**The Interaction of Health, Genetics, and Occupational Demands in SSDI Determinations**

Amal Harrati, Stanford University
Lauren Schmitz, University of Michigan

Program Area: Disability Insurance (DI)

## Background

Evaluations of Social Security Disability Insurance (SSDI) applications are based not only on poor health, but in most cases, consider the vocational factors of age, education and work experience to determine whether individuals can work. SSDI determinations based on these factors have grown threefold since 1985[1].Yet little is known about the relationship between SSDI activity and the ability to meet occupational requirements[2]. Moreover, there is strong evidence that morbidity and mortality are distributed unequally across occupations, perhaps because differential work environments may exacerbate disability but also because individual-level underlying health is unlikely to be randomly distributed across occupations.

Together, these phenomena result in complex relationships of SSDI determinants with both the independent and joint effects of health and occupational demands. Disentangling the contributions of these forces is challenging, because selection into occupations by health is often unobserved and because data on occupational demands for employment histories is limited. We propose to triangulate between these factors by using a rich set of data linkages from the Health and Retirement Study.

## Aims

Specifically, our project aims are as follows: First, we ask whether there exist differences in SSDI application, receipt, and denial as a function of the occupational demands of applicant's employment history. Secondly, we examine whether these differences can be explained by selection into occupational class by health, using both observed health and genetic data to capture unobserved health.

## Data

We use data from the Health and Retirement Study (HRS), a nationally representative dataset on Americans over age 50 with rich information on health and employment from 1992-2016. We utilize a number of important linkages from restricted or sensitive data:

1) Linkage to SSA data. These include data from Form 831on 6,482 HRS cohort members (1,888 allowed, 4,594 denied) with dates of application, type of claim (Type II or Title XVI), and reasons for denials.
2) Expert ratings of job demands taken from the Occupational Information Network (O*NET) for individual job histories (including longest-held job). These data are

[1] Michaud, A., Nelson, J., & Wiczer, D. (2018). Vocational considerations and trends in Social Security Disability. *The Journal of the Economics of Ageing*, *11*, 41-51.

[2] A recent contribution to this understanding is: Rutledge, M. S., Zulkarnain, A., & King, S. E. (2019). The Relationship between Occupational Requirements and SSDI Activity. *CRR WP*, *5*.

already coded and have been used in previous work by the authors. Importantly, these classifications closely match the SSA-developed Occupational Information System (OIS), which is planned to replace the DOT to be used in vocational determinations in the near future.

3) Genome-wide genotype data for the HRS cohort. These data include measures of genetic risk (through the use of polygenic risk scores) for individuals for a number of physical and mental health conditions including arthritis, depression, cardiovascular disease, dementia, and diabetes.

All these data are readily available to the authors, with IRB approval, and both authors have previously used and published on these data linkages.

The results of this work will shed light on the separate and joint effects of job demand and health in determinations of SSDI applications and may inform opportunities for early intervention in the labor market.