Human Capital Investment as a Major Financial Decision

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Thank you for the privilege of speaking with you today. The Federal Reserve Bank of Richmond, like the other 11 regional Reserve Banks around the country, has a rich financial education program for teachers and students at all levels. At first, it might not be obvious why the Federal Reserve is interested in financial education. In the news and in textbooks, the role of the Fed is to conduct monetary policy in order to fulfill our dual mandate of price stability and maximum employment. But as we've seen during the recovery from the Great Recession, there are significant limits to the power of monetary policy to affect the real economy. Federal Reserve policy actions cannot necessarily counteract the effects of fiscal policy uncertainty, declining productivity growth or structural changes in the labor market — all of which now appear to be playing a role to some degree.

Recent events have sent us a clear message related to the employment part of our mandate. The Great Recession had a substantial impact on the labor market experiences of many Americans. But as I will spell out today, skill level made a large difference in the ability of individuals to weather the recession and its aftermath. The opportunities available to current and future cohorts of young Americans thus seem inextricably tied to the skills they acquire. As a result, there are potentially enormous payoffs to bolstering economic and financial literacy on the critical issue of young people's investments in their own human capital. By providing people better information and enabling them to make better choices, we can have an effect on a range of personal and social outcomes, from employment and standards of living to economic mobility and inequality.

Today, I'd like to talk to you about the principles that motivate the Richmond Fed's approach to financial education and how those principles relate to what we have learned from a large body of empirical and theoretical research on human capital accumulation. They suggest that our current focus on helping students decide how to pay for college — which presumes that college is necessarily the right choice for everyone and that success is guaranteed — might be misplaced. Instead, a better focus might be educating students about both the risks and rewards of college so they can understand whether it is the right choice for them and how to enhance their prospects of success. Before I begin, I should note that these are my own opinions and not those of my colleagues in the Federal Reserve System.[1]

Economic Principles of Financial Education

A moment ago, I referred to helping people make better choices, but I use the word "better" cautiously. Some financial education efforts, while well-intentioned, presume that consumers are prone to making financial mistakes — and, moreover, that certain decisions, such as taking out an adjustable-rate mortgage or a short-term high-interest loan, are *always* mistakes. From an economist's perspective, however, it's extremely hard for outside observers to determine when a consumer has made a mistake — although it's easy for observers to conclude that they would have chosen differently for themselves. But choices should depend on the preferences and constraints of the consumer who is making the decision, not on the limited information and beliefs of the observer. In general, prescriptive, one-size-fits-all approaches to financial decision-making may be unproductive. For a consumer who plans to sell a home in a few years, for example, an adjustable-rate mortgage might be an advantageous option when compared to the fixed-rate loan with a higher interest rate that might be preferred by those planning to remain in their home for a longer time.

Consumers would benefit, however, from high-quality information that helps them determine the best choice for their particular circumstances, particularly for major financial decisions. This is where I believe we have the greatest opportunity to make a difference.

A major financial decision, in my view, has four salient characteristics. First, the consequences are significant. Attending college, for example, has large financial implications; future earnings are uncertain, and many students and parents need to take out sizeable student loans. Second, that significance is compounded by the fact that the decision is irreversible and illiquid. While you might forget the particulars of some of your classes, once you've paid your tuition, you can't decide to unlearn your knowledge and exchange it for some other good. Third, a major financial decision happens infrequently. College is generally an investment that you make only once, which limits the opportunities you have to learn from experience. Finally, it's complex. Figuring out how much to spend on college requires you to make estimates about the returns to your investment 30 years or more in the future.

With these characteristics in mind, the Richmond Fed recently launched a new website, majorfinancialdecisions.org, which provides information on buying versus renting a home, planning for retirement and financing college. Each of these decisions is significant, long-lasting, infrequent and complex, so financial education is likely to be especially valuable to the consumer.[2] Today, I want to focus on the last of those decisions, or more precisely, on the even bigger question that precedes the decision about how to finance college: Is college necessarily the right investment for every student?

