Tracking Transfer

New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees

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CCRC COMMUNITY COLLEGE RESEARCH CENTER
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Davis Jenkins
Community College Research Center
Teachers College, Columbia University

John Fink
Community College Research Center
Teachers College, Columbia University

CCRC COMMUNITY COLLEGE RESEARCH CENTER
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

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Inside This Report

Increasing the effectiveness of two- to four-year college transfer is critical for meeting national goals for college attainment and promoting upward social mobility. Efforts to improve institutional effectiveness in serving transfer students and state transfer policy have been hampered by a lack of comparable metrics for measuring transfer student outcomes.

In this report, we propose a common set of metrics for measuring the effectiveness of two- and four-year institutions in enabling degree-seeking students who start college at a community college to transfer to four-year institutions and earn bachelor's degrees. These include three community college measures—transfer-out rate, transfer-with-award rate, and transfer-out bachelor's completion rate—and one measure for four-year institutions—transfer-in bachelor's completion rate. We also examine a fifth measure: the overall rate at which the cohort of students who start at a community college in a given state go on to earn a bachelor's degree from a four-year institution.

We calculated outcomes for these measures using unit record data from the National Student Clearinghouse on the cohort of more than 700,000 degree-seeking students who entered higher education for the first time through a community college in the fall of 2007. We compared the average outcomes on these measures six years after these students first started college for two- and four-year institutions by institutional characteristics such as urbanicity, student body socioeconomic status, and selectivity (for four-year institutions) and by state. We also examined how well different types of institutions serve lower income transfer students compared with their higher income peers. The following are the main takeaways from this research. In the conclusion of the report, we discuss implications for institutional leaders and policymakers and identify areas for further research.

- **Institutional practices—not just institutional characteristics—matter.** Institutional performance varied widely on all measures. Some colleges had greater success with transfer students than did others with similar institutional or student characteristics, including those that might pose a barrier to student success, such as location in a rural area or serving a disadvantaged student body. This suggests that institutions that serve transfer students well can have better-than-expected outcomes despite having relatively few resources or more disadvantaged students. This was especially true among community colleges, where institutional characteristics were not strongly correlated with student outcomes.
- **Among four-year institutions, transfer students had better outcomes at public institutions, very selective institutions, and institutions with higher socioeconomic status (SES) students.** In general, the type of four-year institution that students transferred to was more important than the type of community college they transferred from. Bachelor's completion rates were somewhat higher on average for students who transferred to public institutions (42 percent) than for those who transferred to private nonprofit institutions (31 percent), and much higher than for those who transferred to for-profit institutions (8 percent). Community college students who transferred to very selective four-year institutions had much better bachelor's completion rates (58 percent) than did those who transferred to nonselective institutions (22 percent). Four-year

institutions that serve students from higher SES backgrounds had better completion rates (43 percent) than did those that serve a greater proportion of lower SES students (28 percent). However, even among the types of institutions where transfer students were less likely to be successful on average, there was great variation in outcomes, indicating that institutional practices matter in four-year institutions as they do in community colleges.

- **Outcomes at both two- and four-year institutions varied remarkably by state.** Whether due to specific policies or the history and culture of transfer and transfer relationships in particular states, there were striking differences in outcomes by state that warrant further exploration.
- **Strong baccalaureate completion for community college students requires both high transfer-out rates and high bachelor's completion rates.** With one exception, states ranked in the top 10 in community college cohort bachelor's completion rates had transfer-out rates above the national average. Even some states with above-average bachelor's completion rates among transfer students had relatively low completion rates among the entire cohort as a result of their low transfer-out rates.
- **The connection between earning a community college credential before transferring and the probability of earning a bachelor's degree is not clear in most states.** Despite prior research indicating that earning a community college credential before transferring is associated with a higher probability of completing a bachelor's degree, in most states, the link is not apparent.
- **Lower income transfer students had worse outcomes than higher income students on almost all measures.** Lower income students were less likely than higher income students to transfer or earn a bachelor's degree after transfer. However, they were equally likely to earn an associate degree or certificate before they transferred.
- **In a handful of states, the success gap between lower income and higher income transfer students was small or nonexistent.** In most states, lower income transfer students completed bachelor's degrees at lower rates than did higher income students. In some states with relatively high rates of bachelor's completion among transfer students, this attainment gap was particularly stark. In a small number of states, though, there was more parity in outcomes.

Introduction

Improving degree outcomes for students who transfer from community colleges to universities is critical to achieving national goals for improving upward social mobility and economic vitality. Citing research on the growing income inequality between community college students and those in four-year institutions, the College Board's Commission on Transfer Policy and Practice concluded in its 2012 report that "the increasing stratification of higher education makes transfer the most important—and perhaps the only—viable avenue [to postsecondary success] for students from underserved groups" (Handel & Williams, 2012, p. 22). Students who transfer from community colleges to universities are more likely to be from lower income families than are students who enter higher education through four-year institutions, even those entering nonselective universities (Bowen, Chingos, & McPherson, 2009).

Previous research indicates that while the vast majority of students who enter higher education through community colleges each year indicate that they intend to earn a bachelor's degree, only a relatively small percentage transfer and earn a bachelor's degree.[1] This research report seeks to advance understanding of transfer and bachelor's degree attainment rates among community college students, with the larger goal of fostering improvements in transfer success for these students. While significant research on transfer has been published in recent years, much of it has focused on either state policies or students' experience of transfer. Less research has explored the institutional structures, policies, and practices that result in high levels of degree attainment by community college transfer students.

One impediment to conducting such research is the limited information available about transfer student outcomes. To date, the field has lacked widely accepted measures of the effectiveness of two- and four-year institutions in enabling students who start at community colleges to transfer and earn degrees. Community colleges report the rate at which their students transfer to four-year institutions as part of the federal Integrated Postsecondary Education Data System (IPEDS) "Student Right-to-Know" statistics (required of all institutions whose students receive federal financial aid). However, these statistics have been criticized because of the variation in the methods by which institutions track transfer students (Albright, 2010). Moreover, transfer-out rates fail to capture a critical outcome for transfer students: whether they actually succeed in earning bachelor's degrees. Four-year institutions are not required to report success rates for incoming transfer students to IPEDS. And while some state higher education agencies periodically gather and evaluate data on transfer outcomes, their accountability measures typically do not include transfer students.[2]

Within institutions, there is a similar lack of focus on transfer students' outcomes. While many if not most community colleges examine the rate at which students transfer out, few systematically track which four-year institutions their students transfer to, and even fewer monitor the rates at which their students go on to earn bachelor's degrees. For their part, four-year institutions tend to focus on students who entered as freshmen, despite their often substantial populations of students who previously attended community colleges. According to the National Student Clearinghouse (NSC), in the 2013–14 academic year, 46 percent of students who completed a degree at a four-year

institution had enrolled at a two-year institution at some point in the previous 10 years. In 14 states, more than half of four-year degree recipients had previously enrolled at a two-year institution (National Student Clearinghouse Research Center, 2015).[3]

Signs indicate that transfer students are gaining attention among state policymakers. While some states, such as Florida and Washington, have long been recognized for their forward-thinking transfer policies, others have made changes in this area more recently. Recognizing the economic and human costs of inefficient transfer policies, policymakers in California, Colorado, Connecticut, New York, Tennessee, and other states have passed legislation aimed at improving transfer outcomes. Overall, more than a third of states have adopted some sort of statewide policy to facilitate transfer from community colleges to four-year institutions (Mullin, 2012, Figure 1).

At the institutional level, competition for students and other factors have historically discouraged strong cooperation between universities and community colleges on transfer. However, a recent confluence of demographic, economic, and political trends has created incentives for universities—particularly public regional comprehensives—to enroll more community college students to meet their enrollment and degree-completion goals (Jenkins, Kadlec, & Votruba, 2014).

This report is designed to capitalize on the gathering momentum for improving transfer student outcomes by helping institutional leaders and policymakers better understand current outcomes and providing them with metrics for benchmarking their performance. We introduce five metrics for measuring the performance of two- and four-year institutions in serving students who start at a community college and transfer to a four-year institution.

We present three metrics that together give a fuller picture of community colleges' transfer student outcomes:

- **transfer-out rate**—the rate at which a community college's degree-seeking students transfer to a four-year institution;
- **transfer-with-award rate**—the rate at which a community college's transfer students earn a credential (either an occupational certificate or an associate degree) before transferring to a four-year institution; and
- **transfer-out bachelor's completion rate**—the rate at which a community college's students who transfer to a four-year institution earn a bachelor's degree from any four-year institution within six years of entering higher education.

For four-year institutions, we examine a single metric of degree outcomes for community college transfer students:

- **transfer-in bachelor's completion rate**—the rate at which the students who transfer to a given four-year institution complete a bachelor's degree at the institution within six years of entering higher education.

Finally, so that community colleges and their four-year institutional partners can begin to assess how well they are working together to enable community college students in their state to earn bachelor's degrees, we briefly discuss a fifth metric:

- **community college cohort bachelor's completion rate**—the rate at which degree-seeking students who enter higher education through a community college in a given state transfer and earn a bachelor's degree (at any four-year institution).

To evaluate success against these measures, we used data from NSC on a cohort of degree-seeking students who entered higher education through a community college in fall 2007 and whose transfer and degree outcomes we tracked for six years. NSC data offer two advantages over publicly available datasets: They include many more students than federal IPEDS data (which are limited to first-time, full-time students), and unlike state-level data, they track transfer students who move between institutions across state boundaries. In this report, we present data on our five metrics by institutional characteristics and by state. We show the range of performance levels across different types of institutions within each state. We also compare the performance of lower income transfer students and their higher income peers.

The purpose of the report is to give institutional leaders and policymakers metrics they can use to assess how well their institutions and systems are serving community college transfer students. By showing the variation in institutional outcomes within and across states, we hope to motivate efforts to benchmark outcomes against high-performing institutions and systems, and to encourage reforms aimed at improving transfer student success.

In the next section, we define the institutional outcome measures we use in this report and the institutional characteristics by which we break out the results. We then present the main findings from our analysis of transfer student outcomes for two- and four-year institutions. In the final section, we highlight the main takeaways from our analysis and discuss the implications for institutional leaders, policymakers, and researchers.

Data and Definitions

Sample and Tracking Period

To measure the performance of two- and four-year institutions in enabling community college students to transfer and earn degrees, we used NSC data to track the progress and outcomes of students who entered higher education for the first time at a community college in the fall semester of 2007, hereafter referred to as the "fall 2007 cohort."[4] We confined the sample to "degree-seeking students," which we defined as those who enrolled full-time for at least one term before August 15, 2008, or enrolled half-time for any two terms before December 31, 2008.[5]

Because students who take college courses in high school via dual enrollment programs tend to have different outcomes from those who start taking college courses after high school, we excluded such students by limiting the fall 2007 cohort to those aged 18 or older at the time of their first enrollment. We confined our analysis to students who had no previous college experience and were entering college after high school, on the premise that the best way to assess an institution's effect on student outcomes is to examine the outcomes of students who begin at the same "starting line." Overall, there were 719,371 degree-seeking students in the fall 2007 cohort.[6]

We tracked the progress of these students over six calendar years after they first enrolled at a community college. Six years is a relatively short time for community college students to transfer and earn a bachelor's degree; however, our goal in using this timeframe was not to determine how many students ultimately transfer and earn bachelor's degrees, but to create measures that institutions can use to benchmark their performance and progress. From this standpoint, six years is enough time for at least some community college students to transfer and graduate, but not so long as to make it difficult to use historical performance metrics to improve practice.[7]

As with any benchmark, care should be exercised when comparing results between different types of institutions. For example, using a six-year tracking period will likely lead to underreported transfer-in bachelor's completion rates at four-year institutions that often receive students after substantial gaps in their enrollment (e.g., for-profit institutions).[8] Still, attaining a bachelor's degree within six years of entering a community college is a reasonable performance benchmark. Students who achieve early momentum in college are substantially more likely to graduate than are those who make slower progress (Attewell, Heil, & Reisel, 2012), and there is some evidence that colleges that are able to produce better outcomes over a shorter timeframe are likely to perform relatively well over longer timeframes (Bailey, Crosta, & Jenkins, 2006).

