

Understanding the Transfer Process

A Report by the Institute for Higher Education Policy for the Initiative on Transfer Policy and Practice

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About the Initiative on Transfer Policy and Practice

In partnership with the College Board's National Office of Community College Initiatives and the Advocacy & Policy Center, the Initiative on Transfer Policy and Practice highlights the pivotal role of the transfer pathway for students — especially those from educationally disadvantaged backgrounds — seeking the baccalaureate degree; convenes two- and four-year institution leaders to identify policies and practices that enhance this century-old pathway; and promotes a national dialogue about the viability and potential of transfer to address the nation's need for an educated citizenry that encompasses all sectors of American society.

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About the Institute for Higher Education Policy

The Institute for Higher Education Policy (IHEP) is a nonpartisan, nonprofit organization committed to promoting access to and success in higher education for all students. Based in Washington, D.C., IHEP develops innovative policy- and practice-oriented research to guide policymakers and education leaders, who develop high-impact policies that will address our nation's most pressing education challenges.

Executive Summary

The traditional transfer from two-year colleges to four-year institutions was designed to open educational opportunities to students who have been unable for a variety of reasons to start at a baccalaureate-granting institution. Whether the transfer process provides such opportunities is a timely and relevant research question made urgent in these times of elevated national education goals and student intentions but diminishing state and student resources. As this report will demonstrate, while noteworthy advances in transfer rates among certain groups have been observed over the past decade, challenges continue at the senior level for most transfer students.

The main findings of this report are:

- The percentage of the nation's community college students who transfer has remained remarkably stable over the last decade at 26 percent. This is the case in spite of the greater adoption of statewide articulation agreements, the programmatic efforts of community colleges, and the escalating educational intentions of the students themselves.
- Among community college students who successfully transfer, slightly more than 2 out
 of 5 earn a bachelor's degree within six years. However, they are roughly 20 percent less
 likely to earn a bachelor's degree in this time period than comparable peers who start at
 a four-year institution and complete at least two full-time equivalent years of enrollment.
 However, 1 in 5 transfer students are still enrolled in the four-year sector and may
 eventually earn a bachelor's degree if observed longer.
- Intentions to transfer and earn a bachelor's degree have dramatically increased among community college students, reflecting the success of transfer awareness programs and mirroring the preferences of policymakers and institutional leaders. However, transfer outcomes have not followed suit. This condition suggests a national saturation in the number of students who have gained access to a four-year college, but the causes of this potential ceiling are as yet unclear.
- Specific to state policy actions, articulation agreements show no statistically significant impact on transfer rates. Anecdotal evidence from interviews with transfer coordinators suggest that institution-to-institution agreements hold more impact for student transfer rates than statewide policies, but their proliferation could be confusing to students.
- Any action by institutions or states may be stymied by sluggish economic conditions, which appear to hinder students' progress to a four-year institution as well as force community colleges into decisions that may adversely affect transfer, such as hiring more part-time faculty, cutting back on administrative and transfer staff and counselors, and canceling or consolidating support services.

As the above findings suggest, the transfer process is very complex and the challenges extend beyond the community college. In order to observe meaningful change, the conversation must move beyond simply predicting transfer to better understanding the entire transfer process, which includes a successful outcome at the four-year level. Ultimately, the findings from this study are instructive to institutional leaders, two- and four-year transfer counselors, and state policymakers as they seek to increase the number of students who successfully complete the transfer path through the identification of the elements, conditions, and mechanisms that lead to greater bachelor's degree attainment.

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A Note to the Reader

This paper summarizes the findings and recommendations of a College Board initiative, funded by the Bill & Melinda Gates Foundation, focusing on the effectiveness of the transfer pathway for community college students seeking the baccalaureate degree. For a comprehensive description of this initiative's methodology, empirical and policy analyses, findings, and recommendations, please see the full report, The Promise of the Transfer Pathway, and three supplemental reports, available at http://advocacy.collegeboard.org/admissioncompletion/community-colleges.

Introduction

Transfer lies at the midway point between access and attainment, touching both in order to provide a more equitable beginning and prosperous end for bachelor's degree seekers and society as a whole. When functioning properly, transfer unlocks a seamless pathway for community college students to earn a bachelor's degree and serves as a tool to increase overall degree attainment in a cost-effective manner for students and states. In fact, there are considerable savings to bachelor's degree-seeking students who initially enroll at a community college and are able to successfully transfer to a four-year institution, as well as for state policymakers searching for ways to increase the number of individuals with a postsecondary credential - associate and bachelor's degrees. As this report will demonstrate, the noteworthy advances made in certain areas over the years have been balanced out by missed opportunities in others.

For students, the timely completion of college-level courses and the continuation of financial aid at levels sufficient to offset the additional costs of the upper division are critical. For institutions, having enough capacity (i.e., available seats, faculty, support staff, and offerings) for transfer students, as well as the availability of academic and support services appropriate for those who did not start there, remain challenging, especially in these difficult economic times. These are but a few examples — some of which can be empirically tested with available national data and others that cannot — that prevent the transfer process from functioning properly. Nevertheless, because increasing the number of transfer students is seen as a viable means to expanding baccalaureate attainment levels, the efficacy of the entire transfer process — from initial enrollment to bachelor's degree attainment — is worth further examination.

The three questions driving this report are:

- What are the characteristics of first-time community college students and how do they compare to those of starting students at four-year institutions?
- What are some of the student-, institutional-, and state-level factors that accelerate or hinder transfer?
- How do the bachelor's degree attainment rates of transfer students compare to those of four-year students who are roughly at the same place in their studies?

Embedded in these questions are issues such as students' intentions to transfer, the influence of statewide articulation agreements in encouraging the movement between two- and four-year institutions with minimal burden or loss of momentum, and whether having an associate degree prior to transferring provides the necessary push toward a bachelor's degree. The analysis also explores whether attendance at a minority-serving institution (MSI) improves students' likelihood of transferring and finding success at the four-year level. This issue is critically important because any effort to improve transfer nationally cannot be deemed a success without engaging the type of students who are increasingly starting at MSIs, namely first generation, economically disadvantaged, and racial/ethnic minorities. (See sidebar, p. 2, "What Are Minority-Serving Institutions?")

Ultimately, this study adds to the field by moving the conversation beyond predicting transfer to understanding the transfer process, including the influence of students' socioeconomic background and their stated educational intentions; to the impact of certain transfer program features, statewide articulation policies, and type of MSI first attended; and to whether success is equally shared between transfer students and rising juniors.¹ The findings from this comprehensive analysis are instructive to institutional leaders, two- and four-year transfer counselors, and state policymakers as they seek to increase the number of students who successfully complete the transfer path by identifying the elements, mechanisms, and conditions that lead to greater bachelor's degree attainment. This report unfolds as follows. The definition of transfer used in the analysis is provided in the next section along with a brief summary of the relevant transfer literature, which is organized around three key interconnected themes. A descriptive profile of transfer students is then presented, followed by multivariate analyses² of both the determinants of transfer and bachelor's degree attainment between transfer students and rising juniors. Interwoven among the discussion of empirical findings are observations gleaned from interviews with transfer counselors at community colleges and public four-year institutions across the nation.

What Are Minority-Serving Institutions?

Minority-serving institutions (MSIs) represent more than a third of degree-granting Title IV institutions. As of 2004, MSIs accounted for approximately 12 percent of public four-year institutions, 18 percent of private four-year institutions, and 30 percent of public two-year institutions (Li, 2007). MSIs are determined by federal legislation or the percentage of minority students enrolled. To be eligible under the latter criteria, an institution must enroll at least 25 percent of a specific minority group. Currently, MSIs are classified across the five major designations below.

Historically Black Colleges and Universities (HBCUs) — Perhaps the best known of the MSI designations, HBCUs have provided access to postsecondary education to students of color since the early 19th century. Today, 105 HBCUs exist, primarily in the South, and consist of both two- and four-year institutions, both public and private.

Predominantly Black Institutions (PBIs) — PBIs are institutions with at least 40 percent black student enrollment, of which at least 10 percent must be eligible for Pell grants. Supported through federal Title III funds, PBIs tend to be more heavily concentrated in dense urban environments.

Hispanic-Serving Institutions (HSIs) — Supported through the federal Title V program, HSIs are institutions with at least 25 percent Latino student enrollment. HSIs are the fastest-growing designations and are spread out across the country, with high concentrations in California, Florida, and Texas.

Tribal Colleges and Universities (TCUs) — Tribal colleges were developed to provide additional access to postsecondary education for Native American students and preserve the unique qualities and traditions of Native communities. There are 37 TCUs, primarily located in extremely rural areas in the Great Plains and Southwest regions. These institutions are predominantly two-year campuses.

Asian American Native American Pacific Islander-Serving Institutions (AANAPISIs) — The most recent MSI designation. These institutions are supported by federal Title III funds. Eligible institutions must have at least 10 percent Asian American student enrollment. The campuses are a mix of public two- and four-year institutions.

^{1.} The term rising juniors refers to four-year students who completed at least two full-time equivalent years of postsecondary education.

^{2.} For a description of the econometric models utilized in this study, see Appendix A.

