The Role of Physical, Cognitive, Interpersonal Occupational Requirements, and Working Conditions on Disability and Retirement

*Italo Lopez Garcia, Kathleen J. Mullen, and Jeffrey B. Wenger**

Dramatic increases in life expectancy in recent decades, coupled with no change in the youngest age of claiming Social Security benefits (62), have tended to increase the proportion of an individual's life spent in retirement. This phenomenon has slowed labor force growth and presents challenges to the financial sustainability of Social Security and other public programs. If delaysing disability and retirement is a policy goal, improving working conditions related to physical workload, job control, and psychological job stress, which are increasingly identified as risk factors for disability and retirement, may prove effective. This is all the more important when more than half of American workers are exposed to unpleasant or potentially dangerous working conditions, including heavy vibrations, loud noises, extreme temperatures, hazardous contaminants, and verbal abuse, that disproportionally affect individuals without a college education.

However, improving working conditions does not automatically translate into all older individuals being able to work longer even if they are willing. The effectiveness of such policies ultimately depends on factors such as the individual's health and the nature of her job demands. Understanding how occupational requirements and adverse environmental exposure drive disability and retirement is important for projecting the long-run sustainability of the Social Security and SSDI programs, as well as for designing policies to encourage individuals with disabilities or advanced age to work longer. The recent rapid expansion of telecommuting during the COVID-19 pandemic, with its attendant effects on sedentary work and mental job demands, further underscores the importance of understanding how working conditions affect disability and retirement transitions.

In this paper, we examine how physical job demands (e.g., lifting, stooping, crouching), the physical work environment (e.g., exposure to heat, cold, humidity, noise), and mental job demands such as job autonomy and flexibility, or the social skills the job demands, influence the timing of retirement and disability. We investigate how this relationship differs by gender, age, and education among individuals near retirement in the United States. For our empirical analysis, disability is defined as a binary variable that takes value 1 if the individual reports having any work-limiting health problem and 0 otherwise. Using rich information on job requirements from the Occupational Requirements Survey's (ORS) Wave 2, we first study the

* **Italo Lopez Garcia** is an economist at the University of Southern California and an IZA Research Fellow. **Kathleen J. Mullen** is an associate economics professor at the University of Oregon. **Jeffrey Wenger** is a senior policy researcher at the RAND Corporation. This research brief is based on working paper MRDRC WP 2022-448, UM22-04.

structure and properties of ORS data and implement robust strategies to address missing data on job traits across occupations coded at the four-digit census code level. We then compare measures of physical and mental job demands, as well as the physical work environment, with similar metrics from the Occupational Information Network (O*NET) to identify the job traits that exhibit good statistical properties and concurrent validity.

Using validated job requirements only, we construct composite indices of job demands: the physical activity index, the physical work environment index, the job autonomy/flexibility index, and the supervised/work with public index. Next, using restricted individual-level data from the Health and Retirement Study (HRS) and the Life History Mail Survey (LHMS), we identify the most important occupation held by the individual in her prime years, and use that occupation to merge our job demand indices to the HRS panel using four-digit census occupation codes. We then estimate multivariate linear probability models to explore how physical and mental job demands, and the physical work environment, predict whether an individual is retired or has a disability in a given period, as well as whether a worker in a given period transitioned into full-retirement or disability the next period. Finally, we study how these associations between job demands and retirement vary by gender, age, and education.

We find that a 1 standard deviation (SD) increase in our physical activity index is associated with a 10 percentage point (pp) increase in the probability of being retired, and a 5 pp increase in the probability of transitioning into retirement. The same increase in the physical environment index is associated with a 13 pp increase in the probability of being retired, and a 6 pp increase in the probability of

transitioning into retirement. In turn, 1 SD increase in our job autonomy/flexibility index is associated with a 22 pp decrease in the probability of being retired, and a 12 pp decrease in the probability of transitioning into retirement, with the supervised/work with public index showing the same associations but in opposite directions, suggesting that this index captures low autonomy and low flexibility job traits. In terms of disability outcomes, only physical job demands have economically significant associations with disability status and transitions into disability. Specifically, a 1 SD increase in physical activity index is associated with a 5 pp increase in the probability of being disabled (having a work-limiting health problem) and with a 3 pp increase in the probability of transitioning into disability. The same increase in the physical work environment index is associated with a 3 pp increase in the probability of being disabled, and with a 2 pp increase in the probability of transitioning into disability. Lastly, we find significant heterogeneity in how job demands affect retirement and disability: Even though all workers in physically demanding and hazardous jobs tend to transition into retirement and disability earlier, men and low-educated workers do so even earlier than their counterparts. In turn, while all workers in occupations characterized by high job autonomy and flexibility tend to transition into retirement and disability later, this effect is much more pronounced among college-educated workers.

Our results suggest that, if encouraging working longer is a policy goal, targeting improvements in physical working conditions and alleviating excessive physical burdens more prevalent in less-skilled jobs, as well as offering more job autonomy and flexibility in more-skilled jobs, may prove effective. ❖