Student Variables

Transfer Students

We labeled students as transfer students if they were first-time-ever-in-college, degree-seeking students who enrolled at a community college in the fall 2007 term and subsequently enrolled in a four-year institution within six years of college entry. Of the fall 2007 cohort, 33 percent (n = 237,126) were defined as transfer students. Table 1 shows certificate and degree outcomes for all students in the fall 2007 cohort and for those who transferred to a four-year institution.

Table 1. Six-Year Student Outcomes

Outcome	Fall 2007 Cohort	Transfer Students
Earned a certificate or associate degree	32%	29%
Earned a bachelor's degree	14%	42%
Number of students	719,371	237,126

Lower Income Students

We created a proxy measure of student family income by geocoding students' address records from NSC and matching each student's geocode with U.S. Census data on median household income at the level of the census tract, a geographical area encompassing students' home addresses that is smaller than a zip code region and therefore more demographically homogeneous (Geronimus & Bound, 1998). We then identified students from census tracts with median household incomes in the bottom 40 percent nationally and defined these students as lower income students.[9] Lower income students comprised 29 percent (n = 208,645) of the fall 2007 cohort and 24 percent (n = 57,995) of transfer students.

Similarly, we used this procedure to identify students from census tracts with median household incomes in the top 40 percent nationally for comparison. Higher income students comprised 53 percent (n = 383,114) of the fall 2007 cohort and 58 percent (n = 137,499) of transfer students. In our analyses, we excluded students in the middle income quintile (the middle 20 percent) to sharpen the comparison between lower and higher income students. Table 2 shows the certificate and degree outcomes for lower and higher income transfer students in the fall 2007 cohort.

Table 2. Six-Year Outcomes of Transfer Students by Income

Outcome	Lower Income	Higher Income	All Transfers
Earned a pre-transfer certificate or associate degree	29%	29%	29%
Earned a bachelor's degree	36%	44%	42%
Number of students	57,995	137,499	237,126

Institutional Transfer Outcomes

We derived our institution-level outcome measures using NSC data on degree-seeking students in the fall 2007 cohort. Definitions are provided in Table 3. We also calculated these outcome variables separately for lower income students and higher income students.

Table 3. Outcome Definitions

Institutional Outcome	Definition	Unit of Analysis
Transfer-out rate	The number of transfer students who started at the community college divided by the number of students in the community college's fall 2007 cohort.	Community college
Transfer-with-award rate	The number of transfer students who started at the community college and earned a certificate or associate degree from that college prior to their earliest enrollment at a four-year institution, divided by the number of transfer students in the community college's fall 2007 cohort.	Community college
Transfer-out bachelor's completion rate	The number of transfer students who started at the community college and earned a bachelor's degree from any four-year institution within six years of community college entry, divided by the number of transfer students in the community college's fall 2007 cohort.	Community college
Transfer-in bachelor's completion rate	The number of transfer students in the fall 2007 cohort who started at any community college and earned a bachelor's degree from the four-year institution within six years of community college entry, divided by the number of transfer students in the fall 2007 cohort who started at any community college and enrolled at the four-year institution for at least one term.	Four-year institution
Community college cohort bachelor's completion rate	The number of students who started at a community college and earned a bachelor's degree from any four-year institution within six years of community college entry, divided by the total number of students in the community college's fall 2007 cohort.	Community college and four-year institution interaction

While in some cases we present plots of the performance of individual institutions on these measures, the bulk of our findings aggregate the performance of individual institutions by institutional characteristics or by state, using weighted averages.[10] Thus, averages for particular measures reflect the outcomes of larger institutions more than smaller ones. We used weighted averages (as opposed to giving each institution equal weight regardless of size) to give a more accurate picture of the overall outcomes of students within a particular category of institution or state.

Institutional Characteristics

The institutional characteristics used in our analysis were selected based on previous research on institutional factors that might affect outcomes for transfer students.[11] Table 4 shows summary statistics on the proportion of institutions and enrollments in our sample by institutional type and characteristics.

Table 4. Share of Institutions and Enrollments by Institutional Characteristics

	Community Colleges			Four-Year Institutions	
Characteristic	**Share of Institutions** (*n* = 824)	**Share of Fall 2007 Cohort** (*n* = 719,371)	**Share of Transfer Students** (*n* = 237,126)	**Share of Institutions** (*n* = 1,817)	**Share of Transfer Enrollments** (*n* = 265,145)[a]
Sector					
Public				30%	73%
Private nonprofit				58%	19%
Private for-profit				12%	9%
Selectivity					
Nonselective				29%	27%
Moderately selective				36%	53%
Very selective				17%	17%
Missing				18%	3%
Program Mix					
Primarily academic	55%	55%	56%		
Primarily occupational	45%	45%	44%		
Urbanicity					
Rural	22%	12%	12%	6%	2%
Suburban/town	44%	42%	44%	43%	40%
Urban	34%	46%	45%	51%	58%
Average Student SES					
Lower quintiles	40%	22%	20%	40%	32%
Middle quintile	20%	18%	16%	20%	20%
Top quintiles	40%	59%	64%	39%	48%

Note. Some percentages do not add to 100 percent due to rounding.
[a] Transfer students who enrolled at multiple four-year institutions were counted for each institution.

Community Colleges and Four-Year Institutions

While we relied primarily on IPEDS data to categorize institutions as community colleges and four-year institutions, we revised the IPEDS categorization for some institutions that offer relatively few bachelor's degree programs. These institutions are listed as public four-year institutions in IPEDS but are more accurately categorized as community colleges based on their history, mission, and degree mix.[12] We used IPEDS data on Carnegie Classifications, program offerings, mix of associate versus bachelor's degrees awarded, mission statements, and membership in national

associations to categorize institutions as community colleges or four-year institutions. We excluded institutions in the U.S. Virgin Islands and Puerto Rico, yielding 824 community colleges and 1,817 four-year institutions in the final analytic sample.

Four-Year Sector

While this study examined only public two-year institutions (community colleges) and not private two-year institutions, we disaggregated findings by four-year institutional sector using information merged from IPEDS. Previous descriptive research suggests that community college students are more likely to transfer to public four-year institutions than to private nonprofit or private for-profit institutions. Moreover, community college students who transfer to public four-year institutions are more likely to earn bachelor's degrees than are those who transfer to private institutions (Shapiro, Dundar, Ziskin, Chiang, et al., 2013, Figure 7). In the final analytic sample of four-year institutions, there were 552 public institutions, 1,052 private nonprofit institutions, and 213 private for-profit institutions, which accounted for 73 percent, 19 percent, and 9 percent of transfer enrollments from the 2007 cohort, respectively.

Selectivity

Studies indicate that transfer students' likelihood of degree attainment increases with the selectivity of the receiving four-year institution (Melguizo & Dowd, 2009). We used the 2010 Carnegie Undergraduate Profile Classification indicators, accessed through IPEDS, to categorize four-year institutions into three groups: very selective, moderately selective, and nonselective. There were 306 very selective institutions, 661 moderately selective institutions, and 525 nonselective institutions accounting for 17 percent, 53 percent, and 27 percent of transfer enrollments from the fall 2007 cohort, respectively. There was no selectivity information available through IPEDS for 325 of the four-year institutions, which accounted for 3 percent of the transfer enrollments.

Program Mix

Some studies have suggested that community colleges with higher proportions of liberal arts offerings have, on average, higher transfer-out rates (see Armstrong & Mellissinos, 1994). Other research suggests that a focus on occupational training limits community colleges' efficacy in serving students seeking to transfer (see Dougherty, 2002; Roksa, 2006). Some occupational associate degrees are not designed to prepare students for transfer to baccalaureate programs but rather to enable them to enter the workforce directly. Therefore, it may be harder to apply credits from such applied degrees toward a bachelor's degree. To capture potential differences in student outcomes resulting from the types of programs offered at different colleges, we categorized community colleges based on their mix of academic and occupational associate degrees awarded. We used data from IPEDS to group institutions into "primarily academic" and "primarily occupational" categories based on the ratio of academic to occupational associate degrees awarded by the institution. We classified colleges that awarded 40 percent or more of their associate degrees in occupational fields (as opposed to associate of arts, associate of science, or associate of general education degrees) as primarily occupational and those that awarded less than 40 percent of their associate degrees

in occupational fields as primarily academic. Overall, we classified 369 community colleges as primarily occupational and 455 as primarily academic.

As shown in Table 4, transfer students were more likely to come from community colleges with a primarily academic focus, although the difference is not as great as might be expected. Significant numbers of students transferred to four-year institutions from community colleges that are more focused on occupational preparation.

Urbanicity

How successful community college students are in transferring may be related to the proximity of four-year institutions (Backes & Velez, 2015; Long, 2004). In our analysis, we used the location of each community college as a proxy measure of the likely availability of four-year options. We used IPEDS data on institutional locale to categorize community colleges and four-year institutions into three categories: urban, suburban/town, and rural. Students in the fall 2007 cohort who transferred to a four-year institution were more likely to be enrolled in community colleges that were located in cities as opposed to rural areas. In the final sample, there were 278 urban community colleges, which enrolled 45 percent of transfer students, 366 suburban/town community colleges with 44 percent of transfer students, and 180 rural community colleges with 12 percent of transfer students. A similar pattern is evident in the share of transfer enrollments among four-year institutions. There were 933 urban four-year institutions, 778 suburban/town four-year institutions, and 106 rural four-year institutions with 58 percent, 40 percent, and 2 percent of transfer enrollments from the fall 2007 cohort, respectively.

Average Student Socioeconomic Status (SES)

Previous studies have found that community college students from low-income backgrounds are less likely to succeed in transfer programs than are those from higher income families (Clotfelter, Ladd, Muschkin, & Vigdor, 2013). Thus, we might expect that colleges serving larger proportions of lower income or first-generation college students would have poorer outcomes among transfer students. We created a student-level SES variable by using U.S. Census data to derive a standardized composite of the median household income, educational attainment, and occupational profile of each student's home census tract. We then created an institution-level SES measure by taking the median student SES score for either all enrolled students (at community colleges) or all transfer students (at four-year institutions) in the fall 2007 cohort. Each institution was placed into quintiles based on the median SES score of its student population. Transfer students were more likely to attend both community colleges and four-year institutions with a higher average SES. Community colleges in the top two quintiles, middle quintile, and bottom two quintiles enrolled 64 percent, 16 percent, and 20 percent of the transfer students, respectively. Four-year institutions in these three segments accounted for 48 percent, 20 percent, and 32 percent of the transfer enrollments, respectively.