Piecing Together the Transfer Process

Three prevailing interconnected themes exist in transfer literature. One strand explores different definitions of transfer and discerns dominant characteristics of transfer students - who they are, what their educational intentions are, and what courses enhance or reduce the likelihood of community college students' transfer. A second examines the indicators of transfer with special focus on whether there are state policies that positively affect community college students' likelihood of transferring. The third theme compares the educational outcomes of transfer students to four-year students with special attention paid to whether attaining an associate degree prior to leaving the community college boosts transfer students' chances in securing a bachelor's degree. The definitions and analysis in this report are informed by these interconnected themes.

Defining Transfer and Describing Transfer Students

Transfer rates can vary widely depending on how the term *transfer* is defined.³ This study adopts a commonly used definition developed by the Center for the Study of Community Colleges (CSCC)⁴ but expands it to include a tangible measure of academic intent and attendance in all types of four-year institutions public, private, and for-profit. The definition of transfer used in this report is:

A student who started her postsecondary education at a public two-year institution and stayed there at least one full-time semester⁵ is considered to have transferred if at any point she was observed at a four-year institution of any type anywhere for at least one full-time semester. This study also seeks to advance a second definition — one that frames transfer in the context of students' early planning for the bachelor's degree. Plans to transfer and earn a bachelor's degree from the start have been shown by the literature to signal a greater sense of intentionality on the part of community college students. In order to explore this concept and its potential implications, where appropriate, the population of transfer-eligible community college students is further subdivided to account for such educational intentions.⁶

In addition to defining transfer, previous research has shown that there are certain characteristics that community college students bring to campus that can improve their chances of transferring. For instance, Dougherty and Kienzl (2006) in their study of the sociodemographic characteristics of transfer students using two separate national longitudinal datasets⁷ found no differences by gender or race/ethnicity, but instead observed that younger students and those from more economically advantaged backgrounds⁸ are more likely to transfer. They concluded that this class advantage is transmitted through differences in precollege academic preparation and educational intentions.⁹ Thus, a measure of educational intentions, along with the sociodemographic characteristics described above, is included in the multivariate models.

The influence of mathematics — developmental and college level — has also been the subject of several transfer-related studies. Adelman's (2005) results suggest that college-level mathematics in the first year is especially crucial to becoming transfer ready, but even if a community college student starts in developmental mathematics, hope is not lost.

7. Dougherty and Kienzl (2006) used the National Education Longitudinal Survey of 8th Graders in 1988 and the 1990/94 Beginning Postsecondary Students survey. For more information, see www.nces.ed.gov.

^{3.} See Bradburn, Hurst, and Peng (2001) for further examples of different transfer definitions and the corresponding impact on the calculated transfer rate.

^{4.} In order to calculate a transfer rate using the CSCC definition, the number of first-time community college students who earned at least 12 college credits and was later observed at a public, in-state college or university within four years is divided by all first-time community college students (Cohen, 2003).

^{5.} Given that a typical college class is three credits, and a full-time postsecondary course load is 3 to 5 courses, 12 credits approximates one fulltime semester of higher education. Along these same lines, Adelman (2005) finds that the number of credits earned from the community college itself is significant, and what he calls "a critical momentum line of earning 20 or more credits in the first calendar year of enrollment" is a good predictor of two-year to four-year transfer (p. xxii).

^{6.} Additional details regarding the definition used in this study include: Attendance in private or for-profit two-year institutions is allowed only if initial enrollment was at a public two-year. Students were required to have at least one full-time-equivalent month of enrollment in any given semester; any enrollment of less than one full-time-equivalent month was treated as a one semester stop-out. Students were permitted a four-semester stop-out before the transfer. Students with stop-outs lasting longer than four semesters were not counted as a transfer, even if the next reported institution was a four-year institution. Further, a student was said to have transferred even if after transferring to a four-year institution she dropped out and returned to the two-year level.

^{8.} Economically advantaged is measured via students' parental socioeconomic status, which is a composite index of parental income, highest level of parental education, and occupational prestige and degree of remuneration.

^{9.} There is a secondary issue of students' educational aspirations rising after they start at a community college. Adelman (2005; 2006) examined this issue and found that 19 percent of the 12th-graders from the high school class of 1992 who first entered community colleges raised their education expectations to the bachelor's-degree level by the spring of 1994.

Dougherty and Kienzl (2006) found that completion of a developmental mathematics sequence increases students' likelihood of transfer. They speculated that those taking developmental mathematics may benefit from skill improvement and, therefore, have a higher transfer potential. Also, taking and successfully completing developmental mathematics may capture higher student motivation — an important but difficultto-measure factor. Participation in a developmental education course is therefore added to the multivariate models.

Policy Mechanisms to Improve Transfer

A common policy response to improving transfer has been the establishment of statewide articulation agreements between public and, in some cases, private postsecondary institutions. The number of states that have adopted such agreements has grown from 31 to 36 over the past decade (Smith, 2010). The effectiveness of these agreements has been the subject of both anecdotal and empirical scrutiny. Cohen (2003) suggested that, while helpful to both community colleges and receiving institutions, these statewide policies are only marginally significant in improving transfer rates. Anderson, Alfonso, and Sun (2006) formally tested the effectiveness of statewide articulation agreements in the mid-1990s by comparing the probability of transferring among community college students who started at an institution located in a state with an articulation mandate versus those without such policies. After holding constant community college students' sociodemographic, educational, and enrollment characteristics, those in states with articulation mandates have about the same probability of transferring as students who enroll in a state without such agreements. Nevertheless, an indicator for the presence of such agreements at the time of transfer is included in the multivariate models to determine whether these state-based policies conferred an advantage during the last decade.

Effect of Transfer on Bachelor's Degree Attainment

This final section summarizes several key studies that have explored the bachelor's degree attainment rates of community college students and the factors that may result in their improvement. Until recently, the research on transfer as a viable pathway to the bachelor's degree has not yielded encouraging results. Using national data from the 1970s and 1980s, Whitaker and Pascarella (1994) found that students who began their postsecondary education at two-year colleges were roughly 15 percent less likely on average to complete a bachelor's degree. Berkner, He, and Cataldi (2002), in their descriptive summary of national data from the 1990s, revealed that only 36 percent of public two-year students who intended to earn a bachelor's degree did so within six years of starting community college. McCormick and Carroll (1997) examined the educational paths of postsecondary students from 1989 to 1994 and found that baccalaureate attainment was much higher among transfer students who completed an associate degree before transferring than those who had not, 43 percent versus 17 percent, respectively.

These findings may have been driven by students' age and the length of time under observation, but does the bachelor's degree gap exist when a more traditionalage cohort of students are observed for twice the usual time necessary to complete a baccalaureate degree? As shown by Melguizo and Dowd (2009) and Melguizo, Kienzl, and Alfonso (2011) in their analyses of a national sample of recent high school graduates, traditionalage transfer students and rising juniors were equally likely to attain a bachelor's degree after eight years. The findings from the latter study also revealed that transfer students and rising juniors earned roughly the same number of non-remedial total credits — another important non-difference in educational outcomes. The multivariate analysis in the current study controls for students' age, but the observation period is six years. which aligns more closely to the earlier descriptive work than to the later empirical analysis performed by the aforementioned studies.

In sum, while certain student-level characteristics and programmatic features, such as earning an associate degree prior to departure from the community college, have been shown to play a key role in improving transfer, statewide articulation policies do not seem to have a positive effect on transfer. The current analysis explores whether these factors still matter. Moreover, this study examines whether enrolling in a two-year MSI is a viable option for students seeking a bachelor's degree. This aspect of the transfer process has not been addressed in the recent literature but is certainly worthy of investigation.

Results from the Empirical Analysis

The goal of this report is to confirm the staying power of the factors described in the previous section and, where empirically justified, cast some doubt on the relevancy of others in the current educational and economic contexts. The study draws from a number of data sources, including the two most recent national longitudinal datasets of first-time college students, characteristics of state transfer and articulation environments, and several campus interviews.¹⁰ The analysis includes both descriptive comparisons as well as multivariate models that attempt to tease out the relationships among key indicators identified in the literature.

To situate the subsequent findings, the discussion below starts with a descriptive comparison between first-time community college students and first-time four-year students. The key indicators of transfer are then presented. The section concludes with a discussion of whether transfer as a whole, as well as certain features of transfer programs and policies designed to ease the transfer process, are positively correlated with bachelor's degree attainment.¹¹

Comparing Community College Students to Four-Year Students

To better understand why transfer is critical to larger national completion goals, it is important to first describe the population of interest (namely, first-time community college students) and where they stand - academically, aspirationally, and economically -- compared to a similar cohort of first-time four-year students. Transfer opens a pathway to the baccalaureate to students who did not initially start at a four-year college or university, and a viable pathway to the bachelor's degree is needed now more than ever. Compared to their counterparts from eight years ago, current first-time community college students are more likely to be from a nonwhite background, have higher educational intentions, and are more frequently starting at MSIs (see Table 1). Whether such factors matter in improving their actual transfer rates are open questions and constitute the focus of the next section.

Even among those who are seeking to transfer and earn a bachelor's degree, first-time community college students contrast noticeably with those who begin

Key Indicators of Transfer

The transfer rate of community college students who first enrolled in the 2003-04 academic year is 26 percent — an estimate statistically indistinguishable from eight years earlier (see Table 3). The overall number of transfer students increased modestly approximately 24,000 students net — between 1996 and 2004 because there were 100,000 more first-time community college students enrolled in postsecondary education. Some have suggested that one-quarter is the national transfer saturation point.