College Is a Wise Investment

During the 2010–2011 school year, the published price for a year of tuition, room and board at a four-year college averaged about $16,000 at public schools and about $33,000 at private schools. Overall, college costs have increased 35 percent in real terms since just a decade earlier. Most students pay less than the sticker price through a combination of student aid and tax benefits, but the numbers still are quite daunting.

The well-publicized increase in tuition rates does not appear to have deterred many people from attending: Enrollment increased 37 percent between 2000 and 2010. Only part of that increase is due to population growth; the number of 18- to 24-year-olds enrolled in college increased 34 percent during that period, compared to just 13 percent growth in that population group overall. The increase in enrollment has been accompanied by a dramatic rise in student loan debt, to almost $1 trillion, about triple the level in 2004. In part, this is because the number of borrowers has increased, as you might expect given the increase in enrollment, but the amount borrowed also has risen considerably. Between 2005 and 2012, average debt per borrower increased 56 percent, from $16,000 to $25,000.

On average, this investment pays off well. The median income for a college-educated worker is $48,000, compared to $27,000 for a worker with a high school diploma. Over a lifetime, the median worker with a bachelor's degree can expect to earn $2.3 million, based on 2009 earnings data, compared to just $1.3 million earned by the median worker with a high school diploma.[3]

Workers with college degrees also fare better during economic downturns. Following the Great Recession, for example, the unemployment rate for college-educated workers peaked at 5.1 percent, compared to 11 percent for non-college-educated workers. As of August, the unemployment rate for workers with a high school diploma was more than double that of workers with a bachelor's degree or higher — 7.6 percent compared to 3.5 percent. And even though many recent college graduates appear underemployed, they're still earning more than their non-college-educated co-workers in the same positions.[4]

But Is College a Wise Investment for Everyone?

The data I just described are averages, and for the average enrollee, college certainly appears to be a prudent investment. But averages, as we all know, can obscure meaningful nuances.

First, earnings data are collected from students who complete college; a student who has not yet enrolled may not realize the same return on investment, perhaps because that particular student differs in some way from the average attendee. But there may well be an important difference between the premium earned by the average student and the premium earned by the marginal student. Indeed, some research suggests that as much as half of the college premium is due to "selection," not necessarily the degree itself, meaning that students who choose to enroll in and complete college are inherently different in some way from those who do not, and those differences account for about half of the disparity in their earnings.[5] There also is wide variation in earnings across majors and occupations. For example, the median income for a worker with a bachelor's degree in counseling psychology is $29,000, little more than the median income of a high school graduate, as opposed to $120,000 for the recipient of a degree in petroleum engineering.[6]

Perhaps the most crucial caveat, however, is that the returns to college depend on *finishing* college. There is relatively little benefit, at least in terms of earnings, for students who attend for a year or two but do not graduate. Median weekly earnings for a worker with some college but no degree are about 15 percent higher than the earnings of a high school graduate, compared to about 80 percent higher for a worker with a bachelor's degree.

We are not talking about a small number of students: Government data show that only a little more than half of students who matriculate at a four-year college complete a bachelor's degree within six years.[7] The completion rates are considerably lower for African-American and Hispanic students, for students from poor families and for students who are the first members of their families to attend college. Dropping out of college is expensive: The average debt burden among all college dropouts is more than $7,000; among only those dropouts who borrowed, it's more than $14,000.

One intuitively appealing explanation for the high college dropout rate is that students and their families are credit constrained, and thus unable to continue to finance a college education. Most research, however, suggests that credit constraints are not a significant factor in the dropout decision. Part of the explanation might be the rise in the number of nontraditional students who are balancing work and family responsibilities and thus find it more challenging to complete a degree. But much of the explanation appears to lie in the fact that many of the students who enroll in college do not have an accurate assessment of their own readiness for college. Students who enroll presumably believe that the benefits of college attendance are likely to exceed the costs. But as I have discussed, the net economic gain from attending just a year or two of college appears to be quite small — which suggests that something must happen in college to students' beliefs about their likelihood of succeeding. Survey evidence has demonstrated that this is in fact the case.[8] When asked, entering college students are highly optimistic about their grades, and they say that they intend to complete a bachelor's degree within four years. But as they take classes and exams, they revise their assessments of their future performances, and these updated beliefs then play a large role in the dropout decision. These surveys also show that students from poor families are more likely to drop out, and drop out sooner, than students from wealthier families.

