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Genetic health risks, longevity, and retirement

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Abstract

Genetic health information is fast becoming accessible and affordable. Widespread use of genetic testing could have major implications for consumer behavior in insurance and annuity markets, and insurance providers are concerned about adverse selection and escalating premiums. The aim of this study is to estimate how well genetic predictors can explain variation in survival, subjective life expectancy and self-rated health, and various retirement outcomes. We construct about thirty genetic predictors—*polygenic scores*—for a range of common diseases and health risks in a sample of 9,272 Health and Retirement Study respondents, by leveraging genetic associations from studies performed in hundreds of thousands of participants. Multivariate survival analysis suggests that the median survival of respondents in the highest decile of genetic risk is ~3 years lower than the remainder of the sample. Respondents in the highest decile of genetic risk who also report to be of poor health have a median survival that is ~9 years lower than the rest. In addition, we find that increased genetic risk is associated with being less likely to hold long-term care insurance, among other retirement-related outcomes. Our results highlight that the predictive accuracy of some polygenic scores is already similar to that of traditional actuarial risk factors.

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