As workers age, their cognitive and physical skills diminish. Yet these skills do not diminish uniformly for workers over time. The dependence workers have on these skills may also vary. Those in jobs demanding cognitive skills may not, for example, see their work prospects diminish as their physical skills do.

Still, as workers’ skills diminish, they may develop a mismatch with their jobs. That is, the skills they keep may not match those still demanded by their job. This can affect the employability of workers as they age. As the skills mismatch grows, workers might increase effort to compensate, but this can cause health problems. They also might switch jobs, reduce hours, or retire earlier than planned.

Understanding how mismatch can affect older workers’ employability is important for many reasons. It can inform policies to promote continued employment, perhaps through part-time work. This can reduce pressures on programs such as Social Security or Medicare.

We assess possible growth in mismatch between skills and job demands for older workers. To do so, we analyze data from the Health and Retirement Study (HRS) on personal skills and the O*NET database on job demands. We pair

- O*NET measures on dynamic strength with HRS measures on physical strength;
- O*NET measures on finger dexterity with HRS measures on fine motor skills;
- O*NET measures on memorization with HRS measures on cognitive resources;
- O*NET measures on data analysis with HRS measures on cognitive resources.

Mismatch occurs when the demands of a job do not match the skills of a worker. For example, a worker in a job demanding dynamic strength who loses physical strength is in a mismatched job. Yet losing physical strength may not create mismatch for workers in jobs demanding cognitive skills.

* Péter Hudomiet is an associate economist at the RAND Corporation. Michael D. Hurd is principal senior researcher and director of the RAND Center for the Study of Aging. Susann Rohwedder is a senior economist at RAND, associate director of the RAND Center for the Study of Aging and an affiliate member of the faculty of the Pardee RAND Graduate School. Robert J. Willis is an economics professor and research professor in the Survey Research Center and the Population Studies Center of the Institute for Social Research. This research brief is based on MRRC Working Paper 2017-372.
We conducted both descriptive and regression analyses of workers 50 to 70 years old responding to the HRS from 1994 to 2014. We sought to identify:

- an increase in reported work-limiting health problems as an indicator of increased mismatch between skills and job demands;
- growth in depressive symptoms signaling increased strain on the job;
- decreases in self-reported expectations of working past age 65, which are strong predictors of subsequent retirement behavior;
- increases in dislike of work.

The results for jobs demanding physical strength are particularly striking. Among individuals who maintain large-muscle strength, there are very few work-limiting health problems. Such workers also do not report more depressive symptoms over time.

Among those for whom physical strength diminishes, job mismatch increases. This is particularly true for workers in physically-demanding jobs. Depressive symptoms also increase, while expectations of working past age 65 decrease.

Job mismatch increases as well for persons for whom fine-motor skills decline. Changes in fine-motor skills lead to more work-limiting health problems, more depressive symptoms, and lower expectations of working past age 65. These trends appear strong for all workers, and not limited to those for whom fine-motor skills are necessary.

Decline in cognitive skills has rather similar effects on all workers. It predicts health limitations at work, more depressive symptoms, and lower expectation of working past age 65. These declines are similar for workers who need and do not need such skills; and the effects tend to be smaller in magnitude than the effects of physical decline. This suggests workers in cognitive jobs may rely on general knowledge and experience that is more resistant to aging. Regardless, decline in cognitive skills is less of a problem for older workers than decline in physical skills. We found that physical decline predicts dislike of work, but cognitive decline does not. Measures of decline also have some effect on discontinuing work, not just expectations of doing so.

Different jobs rely on different skills. Our work demonstrates the need to consider heterogeneity in both individuals’ skills and job demands. By considering both, we can identify employment mismatches. Workers in physically demanding jobs, for example, may benefit from policies facilitating longer work lives that addressed their particular needs. Currently, such workers are very likely to leave the labor force.

Our work has some limitations. The job-demand measures ignore variation within an occupation. Changes in occupational coding over time also may affect our results. The physical-skill measures may be too general and focus on declines more often observed in older persons than we consider. Finally, for many workers, particularly those surveyed before 2006, we had to impute some variables. Future research may benefit both from more data and more sophisticated imputation methods.

University of Michigan Retirement Research Center
Institute for Social Research 426 Thompson Street Room 3026
Ann Arbor, MI 48104-2321 Phone: (734) 615-0422 Fax: (734) 615-2180
mrrcumich@umich.edu www.mrrc.isr.umich.edu

Sponsor information: The research reported herein was performed pursuant to grant RRC08098401-09 from the U.S. Social Security Administration (SSA) through the Michigan Retirement Research Center (MRRC). The findings and conclusions expressed are solely those of the author(s) and do not represent the views of SSA, any agency of the federal government, or the MRRC.

Regents of the University of Michigan: Michael J. Behm, Grand Blanc; Mark J. Bernstein, Ann Arbor; Shauna Ryder Diggs, Grosse Pointe; Denise Ilitch, Bingham Farms; Andrea Fischer Newman, Ann Arbor; Andrew C. Richner, Grosse Pointe Park; Ron Weiser, Ann Arbor; Katherine E. White, Ann Arbor; Mark S. Schlissel, ex officio