Findings

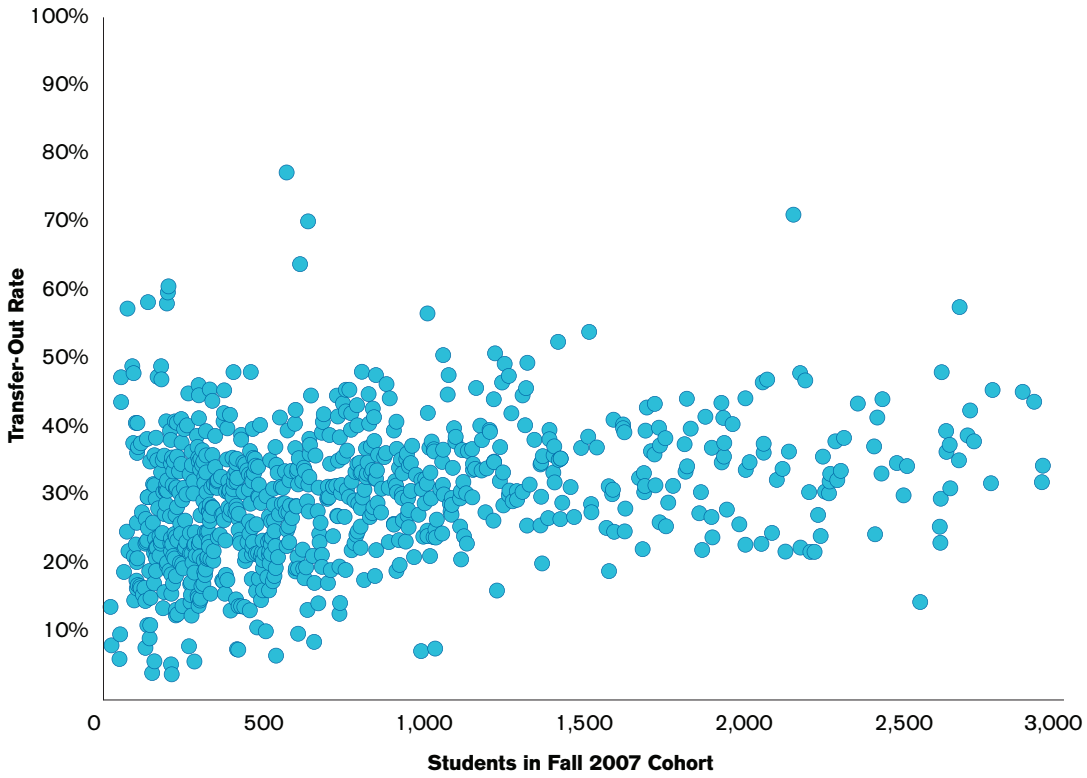
Community College Effectiveness Metrics

There was considerable variation among individual colleges on all three community college effectiveness metrics. However, average student outcomes by most institutional characteristics, such as urbanicity or average student SES, differed by only a few percentage points. This suggests community colleges' success with transfer students is not entirely (or even largely) dependent on institutional or student characteristics.

Transfer-Out Rates

The wide variation in transfer-out rates among colleges is shown in Figure 1, which plots the community colleges in our sample by their transfer-out rate in relation to the number of students in their fall 2007 cohort.

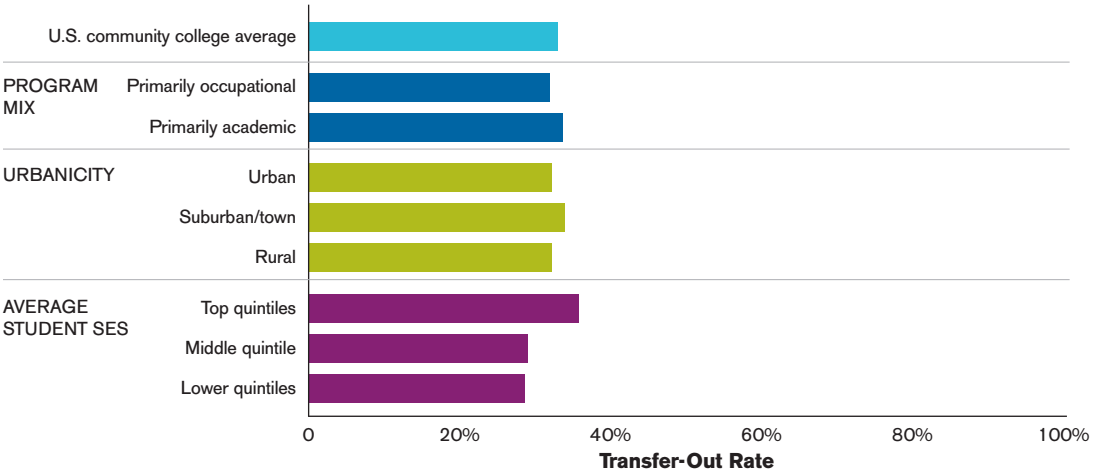
Figure 1. Transfer-Out Rates by Size of Fall 2007 Cohort



Note. Community colleges with fewer than 10 students in the fall 2007 cohort (n = 23) were excluded, as were community colleges with more than 3,000 students in the fall 2007 cohort (n = 23).

Figure 2 shows the average transfer-out rates for students who enrolled in community colleges with different program mixes, urbanicity, and student socioeconomic makeup.

Figure 2. Average Transfer-Out Rates by Institutional Characteristics



Program mix. There was very little difference in average transfer-out rates between colleges that award proportionally more academic degrees and those that award more occupationally oriented degrees.[13] The difference was only 2 percentage points—34 percent versus 32 percent, respectively—showing that a substantial number of students in occupationally focused colleges do transfer.

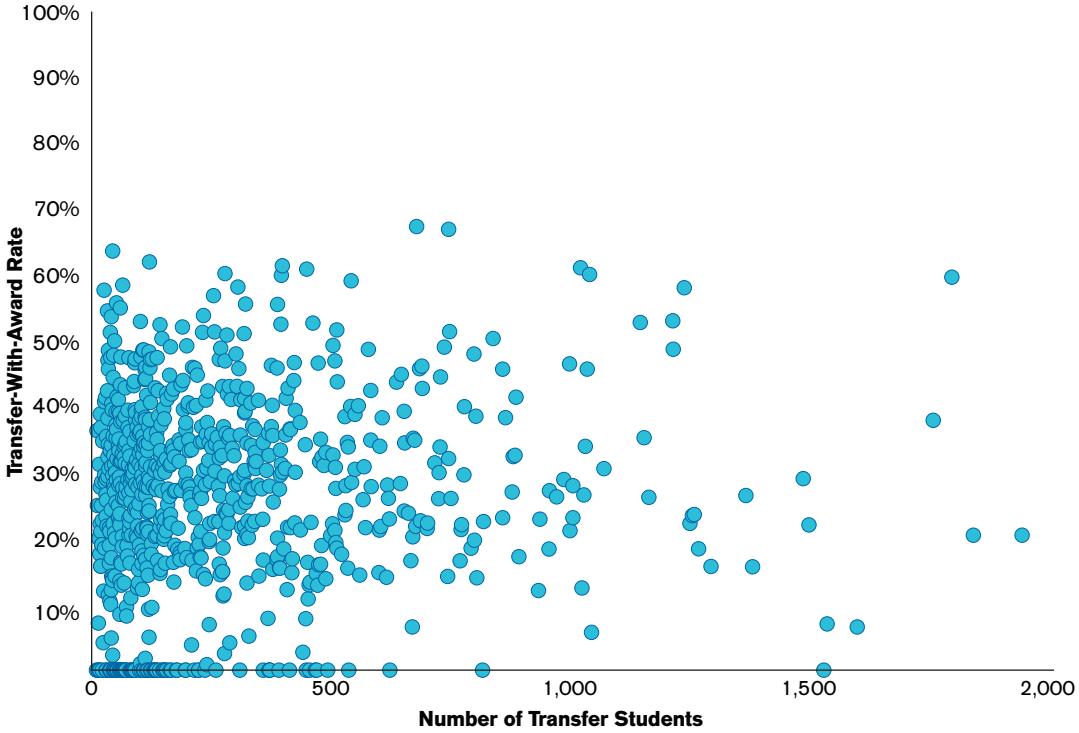
Urbanicity. Transfer-out rates also differed only slightly among students from urban, suburban, and rural schools. It may be that students are more likely to transfer from colleges located nearer to four-year institutions (particularly public ones), but the relative concentration of four-year transfer options does not appear to affect students' propensity to transfer.

Average student SES. Community colleges that serve students in the top two socioeconomic quintiles nationally had somewhat higher transfer-out rates than colleges that serve larger proportions of lower SES students (36 percent vs. 29 percent).

Transfer-With-Award Rates

Figure 3 shows the variation among individual community colleges in our sample in the rates at which their students who transferred to a four-year institution earned a community college credential (either a certificate or an associate degree) before they transferred.

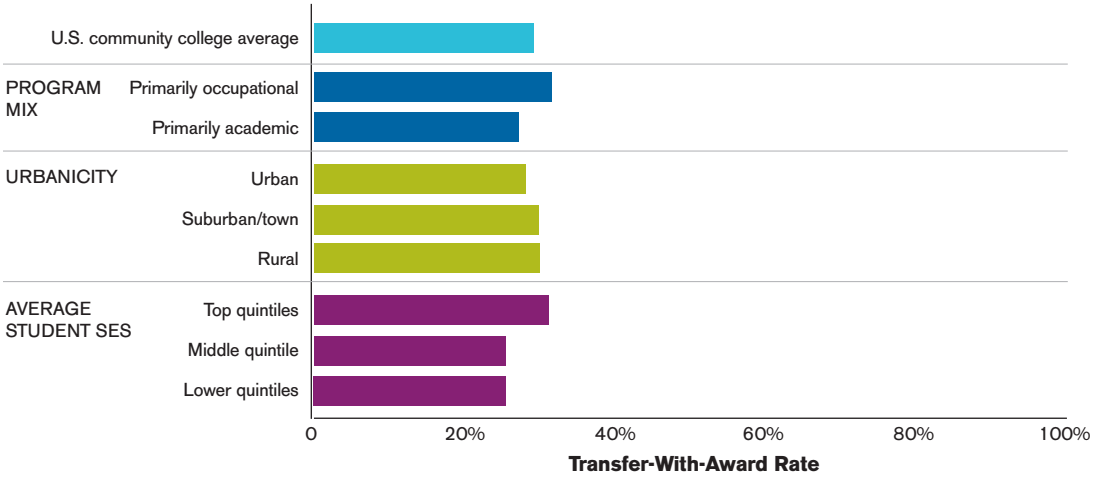
Figure 3. Transfer-With-Award Rates by Number of Transfer Students in Fall 2007 Cohort



Note. Community colleges with fewer than 10 transfer students ($n = 30$) were excluded, as were community colleges with more than 2,000 transfer students ($n = 4$).

Figure 4 shows the average transfer-with-award rates for students from community colleges with different program mixes, urbanicity, and student socioeconomic makeup.

Figure 4. Average Transfer-With-Award Rates by Institutional Characteristics



Program mix. Transfer students from community colleges that award proportionally more occupational credentials were somewhat more likely to earn a credential before transferring (32 percent vs. 27 percent). This finding is consistent with research showing the higher economic value of occupational sub-baccalaureate credentials compared with those that are academic, such as an associate of arts (see Belfield & Bailey, 2011; Dadgar & Trimble, 2015).

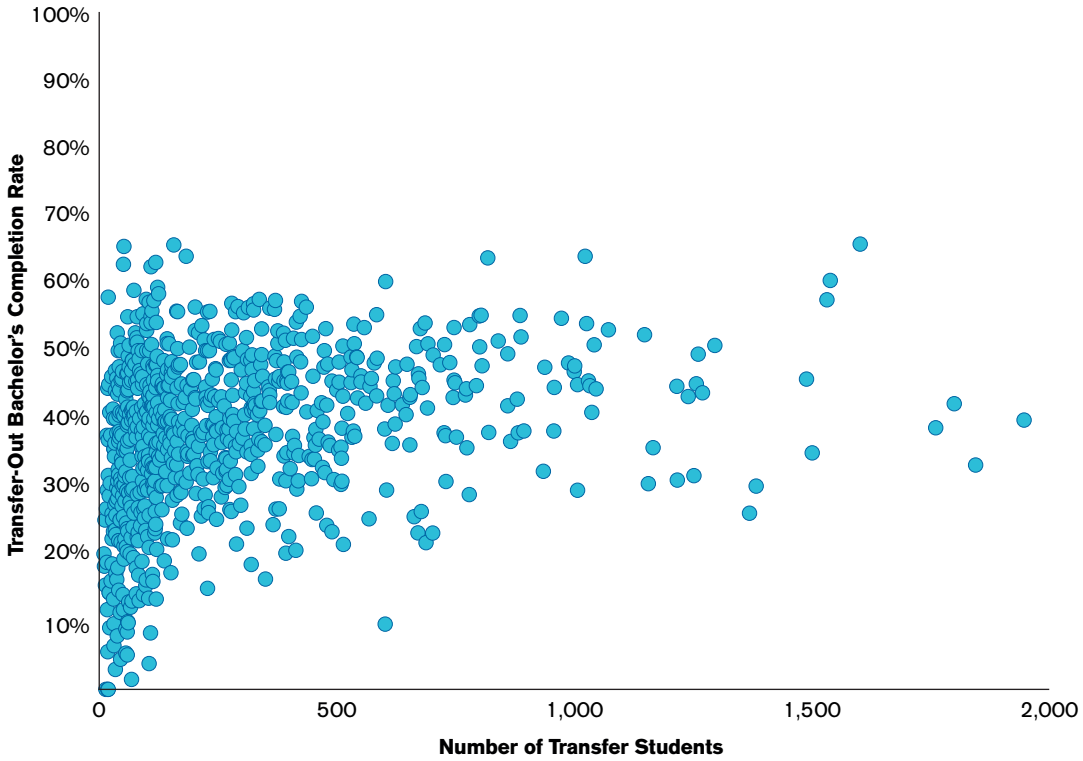
Urbanicity. The average rates at which students earned an award before they transferred at urban, suburban, and rural community colleges differed by less than 2 percentage points.

