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Assessing multidimensional worker skill levels and their allocation in the U.S. labor market

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Economists traditionally viewed inequality in wages and employment primarily as a function of human capital. The traditional view held that a worker's education and skill level were the main factors in determining the kind of job that a worker could obtain. That view has slowly given way to one in which most economists now view workers as having multiple skills, with the labor market largely determining how those skills are allocated into jobs that require different kinds and combinations of skills. The broader view of labor markets has led to improved understanding of wage and employment inequality. Nevertheless, one limitation of the newer view is that economists still tend to model workers' skills in a one-dimensional way. In other words, their models include the assumption that each worker has one generalized skill (or set of skills) and that different jobs vary in their need for that skill. A second limitation of the newer view is that economists generally overlook or understate the way that most workers improve the skills they use frequently and lose the ones they seldom use. The standard scalar measures of human capital that most economists use do not account for these kinds of changes.

In their article, "Multidimensional skills, sorting, and human capital accumulation" (*American Economic Review*, August 2020), economists Jeremy Lise and Fabien Postel-Vinay try to help us better understand the matching process between workers' various skills and the demand for those skills in the U.S. labor market. The authors extend a well-known and widely used "search-theoretic model" that economists have traditionally applied under the one-dimensional view of worker skills and apply it to multidimensional skills. They use occupation-level measures of skill requirements from the U.S. Department of Labor Occupational Information Network and combine them with data from the National Longitudinal Survey of Youth 1979. Lise and Postel-Vinay examine three categories of skills—manual, cognitive, and interpersonal—and use their model to assess the economic costs of "mismatch" in the labor market.

In their model, the authors attempt to account for the fact that manual, cognitive, and interpersonal skills are very different kinds of productive qualities. Manual skills generally yield only modest returns and can be adjusted fairly quickly. Workers accumulate such skills rapidly on the job and lose them when they are not used. Cognitive skills yield much higher returns than manual skills, but they also take more time to adjust or alter than manual skills. Most workers acquire their cognitive skills through education, either before entering the workplace or by continuing their education after acquiring a particular job, especially one that highly values such skills. Interpersonal skills, which are sometimes referred to as noncognitive skills or even personality traits, are more difficult to measure. They yield modest returns—more than manual skills but less than cognitive skills—and are essentially fixed over a worker's lifetime. Although people can improve their interpersonal skills, for most workers, such skills tend to be relatively stable and unchanging over the course of their working lives.

Lise and Postel-Vinay find that the costs of mismatching are greatest for cognitive skills. In fact, they estimate that the costs are higher than those of mismatching for manual or interpersonal skills by an order of magnitude. Moreover, they find that such costs are unequal, in the sense that employing a worker who is underqualified in cognitive skills is more than twice as costly, in terms of lost surplus, as employing one who is overqualified. The authors point out that such subtleties and differences tend to be missed in models that assign a single scalar value to a worker's skill level. They compare their use of a multidimensional model with the more common one-dimensional model and show that the latter considerably overstates the importance of "unobserved heterogeneity" (diverse skills the worker has that are not immediately apparent) and understates the importance of "career shocks" (unexpected life-changing events that are out of the worker's control).