Equipping Students to Make Good Education Decisions

What do these facts about the high rate of college noncompletion have to do with economic education? As I mentioned at the beginning of this talk, many involved in financial education, the Richmond Fed included, have focused their efforts on informing students about the costs of state versus private school or explaining the many types of federal and private loans that are available. But I would encourage financial education practitioners to give thought to just where the provision of information can yield the greatest marginal benefit. The research I've touched upon here suggests that might be *before* the decision to attend college is made. The decision to invest in human capital is fraught with uncertainty as it is. This suggests that prospective college students would benefit from realistic appraisals of their odds of success, as well as a better appreciation of how good preparation for college can improve those odds.

Many students and families also could benefit from information about options they could pursue after high school other than enrolling in a four-year college. Community colleges, for example, are a venue where students can learn more about their interests and aptitudes and practice the skills that are required for success at a four-year school, all the while preserving their option to continue onward toward a four-year degree. And for some students, pursuing a bachelor's degree might never be their preferred path. These students would be well served by learning about other

post-secondary educational options that could improve their labor market outcomes relative to only completing high school or dropping out of college. For example, a growing number of high schools and community colleges are partnering with businesses to offer vocational training and apprenticeship programs that equip students with specialized training, such as skills especially useful in advanced manufacturing.[9] These skills are in high demand by employers — and may be less vulnerable to automation or offshoring than many traditional white-collar jobs.

In addition, the flipside of the dropout problem is the failure of relatively high-achieving students to apply to college. At first glance, these students might appear myopic or impatient, unwilling to wait for the returns on their investments; in economic terms, they would be described as having very high discount rates. But that assumes that these students have accurate information on which to base their calculations. In fact, many students, particularly low-income students, overestimate the costs of college and underestimate their opportunities for financial aid.[10] Students might also face social norms that cause them to undervalue the future payoffs or their likelihoods of success. In these cases, what looks like impatience might simply be a lack of information, as demonstrated by several recent studies.

In one study, researchers found that sending targeted information to low-income, high-achieving students, at a cost of only $6 per student, increased their matriculation rates at selective colleges.[11] Another study focused on high school seniors in New Hampshire who had 10th-grade test scores similar to the scores of college enrollees but were at risk of not applying to college.[12] It found that providing them with mentors and assistance with application forms and tests significantly increased women's college enrollment, although not men's, and that so far, these students are as likely to remain in college as other high school students in the state. This research suggests that information can play an important role in changing the beliefs of students who erroneously think that they're *not* college material.

Early Intervention

As I have discussed, the low rate of college completion appears to stem from the fact that many students are not well prepared for college. One option for improving college completion rates and job prospects for potential dropouts is to provide them with accurate information about the costs and benefits of a variety of post-secondary education options. But it's not enough to ask what we can do when a student is 16 or 18 or 20 years old. Instead, it's worth asking why some students — too many students — are poorly prepared in the first place.

Numerous researchers and policymakers are currently debating what reforms to our education system might have the greatest impact on student achievement. But one area where I believe we have very strong evidence for the benefits of reform is in early childhood education. There is consensus now that the foundation for academic and labor market success is laid very early in life, even in infancy. That's because the early mastery of basic emotional, social and other noncognitive skills makes it easier to learn more complex skills throughout life. As a result, children who fall behind early on have difficulty catching up: Gaps in cognitive skills are present as early as age four and tend to persist into adulthood. But intervening early can yield large returns; many researchers have found that the return on a dollar invested in human capital is

highest when the investment occurs at age 3, and children who receive high-quality early education fare much better on a variety of socioeconomic measures.

