

Technological Progress and Worker Productivity at Different Ages

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Abstract

Economists have long thought of technological progress as a primary determinant of rising living standards over time. One might think of technological progress as increasing the “effectiveness” of labor, thereby raising the amount of output that each unit of labor can produce. The purpose of this paper is to ask whether, as an empirical matter, technological progress increases the productivity of workers evenly, or whether it augments the effectiveness of young workers the most. As low birthrates and increases in longevity lead to an “aging” of the population, the productivity of older workers relative to younger workers is likely to become an ever more important issue.

Analyzing data from the decennial Censuses and annual data from the Current Population Survey, this paper draws three tentative conclusions. First, we find that the “aging” of the U.S. work force seems more likely to increase aggregate productivity – by raising the proportion of laborers with sizable accumulations of human capital from experience – than to decrease it – by slowing the adoption rate for innovations. Our preliminary estimates imply that the latter effect is of modest magnitude. Second, since our preliminary estimates point to “general” rather than “specific” technological progress, each household faces a problem of having to predict the course of technological progress over its life span. This means that households face more risk than otherwise, and it complicates the specification of the life-cycle model that analysts should employ. Third, when we disaggregate across education groups, the groups show quite unequal benefits from technological progress after 1980, and this may lead to further challenges in modeling household behavior.

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