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Does More Education Cause Higher Earnings?

College graduates earned roughly 67 percent more per hour than high school graduates in the United States in 2010. Did what they learn at college actually give them that boost?

Or, would people with higher levels of education have earned as much even if they hadn't put in the extra years at school? The earnings return to education is well-documented and it has grown in the past generation. Determining if or how much of this return is caused by actual learning, however, is difficult.

Learning or Signaling?

Those with more education earn more because the world of work measures in some manner that they are simply more productive in dollars and cents terms. Academics pose (and most people writing college tuition checks would like to believe) that this is because students learn additional productive skills every year they are in school and can apply these in the labor market to earn more. Let's call these folks the learning theory advocates. Others (the signaling theory advocates) argue that the additional education is simply a "signal" to employers that a given person is a good worker and will be productive to the organization and, therefore, can command a higher level of compensation. (Since employers are paying what employees are worth, it actually doesn't matter which theory they believe). Signaling advocates conclude that if there were a different (or cheaper) way to signal one's higher level of productivity to a potential employer, then the diplomas wouldn't be (as) necessary.

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After all, just look at all the highly productive entrepreneurs who didn't complete college and struck out on their own (not having to signal any employer).

Another way to think about these two theories is to ask, do you like to hire students from College X because those students are taught a lot at College X that is directly applicable to the job they will do in your organization? Or, is College X just really good at admitting students who will end up being successful in your company? Or, maybe, is it some of both? For more than 2 million young people (and their parents) making the hefty investment decision each year in favor of paying college tuition, and for companies spending time, energy and dollars in annual college recruiting, a better understanding of this return on investment is important.

Timing of the Payoff

Some signaling theory advocates argue that if the return to education were due to learning, then the returns should be smoothly proportional to the time spent in school — no big jumps since students are learning every year. But researchers have detected a larger jump in earnings for those who complete the final year of college. The 16th year of school matters disproportionately more than the 15th. The learning theory advocates counter that someone who finishes all four years of college has learned more than twice as much as someone who dropped out after two years; after all, the sequencing of curriculum is consistent with kinks in the learning curve, and therefore also jumps in returns to schooling.

And what about the fact that the earnings gap between college and high school graduates grows over time? This could support the signaling advocates because 1) any learned skill has a shelf life and deteriorates over time, so what one learns in college should have a diminishing impact on earnings the longer it's been since graduation, and 2) if the college degree is signaling work ethic and smarts, folks with these valuable traits will continue to leverage them over their work lives for additional income gains. On the other hand, the widening earnings gap over time is also consistent with the learning theory because if what you learn in college is how to be a life-long learner then the return to a college education comes from it being the investment that keeps on giving — employees use their learned skill to keep on learning and keep on earning more. (Ronald Ehrenberg and Robert Smith, "Modern Labor Economics," 2012.)

Is There Quality Education?

So far I have assumed that all types of schools are equal and lead to the same sorts of productivity effects. But college-bound kids (and their parents) sweating over which college they'll attend wouldn't agree. Whether different schools return differently is an extension of the learning vs. signaling debate discussed so far. Might graduates of Prestigious U earn more than graduates of Local College because they would have earned more no matter where they went to college (leveraging any better family networks or stronger analytical skills they already had going in) or because they actually learn more at Prestigious U?

It is hard to separate out this so-called selection issue because the same people don't go to different colleges. But, twins might. A body of research has looked at the returns to education of twins. One such study analyzed the education and work histories of identical and nonidentical female twins, including educational quality (Behrman, Rosenzweig and Taubman, "Review of Economics and Statistics," November 1996). They found that students' aptitude was itself a cause of later workplace success, but not the only cause. These researchers statistically separated out the amount that this factor (and others) contributed. In the end, they found estimates of higher earnings later in life produced by higher-quality schooling.

In all these studies of returns to education, it is important to remember that the gain to lifetime earnings has to be offset against the direct cost of getting that education plus the earnings you gave up while in school. And, you must consider that higher wages are not the only return to more education; true total rewards may include appreciation for a wider assortment of experiences and effects, and even more happiness in life. These are newer returns that economists are now beginning to study. (See Philip Oreopoulos and Kjell G. Salvanes, "How Large Are Returns to Schooling? Hint: Money Isn't Everything," NBER Working Paper 15339, September 2009). Economists are more frequently considering nonmonetary returns — a potentially important part of total rewards. ws

got a question?

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