For example, Cohen (2003) noted that the transfer rate in most of the states with comprehensive college systems clusters around the 25 percent mark, though the rates vary between 11 and 40 percent. If true, then the following questions become relevant: Who is transferring? Under what contexts do they find transfer success?¹³

Based on the most recent data of first-time college beginners in the 2003-04 academic year, encouraging gains have been made by certain populations of interest but other worrying signs persist (see Table 4). The good news is that there have been some impressive advances among low-income black and "Other"¹⁴ students since the late 1990s, which suggest that programs targeting these students or the institutions designated to serve them (namely, MSIs) appear to be working. On the other hand, there are two causes for concern.

 Latino community college students still lag behind all other racial/ethnic groups in their overall transfer rates of only 20 percent.

at four-year institutions. Compared to the latter, firsttime community college students are more likely to be older, be black or Latino, and be from higher-poverty backgrounds.¹² More to the point, as shown in Table 2, two out of five first-time black community college students and one out of three Latino students are from the lowest-income quartile. These students are of particular importance in this study because they represent "the next student." As mentioned earlier, the transfer rate cannot increase nor any policy intervention or programmatic improvement be deemed a success without these students, so their experiences and outcomes take primacy in this report.

^{10.} See Appendix B for more details about data sources.

^{11.} Details on all variables used in this analysis are provided in Appendix C.

^{12.} No differences in transfer rates were observed across income quartiles, but differences were observed when income quartiles were interacted with race/ethnicity. Thus, low-income students from certain racial/ethnic backgrounds are of special interest.

^{13.} Questions about demand side factors, i.e., available openings and the admission process at four-year institutions, cannot be addressed with existing data.

^{14.} Due to their relatively small sample sizes, Asian/Pacific Islander and Native American students are combined in a single category called "Other."

Table 1: Summary statistics of first-time community college students (with and without transfer and bachelor's degree intentions), first-time four-year students, and native four-year rising juniors, 1996-2001 and 2004-09

| | 1995-96 academic year | | | 2 | 003-04 aca | ademic y | rear | | |
|--|-------------------------------------|---|----------------------------------|--|---------------------|---|------------------|--|--|
| | First-time public two-year students | | First-time four-year students | | First-ti two-yea | me public ir students | Firs four-yea | First-time four-year students | |
| | Overall | Expects to transfer+ Earn a B.A. | Overall | Native four-year rising juniors | Overall | Expects to transfer+ Earn a B.A. | Overall | Native four-year rising juniors | |
| Pct. of first-time students | 46.7% | | 42.1% | | 42.8% | | 44.5% | | |
| Expects to transfer+Earn B.A. | 44.0% | | | | 59.7% | | | | |
| Percent distribu | tion of | socioder | nograp | hic chara | acteris | tics | | | |
| Female | 52.3% | 46.4% | 54.2% | 56.0% | 56.3% | 53.5% | 56.0% | 56.2% | |
| Male | 47.7% | 53.6% | 45.8% | 44.0% | 43.7% | 46.5% | 44.0% | 43.8% | |
| 15-18 years old | 36.5% | 49.8% | 62.3% | 65.8% | 34.2% | 42.3% | 58.0% | 61.4% | |
| 19 years old | 21.7% | 26.1% | 24.5% | 25.2% | 21.7% | 24.1% | 27.8% | 28.8% | |
| 20-23 years old | 15.3% | 14.6% | 8.2% | 6.0% | 16.4% | 16.3% | 6.3% | 4.6% | |
| 24-29 years old | 10.5% | 4.9% | 2.0% | 1.5% | 9.2% | 6.5% | 3.4% | 2.4% | |
| 30 or older | 15.9% | 4.6% | 2.9% | 1.5% | 18.5% | 10.8% | 4.5% | 2.7% | |
| White | 72.4% | 72.4% | 73.5% | 73.6% | 60.4% | 58.1% | 68.1% | 69.2% | |
| Black | 11.5% | 8.9% | 11.0% | 11.1% | 14.3% | 14.0% | 10.7% | 9.8% | |
| Latino | 11.1% | 12.8% | 8.5% | 8.1% | 15.9% | 17.3% | 10.4% | 10.1% | |
| Other ^(a) | 5.1% | 5.9% | 7.1% | 7.3% | 9.5% | 10.6% | 10.8% | 10.9% | |
| Lowest income quartile | 25.7% | 26.8% | 20.2% | 19.0% | 26.1% | 26.7% | 20.2% | 18.9% | |
| Middle income quartiles | 53.8% | 52.4% | 45.8% | 44.9% | 50.6% | 52.2% | 50.8% | 50.4% | |
| Highest income quartile | 20.5% | 20.8% | 34.0% | 36.1% | 23.3% | 21.0% | 29.0% | 30.6% | |
| Distribution of attendance features and policy environment | | | | | | | | | |
| No remedial courses | 77.6% | 74.1% | 85.9% | 86.9% | 70.5% | 67.8% | 82.5% | 82.5% | |
| Academic major | 35.4% | 39.0% | 36.3% | 36.7% | 28.3% | 31.8% | 35.0% | 35.6% | |
| Full-time attendance | 42.4% | 53.7% | 84.9% | 91.3% | 49.3% | 54.8% | 87.8% | 93.0% | |
| Attended MSI | 39.7% | 42.1% | 25.8% | 24.6% | 50.8% | 52.9% | 34.2% | 32.7% | |
| Statewide articulation policy | 76.4% | 77.3% | 65.0% | 66.3% | 79.7% | 82.0% | 74.2% | 74.8% | |

(a) Includes Native American, Asian and Pacific Islander.

Note: "Native four-year rising juniors" are defined as four-year students who completed at least two full-time equivalent years of postsecondary education.

Source: Beginning Postsecondary Students surveys, 1996-2001 and 2004-09. Author's calculations.

Table 2: Percentage distribution of first-time community college and fouryear students, by race/ethnicity and family income [in quartiles], 1996 and 2004

| | 199 | 96-2001 | 2004 | I-09 | | | |
|---|----------------------|-----------|----------------------|-----------|--|--|--|
| Race/ethnicity and family income [in quartiles] | Community college | Four-year | Community college | Four-year | | | |
| White | | | | | | | |
| White *Lowest quartile | 20.5% | 14.3% | 18.4% | 13.3% | | | |
| White *Middle quartile | 56.5% | 47.2% | 53.8% | 51.9% | | | |
| White *Highest quartile | 23.0% | 38.5% | 27.7% | 34.8% | | | |
| Black | | | | | | | |
| Black *Lowest quartile | 40.6% | 40.5% | 44.2% | 38.6% | | | |
| Black *Middle quartile | 47.2% | 43.8% | 44.2% | 48.1% | | | |
| Black *Highest quartile | 12.2% | 15.7% | 11.5% | 13.3% | | | |
| Latino | | | | | | | |
| Latino *Lowest quartile | 34.2% | 34.4% | 34.8% | 38.9% | | | |
| Latino *Middle quartile | 53.1% | 41.4% | 46.7% | 47.3% | | | |
| Latino *Highest quartile | 12.7% | 24.2% | 18.5% | 13.8% | | | |
| Other ^(a) | | | | | | | |
| Other *Lowest quartile | 47.0% | 33.4% | 33.2% | 27.4% | | | |
| Other *Middle quartile | 31.7% | 39.0% | 46.3% | 49.3% | | | |
| Other *Highest quartile | 21.3% | 27.6% | 20.5% | 23.2% | | | |
| (a) Includes Native American Asian and Pacific Islander | | | | | | | |

Source: Beginning Postsecondary Students surveys, 1996-2001 and 2004-09. Author's calculations.

Table 3: Transfer rates of first-time community college students, 1996-2001 and 2004-09

| | 1996-2001 | 2004-09 | Percentage Point Difference | | |
|---|-----------|-----------|-----------------------------------|--|--|
| All community college students | 26.7% | 26.4% | -0.3% | | |
| Expects to transfer+Earn a B.A. | 44.4% | 36.4% | -8.0% | | |
| Size of population | 1,495,500 | 1,601,700 | | | |
| Source: Beginning Postsecondary Students surveys, 1996-2001 and 2004-09. Author's calculations, | | | | | |

Table 4: Transfer rates of first-time community college students by race/ ethnicity and family income [in quartiles], 1996-2001 and 2004-09

| Race/ethnicity and family income [in quartiles] | 1996-2001 | 2004-09 | Change |
|--|---------------|---------|--------|
| White | 28.7 % | 27.1% | -1.6% |
| White *Lowest Income | 23.2% | 25.4% | 2.2% |
| White *Middle Income | 26.8% | 29.2% | 2.3% |
| White *Highest Income | 36.4% | 24.3% | -12.2% |
| Black | 16.1% | 25.4% | 9.3% |
| Black *Lowest Income | 14.9% | 24.7% | 9.9% |
| Black *Middle Income | 14.8% | 27.6% | 12.8% |
| Black *Highest Income | 24.0% | 19.5% | -4.5% |
| Latino | 20.2% | 19.5% | -0.7% |
| Latino *Lowest Income | 22.2% | 21.7% | -0.4% |
| Latino *Middle Income | 22.4% | 20.3% | -2.1% |
| Latino *Highest Income | 12.3% | 13.4% | 1.1% |
| Other ^(a) | 36.8% | 35.5% | -1.4% |
| Other *Lowest Income | 24.1% | 45.4% | 21.3% |
| Other *Middle Income | 37.0% | 29.4% | -7.6% |
| Other *Highest Income | 64.7% | 33.5% | -31.2% |

(a) Includes Native American, Asian and Pacific Islander.

