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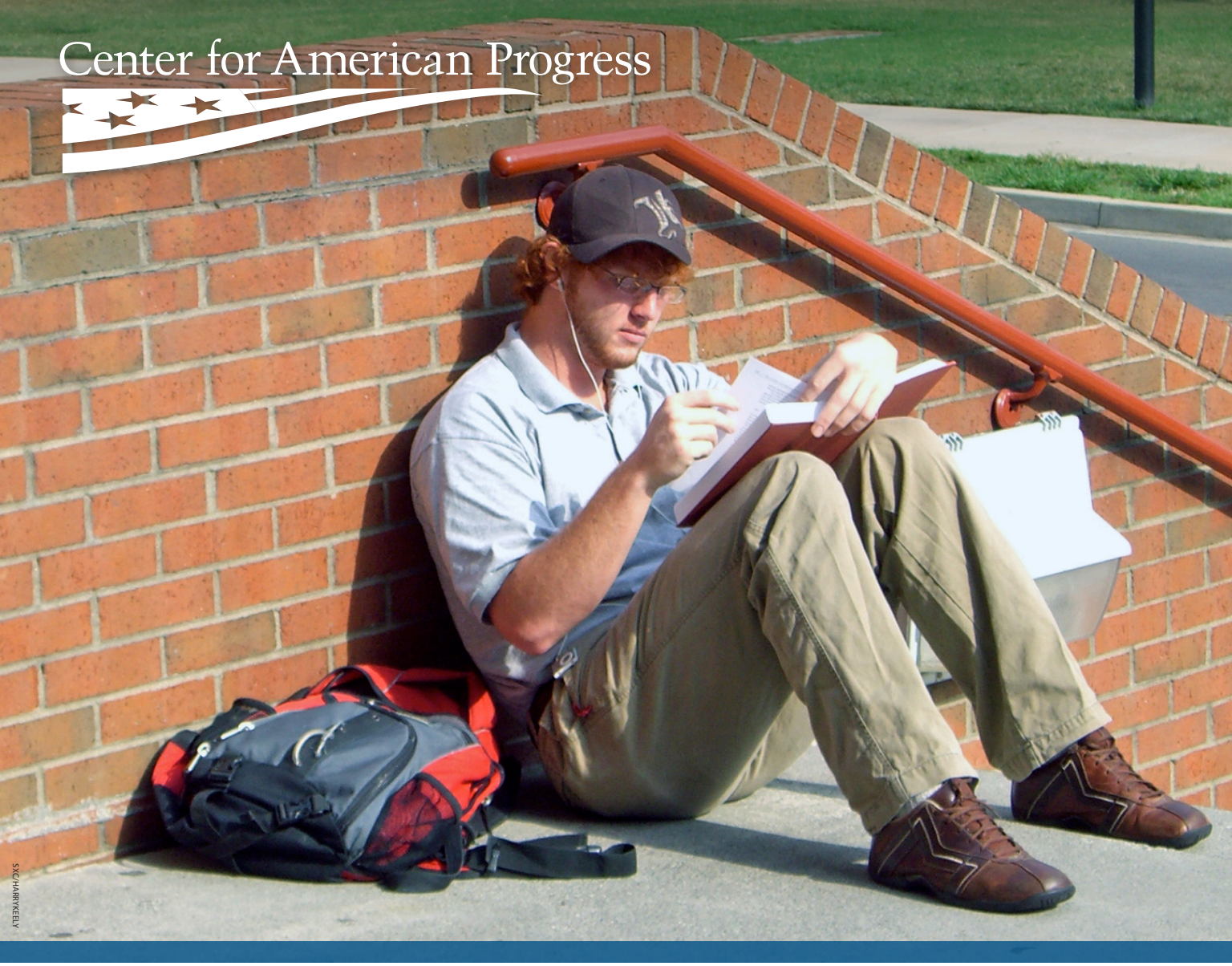

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The Other College

Retention and completion rates among two-year college students

Molly F. McIntosh and Cecilia Elena Rouse February 2009

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Introduction

Two-year colleges have long been the stepchildren of the higher education family of institutions, the so-called "other college," despite the fact that they are the main contact with higher education for a large proportion of young people. In 2005, two-year college enrollment was almost 40 percent of total college enrollment.

These 6.5 million students fare far worse than their four-year peers in persisting through postsecondary education until receiving a credential. Among first-time students who start at a four-year college, approximately three-quarters persist to the second year, compared to roughly half of first-time students who start at a two-year college. Moreover, within six years, students who begin at a four-year college are twice as likely as those who begin at a two-year college to earn a degree. And those students who have not yet completed a degree are much more likely to still be enrolled in college if they started at a four-year college than if they started at a two-year college.

This lack of persistence and degree completion presents a compelling challenge for education and economic policymakers since postsecondary education is key for both individual success and economic competitiveness in the global, knowledge-driven economy. However, encouraging degree completion among two-year college students is a complex issue due in large part to the dissimilarities between two- and four-year college students. Two-year college students are more than twice as likely to be enrolled part-time, and more than half of two-year college students are employed, compared to only 38 percent of four-year college students. Two-year college students are far less likely to be of traditional college-going age (18 to 24) than four-year college students, and they are also more likely to be of minority descent and from families of lower socioeconomic status. Finally, students who first attend two-year colleges are less academically prepared than students who first attend four-year colleges, whether this is measured by standardized test score, highest math course taken in high school, or participation in remedial education.

This paper shines much needed light on the complexity of contemporary college going and the potential causes of the gap in persistence and degree completion. Using a human capital framework, we review literature regarding policy solutions designed to address this complexity in two broad areas. The first is the availability of financial aid to two-year college students, which may take the form of grants or loans. The second is the two-year college institutional environment, which includes remedial education, student support services, learning communities, and transfer agreements.