Average student SES. Community colleges that serve students from higher SES backgrounds had higher average transfer-with-award rates (31 percent) than did those that serve students from middle and lower SES backgrounds (25 percent and 26 percent, respectively).

Transfer-Out Bachelor's Completion Rates

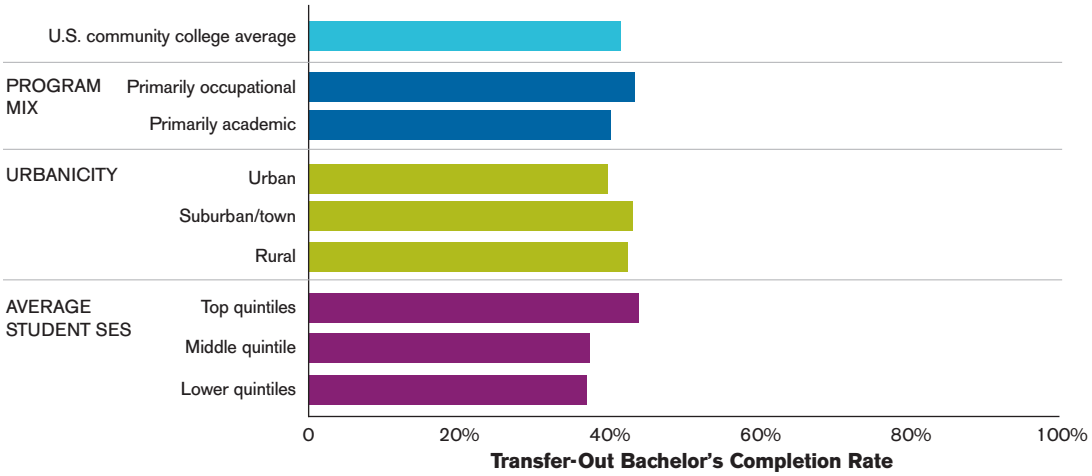
Figure 5 shows that there was substantial variation among community colleges in our sample in the rate at which their students who transferred to a four-year institution ended up earning a bachelor's degree. However, as shown in Figure 6, the average bachelor's completion rates for transfer students from community colleges with different program mixes and urbanicity only varied by 2–3 percentage points, and there was only about a 7 percentage point difference between the highest and lowest categories of student socioeconomic makeup.

Figure 5. Transfer-Out Bachelor's Completion Rates by Number of Transfer Student in Fall 2007 Cohort



Note. Community colleges with fewer than 10 transfer students ($n = 30$) were excluded, as were community colleges with more than 2,000 transfer students ($n = 4$).

Figure 6. Average Transfer-Out Bachelor's Completion Rates by Institutional Characteristics



Program mix. There was a 3 percentage point difference in the average rates at which community college students went on to earn a bachelor's degree by whether their starting college awards proportionately more occupational or academic associate degrees (43 percent vs. 40 percent, respectively). This finding is of particular interest, as it seems to run counter to the idea that academic associate degrees are better aligned with bachelor's degrees because they replicate courses students take in the first two years of a bachelor's degree program. Additional research on this topic is warranted, including on whether students in academic associate degree programs are better able to transfer their credits than are students in occupational associate degree programs.

Urbanicity. Likewise, there were 2- or 3-point differences in the rates at which community college transfer students earned bachelor's degrees based on whether their starting college is located in an urban, suburban, or rural area. Some rural colleges had relatively high transfer-out bachelor's completion rates despite the small number of nearby four-year institutions.

Average student SES. Community colleges that serve proportionally more students from higher SES families had somewhat higher transfer-out bachelor's completion rates than did community colleges that serve disproportionately lower SES students (44 percent vs. 37 percent). The average difference was not great, however, and some lower SES colleges had higher rates of bachelor's completion among their transfer students than did some higher SES colleges.

Differences Across States

Despite the similarity in average outcomes for transfer students from community colleges with different characteristics, there were remarkable differences across states in average outcomes for all three community college transfer measures. Figures 7–9 show the variation in states' performance on these measures.

Figure 7. Average Transfer-Out Rates by State

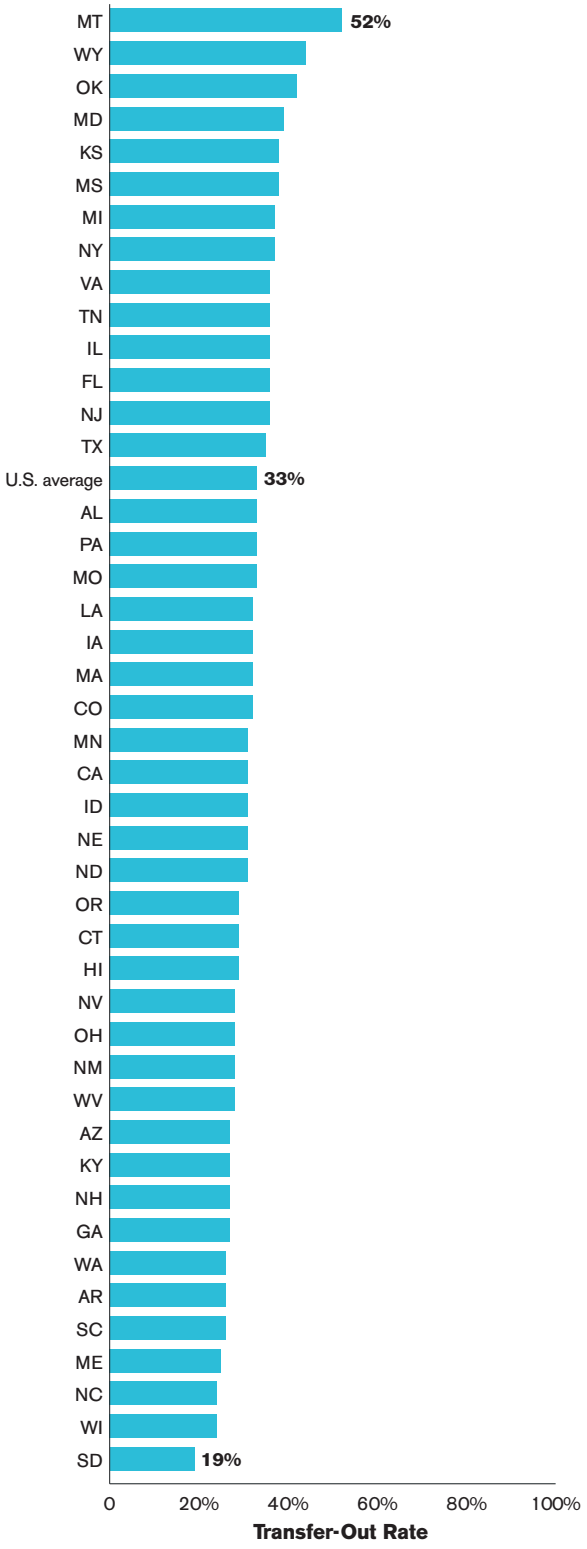
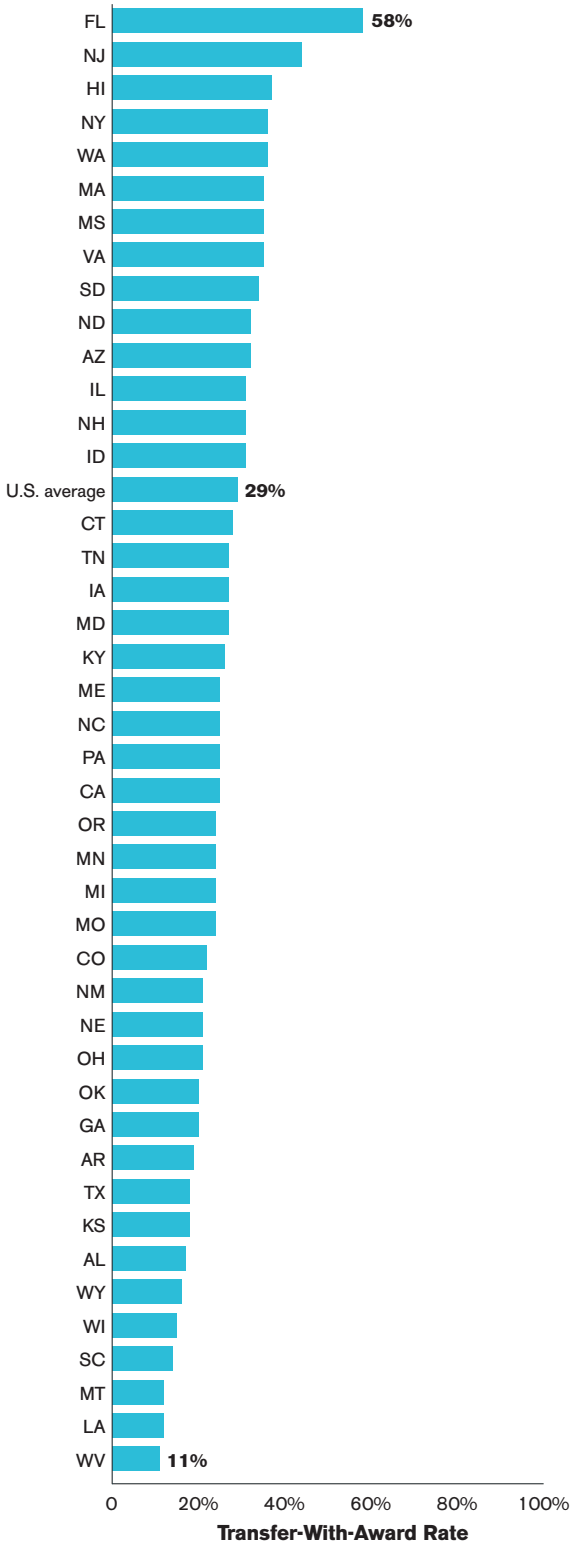
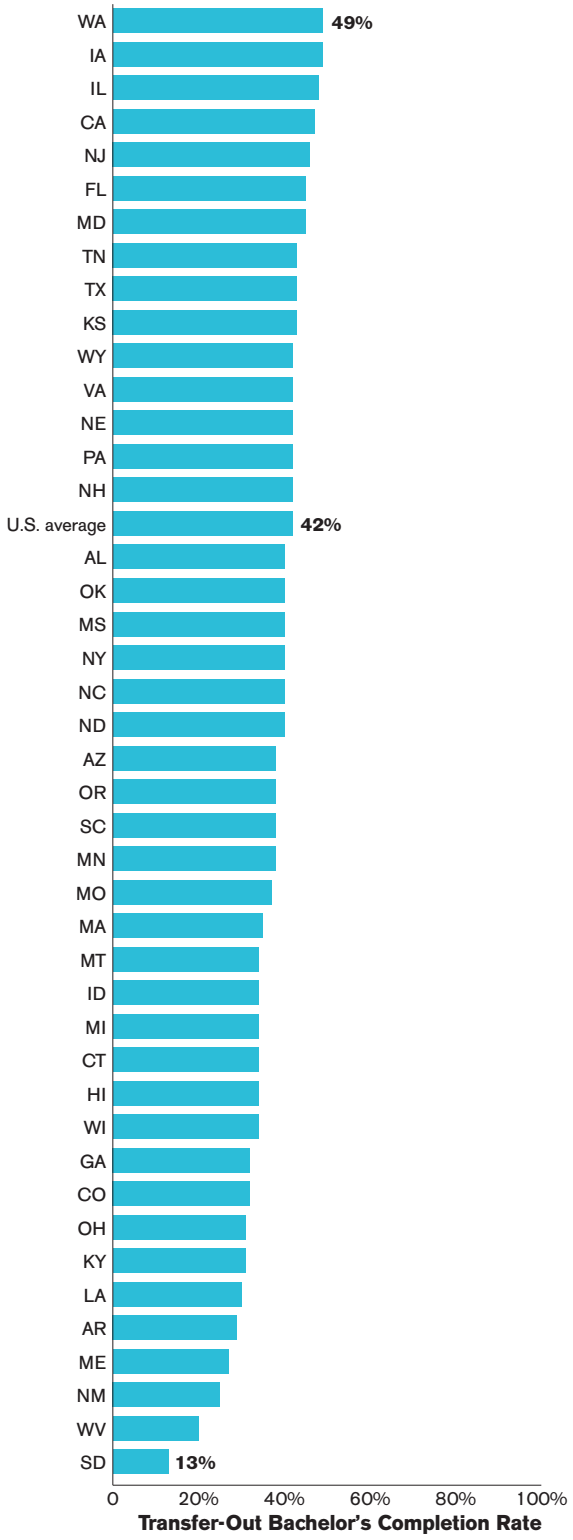