Source: Beginning Postsecondary Students surveys, 1996-2001 and 2004-09. Author's calculations.

• While an increasing number of community college students are indicating a desire to transfer and earn a bachelor's degree, they are not meeting with the same level of transfer success as in the past.

The first concern is meaningful because Latinos represent the fastest-growing population attending community college today (Aud, Fox, and KewalRamani, 2010). The second concern is indicative of a missed opportunity for all community college students irrespective of their racial/ethnic background.

As shown in Table 5, three out of every five first-time community college students initially intended to transfer and earn a bachelor's degree by the mid-2000s — an increase of 16 percentage points from a similar cohort of first-time community college students from the late 1990s. This rise in educational intentions was observed in all but two¹⁵ of the 12 possible combinations of racial/ ethnic and income categories. Disappointingly, while the overall transfer rate for first-time community college students intending to transfer is greater than that for all first-time community college students regardless

of transfer intent, 36 percent versus 26 percent, respectively, it is still 8 percentage points less than their bachelor's degree-aspiring counterparts who first enrolled in the late 1990s.

Perhaps community college students on the whole are overly ambitious. Or perhaps their educational intentions improve or "warm up" after achieving some early academic success, such as completing developmental education or persisting to the second year. Whatever the reason(s), the initial intent to transfer does not appear to garner the same advantage that it had in the past.¹⁶ This finding has at least two interpretations. On the one hand, a growing intentions gap¹⁷ portends missed educational opportunities that may ultimately thwart national completion goals. On the other hand, other factors besides students' intentions, including those within the realm of policy, may be having a greater influence on the transfer decision. It is therefore critical to examine whether institution (MSI) type and/or the presence of statewide articulation policies are positively correlated with transfer success.

^{15.} No change was observed over the eight-year period for Latino students from the middle income quartiles and "Other" students from the highest income quartile.

^{16.} The one exception to this finding (and it is a unique circumstance that may have more to do with the initial type of institution attended) is discussed in the next section.

^{17.} The intentions gap refers to the difference between students' initial educational intentions (in this case, transfer and earn a bachelor's degree) and their observed outcome.

Table 5: Summary statistics and transfer rates of first-time community college students by race/ethnicity and family income [in quartiles], 1996-2001 and 2004-09

| | 1996 | -2001 | 200 | Percentage Point | |
|---|--|---------------------------|--|---------------------------|-------------------------------|
| Race/ethnicity and family income [in quartiles] | Expects to transfer+ Earn a B.A. | Of whom, transfer rate | Expects to transfer+ Earn a B.A. | Of whom, transfer rate | Change in Transfer Rate |
| White | 44.0% | 48.1% | 57.5% | 39.0% | -9.1% |
| White *Lowest-income quartile | 45.5% | 37.2% | 54.3% | 36.4% | -0.8% |
| White *Middle Income quartile | 41.5% | 44.9% | 60.4% | 40.8% | -4.2% |
| White *Highest Income quartile | 47.7% | 61.3% | 53.9% | 36.8% | -24.6% |
| Black | 34.1% | 29.0% | 58.6% | 32.8% | 3.8% |
| Black *Lowest-income quartile | 48.6% | 19.3% | 59.9% | 31.5% | 12.2% |
| Black *Middle Income quartiles | 23.8% | 53.6% | 59.5% | 35.9% | -17.7% |
| Black *Highest Income quartile | 25.4% | 6.7% | 50.2% | 23.8% | 17.1% |
| Latino | 50.8% | 29.9% | 65.0% | 26.2% | -3.8% |
| Latino *Lowest-income quartile | 39.0% | 29.1% | 69.7% | 28.5% | -0.6% |
| Latino *Middle Income quartiles | 67.5% | 32.3% | 65.1% | 26.2% | -6.0% |
| Latino *Highest Income quartile | 34.8% | 21.9% | 56.3% | 20.7% | -1.2% |
| Other ^(a) | 50.7% | 54.1% | 66.9% | 44.0% | -10.1% |
| Other *Lowest-income quartile | 53.5% | 45.0% | 70.1% | 54.8% | 9.8% |
| Other *Middle Income quartiles | 42.1% | 53.1% | 69.1% | 37.5% | -15.6% |
| Other *Highest Income quartile | 57.3% | 73.9% | 56.7% | 40.5% | -33.4% |
| Overall | 44.0% | 44.4% | 59.7% | 36.4% | -8.0% |

(a) Includes Native American, Asian and Pacific Islander.

Source: Beginning Postsecondary Students surveys, 1996-2001 and 2004-09. Author's calculations.

Predicting Transfer Rates

In order to disentangle these indicators and identify which are most relevant to the transfer decision, two multivariate models were used, drawing upon the factors discussed above. The models seek to determine the key indicators of transfer and transferring with an associate degree, which is commonly conferred at the end of a formal transfer program. Some of the current results are consistent with those of earlier studies. For example, fulltime attendance increases the likelihood of transferring (see Table 6). Students' age is also significant. Older students are less likely to transfer but, among those with strong intentions, are as likely to earn an associate degree along the way as any other transfer student. This finding can be interpreted as older students being "practical" in case success is not achieved at the fouryear institution, meaning they have a credential even if it was not the degree they originally sought.

However, the multivariate analysis uncovered some surprising results. For example, there is no distinction between income groups. Students in career and technical majors¹⁸ are just as likely to transfer as academic majors, and statewide articulation policies have no influence on students' transfer behavior (see sidebar, p. 11, "Statewide Policies Are Only So Helpful," for a qualitative explanation). In fact, among community college students seeking to transfer and earn a bachelor's degree, the relationship between statewide articulation agreements and transfer is negative, implying that such state-based policies, while designed to minimize the complexities surrounding the transfer process, may be introducing unwanted confusion to even the most determined community college student.

^{18.} Some differences were observed within the broader categories of career and technical education. For example, life science and physical science majors had higher than average transfer rates (48 and 83 percent, respectively). However, their sample sizes were too small to impact the larger category of career and technical education majors.

Table 6: Determinants of transfer and transfer with an associate degree for first-time community college students and first-time community college students with transfer and bachelor's degree intentions, 2004-09

| | All fir communi stud | st-time ty college lents | First-time CC students expecting to transfer+Earn a B.A. | | |
|---|----------------------------|--------------------------------|--|----------------|--|
| | P(Transfer) | P(Transfer+AA) | P(Transfer) | P(Transfer+AA) | |
| 19 years old | -0.076*** | 0.020 | -0.057** | 0.003 | |
| 20-23 years old | -0.107*** | -0.059 | -0.036 | -0.032 | |
| 24-29 years old | -0.171*** | 0.244 | -0.203*** | 0.256** | |
| 30 or older | -0.107 | 0.028 | -0.078 | 0.040 | |
| Female | -0.029 | 0.034 | -0.030 | 0.031 | |
| Black | 0.004 | -0.176** | 0.002 | -0.176*** | |
| Latino | -0.027 | -0.052 | -0.019 | -0.025 | |
| Other(a) | 0.009 | 0.022 | 0.001 | 0.039 | |
| Middle income quartiles | -0.035 | -0.024 | -0.037 | -0.042 | |
| Highest income quartile | -0.017 | -0.055 | -0.023 | -0.082 | |
| Black *Lowest-income quartile | -0.102 | 0.072 | -0.051 | 0.081 | |
| Latino *Lowest-income quartile | 0.022 | 0.069 | 0.040 | 0.015 | |
| Other *Lowest-income quartile | 0.079 | -0.131 | 0.141** | -0.126 | |
| Expects to transfer+Earn B.A. | 0.045 | 0.120 | | | |
| At least one remedial course | -0.050 | 0.009 | -0.064*** | 0.009 | |
| Academic major | 0.009 | 0.049 | -0.004 | 0.041 | |
| Full-time attendance | 0.056** | 0.113 | 0.058*** | 0.093** | |
| MSI: HBCU+PBI | -0.007 | -0.055 | -0.024 | -0.065 | |
| MSI: Hispanic-serving | -0.016 | 0.132 | -0.009 | 0.095 | |
| MSI: Other MSI | -0.022 | -0.024 | -0.018 | -0.039 | |
| Black *HBCU+PBI | 0.116 | 0.249 | 0.135 | 0.234** | |
| Latino *Hispanic-serving | 0.045 | -0.089 | 0.020 | -0.060 | |
| Statewide articulation program | -0.003 | -0.122*** | -0.023 | -0.087*** | |
| Tuition difference: Avg. 4-yr. minus CC | -0.002 | 0.000 | -0.002 | -0.004 | |
| Unemployment rate | -0.126*** | -0.049 | -0.129 | -0.048** | |
| Size of population | 461,600 | 243,800 | 335,800 | 199,300 | |

(a) Includes Native American, Asian and Pacific Islander.

Note: Indicators for semesters enrolled are included in the model but the estimates are not shown above.

Marginals (dy/dx) are reported. Standard errors are available from the authors upon request.