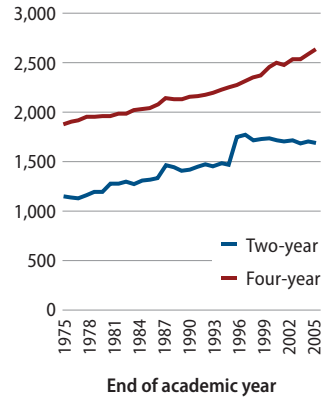
Our human capital investment perspective underscores two key areas for policy consideration. First, the idea of students making "investment" decisions when choosing whether or not to enroll or persist in college brings a customer orientation to the issue. The human capital framework highlights how the needs of two-year students differ from those of their four-year peers, indicating that students at the two types of postsecondary institutions will not benefit from the same strategies regarding curriculum, teaching and learning, and student support services. Second, while there is arguably a need for increased funding for financial aid and institutional environment interventions, there is a lack of evidence of their effectiveness. A publicly funded, aggressive research agenda for evaluating the effectiveness of interventions specifically targeted at two-year colleges and their students is therefore a must.

Given their popularity among today's college students, America's future economic success may well depend on how we invest in two-year institutions. National leaders would be wise to move the "other college" to the forefront of the postsecondary policymaking arena.

FIGURE 1

Number of two- and four-year colleges

1975–2007



Source: U.S. Department of Education, 2007.

Growth of two-year colleges

Two-year colleges are a prominent feature of the American postsecondary education landscape. In 2005, two-year colleges made up approximately 40 percent of all degree-granting postsecondary institutions, both public and private, while two-year college students accounted for one-third of total fall enrollment in these institutions.[1] Indeed, over the past three decades, the number of two-year colleges has grown more than the number of four-year colleges. The number of two- and four-year colleges increased by 48 and 41 percent, respectively (see Figure 1).[2]

In addition, enrollment at two-year colleges has grown faster than enrollment at four-year colleges. Total fall enrollment at two-year colleges has increased from under 1 million students in the early 1960s to over 6 million students in 2005—an increase of over 600 percent (see Figure 2). At four-year colleges, however, total fall enrollment has increased from 4 million to 11 million students over the same time period—an increase of less than 200 percent. In terms of average annual rates of growth, total fall enrollment at two-year colleges has grown by roughly 5.1 percent each year, compared to the 2.5 percent yearly growth rate at four-year colleges.[3]

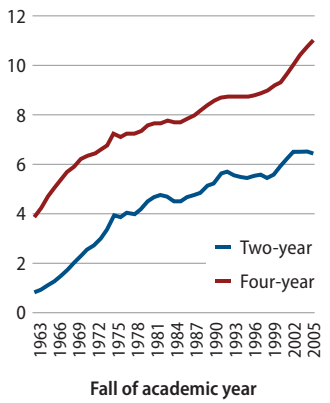
Moreover, the number of two-year college degrees conferred has also grown substantially over time. Since 1970, the number of associate's degrees conferred has increased four-fold, reaching nearly 800,000 by 2007 from a base of roughly 200,000 (see Figure 3). The average annual rate of growth in the number of associate's degrees conferred (2.9 percent) matches that for master's degrees, but far surpasses the average annual growth rate for bachelor's and doctorate degrees (1.7 and 1.8 percent, respectively).

Despite this rapid growth, it is not clear that two-year college students flourish in their postsecondary institutions. As we will document in the next section, two-year college students have lower rates of retention and completion than their four-year college counterparts. In this paper, we examine why retention and completion rates differ between two- and four-year college students. We begin by comparing the characteristics of two- and four-year colleges and the students who attend them. Next, we quantify the gap in retention and completion rates between two- and four-year college students and describe a theoretical framework that may be used to understand why this disparity exists. Finally, we identify the current policies that likely influence the educational attainment of two-year college students and suggest some policy directions that may improve their educational outcomes.

FIGURE 2

Total fall enrollment at two- and four-year colleges

1963–2005, in millions

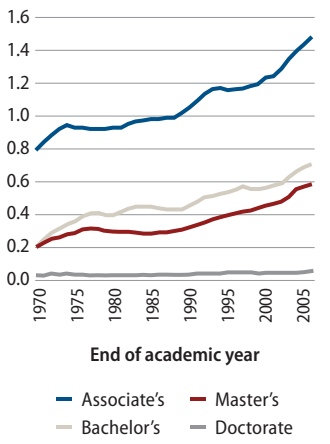


Source: U.S. Department of Education, 2007.

FIGURE 3

Number of degrees conferred

By type of degree, 1970–2006



Source: U.S. Department of Education, 2007.

A comparison of two- and four-year colleges and the students who attend them

Two- and four-year colleges have very different institutional characteristics, as shown in Table 1. While the majority of two-year colleges are public institutions (63 percent public vs. 37 percent private), the reverse is true for four-year colleges (25 percent public vs. 75 percent private). Average fall enrollment per institution at two-year colleges is much lower relative to that at four-year colleges, especially when comparing privately controlled institutions in each category.

Across the board, four-year colleges charge higher tuition and fees on average than two-year colleges, and the disparity ratio is larger among public institutions. Two-year colleges are also more likely to provide remedial services to their students (80 percent vs. 67 percent when examining all institutions). Indeed, nearly all public two-year colleges provide remedial services, where only three-quarters of public four-year colleges do.

However, these national level statistics may mask differences at the state level between two- and four-year colleges and their students. There is a considerable amount of variation by state in total enrollment and the share of college students enrolled in two- versus four-year colleges. In 2005, California led the nation in total enrollment, with 2.4 million students enrolled in two- or four-year colleges. At the bottom of the pack were Alaska and Wyoming, with 30,000 and 35,000 students enrolled, representing roughly half of high school graduates in those states. Looking at two- and four-year enrollment separately shows that 97 percent of college students in Alaska and 88 percent in South Dakota were enrolled in four-year colleges, while more than half of college students in Wyoming (62.5 percent) and California (59.9 percent) were enrolled in two-year colleges.[4] These state-level differences are likely due to variation in the number of college-age individuals, differences in college students' preferences and characteristics, and availability of two-year colleges by state.