Figure 8. Average Transfer-With-Award Rates by State



Note. For confidentiality, states with fewer than three institutions reporting are not shown.

Figure 9. Average Transfer-Out Bachelor's Completion Rates by State



Note. For confidentiality, states with fewer than three institutions reporting are not shown.

Table 5 shows the average rates for each community college outcome measure by state. It also indicates the number of community colleges for which we have data in the sample.[14]

Table 5. Average Community College Transfer Student Outcomes by State

State	Institutions	Transfer-Out Rate (%)	Transfer-With-Award Rate (%)	Transfer-Out Bachelor's Completion Rate (%)
U.S. average	824	33	29	42
Alabama	17	33	17 ▼	40
Alaska	0	—	—	—
Arizona	6	27	32	38
Arkansas	16	26 ▼	19 ▼	29 ▼
California	102	31	25	47 ▲
Colorado	15	32	22	32 ▼
Connecticut	12	29	28	34
Delaware	0	—	—	—
District of Columbia	0	—	—	—
Florida	25	36	58 ▲	45 ▲
Georgia	35	27 ▼	20	32 ▼
Hawaii	6	29	37 ▲	34
Idaho	3	31	31	34
Illinois	48	36	31	48 ▲
Indiana	2	—	—	—
Iowa	15	32	27	49 ▲
Kansas	11	38 ▲	18 ▼	43 ▲
Kentucky	16	27 ▼	26	31 ▼
Louisiana	6	32	12 ▼	30 ▼
Maine	6	25 ▼	25	27 ▼
Maryland	14	39 ▲	27	45 ▲
Massachusetts	16	32	35 ▲	35
Michigan	26	37 ▲	24	34
Minnesota	30	31	24	38
Mississippi	14	38 ▲	35 ▲	40
Missouri	13	33	24	37
Montana	5	52 ▲	12 ▼	34
Nebraska	5	31	21	42
Nevada	3	28	—	—

■ **Above national average**
■ **Below national average**
▲ **Top 10 nationally**
▼ **Bottom 10 nationally**

State	Institutions	Transfer-Out Rate (%)	Transfer-With-Award Rate (%)	Transfer-Out Bachelor's Completion Rate (%)
New Hampshire	7	27 ▼	31	42
New Jersey	18	36	44 ▲	46 ▲
New Mexico	9	28	21	25 ▼
New York	36	37 ▲	36 ▲	40
North Carolina	58	24 ▼	25	40
North Dakota	5	31	32 ▲	40
Ohio	22	28	21	31 ▼
Oklahoma	9	42 ▲	20	40
Oregon	14	29	24	38
Pennsylvania	15	33	25	42
Rhode Island	1	—	—	—
South Carolina	18	26 ▼	14 ▼	38
South Dakota	3	19 ▼	34 ▲	13 ▼
Tennessee	13	36 ▲	27	43 ▲
Texas	50	35	18 ▼	43 ▲
Utah	2	—	—	—
Vermont	1	—	—	—
Virginia	22	36 ▲	35 ▲	42
Washington	32	26 ▼	36 ▲	49 ▲
West Virginia	3	28	11 ▼	20 ▼
Wisconsin	12	24 ▼	15 ▼	34
Wyoming	7	44 ▲	16 ▼	42

Note. Rates not reported for state outcomes with less than three institutions in the sample (indicated by dashes). There were no data available from community colleges in Alaska, Delaware, and the District of Columbia.

Community college transfer student outcomes were at or above the national average on all three measures in Florida, Illinois, New Jersey, and Virginia. Other states—including Arkansas, Colorado, Connecticut, Georgia, Kentucky, Louisiana, Maine, Minnesota, New Mexico, North Carolina, Ohio, Oregon, South Carolina, West Virginia, and Wisconsin—underperformed on all three.

Some states performed well on one or two of the measures but not well on others. Michigan, Montana, and Oklahoma had above-average transfer-out rates but were below average in transfer-with-award and transfer-out bachelor's completion rates. Kansas, Maryland, Tennessee, and Texas were above the national average in transfer-out rates and transfer-out bachelor's completion rates but below the national average in transfer-with-award rates. Community colleges in California (which has the nation's largest community college system), Iowa, and Washington had below-average transfer-out rates but above-average transfer-out bachelor's completion rates.

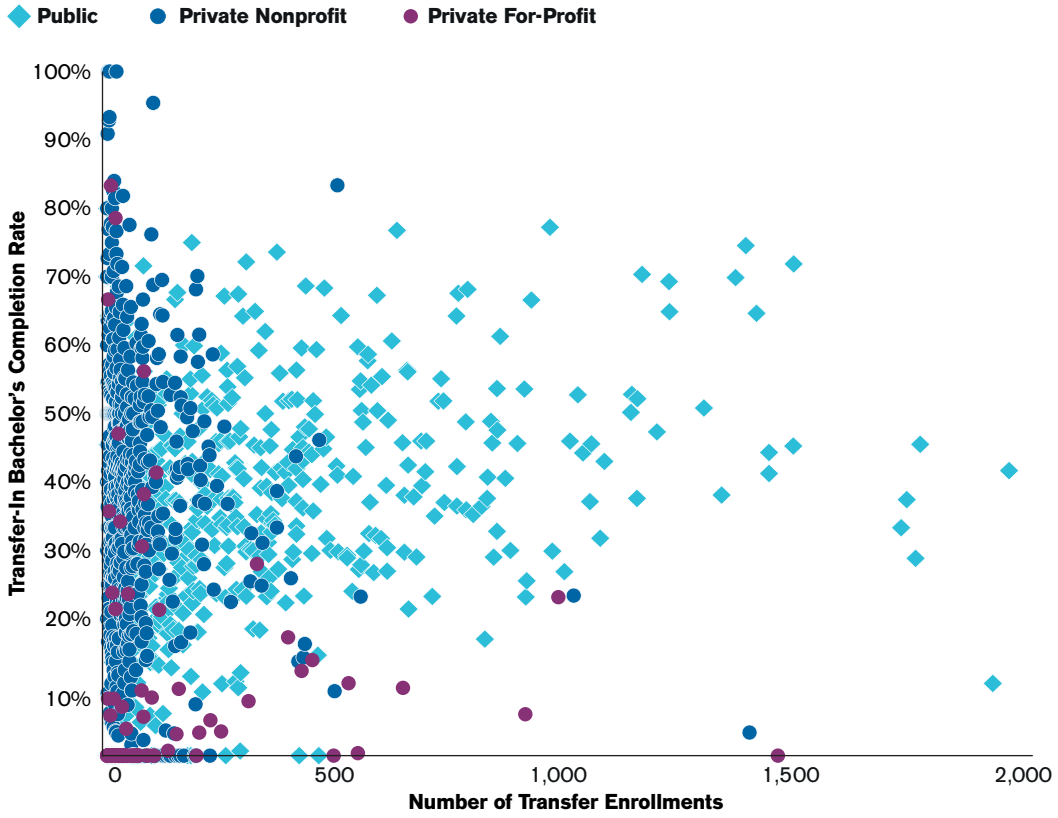
Four-Year Institution Performance Metric

As with community colleges, there was substantial variation in transfer students' rates of bachelor's completion across individual four-year institutions. In contrast with outcomes at community colleges, however, there were marked differences in average outcomes based on four-year institutions' institutional characteristics, such as institutional sector, selectivity, urbanicity, and student socioeconomic makeup.

Transfer-In Bachelor's Completion Rates

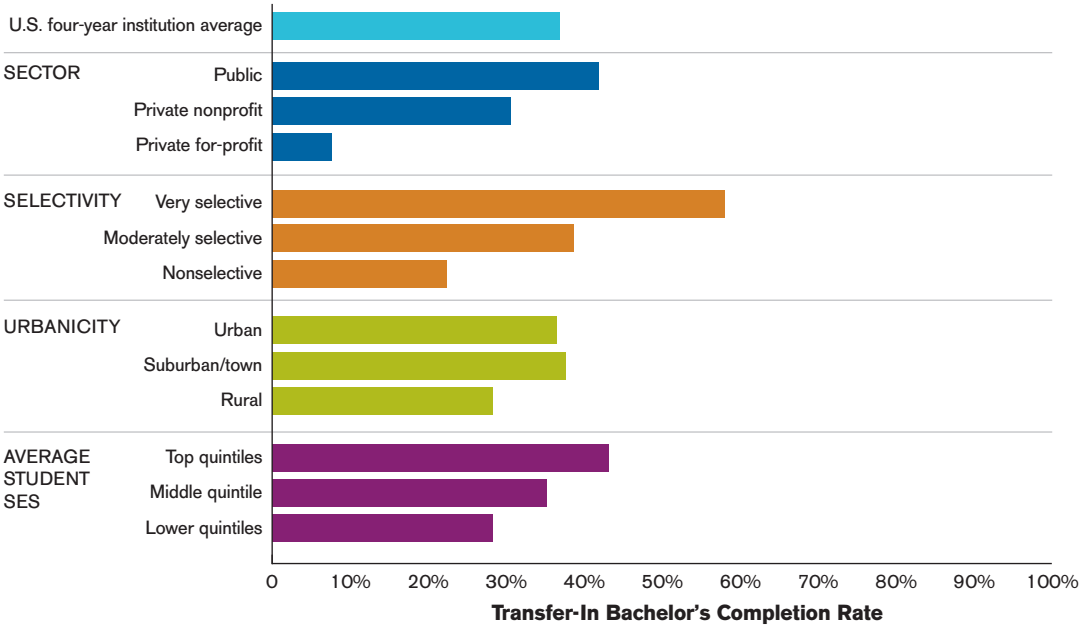
Figure 10 shows the variation in transfer-in bachelor's completion rates and in the number of transfer enrollments at four-year institutions in our sample by institutional sector. Figure 11 compares these rates by institutional sector, selectivity, urbanicity, and average student SES.

Figure 10. Transfer-In Bachelor's Completion Rates by Number of Transfer Enrollments



Note. Four-year institutions with fewer than 10 transfer enrollments (n = 12 public, n = 249 private nonprofit, n = 77 private for-profit) were excluded, as were institutions with more than 2,000 transfer enrollments (n = 7 public, n = 0 private nonprofit, n = 2 private for-profit).

