The Role of Cognitive Decline on Retirement Decisions: A Mendelian Randomization Approach

AMAL HARRATI AND MARK R. CULLEN

Key Findings and Policy Implications

This study develops a methodological framework for examining the causal impact of cognitive decline on retirement decisions. It uses data from the Health and Retirement Study, including four cognitive assessment measures compiled from the HRS surveys from 1996 to 2010, and the genotyping of saliva from the 2006 and 2008 HRS genetic samples. Much of the scientific advancement of the study was methodological, as the sample size compiled to date proved too small to conclusively relate cognitive decline to labor market behavior:

- The key methodological advance of the project involved an innovative instrumental variables approach to estimating the causal impact of cognitive decline on retirement. The instrument is constructed, based on the growing scientific evidence about specific genetic markers that are associated with health conditions. The instrument used is a genetic risk score (GRS) using 19 of the top single nucleiotide polymorphism (SNP) associated with Alzheimer's disease.

- The recent collection of genetic markers in large-scale, respondent-based surveys has made the integration of genetic material into social science research possible. The use of the HRS for this study enabled the construction of an analytic sample with 4,677 respondents who had retired by the end of the observed period, who had conducted the cognitive assessments in at least three waves of the HRS, and who had consented to genotyping.

- The results provide a good proof of concept for using genetic risk scores as an instrument for cognitive decline. A power calculation indicates that a sample size nearer 20,000 would have been needed to detect statistically significant relationships. In continuing work, we plan to use additional SNPs in the genetic risk score that have recently been identified as related to cognitive decline. We are also working to supplement the data with other samples that combine survey and genetic data, including the Framingham Heart Study and the Wisconsin Longitudinal Survey, which is scheduled to release genetic data in the coming weeks.

Understanding the determinant of retirement behavior is a critical aspect of Social Security policy evaluation, and the impact of cognitive decline is an area that has had much less prior investigation. As the number of 'white collar' jobs grows in comparison to manual labor, cognitive capacity may become a more important determinant of job productivity, job satisfaction, and labor market decision-making at older ages.

AMAL HARRATI is a current post-doctoral fellow at the Stanford University School of Medicine.

MARK CULLEN is Professor of Medicine at Stanford University School of Medicine, Director of Stanford Center for Population Health Sciences, and an NBER Research Associate.

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