and the counterfactual trend produced by the parameter exclusions just described. That is, I may now estimate trends in social mobility using model 1 based on the observed COED table and based on each of the four counterfactual COED tables following. While the impact of each of the four parameters listed above is of substantive interest, I expect that the discussion of results will mostly focus on the latter two (3. & 4.). In Breen's analysis of Sweden, Germany, and Britain also demonstrated that those parameters are by far the most influential in changing social mobility levels.

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