Research also shows, however, that poor and minority children are much less likely to have access to such early education programs and are much more likely to fall behind. Greater investment in early interventions thus could help ensure that future choices about how much to invest in a student's human capital aren't limited by family background, and that more people have the opportunity to achieve their potential.[13]

Conclusion

To sum up, then, the most critical economic decisions people face over their lifetime concern investments in their human capital. Financial education has traditionally promoted college enrollment by providing prospective students with information on financing options. But success in college is by no means automatic, and the benefits of attending — but not completing — college are relatively low. I have advocated that financial educators shift toward informing students about the value of college preparedness and the value of alternatives to a traditional four-year college degree, such as community colleges and vocational and apprenticeship programs. In addition, making sure students are well aware of the magnitude of the return to successful college completion would reduce the odds of well-qualified students forgoing college attendance. And finally, I was unable to resist the opportunity to put in a plug for early childhood intervention, where research has demonstrated the value of targeted, high-quality programs.

In closing, it's useful to keep in mind the stakes involved in the quality of decision-making on human capital investments. The breathtaking gains in living standards that have been achieved over the last three centuries depended crucially on investments in physical capital. But accompanying improvements in workforce skills, broadly defined, were clearly critical as well. The accumulation of knowledge over time is also essential to the process of uncovering and deploying technological innovations that are essential to economic growth. And when we look at disparities in economic outcomes across our populace, differences in human capital accumulation loom quite large. Financial education aimed at improving the ability of students and families to make sound human capital investment decisions can help us be sure that people are prepared to make the best use of their talents and opportunities. As educators, you are on the front line in influencing and preparing our youth. So I would urge you to view your mission as absolutely essential to the continued vitality of economic growth.

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[1] I would like to thank Jessie Romero, Kartik Athreya, and Urvi Neelakantan for assistance in preparing these remarks.

[2] Jeffrey M. Lacker, "Financial Education in the Wake of the Crisis," Speech at the Council for Economic Education's Annual Conference, Washington, D.C., October 8, 2009.

[3] Anthony P. Carnevale, Stephen J. Rose, and Ban Cheah, "The College Payoff: Education, Occupations, Lifetime Earnings," Georgetown University Center on Education and the Workforce, August 5, 2011.

[4] Carnevale, Rose, and Cheah (2011).

[5] Lutz Hendricks and Oksana Leukhina, "The Return to College: Selection Bias and Dropout Risk," Manuscript, July 23, 2013.

[6] Anthony P. Carnevale, Jeff Strohl, and Michelle Melton, "What's It Worth? The Economic Value of College Majors," Georgetown University Center on Education and the Workforce, May 24, 2011.
[7] Graduation rates are calculated according to where students started as full-time, first-time students. Transfer students and students who return to college after an absence are not included.
[8] See Ali K. Ozdagli and Nicholas Trachter, "On the Distribution of College Dropouts: Household Wealth and Uninsurable Idiosyncratic Risk," Federal Reserve Bank of Boston Working Paper no. 11-8, July 19, 2011; and Todd Stinebrickner and Ralph Stinebrickner, "Learning about Academic Ability and the College Dropout Decision," Journal of Labor Economics, October 2012, vol. 30, no. 4, pp. 707-748.
[9] Betty Joyce Nash, "Journey to Work," Region Focus, Fourth Quarter 2012, pp. 17-19, 38.
[10] Laura J. Horn, Xianglei Chen, and Chris Chapman, "Getting Ready to Pay for College: What Students and Their Parents Know about the Cost of College Tuition and What They Are Doing to Find Out," National Center for Education Statistics Report no. 2003-30, September 30, 2003; and Eric Grodsky and Melanie T. Jones, "Real and Imagined Barriers to College Entry: Perceptions of Cost," Social Science Research, June 2007, vol. 36, no. 2, pp. 745-766.
[11] Caroline M. Hoxby and Sarah Turner, "Informing Students about Their College Options: A Proposal for Broadening the Expanding College Opportunities Project," Hamilton Project Discussion Paper, June 2013.
[12] Scott E. Carrell and Bruce Sacerdote, "Late Interventions Matter Too: The Case of College Coaching New Hampshire," National Bureau of Economic Research Working Paper no. 19031, May 2013.
[13] Kartik Athreya and Jessie Romero, "Land of Opportunity? Economic Mobility in the United States," Federal Reserve Bank of Richmond 2012 Annual Report, pp. 4-23.