

Cognitive Skills in the US Labor Market: For Whom Do They Matter?

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The measured levels of skill proficiency in the U.S. are low relative to those in many other OECD countries. In the U.S. low proficiency in literacy, numeracy and problem-solving can be found in all demographic groups – young and old, male and female, native-born as well as immigrant, and even at higher rungs on the educational and occupational ladders. This analysis of PIAAC data focuses on how these skills are rewarded in the U.S. labor market. How closely are cognitive skills associated with earnings? Do educational attainment and occupation account for all or nearly all the earnings gains associated with these skills, or are the gains sustained even after accounting for them? For which demographic, education and occupation groups do these skills matter most? And what are the implications for using educational attainment as the proxy for skill, when other skill-related factors affect earnings?

Our findings are as follows:

- The market generates quite strong rewards to literacy, problem-solving and especially numeracy proficiency. These returns can be found for all demographic groups, for those with low as well as high educational attainment, and in virtually every occupational group. Indeed, literacy and/or numeracy proficiency seem to be preconditions to other forms of more specific occupational training that are needed to advance within all parts of the job market.
- The gains associated with reading and math proficiency vary somewhat across groups of workers. Older workers see the highest returns to numeracy while younger workers gain more from literacy. U.S.-born workers benefit a great deal from enhanced numeracy, even after controlling for education. Foreign-born workers see no benefit, once we take account of educational level.
- The effect of educational attainment on earnings leaves a great deal of earnings variation linked to proficient and high levels of numeracy and literacy. The patterns differ by educational level. Workers with no more than a high school diploma experience markedly higher earnings when they are proficient in literacy and numeracy. A high school graduate who moves from low to proficient in both literacy and numeracy would be expected to obtain a job that pays almost \$16,000 more per year. Numeracy skills are especially important for those with BA degrees, and now over one in three (37 percent) of BAs are at the lowest proficiency in numeracy.
- Cognitive skills raise earnings among those within the same occupation, but not in all cases. For managers and professionals and for craft workers and machine operators, the gain comes from reaching proficient levels of numeracy. For technical and associate professions, added proficiency in literacy is valuable. But, for clerical, sales, laborers, and service workers, higher cognitive skills exert little impact on earnings within the occupation.

Overall, the skill measures compiled for PIAAC are indeed consequential and demonstrate that educational attainment offers only a partial indicator of skills relevant to the labor market.