*** p<0.01, ** p<0.05

Source: Beginning Postsecondary Students surveys, 2004-09. Author's calculations.

Statewide Policies Are Only So Helpful

To understand whether state policies influenced transfer practice on the ground, a number of interviews were conducted at five institutions in three states. Respondents were transfer coordinators and other college personnel deeply involved in the transfer process. States were selected based on their similarities along a range of characteristics (demographics, urbanicity, etc.), but differed in their approach to transfer policy. Two states, **Illinois** and **Indiana**, provide an interesting window into the influence — or lack thereof — of policy on transfer practice.

Illinois has a robust set of state policies for transfer. The **Illinois Articulation Initiative** has been in place since 1998. Faculty and transfer personnel from community college and four-year institutions have agreed to a core curriculum of transferable classes. When taken as part of an Associate of Arts or Associate of Science degree program, these courses are transferable to any four-year institution in the state.

Indiana has, at least on paper, a less-structured transfer policy. Transfer has only been a policy issue for the past decade or so, since the founding of **IvyTech Community College**. Since that time, community and fouryear colleges have been required to develop a core transfer library listing all transferable courses in the state. This information is available to students through their colleges as well as the state's website, **transferIN.net**. The state also requires all new associate degree programs to articulate to at least one four-year program.

In both states, however, statewide policies and agreements hold less sway than do institution-to-institution articulation agreements. These agreements, created by individual college partnerships, cover a single program area or major. They typically allow for block transfer of credit, but only if students transfer to the specific partnership institution. Such agreements are widely seen — at least by interviewees — as ineffective, because they are very specific, limit students' choices, and can be confusing. To meet the requirements of an agreement, students need to select both a major and a transfer institution, which means that they must engage in detailed planning early in their college careers.

And yet, in both Indiana and Illinois, interviewees deemed that such agreements are preferable to broader, state-supported transfer systems. In Illinois, transfer counselors felt that students do not use the **Illinois Articulation Initiative** as frequently as they use institution-specific articulation and transfer agreements. In Indiana, institutions prefer to create and rely upon block articulation agreements, rather than course-by-course transfer encouraged by the core transfer library. These articulation agreements — almost 1,500 in all! — are specific to a given program and college.

Although state-based articulation agreements were not shown to improve students' likelihood of transferring, certain institution types appear to have better-thanaverage success in moving community college students to four-year institutions. The likelihood of transferring increases between 14 and 23 percent, on average, when a black student with high intentions¹⁹ first enrolls at a Historically Black College or University (HBCU) or predominantly black institution (PBI).²⁰ It should be noted that the current analysis cannot determine if the HBCU/PBI "caused" the heightened intention to transfer or whether transfer-minded black students are increasingly choosing to begin at HBCUs/PBIs over other types of community colleges because of their connections and relationships with four-year institutions.

Another noteworthy finding, heretofore ignored in the transfer literature, is the influence of local economic conditions on students' transfer behavior. Students attending community colleges located in areas with high unemployment are less likely to transfer. This finding has at least two interpretations. One, in times of economic uncertainty, students may be unwilling or unable to stay in postsecondary education until the completion of their bachelor's degree, especially if financial aid at the four-year institution is lacking. Or, due to their reliance on local funding, an uptick in unemployment forces community college leaders to make difficult decisions: hire more part-time faculty, cut back on administrative and transfer staff and counselors, cancel or consolidate services, and so on. Reductions in these academic and support services both interrupt and impede the availability of information

^{19.} Meaning they are seeking to transfer and, ultimately, attain a bachelor's degree.

^{20.} Nearly 900 first-time community college students, representing 233,000 students, were sampled at a HBCU/PBI in their first semester in the 2004/09 Beginning Postsecondary Students survey. Of this sample, more than 410 students, representing a population of 116,000 students, were black.

to potential transfer students. Although unemployment remains stubbornly high and state budgets lean, colleges should seek out cost-effective solutions that do not compromise the transfer process.

Temporal Changes in Transfer Rates

Analyses of an earlier cohort of first-time community college students, those who initially entered in the

1995-96 academic year, reveal few key differences with a similar cohort who began postsecondary education eight years later (Table 7).²¹ For example, Latino community college students in the earlier cohort struggled compared to other racial/ethnic groups, and initially attending a Hispanic-serving institution (HSI) only slightly mitigates the overall deficit.²² Although this finding sounds discouraging at first blush, the most recent estimates of Latino students' transfer rates

Table 7: Determinants of transfer and transfer with an associate degree forfirst-time community college students, 1996-2001

| | All first-time community college students | | |
|------------------------------------|---|----------------|--|
| | P(Transfer) | P(Transfer+AA) | |
| 19 years old | 0.033 | -0.111 | |
| 20-23 years old | 0.060 | -0.086 | |
| 24-29 years old | -0.220 | 0.000 | |
| 30 or older | -0.157 | -0.264** | |
| Female | 0.004 | -0.081 | |
| Black | 0.048 | -0.291*** | |
| Latino | -0.244** | 0.423*** | |
| Other(a) | 0.253*** | 0.064 | |
| Middle income quartiles | -0.009 | -0.352*** | |
| Highest income quartile | -0.009 | -0.322*** | |
| Black *Lowest-income quartile | -0.217 | 0.577** | |
| Latino *Lowest-income quartile | 0.163 | -0.486** | |
| Other *Lowest-income quartile | -0.235 | 0.059 | |
| Expects to transfer+Earn B.A. | 0.117*** | -0.329*** | |
| At least one remedial course | -0.132 | 0.168 | |
| Academic major | 0.012 | -0.062 | |
| Full-time attendance | 0.119** | -0.080 | |
| MSI: HBCU+PBI | 0.119 | 0.162 | |
| MSI: Latino-serving | -0.206*** | 0.271 | |
| MSI: Other MSI | 0.008 | 0.172 | |
| Black *HBCU+PBI | -0.101 | 0.425 | |
| Latino *Latino-serving | 0.395*** | -0.487** | |
| Statewide articulation policy | -0.116 | -0.066 | |
| Tuition diff.: Avg. 4-yr. minus CC | -0.169*** | -0.156*** | |
| Unemployment rate | 0.030 | -0.024 | |
| Size of population | 366,400 | 234,100 | |

(a) Includes Native American. Asian and Pacific Islander.

Note: Indicators for semesters enrolled are included in the model but the estimates are not shown above.

Marginals (dy/dx) are reported. Standard errors are available from the authors upon request.

*** p<0.01, ** p<0.05

Source: Beginning Postsecondary Students surveys, 1996–2001. Author's calculations.

^{21.} The number of community college students who transferred in the 1996/2001 Beginning Postsecondary Students survey is small. Statistically significant relationships may exist if the sample size was larger; thus, caution is advised when making comparisons to the later cohort. Nevertheless, the findings reported above are especially robust given the small sample size. Also, community college students who transferred with an associate degree in the late 1990s are quite different than the general transfer population. The discussion of findings will therefore focus on the later group because the estimates are more generalizable and consistent with those from the later cohort, i.e., students who first enrolled in the 2003-04 academic year.

^{22.} Over 680 first-time community college students, representing 298,000 students, were sampled at a HSI in their first semester in the 1996/2001 Beginning Postsecondary Students survey. Of this sample, more than 330 students, representing a population of 140,000 students, were Latino.

suggest that they are transferring at a rate predicted by their sociodemographic characteristics and attendance behavior. In other words, Latino community college students' transfer rate is back on pace, but their rate of (positive) change still lags behind other racial/ethnic groups.

Overall, though, the findings from the earlier cohort of first-time community college students largely support those of the later cohort. This section discusses three temporally consistent results - community college students' attendance behavior, state-based transfer policies, and other economic factors. Fulltime attendance is positively correlated with transfer, whereas family income and statewide articulation agreements show no appreciable benefits (or drawbacks). One interesting result was a substantial four-year sticker shock that decreased community college students' likelihood of transferring 16 percent for every \$1,000 difference between what they were paying at the community college and the tuition at an average public four-year college in the state. This sticker shock speaks in part to the lack of students' awareness of financial aid programs at four-year institutions.

Nevertheless, efforts to raise awareness of financial aid opportunities must have been successful, as four-year sticker shock is no longer observed in the later cohort.

Bachelor's Attainment Rates of **Transfer Students**

The results thus far indicate that one in four community college students are able to continue their studies at a senior-level institution. Attention is now paid to the education attainment of transfer students in the 2000s. For this analysis, transfer students are compared to rising juniors. On average, a sizeable gap in bachelor's degree attainment still exists²³ — nearly 70 percent of rising juniors earned a bachelor's degree but only between 42 and 45 percent of transfer students had a similar outcome after six years (see Table 8). It should be noted that one in five transfer students were still enrolled at a four-year institution six years after their initial enrollment in postsecondary education. If half of these students end up earning a bachelor's degree,²⁴ the gap would shrink to 15 percentage points — a still sizeable amount.