Students at two- and four-year colleges differ substantially in almost every measureable dimension (see Table 2). Two-year college students tend to be older than four-year college students; roughly half are ages 18 to 24, compared to more than 60 percent of four-year college students. In contrast, 40 percent of two-year college students are older than 24, compared to 36 percent of four-year college students. There is very little difference in gender of two-year and four-year college students. Forty-one percent of two-year college students are male, compared to 43 percent of four-year college students.

TABLE 1

Characteristics of two- and four-year colleges, 2005

	Two-year	Four-year
Control of institution		
Public	63.0%	25.2%
Private	37.0%	74.8%
Total fall enrollment		
All institutions	6,488,055	10,999,420
Public	6,184,229	6,837,605
Private	303,826	4,161,815
Average fall enrollment per institution		
All institutions	3,855	4,342
Public	5,829	10,700
Private	488	2,197
Average tuition and fees		
All institutions	$2,338	$9,706
Public	$1,849	$5,027
Private	$12,122	$18,604
Availability of remedial services		
All institutions	80.3%	67.4%
Public	99.6%	75.6%
Private	47.4%	64.7%

Source: U.S. Department of Education, 2007.

TABLE 2

Characteristics of two- and four-year college students, 2005

	Two-year	Four-year
Age distribution		
<18	5.8%	1.8%
18-24	52.4%	61.9%
25-39	27.5%	26.9%
40-64	13.5%	9.3%
65+	0.9%	0.1%
	100.0%	100.0%
Gender		
Male	41.3%	43.4%
Female	58.7%	56.6%
Enrollment intensity		
Part-time	59.2%	25.9%
Full-time	40.8%	74.1%
Employed while enrolled	54.5%	37.4%
Race and ethnicity		
White, non-Hispanic	61.6%	65.7%
Black, non-Hispanic	13.9%	11.9%
Hispanic	15.1%	8.2%
Control of institution		
Public	95.3%	62.2%
Private	4.7%	37.8%
Financial aid receipt*		
Any aid	62.3%	75.5%
Grants	51.5%	58.5%
Loans	26.4%	51.6%
Work study	7.1%	10.8%
Other	3.9%	2.5%
Average amount of financial aid*		
Any aid	$5,209	$9,083
Grants	$3,312	$4,839
Loans	$4,728	$7,114
Work study	$2,004	$2,079
Other	$3,844	$5,298

*2003-2004, full-time, full-year students at public institutions only.

Source: U.S. Department of Education, 2007.

Two-year college students are also more than twice as likely as four-year students to be enrolled part-time (59 percent compared to 26 percent). Indeed, growth in part-time enrollment accounts for much of the growth in total enrollment at two-year colleges since the 1970s, while the opposite is true at four-year colleges (see Figure 4). A related phenomenon is that more than half of two-year college students are employed, compared to only 37 percent of four-year college students.

Two-year college students are slightly more likely to be of minority descent than four-year college students. Across the nation, non-Hispanic black and Hispanic students represent 14 and 15 percent, respectively, of enrollment at two-year colleges, compared to 12 and 8 percent of enrollment at four-year colleges. Other research has shown that students who first attend two-year colleges are also substantially more likely to be from families of lower socioeconomic status compared to students who first attend four-year colleges.[5]

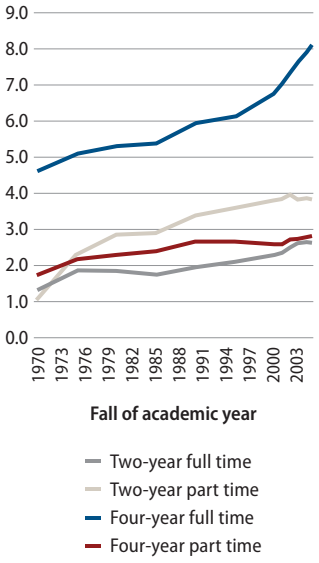
Finally, students at two-year colleges are substantially more likely to be enrolled in a public institution than students at four-year colleges. In part because of the lower tuition, two-year college students are also much less likely to receive any form of financial aid—particularly loans—than four-year college students. The amount of aid they receive is also lower.

Other data show that students who first attend two-year colleges are less prepared academically than students who first attend four-year colleges. This can be measured in several ways. First, students who begin at two-year colleges earn lower SAT and ACT test scores compared to their four-year college counterparts.[6] Second, Algebra I is the highest math course completed in high school for two-thirds of students who first attend a two-year college; only 18 percent of students who first attend a four-year college stop at Algebra I in high school. Lastly, 61 percent of students who begin at two-year colleges take at least one remedial course while in college, with a full quarter taking two or more remedial courses. In contrast, 70 percent of students who begin at four-year colleges do not take any remedial courses during their postsecondary career.

FIGURE 4

Total enrollment at two- and four-year colleges

By type of enrollment, 1970–2005
In millions



Source: U.S. Department of Education, 2007.

Retention and completion: two- vs. four-year college students

Retention—also known as persistence—and completion rates are much lower among students who start their postsecondary educations at two-year colleges rather than at four-year colleges. There is, however, some disagreement in the literature about how persistence should be measured. Traditionally, a student is considered to have persisted from the first to the second year of college if he has re-enrolled either full-time or part-time for the fall semester following his first year of college. Under this definition, data from the National Center for Educational Statistics show that only one-half of first-time college students at two-year colleges persist to the second year, compared to three-quarters of first-time college students at four-year colleges.[7]

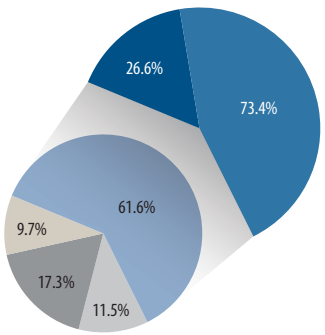
A modified definition of persistence used by Clifford Adelman considers a student to have persisted from the first to the second year of college if he has re-enrolled *at any point* in the academic year following his first year of college. Analyzing data from the National Education Longitudinal Study, Adelman finds much higher rates of persistence: 84 percent of students who first attend a two-year college persist from the first year into the second, compared to 95 percent of students who first attend a four-year college.[8] Regardless of which definition of persistence is used, it is clear that persistence rates are lower for two-year college students than four-year college students.

