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## Sources of Inequality at Birth: the Interplay Between Genes and Parental Socioeconomic Status.

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KEYWORDS: Gene-by-Environment Interplay; Polygenic Scores; Social Science Genetics; Inequality

### ABSTRACT:

The start of a human's life can be characterized by two lotteries: that of your genes (nature) and that of the family you were born into (nurture). These lotteries set in motion a trajectory, from birth onward, in health and human-capital formation. Genetic factors are implicated in virtually any human trait, and early-life experiences strongly influence long-term outcomes, with children born into high socio-economic status (SES) families generally in better health and of higher SES in later life. Leveraging three longitudinal social-science data sets, the Health and Retirement Study (HRS), the Wisconsin Longitudinal Study (WLS), and the English Longitudinal Study of Aging (ELSA), containing rich genotypic and phenotypic information, we systematically analyze the relationship between an individual's index of genetic propensity towards a trait (genotype), their actual trait in adulthood (phenotype), and the social and economic status of the families they grew up in. We proxy the individual's genetic predisposition to a trait by a polygenic score (PGS) and the SES of the families they were born into by a latent factor of parental SES, constructed from parental education and the father's (former) occupational status. We then investigate how genetic predispositions, socio-economic background, and their interaction contribute to later-life outcomes, across a range of forty-five socioeconomic, anthropometric, health, behavioral, and personality traits. We find strong genetic and socio-economic associations but no evidence for sizeable interactions between them. We discuss several possible implications of this result.

GRANT SUPPORT: We gratefully acknowledge financial support from NORFACE DIAL (462-16-100), the National Institute on Aging of the National Institutes of Health (RF1055654 and R56AG058726), and the Dutch National Science Foundation (016.VIDI.185.044).