Table 8: Educational outcomes of first-time community college students who transferred to a four-year institution and first-time four-year students, 1996-2001 and 2004-09

| | 1996-2001 | | | | | 2004 | 4-09 | |
|--------------------------------|---|---|----------------------------------|--|---|---|----------------------------------|--|
| | First-time public two-year students who transferred | | First-time four-year students | | First-time public two-year students who transferred | | First-time four-year students | |
| | Overall | Expects to transfer+ Earn a B.A. | Overall | Native four-year rising juniors | Overall | Expects to transfer+ Earn a B.A. | Overall | Native four-year rising juniors |
| Did not earn any degree | 14.2% | 11.2% | 20.8% | 12.4% | 17.8% | 17.1% | 23.7% | 15.9% |
| Still enrolled, no degree | 27.8% | 29.8% | 14.5% | 13.8% | 22.9% | 20.4% | 12.2% | 10.2% |
| In a public 4-year | 24.1% | 26.8% | | | 14.0% | 14.2% | | |
| In a private 4-year | 3.2% | 2.6% | | | 3.7% | 3.9% | | |
| In a for-profit 4-year | # | # | | | 2.6% | 2.3% | | |
| In another type of institution | # | # | | | 2.6% | # | | |
| Earned degree | 58.0% | 59.0% | 64.8% | 73.8% | 59.2% | 62.5% | 64.1% | 73.9% |
| Earned A.A. degree (a) | 32.2% | 28.7% | 6.3% | 4.2% | 27.1% | 30.4% | 6.1% | 3.9% |
| Earned B.A. degree (a) | 35.5% | 40.9% | 58.4% | 69.6% | 41.5% | 45.2% | 57.9% | 69.9% |

Note: Native four-year rising juniors are defined as four-year students who completed at least two full-time equivalent years of postsecondary education.

(a) Community college students can transfer with or without an A.A. degree. Thus, the percentages shown are not mutually exclusive.

Rounds to zero.

Source: Beginning Postsecondary Students surveys, 1996–2001 and 2004-09. Author's calculations.

^{23.} While the bachelor's degree attainment rate for transfer students has inched up slightly since the late 1990s, the gap remains substantial. 24. This finding does not directly contradict those found by Melguizo, Kienzl, and Alfonso (2011). Their data observed community college students over an eight-year period, unlike the observation period of the current study, which was two years shorter. Conceivably, if given the extra time, community college transfers would attain their bachelor's degrees at similar rates to rising juniors. 13

Predicting Bachelor's Degree Attainment

Given the considerable variation across bachelor's attainment rates, it is important, as before, to control for a selected set of characteristics and factors. The results from the multivariate analysis confirm the consensus drawn from previous research — transfer students are roughly 20 percent less likely to attain a bachelor's degree after six years than rising juniors, all things being equal (see Table 9). Earning an associate degree prior to

transferring does reduce this differential between 7 and 10 percentage points, but the negative relationship and statistical significance remain.

To further isolate the transfer effect, additional analyses are conducted on a matched sample of transfer students and rising juniors who share similar observable characteristics.²⁵ This method allows the comparison of students who follow different paths to the baccalaureate degree. Specifically, those who transfer (with and without an associate

Table 9: Bachelor's degree attainment of first-time community college students who transferred to a public or private four-year institution and native rising four-year juniors, 2004-09

| | Transfer students matched to native juniors | | | | | |
|--------------------------------|---|-----------------------|---------------------|------------------------|--|--|
| | Enrolled in a Publ | ic 4-Year Institution | Enrolled in a Priva | ate 4-Year Institution | | |
| Transfer | -0.185*** | | 0.198*** | | | |
| Transfer+AA | | -0.085** | | -0.124*** | | |
| 19 years old | -0.030 | -0.045** | -0.012 | -0.014 | | |
| 20-23 years old | -0.103** | -0.132*** | 0.200*** | -0.180*** | | |
| 24-29 years old | -0.169** | -0.241*** | -0.140 | -0.121 | | |
| 30 or older | -0.249*** | -0.312*** | -0.077 | -0.186 | | |
| Female | 0.051*** | 0.037** | 0.071*** | 0.051** | | |
| Black | -0.065 | -0.079 | -0.029 | -0.009 | | |
| Latino | -0.078 | -0.083 | -0.050 | -0.083 | | |
| Other(a) | -0.047 | -0.040 | -0.029 | -0.001 | | |
| Middle income quartiles | 0.071** | 0.083** | 0.028 | 0.014 | | |
| Highest income quartile | 0.140*** | 0.178*** | 0.061 | 0.042 | | |
| Black *Lowest-income quartile | 0.021 | 0.056 | 0.050 | -0.031 | | |
| Latino *Lowest-income quartile | -0.004 | 0.041 | -0.030 | -0.026 | | |
| Other *Lowest-income quartile | 0.092 | 0.126 | 0.028 | 0.010 | | |
| At least one remedial course | -0.030 | -0.038 | -0.043 | -0.045 | | |
| Academic major | 0.007 | 0.000 | -0.004 | -0.014 | | |
| Full-time attendance | 0.129*** | 0.102** | 0.055 | 0.070 | | |
| MSI: HBCU+PBI | -0.083 | -0.126** | -0.126 | -0.199** | | |
| MSI: Hispanic-serving | -0.123** | -0.180*** | -0.054 | 0.042 | | |
| MSI: Other MSI | -0.006 | 0.000 | 0.015 | 0.041 | | |
| Black *HBCU+PBI | -0.036 | 0.039 | -0.067 | 0.058 | | |
| Latino *Hispanic-serving | 0.036 | 0.105 | 0.022 | -0.076 | | |
| Statewide articulation policy | -0.022 | -0.017 | 0.028 | 0.015 | | |
| Unemployment rate | -0.008 | 0.006 | 0.015 | 0.009 | | |
| Avg. public 4-year tuition | 0.033** | 0.042** | 0.001 | -0.006 | | |
| Avg. private 4-year tuition | 0.008** | 0.004 | 0.015*** | 0.012*** | | |
| Avg. public 2-year tuition | -0.087*** | -0.080*** | 0.024 | 0.018 | | |
| Weighted population | 1,005,500 | 800,600 | 410,900 | 343,600 | | |

(a) Includes Native American, Asian and Pacific Islander.

Note: Marginals (dy/dx) are reported. # Rounds to zero. *** p<0.01, ** p<0.05

Source: Beginning Postsecondary Students surveys, 2004-09. Author's calculations.

25. This matching method is referred to as Propensity Score Matching (PSM). The method isolates the "treatment on the treated"; in this instance, the transfer effect. See Appendix A for more details about this econometric approach.

degree) are compared to those who enrolled directly in, and remained for at least two years at, a fouryear institution. Based on the matched sample, the transfer differential is larger than what was estimated by the multivariate analysis, and there is little to no reduction in this differential if a student earns an associate degree prior to transferring (see Tables 10 and 11). However, while an associate degree does not give transfer students an extra boost, it does give them something in case they do not succeed in their ultimate degree goal.

Limitations of the Analysis

The most important variable missing from this study is a measure of financial aid. Because data on the types and amounts of financial aid offered to a potential transfer student is unavailable, modeling the impact of financial aid in any meaningful way was rendered impossible. However, income is a rough proxy for a student's financial situation; therefore, it is not unreasonable to suppose that income accounts for some portion of the transfer decision that would otherwise have been captured by financial aid given that financial aid levels are correlated with student income levels. Once armed with student financial data, a logical extension of the analysis conducted in this study would include measures of financial aid in measuring student price sensitivity within the transfer decision.

Potential transfer students could also benefit from a high-touch approach to help them effectively navigate the current financial aid system (see sidebar on p. 16, "Institutions Have a Key Role to Play..."). Strong transfer-oriented financial aid counseling could ensure that potential transfers maximize their aid benefits. Moreover, individualized support could help potential transfers understand why pursuing a four-year degree is worth the opportunity costs. It could even minimize the time to degree by helping transfer students understand baccalaureate culture and acclimate to four-year institutions, thereby increasing their likelihood of degree attainment. This approach was mentioned during the institutional interviews, namely by the directors of the Passport Program in Indiana.

Table 10: Comparison of average treatment effect and propensity score matching results of bachelor's degree attainment of first-time community college students who transferred to a public or private four-year institution and native rising four-year juniors, 2004-09

| | Public | 4-Year | Private 4-Year | | |
|-------------------------------------|----------------------|----------------------|----------------------|----------------------|--|
| | Probit | PSM | Probit | PSM | |
| Average Treatment on the Treated | | -0.200*** (0.026) | | -0.325*** (0.039) | |
| Average Treatment Effect | -0.185*** (0.024) | -0.242*** (0.022) | -0.198*** (0.029) | -0.350*** (0.045) | |

Note: Marginals (dy/dx) are reported. Standard errors in parentheses. Local linear regression was used to match samples via a propensity score matching (PSM) algorithm. Bandwidth for PSM models are 0.15 and 0.16, respectively, and trim equals 5. *** p<0.01, ** p<0.05

Source: Beginning Postsecondary Students surveys, 2004-09. Author's calculations

Table 11: Comparison of average treatment effect and propensity score matching results of bachelor's degree attainment of first-time community college students who transferred with an associate degree to a public or private four-year institution and native rising four-year juniors, 2004-09

| | Public | 4-Year | Private 4-Year | | |
|-------------------------------------|----------------------|----------------------|----------------------|----------------------|--|
| | Probit | PSM | Probit | PSM | |
| Average Treatment on the Treated | | -0.123*** (0.039) | | -0.278*** (0.072) | |
| Average Treatment Effect | -0.085*** (0.036) | -0.252*** (0.040) | -0.124*** (0.043) | -0.392*** (0.126) | |

Note: Marginals (dy/dx) are reported. Standard errors in parentheses. Local linear regression was used to match samples via a propensity score matching (PSM) algorithm. Bandwidth for PSM models are 0.15 and 0.16, respectively, and trim equals 5. *** p<0.01, ** p<0.05

Source: Beginning Postsecondary Students surveys, 2004-09. Author's calculations

Another limitation has been the sole focus on the supply side of the transfer puzzle. This assumes that every eligible community college student has a fouryear college to transfer to and a suitable academic environment and support services available once they arrive to ensure the greatest chance of succeeding. Additional information, such as whether the student applied at a four-year institution and was rejected, would be necessary, but this study cannot address these valid concerns armed with existing data only.