Figure 11. Average Transfer-In Bachelor's Completion Rates by Institutional Characteristics



Institutional sector. Students who transferred from community colleges to public four-year institutions were 11 percentage points more likely to earn a bachelor's degree within six years of community college entry than were those who transferred to private nonprofit institutions (42 percent vs. 31 percent). Only 8 percent of students who transferred to a for-profit institution earned a bachelor's degree on average within six years of starting college.[15] This finding is of particular concern because while for-profit four-year institutions enrolled only 9 percent of transfer students in our sample, some for-profits have aggressively recruited community college students (Bailey, Badway, & Gumport, 2001).

Selectivity. Table 6 shows transfer-in bachelor's completion rates by the selectivity of the four-year institution to which students transferred, along with the percentage of transfer students in the sample who transferred to each type of institution. Students transferring to very selective four-year institutions were on average 19 percentage points more likely to earn a bachelor's degree than were those who transferred to moderately selective institutions, and they were 36 percentage points more likely to do so than those who transferred to nonselective institutions. Only about one in six students in our sample transferred to a very selective institution.

Table 6. Transfer-In Bachelor's Completion Rates and Share of Transfer Enrollments by Institutional Selectivity

Selectivity	Completion Rate (%)	Share of Transfer Enrollments (%)
Very selective	58	17
Moderately selective	39	53
Nonselective	22	27
Missing		3

Urbanicity. Community college students who transferred to four-year institutions in cities and suburbs had higher completion rates on average than did those who transferred to four-year institutions located in rural areas—36 percent, 38 percent, and 28 percent, respectively, within six years of community college entry.

Average student SES. Forty-three percent of students who transferred to four-year institutions that serve higher proportions of higher SES students earned a bachelor's degree within six years of community college entry, compared with only 28 percent of students who transferred to four-year institutions that enroll higher proportions of lower SES students. Given the overrepresentation of higher SES students in very selective four-year institutions, these findings are likely related to ones associated with institutional selectivity.

Differences Across States

As with the community college outcome measures, average transfer-in bachelor's completion rates varied considerably by state. Figures 12 and 13 show the variation in average transfer-in bachelor's completion rates by state for public and private nonprofit four-year institutions.

Figure 12. Average Transfer-In Bachelor's Completion Rates at Public Four-Year Institutions by State

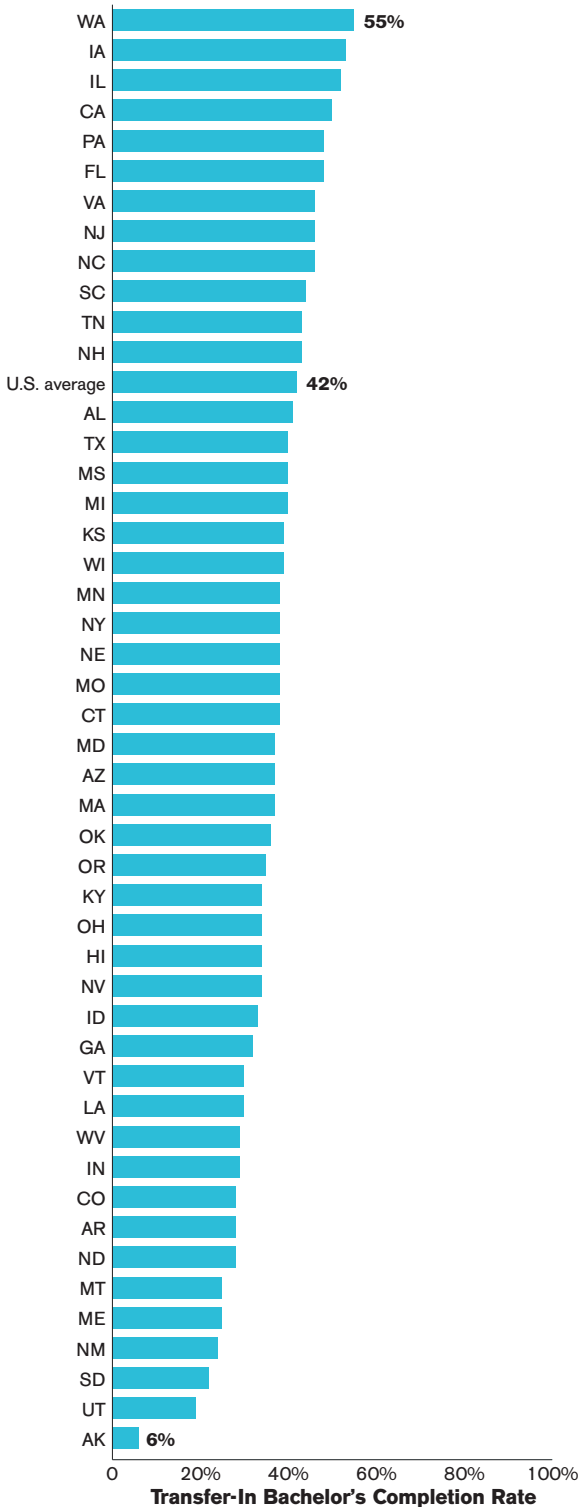
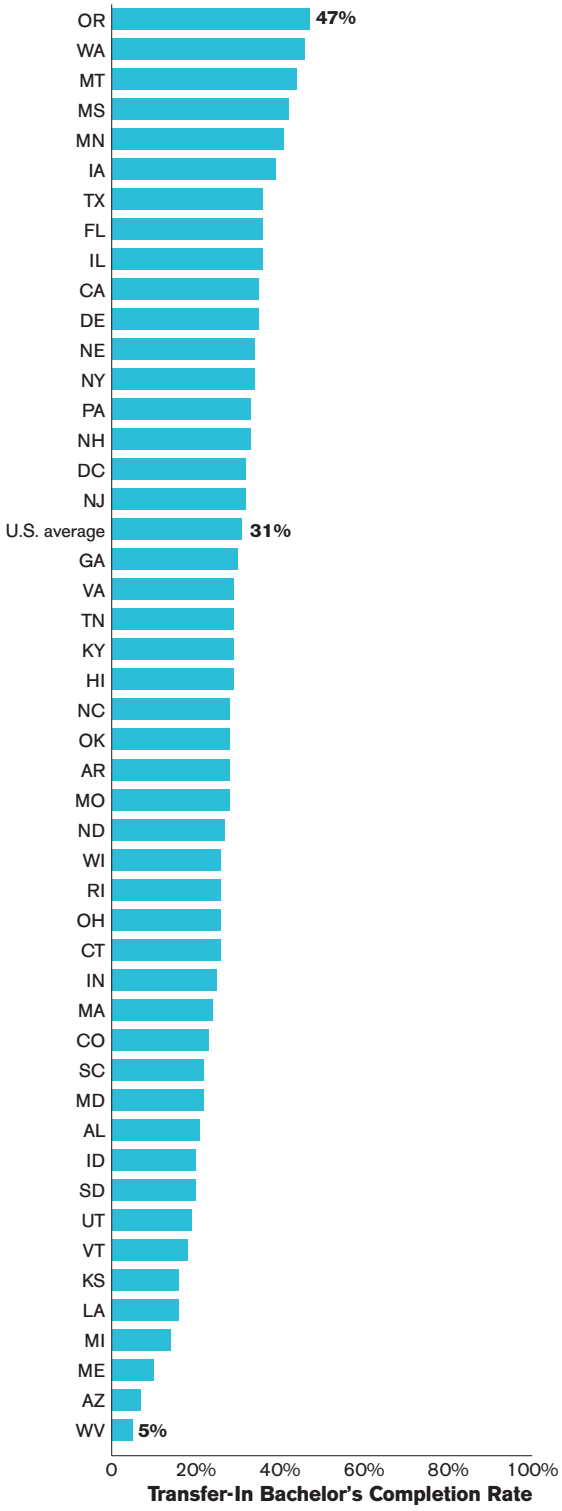


Figure 13. Average Transfer-In Bachelor's Completion Rates at Private Nonprofit Four-Year Institutions by State



Note. For confidentiality, states with fewer than three institutions reporting are not shown.

Table 7 shows the average transfer-in bachelor's completion rates by state for public and private nonprofit four-year institutions, along with the number of each type represented in the sample for each state.

Table 7. Transfer-In Bachelor's Completion Rates by State and Four-Year Institutional Type

	Public		Private Nonprofit	
State	Institutions	Completion Rate (%)	Institutions	Completion Rate (%)
U.S. average	552	42	1,052	31
Alabama	14	41	14	21
Alaska	3	6 ▼	1	—
Arizona	3	37	5	7 ▼
Arkansas	11	28 ▼	7	28
California	34	50 ▲	82	35 ▲
Colorado	12	28 ▼	8	23
Connecticut	6	38	13	26
Delaware	2	—	3	35
District of Columbia	1	—	9	32
Florida	11	48 ▲	30	36 ▲
Georgia	21	32	25	30
Hawaii	3	34	3	29
Idaho	4	33	3	20 ▼
Illinois	12	52 ▲	57	36 ▲
Indiana	14	29 ▼	27	25
Iowa	3	53 ▲	29	39 ▲
Kansas	7	39	15	16 ▼
Kentucky	8	34	19	29
Louisiana	15	30	8	16 ▼
Maine	8	25 ▼	9	10 ▼
Maryland	13	37	12	22
Massachusetts	13	37	59	24
Michigan	15	40	28	14 ▼
Minnesota	11	38	23	41 ▲
Mississippi	9	40	7	42 ▲
Missouri	13	38	32	28
Montana	6	25 ▼	3	44 ▲
Nebraska	7	38	14	34
Nevada	3	34	2	—
New Hampshire	4	43	9	33
New Jersey	13	46 ▲	16	32
New Mexico	6	24 ▼	2	—

■ **Above national average** ▲ **Top 10 nationally**

■ **Below national average** ▼ **Bottom 10 nationally**

	Public		Private Nonprofit	
State	Institutions	Completion Rate (%)	Institutions	Completion Rate (%)
New York	41	38	90	34
North Carolina	16	46 ▲	34	28
North Dakota	7	28 ▼	4	27
Ohio	14	34	52	26
Oklahoma	14	36	9	28
Oregon	8	35	15	47 ▲
Pennsylvania	19	48 ▲	85	33
Rhode Island	2	—	9	26
South Carolina	13	44 ▲	17	22
South Dakota	6	22 ▼	5	20 ▼
Tennessee	9	43	29	29
Texas	41	40	39	36 ▲
Utah	6	19 ▼	7	19 ▼
Vermont	5	30	14	18 ▼
Virginia	16	46 ▲	26	29
Washington	7	55 ▲	14	46 ▲
West Virginia	9	29	6	5 ▼
Wisconsin	13	39	22	26
Wyoming	1	—	1	—

Note. Rates withheld for state outcomes with less than three institutions reporting data (indicated by dashes).

Community college transfer students in both public and private nonprofit institutions in some states had bachelor's completion rates above the national average. These include California, Florida, Illinois, Iowa, New Hampshire, New Jersey, Pennsylvania, and Washington.

In some states, public institutions had bachelor's completion rates at or above the national average, while private nonprofit institutions had rates below the national average. These states include North Carolina, South Carolina, Tennessee, and Virginia.

In other states, the pattern was reversed, with completion rates below the national average at public institutions and above the national average at private institutions. These include Minnesota, Mississippi, Montana, Nebraska, New York, Oregon, and Texas.