Two-year college students also fare worse with respect to completion rates. In 2005, roughly 30 percent of first-time, full-time two-year college students seeking an associate's degree had earned that degree within three years.[9] Six years after starting college, twice as many students who began at four-year colleges attained a degree compared to students who began at two-year colleges (see Figures 5 and 6). The figures also show that, among students who have not yet attained a degree within six years of beginning college, students who started at two-year colleges are much less likely to remain enrolled than students who started at four-year colleges. Indeed, other studies have found that students who begin at two-year colleges complete fewer years of schooling and fewer credits, and they may be less likely to ever attain a bachelor's degree.[10]

FIGURES 5 & 6

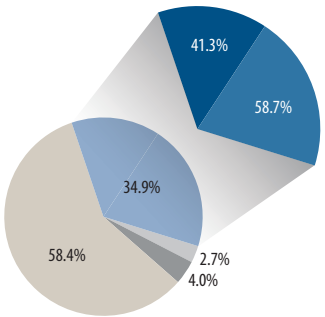
Degree attainment at two-year colleges, 2001

Among students who first enrolled in the 1995-1996 academic year



Degree attainment at four-year colleges, 2001

Among students who first enrolled in the 1995-1996 academic year



Certificate
Associate's
Bachelor's
No degree
No degree, still enrolled
No degree, not still enrolled

Source: U.S. Department of Education, 2007.

Contributing factors to low retention and completion rates among two-year college students

The difference in retention and completion rates between two- and four-year college students may be explained by multiple mechanisms, such as differences in characteristics between two- and four-year college students, differences in the cost of attending two- and four-year colleges and the availability of financial aid, and differences in the institutional environments across two- and four-year colleges. A simple framework—the human capital model developed by Gary Becker—can be used to organize these potential explanations into a coherent story.[11] Becker's model defines human capital as an individual's set of skills. These skills can be increased through investments in education. The primary benefit of education is higher post-college earnings; education can also produce benefits such as improved health, increased civic participation, and more desirable workplace amenities.

However, educational investment is costly, and the costs can be both monetary and non-monetary. Monetary costs include direct costs, such as tuition, fees, and books, as well as indirect costs, such as foregone labor market earnings. The large monetary costs associated with postsecondary educational investment, in addition to students' credit constraints or aversion to holding debt, create a potential role for financial assistance, as we discuss in more detail later in this paper. An example of a non-monetary cost is the psychic cost associated with the process of learning. This cost will be greater for those who have not previously acquired the skills necessary to study at the college level. This kind of non-monetary cost can also be influenced by a college's institutional environment.

In Becker's model, the student chooses his level of educational investment after weighing the benefits against the costs. For example, students who face higher costs relative to other students will choose a lower level of educational investment, all else equal. Thus, through the lens of the human capital model, the low retention and completion rates exhibited by two-year college students may be interpreted as the result of low benefits or high costs—or both—associated with educational investment. More specifically, differences in student characteristics, out-of-pocket cost, or institutional environments across two- and four-year colleges have the potential to explain a substantial portion of the retention and completion gaps.

Empirical evidence can be brought to bear on the differences in the benefits and costs of investing in education for two- and four-year college students. Previous research has shown that the labor market return on a two- or a four-year college *credit* is roughly the same, suggesting that the marginal benefits of a credit are comparable.[12] However, the cost of an additional year of education likely differs for two- and four-year college students, even after taking into consideration differences in the price of tuition.

The psychic costs—such as difficulty of completing coursework or level of interest in the subject matter—associated with an additional year of education are arguably higher

on average for two-year students compared to their four-year counterparts, since two-year college students are on average less prepared for college than four-year students. Furthermore, these psychic costs will be higher if the institutional environment is poorer at two-year relative to four-year colleges, even in the absence of differences in academic preparation. Students will perceive that the effort required to remain enrolled may not be worth the perceived benefits if courses are not well taught, if they do not feel well integrated into the institution, or if the institution does not provide adequate support.[13] Even a student who was a high achiever in high school might drop out of college at a two-year institution when faced with institutional factors that impede persistence. Yet the same student may have excelled had he enrolled in a four-year college.

An important factor for both two- and four-year students is the opportunity cost of attending classes. One component of this opportunity cost is the foregone earnings of not working; another is time not devoted to family and other responsibilities. These costs may be more salient for two-year college students for two reasons. First, since two-year college students tend to be older and come from lower-income families, the opportunity cost of their time tends to be higher. Second, many two-year college students attempt to lower the cost of foregone earnings by continuing to work and enrolling only part-time in college. Yet part-time enrollment itself reduces eligibility for aid in many instances.[14] Students at public two-year colleges who are enrolled full-time are 42 percent more likely to receive grant aid than those who are enrolled part-time.[15] Part-time enrollment may also increase psychic costs if students are not being well integrated into the college environment and have to juggle both school and work.

In Becker's model, individuals know with certainty the costs and future benefits of attending college. In the real world, individuals may not know about college costs and benefits. Even if they do, they may not know how to apply for college and financial aid. Those with less awareness about opportunities will perceive higher psychic costs associated with attending college because they simply do not know what to do and where to acquire more information.[16] This lack of information may be caused by several factors, including poor "social capital" (friends, family, and neighbors who attended college and therefore understand the many opportunities) or poor quality secondary schooling with inadequate college counseling. In addition, students may face unforeseen psychic costs, such as the work being harder or less interesting than they expected or an unexpected change in family circumstances.