Institutions Have a Key Role to Play in Creating Seamless Transfer, but Only if They Engage in High-Touch Activities

Individual institutions can leverage state policies to often create strong transfer systems within institutional partners. Two examples came to light during our interviews:

In Indiana, the **Indiana University-Purdue University Indianapolis (IUPUI)/ IvyTech-Central Indiana Passport Program** is jointly administered by the two partnering institutions. This includes jointly funding program staff whose job duties are solely related to developing and maintaining articulation agreements, counseling transfer students, and working with faculty and staff to develop a transfer-oriented culture on both campuses. Passport Program staff work with students to develop individualized transfer plans, connect with appropriate faculty, access financial aid, and understand college cultures on both the two- and four-year campus. Through a financial aid consortium, the program allows students to attend classes at both IUPUI and IvyTech-Central Indiana simultaneously, using federal financial aid at both institutions.

A partnership between **Portland Community College** and **Portland State University** permits qualified students to be co-admitted at both institutions. Participating students have access to many facilities and support services at each institution. Students pay community college tuition for community college courses, and four-year tuition for courses offered through the university.

These programs help transfer students access the receiving institution early in their collegiate career and make transfer a key component of the culture on both campuses. But both require significant resources. Co-admitted students are given multiple forms of support before, during, and after the transfer process, but this support is dependent upon having dedicated transfer staff available to them. A particular challenge is reaching out to all of the potential transfer students who are not aware of the program and, because they self-advise, do not necessarily see themselves as benefitting from participation. In Oregon, the co-enrollment program is struggling to meet demand. Portland State University is having difficulty serving the large numbers of freshmen and sophomores enrolled or co-enrolled in that institution. This is particularly challenging given the budget cuts facing the institution and higher education generally.

Conclusion

Transfer can offer educational opportunities to students who historically would not have been able to take immediate advantage of them, and it is precisely this reason why the national transfer rate cannot increase without these students. The conversation, therefore, needs to move beyond predicting transfer to understanding the transfer process — from initial enrollment to bachelor's degree attainment.

Ideally, a properly functioning two-to-four-year transfer process would enable all students seeking a bachelor's degree to first enroll in a community college, take only the required lower division courses of their eventual program of study, have those courses accepted at their desired four-year destination, and then graduate in a timely manner. The reality as reflected in the findings from this study falls considerably short in several key places. Using a number of national- and state-level data from the mid-1990s and 2000s, the main findings from similar cohorts of first-time community college students reveal that:

- The percentage of the nation's community college students who transfer has remained stable over the last decade at 26 percent. This is the case in spite of growing adoption of statewide articulation agreements, the programmatic efforts of two- and four-year institutions, and the stated intentions of the students themselves.
- Among community college students who successfully transfer, slightly more than two out of five earn a bachelor's degree within six years. However, they are roughly 20 percent less likely to earn a bachelor's degree within this time period than comparable peers who start at a four-year institution and complete at least two full-time equivalent years of enrollment. However, two out of five transfer students are still enrolled in a four-year institution and may eventually earn a bachelor's degree if observed longer.
- The stated intent of students to transfer has increased, reflecting the success of transfer awareness programs and mirroring the preferences of policymakers and institutional leaders. Transfer outcomes have not followed suit. While speculative, this condition suggests a natural ceiling to transfer rates. The causes of this potential ceiling are as of yet unclear.
- Specific to state policy actions, statewide articulation agreements show no statistically significant impact on transfer rates. Anecdotal

evidence from interviews with transfer coordinators suggest that institution-to-institution agreements provide more benefits for student transfer rates than statewide policies, but their proliferation could be confusing to students.

 Any action by institutions or states may be stymied by sluggish economic conditions, which appear to hinder students' progress to a four-year institution as well as force community colleges into decisions that may adversely affect transfer, such as hiring more part-time faculty, cutting back on administrative and transfer staff and counselors, and cancelling or consolidating services.

So, is the traditional two-to-four-year transfer still a worthwhile and advisable option to increase the number of individuals with a bachelor's degree? There is no doubt that successful transfer policy interventions and practices are being employed across the country. This study highlights three such policies and programs. Yet, as the empirical analysis makes clear, imbalances still exist between the number of community college students seeking to transfer and the number that are able to be served by these programs. More critically, community college students do not attain bachelor's degrees at the same rate as rising juniors in six years. Therefore, the main conclusion of this study, bolstered by similar findings from the past 20 years, supports a dramatic retooling — rather than modest adjustment - of the transfer process.

For example, the segmentation of the transfer process must be minimized through the establishment (or expansion) of concurrent two- and four-year admission, blended curricula taught by faculty at both levels, and linked financial aid data that can provide students with not only next year's costs and available aid but estimates of what these values might be two and three years in the future. In doing so, community college students will no longer feel the academic or cultural shock of senior-level institutions, four-year faculty will view transfer students less as "their students" and more as "our students", and a greater number of students will remain in the public sector. This has several societal benefits.

These recommendations shift the onus from the current approach, which is predicated on studentinitiated movement within a bifurcated higher education system, to a student-centered model that stresses greater two- and four-year integration and collaboration. In other words, instruction and information come directly to students rather than having them seek it out on their own. Dramatic experiments such as those proposed above are necessary since the traditional concept of transfer appears to be out of step with contemporary circumstances, as well as being inadequate as an instrument to advance national completion goals.

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Appendix A: Specification of Models

This analysis uses a simple model where an individual student *i* at institution *j* in state *s* has a certain probability of transfer which is a function of certain individual, institution-, and state-level characteristics. Since the first dependent variable of interest (transfer) is binary, we estimate the conditional probability that a given student will transfer from a two-year institution to a four-year institution over the time period under consideration. This probability can be modeled as

 $P(y_{iis}=1|x) = G(\beta_0 + x\beta)$ (1)

where **G** is the logistic function with a binomial distribution assumption and $x\beta$ is the complement of parameters used to estimate *Y*. Equation (1) above can consequently be rewritten as (2), below

(2)

$$P(y_{ijs}=1|x) = \frac{e\beta o + x\beta}{1 + e\beta o + x\beta}$$

which can be linearized by taking natural logs (Wooldridge, 2010).

Unlike standard OLS regressions, the coefficients of a logistic regression cannot be interpreted at the margin. Consequently, marginal effects for each model were computed as

$$[P(y_{it}=1)] [1-P(y_{it}=1)] \widehat{\beta}_{l}$$
(3)

and reported for easy interpretation. Data were weighted using sampling and stratum weights as included in the BPS:96/01 and BPS:04/09 datasets, with a Taylor series used to estimate the covariance matrix.

The second dependent variable of interest (bachelor's *degree attainment*) is binary, and we can use logistic regression to estimate the conditional probability that a given four-year student will earn a bachelor's degree over the time period under consideration, controlling for transfer status, individual-, institution-, and statelevel characteristics. However, in this logistic regression model, both the coefficient and marginal effects on the transfer status variable will be biased because students sort themselves into specific types of institutions. That is to say, unobservable characteristics, such as motivation and hard work, that make a student more likely to transfer and attain a bachelor's degree will mask the true effect of transfer on bachelor's degree attainment. A solution to this self-selection bias is to randomly assign some students to a twoyear institution and others to a four-year institution; a solution that is unfeasible for both moral and political reasons. Instead of random-assignment experiments,

statistical matching techniques are used to match groups of students based on observable characteristics so that they differ only in type of treatment received.

In this analysis, students were matched not on individual characteristics themselves, but on their propensity score (i.e., the probability of treatment). Once the propensity scores were calculated, a matching algorithm was used to compare the outcome of the treated individuals with the outcome of the control group members. For the purposes of this report, the treatment group consists of transfer students (with and without an associate degree), the control group consists of native juniors, and the outcome is bachelor's degree attainment.

The local linear matching algorithm was used to perform the match.²⁶ Unlike logistic regression, which only estimates the average treatment effect (ATE), propensity-score matching methods measure the average treatment on the treated (ATT) in addition to the ATE. In this analysis, the ATT is the effect of transferring for students who transferred, and it measures the effect that transferring has on bachelor's degree attainment. The ATE estimates bachelor's degree attainment for any student, transfer, or native junior, if they were to transfer. While the ATT is a more appropriate and useful measure, the ATE is reported for comparison to the logistic regression model. Standard errors were calculated using bootstrapping and are reported with the corresponding coefficients. Robustness checks show that the treatment effects do not significantly vary based on choice of matching algorithm.²⁷

^{26.} For a very good and thorough explanation of the use of matching methods in higher education research, please see Reynolds and DesJardins, 2009.