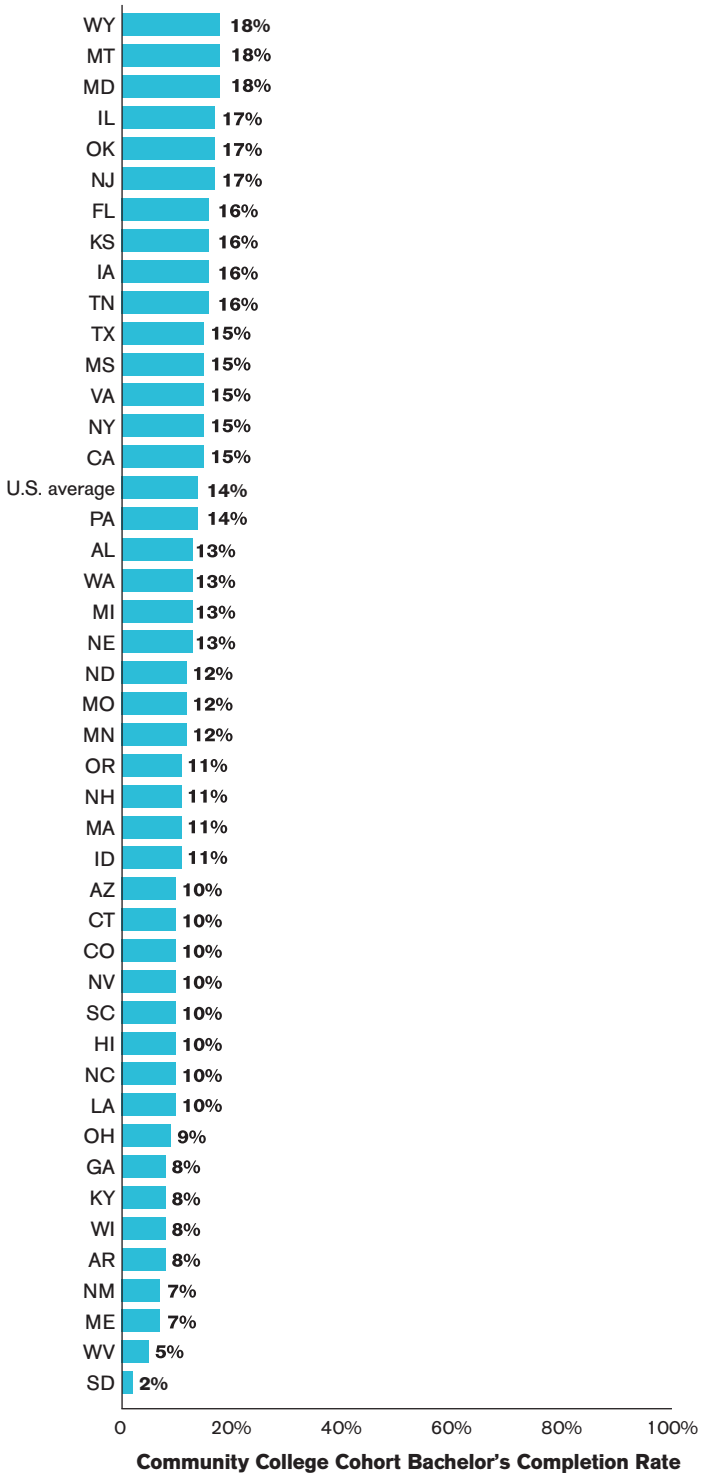
Community College Cohort Bachelor's Completion Rates

While the prior two sections of this report focused on transfer student outcomes for two- and four-year institutions individually, we also examined the overall rate at which degree-seeking students who entered community colleges as part of the fall 2007 cohort in a given state transferred and earned bachelor's degrees. This measure is significant because it bears on the overall bachelor's degree attainment rate among degree-seeking students who enter higher education through community colleges in a state.

Figure 14 shows the average cohort bachelor's completion rates by state for students who entered higher education through a community college in fall 2007. Whereas the denominator for the bachelor's completion rates presented in the previous two sections on community colleges and four-year institutions is the number of students who transferred to a four-year institution, the denominator for the rates presented in Figure 14 is the number of degree-seeking students in the fall 2007 cohort in a given state. This measure reflects the interaction between the rate at which students transfer to four-year institutions and the rate at which they complete bachelor's degrees.

Not surprisingly, states that have higher community college cohort bachelor's completion rates tend to have both higher transfer-in bachelor's completion rates at their four-year institutions and higher transfer-out rates at their community colleges. None of the states that are in the top 10 in average community college cohort bachelor's completion rates had below-average transfer-out rates, with the exception of Iowa, which was less than 1 percentage point below the national average. In contrast, North Carolina, South Carolina, and Washington are in the top 10 nationally in transfer-in bachelor's completion rates at their public four-year institutions. However, all three have transfer-out rates at their community colleges that are in the bottom 10 nationally. As a result, they are below the national average in bachelor's completion rates for community college students in the fall 2007 cohort. California exhibits a similar pattern but is 1 percentage point above the national average for the cohort bachelor's completion rate as a result of a transfer-out rate closer to the national average.

Figure 14. Community College Cohort Bachelor's Completion Rates by State



Note. For confidentiality, states with fewer than three institutions reporting are not shown.

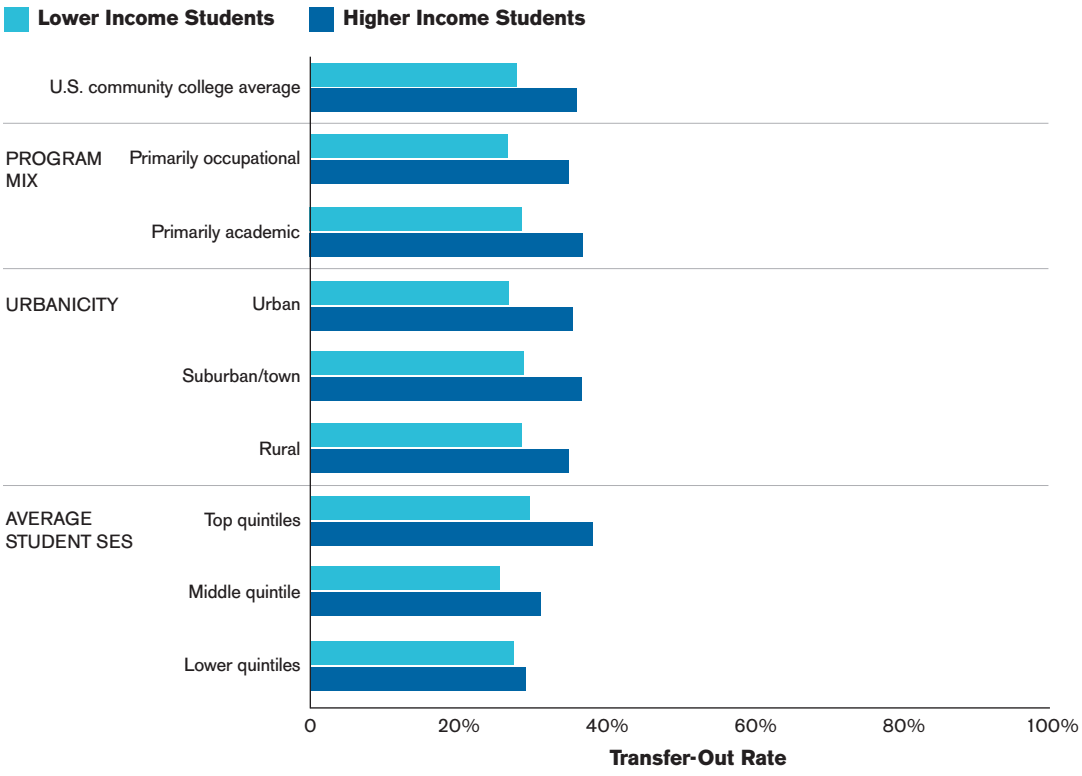
Outcomes for Lower Income Students

In this section, we examine differences between the outcomes of lower and higher income community college transfer students. We measured student income using the median family income in the census tract in which the student resided as a proxy. We compared students from the two lowest quintiles in family income nationally with those from the highest two quintiles. Students from the middle quintile were omitted from the results.

Transfer-Out Rates

On average, lower income students transferred to four-year institutions at a lower rate than did higher income students (28 percent vs. 36 percent, respectively). Figure 15 shows the transfer-out rates for these students broken out by institutional characteristics. Lower income students had lower transfer-out rates across colleges regardless of program mix and urbanicity. They also had lower transfer-out rates at community colleges where the average student SES is in the top or middle quintiles. In colleges that serve students from lower SES backgrounds, the gap in transfer-out rates for lower income and higher income students was smaller—less than 2 percentage points—although the average rate for higher income students was relatively low.

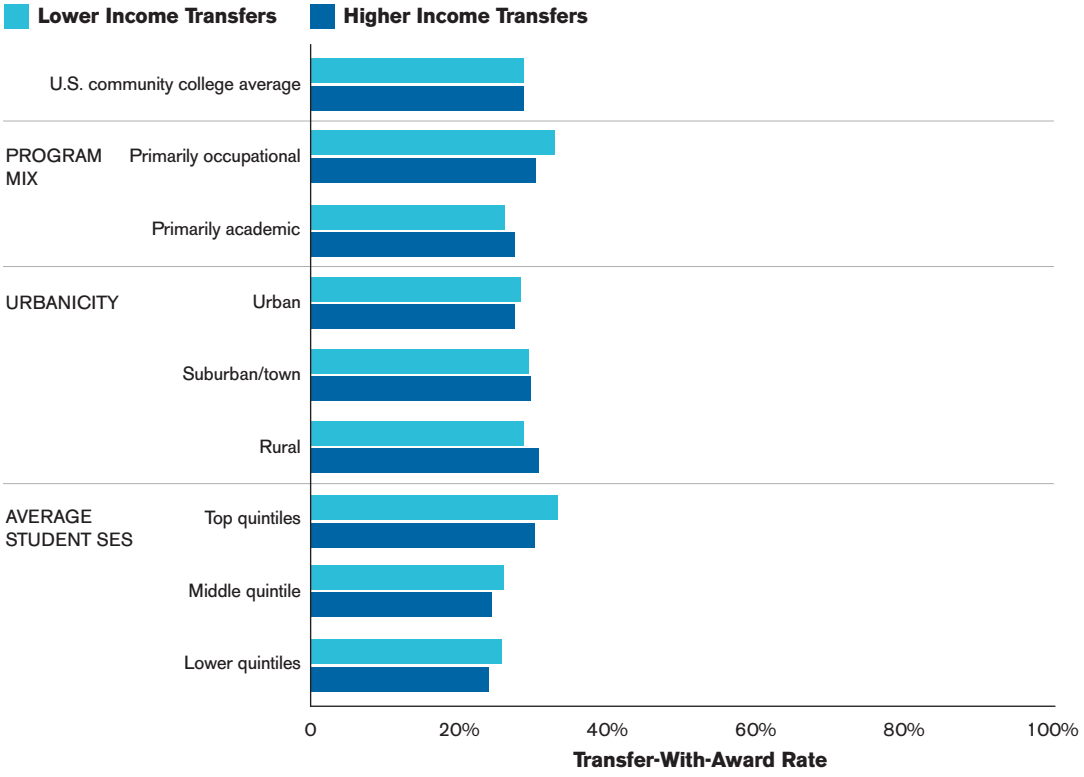
Figure 15. Average Transfer-Out Rates by Student Income and Institutional Characteristics



Transfer-With-Award Rates

Overall, lower income transfer students were as likely as higher income transfer students to earn an associate degree before transferring. As shown in Figure 16, differences in transfer-with-award rates by student income were approximately 1–3 percentage points across groups of institutions with different characteristics. There appears to be more parity in transfer-with-award rates between lower and higher income students than in other outcomes examined in this report. This finding merits further investigation, given that lower income students lag higher income students in overall degree completion rates.

Figure 16. Average Transfer-With-Award Rates by Student Income and Institutional Characteristics



Transfer-Out Bachelor's Completion Rates

Lower income students who transferred to a four-year institution were 8 percentage points less likely to earn a bachelor's degree than were higher income transfer students (36 percent vs. 44 percent). Figure 17 shows that this pattern was generally consistent across the community colleges in our sample, regardless of program mix or urbanicity. The only exception is among students who transferred from colleges that serve a large proportion of lower SES students, where the average bachelor's completion rate for both lower income students and higher income students was about 36 percent. This finding warrants further investigation.