Variation in future earnings is another unknown factor that students may not take into consideration when making decisions about going to college. While students who attend college may earn higher wages on average, some will do extremely well and others will not. That is, there is some degree of "risk" in undertaking a college investment. For some students, added uncertainty about future labor market prospects will not affect the decision to attend college, and they will choose their level of educational investment as if they could predict the future with certainty. However, if individuals are risk averse, they may be hesitant to fully invest in their schooling (after all, they must incur the costs upfront for a future

payback). Many have hypothesized that low-income students may be more risk averse when it comes to educational investments than are students from wealthier families,[17] leading them to be less likely to enroll in college and potentially complete fewer credits as well. To the extent that two-year college students come from lower-income families than do four-year college students on average, they may be, on average, more risk averse as well.

One way students may attempt to acquire more information and in turn reduce uncertainty about the costs and benefits of college attendance is to "test it out." This happens when a student enrolls in college and subsequently drops out after deciding he or she is not well suited for postsecondary education (presumably, in this example, because of high psychic costs). If two-year college students know less about their suitability for college than do four-year college students, this uncertainty may be one reason for the gap in persistence and completion. Uncertainty in the costs and benefits of college may also be an important factor in the design of financial aid.

Overall, we hypothesize that the retention and completion gaps between two- and four-year college students arise largely from differences in the real or perceived costs of attending college. Although student characteristics—such as family income and academic preparation—partially proxy for costs of college attendance, recent research finds that the gap in completion rates between two-year and four-year college students—although substantially reduced—remains even after accounting for the influence of such factors.[18,19] In the following section, we examine the potential role of policies aimed reducing costs—both financial and psychic—in order to narrow these gaps.

Policy issues and directions: Retention and completion among two-year college students

Two sets of policy issues affect two-year college students in their efforts to attain a postsecondary degree: the cost of attending a two-year college and the two-year college institutional environment. In this section, we describe these issues and suggest several promising policy directions to address them.

The direct cost of attending a two-year college

Tuition and fees for two-year colleges are less, on average, than for four-year colleges (see Table 1). However, the actual price paid by two- and four-year college students largely depends on the availability of financial assistance, which may come in the form of federal financial aid or other forms. In this section, we discuss the interplay of various federal, state, and institutional financial assistance policies and the ways in which these policies might be altered to improve retention and achievement among two-year college students.

Under current policy, students interested in federal financial aid must fill out a Free Application for Federal Student Aid, or FAFSA.[20] The FAFSA assists the student in calculating the amount that his or her family can be expected to contribute toward postsecondary education. That amount is compared to an estimate of the price of attending the college the student has chosen. If the expected family contribution exceeds the price of attendance, then the student is ineligible for federal financial aid. Otherwise, the student is eligible to receive federal aid in the form of grants, loans, or work-study.

Under the current federal financial aid system, large sums of federal funds are spent on financial aid each year, reaching $14 billion in 2006.[21] However, many aspects of the current policy favor four-year college students over two-year college students. First, students who attend at least half time are allowed to include indirect expenses, such as room and board, in the calculation of the price of attendance in addition to the direct expenses like tuition, fees, and books.[22] However, students who attend less than half time—a vast majority of whom are two-year college students—can include only direct expenses.

Second, an institution's estimated price of attendance is based on the assumption that students attend college for only part of the year. This may well be the case for a majority of four-year college students; they typically take the summer months off for vacation or

to find a summer job. However, many two-year college students work and attend college throughout the entire year. Therefore, the price of attendance used to calculate eligibility for financial aid is an underestimate of the true price for many two-year college students.

Third, while four-year college students are likely to receive financial assistance from their families, this is not the case for many two-year college students. Yet under the current policy, most two- and four-year college students are considered to be dependent students who are eligible for less aid than independent students. Thus while two-year college students may not get aid from their families, they also do not receive the extra aid given to students like them who live independently from their families.

Lastly, some federal financial aid, such as the Pell Grant program, can be used only to cover for-credit courses. Remedial courses, often called "developmental" courses, are often non-credit courses, even though they might be prerequisites for acceptance into a program or for higher-level coursework. Some other types of financial aid will cover a limited number of remedial credits, but since remedial coursework typically does not fulfill graduation requirements, students may find that they have exhausted their aid money before finishing their degrees. Since two-year college students are much more likely to take remedial courses than four-year college students, two-year college students are at a distinct disadvantage.

Grant aid

There is fairly compelling evidence that a large grant can significantly improve college attendance and educational attainment. Early evidence supports the effectiveness of means-tested grant aid in improving outcomes.[23] Research suggests that a $1,000 increase in grant aid may increase the probability of attending college by five percentage points and increase educational attainment by one-fifth of a year.[24] In Georgia, for instance, college attendance rates among 18- and 19-year-old students increased substantially, especially among middle- and high-income students, after the introduction of the Georgia Hope program. Overall, attendance increased by four percentage points for every $1,000 of aid.[25]

Some argue that financial aid could be even more effective if there were a connection between student academic effort and aid eligibility. One example of this is performance-based aid (or merit aid), which awards financial assistance to students who meet stated academic requirements. Currently publicly provided merit aid typically must be used at public universities within a particular state or at a particular institution. Unlike means-tested aid, merit aid rewards behaviors that are positively correlated with postsecondary achievement, such as earning good grades in high school and college, enrolling at least half-time in college, and taking advantage of college counseling and support services.