^{27.} Common support tests and balance tests available upon request.

Appendix B: Data Sources

The findings discussed in this report were based on data drawn from several primary and secondary sources. They are:

- Beginning Postsecondary Students Longitudinal Study (BPS)
- Integrated Postsecondary Education Data System (IPEDS)
- U.S. Bureau of Labor Statistics (BLS)
- Education Commission of the States' policy brief on transfer and articulation
- Interviews with transfer counselors at five postsecondary institutions in three states

Taken in order, BPS, conducted by the National Center for Education Statistics (NCES), surveys cohorts of first-time postsecondary students at the end of their first year, and three and six years after starting their postsecondary education. The study collects data on student demographics, attainment goals, school experiences, including enrollment patterns, persistence and degree attainment, and work experiences. BPS:96/01 follows a cohort of students who began their postsecondary education in academic year 1995-96 with follow-up surveys in academic years 1997-98 and 2000-01, and BPS:04/09 follows a cohort of students who began in academic year 2003-04 with follow-up surveys in 2005-06 and 2008-09. A majority of the analysis in this report used the most current survey, BPS:04/09, with data from BPS:96/01 used for comparison. Variables used in this report include student demographic characteristics, academic preparation, transfer and degree expectations, enrollment patterns and intensity, and first-year academic major.

IPEDS, also conducted by the NCES, is a system of surveys that collect annual data from all postsecondary institutions that participate in federal student financial aid programs. The system of surveys includes institutional-level data in the following categories: institutional characteristics, enrollment, completions, student financial aid, and institutional resources. This report used data from the Institutional Characteristics Survey and Fall Enrollment Survey from academic years 1995-96 through 2000-01 and academic years 2003-04 through 2008-09, which correspond to the observational periods of the both BPS surveys. Variables used in this report include institutional characteristics such as location, sector, and minority serving institution status, and tuition. Variables used in this report include institutional characteristics such as location, sector, and minority serving institution status, and tuition.

The Bureau of Labor Statistics, through the Local Area Unemployment Statistics program, produces monthly and annual employment, unemployment, and labor force data for states, counties, metropolitan areas, and census regions and divisions. This report used state-level annual unemployment rates for the years 1995–2001 and 2003–2009.

Current transfer and articulation policies were found in a recent Education Commission of the States' *State Notes* brief on the topic. Compiled in 2001 and updated in 2010, this brief summarizes transfer and articulation polices, agreements, and transfer mechanisms in each state, including statewide policy, cooperative agreements, common core courses, and common course numbering.

Campus interviews were conducted in three states — Indiana, Illinois, and Oregon. These states were purposefully selected to represent contrasting state and institutional transfer policies. Pairs of institutions that either sent or received large numbers of transfer students in the state were identified. Individuals were selected based on their job function and willingness to participate in a short phone interview. Although transfer coordinators were the primary focus, other individuals who work directly with transfer students and/or transfer policies were interviewed. Interview questions centered on state transfer policies, institutional transfer programs and policies, perceived efficacy of transfer, and barriers to transfer.

^{28.} Given that a typical college class is three credits, and a full-time postsecondary course load is three to five courses, 12 credits approximates one full-time semester of higher education.

Appendix C: Variables of Interest

Outcome Variables

Transfer: A student who started her postsecondary education at a public two-year institution and stayed there at least one semester²⁸ is considered to have transferred if at any point she was observed at a fouryear institution of any type anywhere for at least one semester. Additional details regarding the definition used in this study include the following: Attendance in private or for-profit two-year institutions is allowed, and thus eligibility for transfer, only if initial enrollment was at a public two-year institution. Students were required to have at least one full-time-equivalent month of enrollment in any given semester; any enrollment of less than one full-time-equivalent month was treated as a one-semester stop-out. Students were permitted a four-semester stop-out before the transfer. Students with stop-outs lasting longer than four semesters were not counted as a transfer, even if the next reported institution was a four-year institution. Further, a student was said to have transferred even if after transferring to a four-year institution she dropped out and returned to the two-year level.

Transfer with associate degree: A transfer student is considered to have earned her associate degree only if the degree was earned before the transfer. A student who returned to the two-year level after transfer and earned an associate degree is not considered to have earned an associate degree.

Bachelor's degree attainment: A student is considered to have attained a bachelor's degree only if she earned the degree before any stop-outs lasting longer than four semesters, regardless of institution type at time of initial enrollment.

Control Variables

Educational intentions: Expectations to transfer and earn a bachelor's degree from the start signal a greater sense of intentionality and therefore the population of transfer-eligible community college students is further subdivided to account for such intentions, where appropriate. A transfer-eligible student is considered to have expectations to transfer and earn a bachelor's degree if, according to her response in the first year of the Beginning Postsecondary Students (BPS) survey, she plans to transfer and complete at least a bachelor's degree.

Native rising four-year juniors: A student is considered to be a native rising four-year junior if she initially enrolled in a four-year institution and persisted in a

four-year institution through her junior year. For the purposes of this report, junior year status is achieved at the semester in which a student has been enrolled for more than two full-time equivalent years. The population of native juniors is further subdivided into those who initially enrolled and persisted in public institutions and those at private institutions.

Age, gender, and race: Based on her response at the time of initial enrollment in postsecondary education, as reported in BPS:96 or BPS:04, a student was placed into age, gender, and race/ethnicity categories. Age categories are 15–18 years, 19 years, 20–23 years, 24–29 years, and 30 or over. Mutually exclusive race categories are white, black, Latino, and "Other." The "Other" race category includes Asian, Native Hawaiian and other Pacific Islander, Native American and Alaska Native, and two or more races.

Family income: Income quartiles were calculated using the income percentile rank of all students, regardless of initial enrollment. Reported in the academic year 1995-96 or 2003-04, depending on the BPS survey cohort, the income percentile rank variable compares students with the same dependency status; this variable equals parent's income if the student is dependent and student's income if the student is independent. Three income groups were formed: low, middle, and high. The lowest-income group consists of students whose income percentile rank is in the 25th percentile or lower. The middle income group includes students whose income percentile rank is between the 25th and 75th percentile, while the highest income group includes those in the 75th percentile or higher. Given differences in income quartile by initial institution type, additional income groups were calculated for transfer-eligible students only. These income quartiles were formed by comparing the income percentile rank variable for only those students who initially enrolled at a public two-year institution.

Remedial course work: A student is considered to have taken remedial course work if she has taken one or more remedial or developmental courses in academic year 1995-96 or 2003-04, depending on the BPS survey cohort, in the following subject areas: English, mathematics, reading, study skills, and writing.

Academic major: Student-reported major or field of study during the first academic year was categorized as either a career and technical major or an academic major. The group of career and technical majors consists of life sciences, physical sciences, math, computer/information science, engineering/ engineering technologies, health, vocational/technical, other technical/professional, and undeclared or not in a degree program. The group of academic majors consists of humanities, social/behavioral sciences, education, and business/management.

Full-time attendance: A student who first enrolled in the fall of academic year 1995-96 or 2003-04, depending on the BPS survey cohort, is considered to have attended full time if she enrolled for at least eight full-time-equivalent months in the first academic year. A student who began her postsecondary education in the spring is considered to have attended full time if she enrolled for at least four months during the spring semester.

Minority-serving institutions (MSI): MSIs are determined by federal legislation or the percentage of minority students enrolled. Currently, MSIs are classified across five major designations: Historically Black Colleges and Universities (HBCU); Predominantly Black Institutions (PBI), Hispanic-Serving Institutions (HSI); Tribal Colleges and Universities (TCU); and Asian American Native American Pacific Islander-Serving Institutions (AANAPISI). The Integrated Postsecondary Education Data System (IPEDS) institutional characteristics data and enrollment data were used to calculate the percentage of minorities at each institution. MSI status was determined for each postsecondary institution according to the definitions found in the sidebar, p. 2, "What Are Minority-Serving Institutions?"

Statewide articulation policy: Current transfer and articulation policies were found in a recent Education Commission of the States' *State Notes* brief on the topic. Compiled in 2001 and updated in 2010, this brief summarizes transfer and articulation polices, agreements, and transfer mechanisms in each state, including statewide policy, cooperative agreements, common core courses, and common course numbering. For the purposes of this report, only states with a statewide articulation policy were classified as having an articulation policy.

Average tuition: Average tuition prices by state for public four-year, private four-year, and public two-year institutions were collected from the National Center for Education Statistics' *Digest of Education Statistics*, years 1995 to 2001 and 2003 to 2009.

Tuition differential: For a student who transferred, the tuition differential variable was computed as the difference between the tuition price at the four-year institution that the student transferred to and the tuition price at the two-year institution she transferred from. For a transfer-eligible student who did not transfer, the tuition differential variable was computed as the difference between the average tuition price

for a public four-year institution in the state in which the student last attended a two-year institution and the tuition price at the last two-year institution the student attended.

Unemployment rate: State-level annual unemployment rates (non-adjusted) for the years 1995–2001 and 2003–2009 were collected from the Bureau of Labor Statistics Local Area Unemployment Statistics program. In all analyses predicting transfer and transfer with an associate degree, the unemployment rate variable equals the annual rate in the state in which the student last attended a two-year institution. In all analyses predicting bachelor's degree attainment, the unemployment rate variable equals the annual rate in the state in which the student first enrolled in postsecondary education.



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