# A Chip Off The Old Block?
# Genetics and Economic Mobility

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Increasing economic inequality in many developed countries has made promoting mobility one of the priorities of policy makers. Designing effective policies to tackle this issue requires a better understanding of how socioeconomic advantage is transmitted across generations. Economists and other social scientists have studied extensively the advantages conferred by being born into more advantageous environmental circumstances: e.g., having more educated parents, access to better schools, or growing in a higher-SES neighborhood. We know, however, much less about the role played by genetics.

How does the genetics of one generation affect the economic prospects of the next one? There at two challenges to answering this question, concerning measurement and identification. The first challenge is that many datasets containing molecular genetic data were designed to study health and have little or no socioeconomic data. We overcome this challenge by merging genetic data from the Dutch Lifelines Biobank of first- and second-generation individuals with administrative longitudinal tax records of a third-generation. The tax records include detailed data on wealth, income, savings, and investments from 2006 to 2021. As an individual-level measure of one's genetics, we use the polygenic index for educational attainment, the best-established measure in the social genomics literature. This linear index constructed from millions of genetic markers explains from 12% to 16% of the cross-sectional variation in educational attainment (Okbay et al. 2022).[1]

The identification challenge requires isolating variation in the genetics of one generation, holding constant the socioeconomic status of the previous one. Human biology provides such

[1] Following the standard practice in social genomics, the sample is restricted to participants with European genetic ancestries.

experiment. Each one of us have two copies of every genetic marker. During conception, only one of a parent's two copies is transmitted to the offspring. It is random which copy is transmitted. Intuitively, given the genetics of the two parents, there is a set of all possible genome that a child from this couple could inherit. Each child of this couple is effectively a random draw from such counterfactual set.

We exploit this "genetic lottery" and the rich tax records data to study the causal effects of the genetics of one generation on the economic prospects of the next one. We also study the three mechanisms of these effects. First, the offspring will inherit half of her genetics from this parent. Second, the parent's genetics will affect the parent's characteristics and behaviors, shaping as a consequence the offspring's environmental circumstances (e.g., the parent's education and income). The third mechanism is through assortative mating: The genetics of parent #1 may influence who they reproduce with, potentially affecting both the genetics and characteristics of parent #2. We attempt to quantify the relative importance of each of these mechanisms. A complementary decomposition is conducted, distinguishing between the effects working through income; savings and investment; and bequests. Finally, we investigate whether the effects depend on the gender of the parent and on the offspring's gender and how they vary over the life cycle of the latter.