Most of the evidence regarding the impact of financial aid on student outcomes comes from studies of four-year college students, which may not generalize to two-year college stu-

dents—the focus of this paper. A notable exception is an MDRC study of a performance-based scholarship program that was implemented at two New Orleans community colleges. This study produced large positive effects for low-income students. Students at these community colleges were randomly assigned to a treatment or control group. Treated students received a $2,000 scholarship and enhanced counseling services in return for maintaining at least half-time enrollment and a "C" average, while the control group received standard counseling services. The scholarship, which more than covered the cost of tuition at these colleges, was paid in addition to any other financial aid for which the students were eligible. Compared to students in the control group, students in the treatment group were more likely to enroll full-time, and they also passed more courses, earned more credits, and had higher rates of re-enrollment in the second and third semesters after the program began.[26] However, the size of the effects was relatively small. After three semesters those in the program group had earned only three more credits than those in the control group.

Student loans

Student loans comprise another important part of the typical student's financial aid package. Over time the debt burden among college students has risen. From 1993 to 2004, the share of college students who take out a loan, among those who receive financial aid, rose from 55 to 65 percent. And, over the same time period, the average debt incurred by a college graduate rose from $8,462 to $13,275 (or from $12,565 to $20,386 among those with positive debt).[27] In Becker's human capital model, loans provide a reasonable and effective form of financial aid. If individuals know the expected economic benefit of attending college (e.g. their future wages and income) and do not mind holding debt, then they should be willing to borrow money to help pay for the cost of college against their future income. However, the Becker model does not allow for uncertainty, or for individuals who are risk averse, dislike holding debt (they are "debt averse"), or are unable to borrow at reasonable interest rates (they face "credit constraints"), which means that students will be less willing (or unable) to borrow against their future earnings.

As noted above, the extent to which individuals—particularly low-income individuals—are risk averse has not been well documented in the economics literature, although there is growing evidence that many individuals are debt averse.[28] The literature on the impact of credit constraints on college attendance and completion has produced mixed findings. One study, exploiting the fact that the direct and opportunity costs of education affect students who are credit constrained differently than students who are not credit constrained, finds little evidence that credit constraints result in non-optimal levels of educational investment.[29] In contrast, others conclude that the fact that family income is a strong predictor of college attendance—accounting for student achievement—is evidence of credit constraints.[30] With respect to college persistence, some research finds that some college students are indeed credit constrained, but this does not explain differences in persistence by family income.[31] Clearly, whether credit constraints are a barrier to college attendance and persistence is an unresolved issue in the literature.

Possible policy directions

The current federal financial aid system could be modified to better meet the needs of two-year college students by extending eligibility (and therefore increasing participation) for federal aid to more students as well as by redefining the metrics used to determine student need. Among the "low-hanging" fruit that would entail a relatively easy and low-cost implementation would be a campaign to increase knowledge about the sources of aid available to low-income students through marketing and counseling services.[32] Another step would be to simplify the FAFSA, a policy direction that has recently garnered a lot of attention in the higher education literature.[33]

Larger, more fundamental efforts to restructure the financial aid system would need to be approached more cautiously. Attempts could be made to better level the playing field for part-time students, those requiring more remedial credits, and/or those choosing to enroll for the summer term. Further, a system that better acknowledged that low-income students (who disproportionately attend two-year colleges) may be risk averse in their assessments of the economic benefits of their college education, or that they simply may be debt averse, may improve two-year college students' educational attainment. We recognize that a full-scale restructuring of the financial aid system along these lines is unlikely and possibly misguided given the state of our knowledge about the ability of various financial aid interventions to improve student outcomes. However, a major effort to aggressively advance the state of research and better inform policy would be immensely beneficial for the next reauthorization of the Higher Education Act. Federal funding of a series of well-designed experiments in which financial aid eligibility and generosity were systematically varied would help to advance the higher education policy discussion.

There are at least three examples of innovative financial aid modifications that are either the focus of current research or which should be studied more rigorously. First, constructing financial aid packages with a greater emphasis on performance-based scholarships may generate incentives for low-income students to increase their educational attainment. MDRC is currently conducting a second large randomized study of performance-based scholarships—with variation in aspects of the design and implementation of the scholarships—that will provide insight into the impact on student outcomes.

A second promising modification is income-contingent loans that allow for flexibility in loan repayment on the basis of post-college income flows.[34] This arrangement greatly reduces the risk of default faced by students borrowing to finance their educations, and therefore may increase college matriculation and persistence among risk-averse and economically disadvantaged students.[35] The College Cost Reduction And Access Act of 2007 makes federal student loans eligible for income-based repayment as of July 1, 2009, where payments are limited to either 15 percent of the borrower's monthly discretionary income or 15 percent of the amount to which the borrower's monthly adjusted gross income exceeds 150 percent of the federal poverty line.[36] The Department of Education

is tasked with conducting annual verifications of the borrower's debt balance and income, and after 25 years any remaining debt is forgiven. While appealing, a major concern with a program of this type is the issue of moral hazard, whereby an individual who is insulated from risk might begin to adopt riskier behaviors. An adequately funded study of this program—experimenting with different requirements for eligibility and different amounts of aid—would provide information on how serious an issue moral hazard may be and thereby greatly advance the debate on the worthiness of this repayment option for increasing educational attainment.

A third modification is emergency financial aid programs, in which the institutions themselves provide financial assistance to their students who are at risk of dropping out due to unforeseen financial constraints. Two emergency financial aid programs, the Dreamkeepers Emergency Financial Aid Program and the Angel Fund Program, are currently being piloted. After two years of evaluation, researchers have found that students who received the emergency aid most often cited housing, transportation, and child care as the source of financial need.[37] In addition, there is some descriptive evidence that the emergency aid helped recipients maintain enrollment.

However, these findings are purely descriptive since there was no element of randomization in the design of either program. As is the case with income-contingent loans, college financial aid offices should be concerned with the issue of moral hazard when considering offering emergency financial assistance. A randomized evaluation of emergency financial aid programs, in which eligibility rules and amount of aid are varied, could be funded by a federal-state match to discern the extent to which moral hazard is an issue and, more importantly, how effective emergency financial aid is at keeping students enrolled in college during unforeseen financial crises.

The two-year college institutional environment

Characterizing the institutional environment's effect on student achievement is a topic discussed in detail in the literature about two-year colleges. In particular, many studies have focused on the effectiveness of remedial education on retention and completion rates, in addition to the impact of student support services, learning communities, and transfer agreements. Here we examine these issues in detail and make the case for more research on the effectiveness of these aspects of the institutional environment.

Remedial education

One of the most important features of a two-year college's institutional environment is remedial (developmental) education. While the specifics of programs vary widely, remedial education generally addresses the relatively low level of academic preparation among two-

year college students and aims to bring student proficiency up to the college level. In 2007, more than 80 percent of two-year colleges provided remedial services to their students, compared to less than 70 percent of four-year colleges.[38] And, as stated above, students who begin at two-year colleges are twice as likely as students who begin at four-year colleges to take remedial courses. Therefore, changing the way remedial education is provided has the potential to improve achievement for a large number of two-year college students.

Despite the fact that remedial education is a large component of the two-year college curriculum, the body of research on its effectiveness is rather small and produces mixed findings. Typically, researchers estimate the effect of remediation on student outcomes by comparing remedial and non-remedial students, using a variety of techniques to attempt to control for pre-existing differences between these two groups. One such study exploited differences in remedial placement practices across two-year college campuses and the distance to the nearest college, both of which are arguably unrelated to unobservable student characteristics, in order to predict the likelihood that an individual will enroll in remedial courses. The study found that assignment to remedial education increases retention, the probability of transferring to a four-year college, and the probability of earning a bachelor's degree.[39]

Two other studies compared students on either side of the threshold for remedial education placement, who arguably have identical levels of preparation and ability. In the studies, students below the threshold were assigned to remediation and students above the threshold were not. While one study found positive effects of remediation on retention and credits earned, the other found small and sometimes negative effects of remediation on completion and degree attainment.[40] The existing evidence is inconclusive on whether remediation has a beneficial effect or if some of the perceived outcomes can be explained by other factors, such as pre-existing differences between remedial and non-remedial students or the quality of remedial education programs. Given the differences in the level of academic preparation among two- and four-year college students, it is natural for educators to look toward remediation as a way to close the gap. However, it might also be the case that the community college is not the ideal setting or time for remediation to take place.

Other features of the institutional environment

Other features of the institutional environment that may affect retention and completion are student support services, the quality of curricula and instruction, student integration, and transfer agreements. Student support services, such as tutoring, academic and career advising, and courses that focus on improving study and time management skills aim to provide extra assistance to students as they progress through college and advance toward careers.

A small body of research exists on the effectiveness of expanding support services for two-year college students. At two community colleges in Ohio, students were randomly selected to receive enhanced student services and a small financial incentive of $150 per semester for

two semesters. An evaluation of these programs found only small and short-lived effects on the likelihood of second semester enrollment, on the credits earned, and on the number of courses passed.[41] More generally, researchers have found that although support services are designed to be accessible to all students, only students who come from more advantaged family and academic backgrounds take advantage of the resources.[42]

There is also growing interest on two-year college campuses to integrate support service courses into the student curriculum in order to make the services more structured, streamlined, and widely available. These courses, dubbed "success courses," frequently focus on improving study skills, time management skills, writing skills, note taking, and educational and career path development. There is some evidence showing that students who enroll in success courses have higher rates of achievement. Yet only one study—in which students were randomized into a learning community that included a student success course in the curriculum—attempts to account for pre-existing differences between those who participate in these courses and those who do not.[43] And unfortunately, the impact of the learning community cannot be disentangled from that of the student success course in this study. As such, it is still unknown whether success courses—by themselves—really make a difference.

Many campuses have attempted to address perceived deficiencies in curriculum as well as improve student integration through the creation of "learning communities." Learning communities take an integrated approach to teaching and learning: small groups of two-year college students participate in specially designed curricula that aim to better incorporate academic and support services and forge bonds among the students and the faculty. Although the specific features of learning community programs vary widely across campuses, some commonalities include small group instruction, integration of curricula across subject fields, establishment of student academic and social support networks, and a focus on student educational outcomes.

Learning communities have become increasingly popular as a policy intervention over the past few decades. Early research on learning communities in New York and Seattle found positive effects on grades, retention, and socialization inside and outside of the classroom.[44] Yet the estimates may well overstate the effectiveness of learning communities since these studies controlled for, at most, a limited set of the pre-existing differences that might account for the differences in attainment—such as family background or academic preparation—between students who participated in the learning communities and students who did not.

A different outcome was seen in a recent study by MDRC of a randomized learning community demonstration at Kingsborough Community College in Brooklyn, which produced positive yet modest effects. Approximately 1,500 first-year students at the Kingsborough campus were randomized into a treatment group that was eligible to be assigned to a learning community (of about 25 students, on average), and a control group, which received the college's standard courses and services. Treated students took integrated first-semester

courses—including a student "success" course—and received extra tutoring plus vouchers for textbooks. Results show that during the first semester of the program, treated students attempted and completed roughly one-half of a course or more, and completed almost one more developmental credit compared to the control students. However, these effects disappeared over the course of the students' participation in the study. Three semesters after entering the program, treated students had progressed more quickly through developmental (remedial) English requirements compared to control students.

The researchers also found mixed results on persistence. At the end of the first month of program participation, treated students were no more likely than their control counterparts to enroll the following semester.[45] However, three semesters after entering the program, treated students were marginally more likely to enroll the following semester than control students.[46] This study suggests that learning communities (combined with a student success course) may generate a small, although possibly short-lived, improvement in student outcomes.

Finally, many states have made efforts to ease the transfer from a two-year to a four-year college by establishing transfer agreements between institutions. For instance, the University of California system has formed a contract with each California community college, called a transfer course agreement, or TCA, which identifies the courses taken at the community college that will receive UC credit. In addition, seven of the nine UC campuses offer guaranteed admission to California community college students who meet requirements spelled out by the TCA. Some California community colleges also have additional agreements with specific UC campuses regarding the use of transferable credits to fulfill UC general education and major requirements.[47] Students may access the website ASSIST to learn how credits earned at a specific public California postsecondary institution will transfer.[48]

In Florida, community colleges have been allowed to grant bachelor's degrees to their students, with the hope of encouraging students to proceed beyond earning a two-year degree.[49] In addition, other states, such as North Carolina, Virginia, Texas, New York, and Nevada also have state-level transfer agreements between two- and four-year colleges. While there is limited research on particular state programs, some research has found that state-level transfer programs more generally have had little impact on transfer rates and pursuant achievement.[50]

Possible policy directions

While many researchers and policymakers argue that the institutional environment is an important determinant of student success in college—particularly at two-year colleges—the quality of evidence is extremely weak, rendering it premature to make confident recommendations. That said, a few institutional characteristics or policy directions do stand out. First, the relatively small demonstration conducted by MDRC suggested that learning communities could make a small difference. Larger, well-designed demonstrations using

a randomized experiment design and larger samples of students and two-year colleges would provide invaluable insight into the potential this policy has to improve retention and completion among two-year college students.[51]

Researchers at MDRC and Teachers College at Columbia University are currently conducting a larger evaluation of learning communities. Results, available starting in 2009, will identify which program features best address the needs of underprepared students, estimate the impact on achievement and persistence, and compare the cost effectiveness of learning communities to the cost effectiveness of other related interventions.[52]

As for remedial education, the existing evidence is thin and inconclusive. Therefore more experimentation is warranted to decide whether students do benefit from remediation or if the benefits can be explained by pre-existing differences between remedial and non-remedial students or differences in the quality across remedial education programs.

Conclusion

Two-year colleges are an important component of the postsecondary education system in America. However, students who first begin their postsecondary education at a two-year college fare much worse than students who first attend a four-year college. Among first-time students who start at a four-year college, traditional estimates of persistence suggest that three-quarters persist to the second year, whereas roughly half of first-time students who start at a two-year college drop out. Furthermore, within six years, students who begin at four-year colleges are twice as likely as those who begin at a two-year college to earn a degree. Those students who have not yet completed a degree are much more likely to still be enrolled in college if they started at a four-year college than if they started at a two-year college.

Two- and four-year college students are different in many ways. Two-year college students are more than twice as likely as to be enrolled part-time, and more than half of two-year college students are employed, compared to only 38 percent of four-year college students. Two-year college students tend to be older than four-year college students, as well. Approximately half of two-year college students are ages 18 to 24, compared to more than 60 percent of four-year college students. Two-year college students are also more likely to be black, non-Hispanic, or Hispanic and to be from families of lower socioeconomic status than four-year college students. And students who first attend two-year colleges are less academically prepared than students who first attend four-year colleges, whether measured by standardized test scores, highest math course taken in high school, or participation in remedial education.

The main policy issues facing two-year college students stem from the financial and psychic costs of attending a two-year college. The financial cost of attending a two-year college is largely a function of access to and receipt of financial assistance. However, many aspects of the current federal financial aid policy favor four-year college students over two-year college students, due to two-year college students' greater propensity to attend college part time and year-round, and to enroll in remedial courses. A promising policy direction in this realm is to run pilot programs that experiment with alternative forms of financial assistance that provide different amounts of aid and allow for variation within the aid eligibility formula in the estimated price of attendance based on the number of months per year a student plans to be enrolled. In addition, the low take-up of federal financial aid among two-year college students might be addressed through a marketing campaign and increased counseling services, and simplifying the FAFSA.

The institutional environment on two-year campuses can play a key role in reducing some of the psychic costs of college attendance. For example, the most prominent policy issue to be considered is the effectiveness of remedial education in increasing attainment. Relative to financial aid research, the body of research on the impact of remedial education on two-year college student retention and completion rates is thin. More research in this area is warranted, ideally with the same level of enthusiasm for experimentation in the provision of remedial education as is the case for financial aid. Similarly, the quality of evidence on the effectiveness of other features of two-year colleges' institutional environments, such as support services, increasingly popular learning communities, and transfer programs, is weak. Since the available research suggests that the most promising feature among these is the learning community, we suggest that more experimentation and evaluation should be conducted (in addition to MDRC's larger evaluation) in order to gain a better understanding of how learning communities—or similar programs—can be improved to better meet the needs of the two-year college student.

Two-year colleges have long been the stepchildren of the higher education family of institutions, despite the fact that they are the main contact with higher education for a large proportion of young people. It's time that higher education policymakers and researchers alike recognize that the students who attend these institutions have different needs than the traditional, four-year college student and that the institutions themselves may need to operate using different strategies regarding curriculum, teaching and learning, and student support services. An aggressive research agenda of evaluating the effectiveness of interventions specifically targeted at two-year colleges and their students would significantly advance our ability to craft sensible policy to improve educational attainment among students attending the "other college.

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About the authors

Molly F. McIntosh is a research analyst at CNA, a non-profit research organization located in Alexandria, VA, that operates the Center for Naval Analyses and the Institute for Public Research. Her primary research interests fall in the areas of military training, compensation, and promotion policies. Prior to earning a PhD in economics at Princeton University, she worked as a research assistant at the Brookings Institution in Washington, D.C.

Cecilia E. Rouse is the Theodore A. Wells '29 Professor of Economics and Public Affairs at Princeton University, director of the Industrial Relations Section, and director of the Education Research Section. Her primary research and teaching interests are in labor economics with a particular focus on the economics of education. She has studied the economic benefit of community college attendance, evaluated the Milwaukee Parental Choice Program, examined the effects of education inputs on student achievement, and tested for the existence of discrimination in symphony orchestras. Her current research examines the efficiency of schooling in the United States and unions in South Africa, and she is conducting a long-term evaluation of Florida's new school voucher program. In 1998–99 she served a year in the White House at the National Economic Council. She holds a Ph.D. from Harvard University.

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