Figure 17. Average Transfer-Out Bachelor's Completion Rates by Student Income and Institutional Characteristics

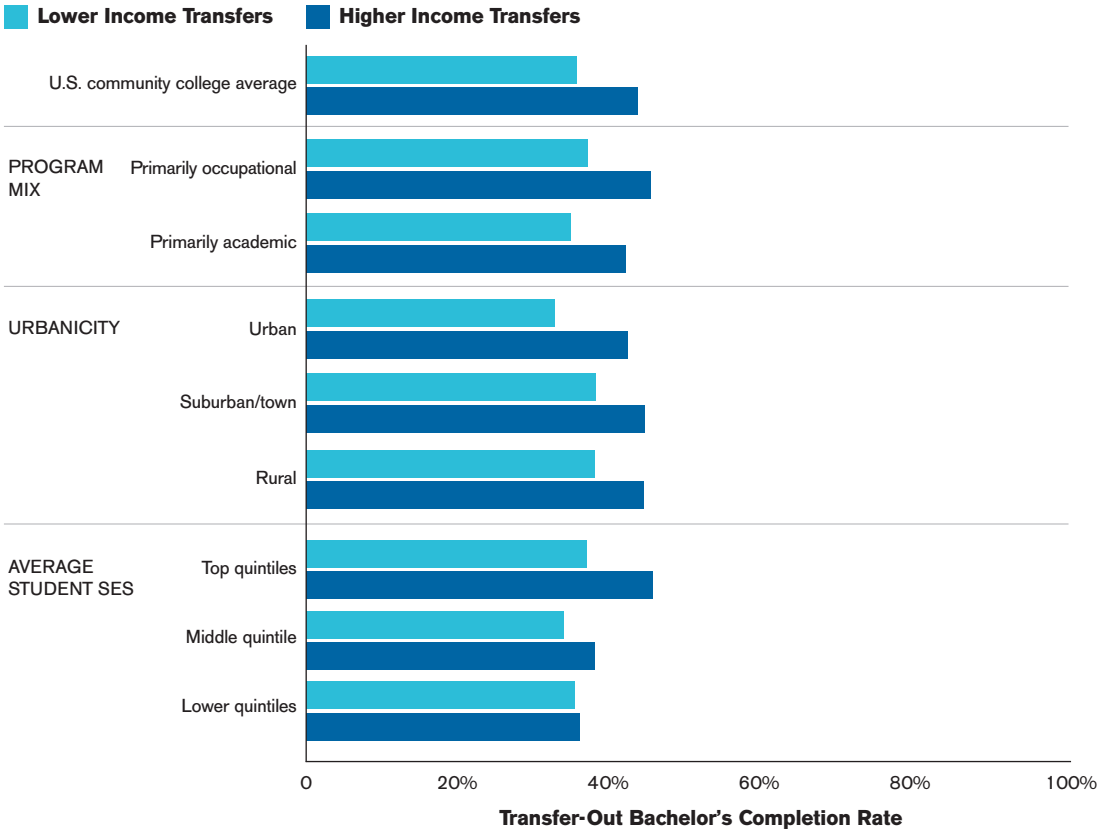
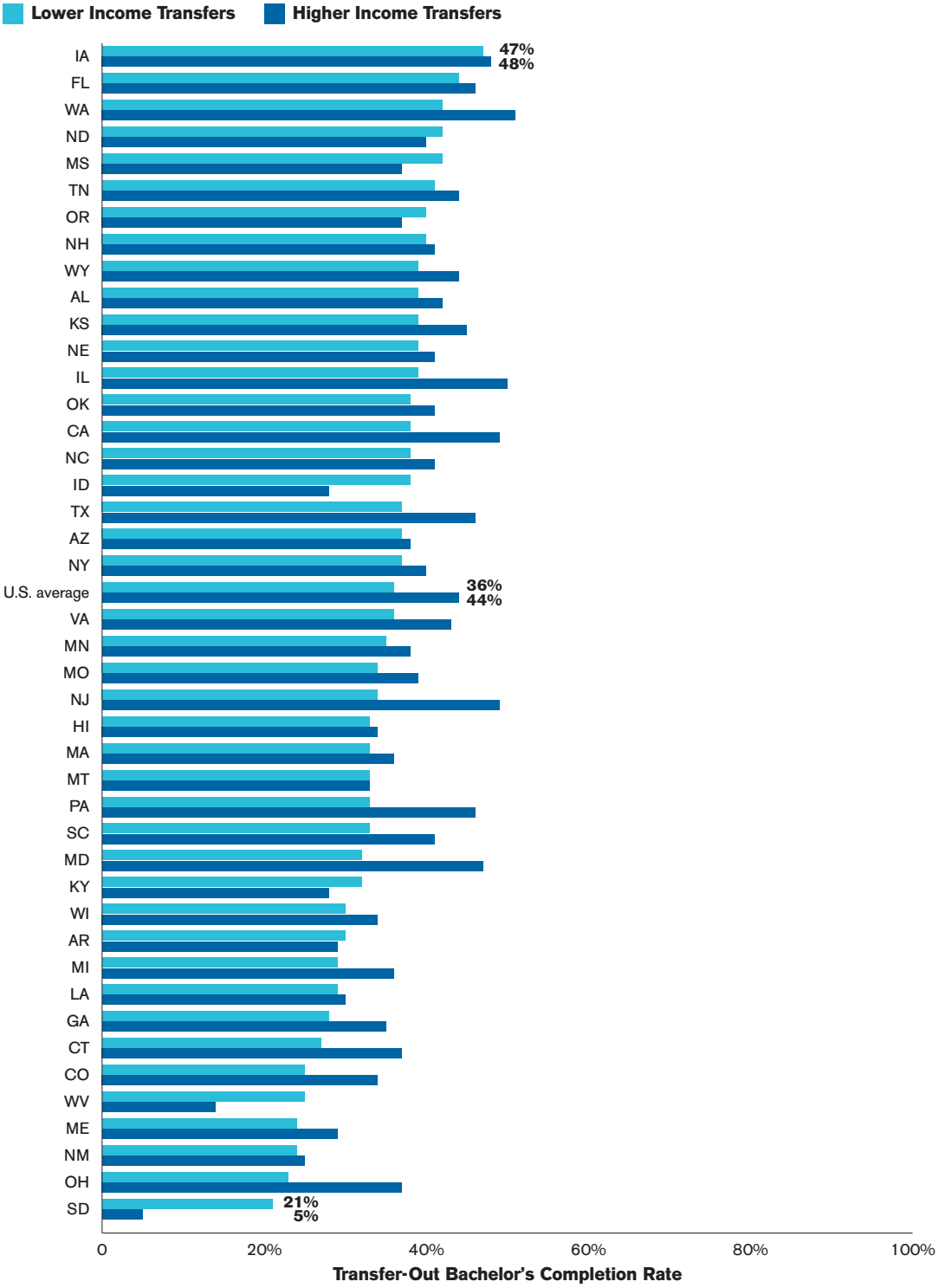


Figure 18 shows average transfer-out bachelor's completion rates for lower and higher income community college students in each state, in descending order by lower income transfer completion rate. Most states followed the national pattern, in which lower income transfer students completed bachelor's degrees at lower rates than did higher income students. In some states with relatively high rates of bachelor's completion for community college transfer students overall, however, the deficit in bachelor's achievement for lower income students was particularly stark. The following states had transfer-out bachelor's completion rates that were higher than the national average (see Figure 9) but had much lower rates for lower income students: California, Illinois, Kansas, Maryland, New Jersey, Pennsylvania, Texas, Virginia, and Washington. It appears that at least some of these states achieved high overall transfer-out bachelor's completion rates because of the strong performance of higher income students. In a few states with higher-than-average rates of bachelor's completion for community college transfer students, there was more parity in transfer-out bachelor's completion rates between lower and higher income students. These include Florida, Iowa, Nebraska, and New Hampshire.

Figure 18. Average Transfer-Out Bachelor's Completion Rates by Student Income and State



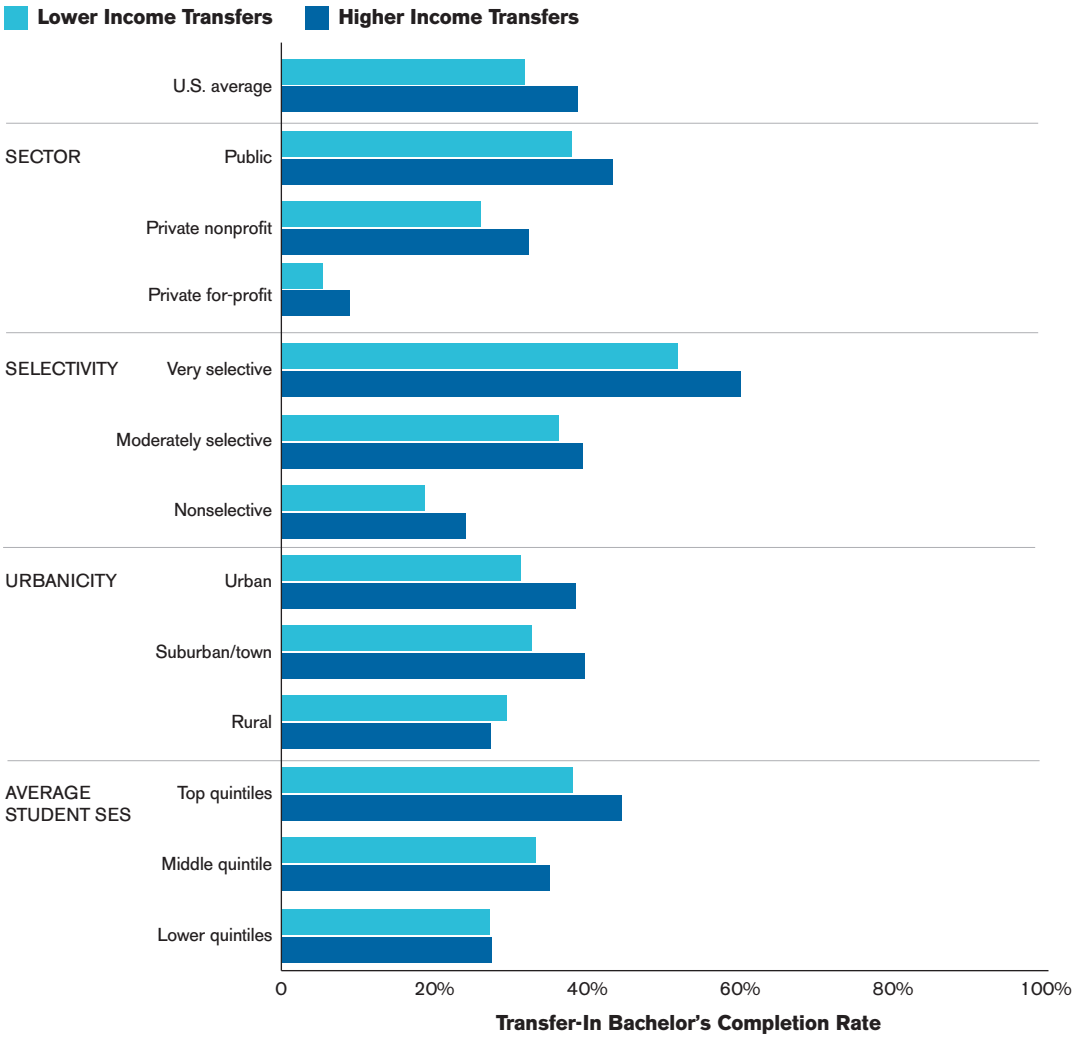
Note. For confidentiality, states with fewer than three institutions reporting are not shown.

Transfer-In Bachelor's Completion Rates

On average, lower income students at four-year institutions earned bachelor's degrees at lower rates than did higher income students. Among students in our sample who transferred to a four-year institution, 39 percent of higher income students earned a bachelor's degree within six years of starting community college, compared with only 32 percent of lower income students.

Figure 19 shows that this pattern generally holds across different types of four-year institutions. Although public institutions had higher overall graduation rates for incoming transfer students than did private nonprofits, and much higher rates than did for-profits (see also Figure 11), there was still a gap in completion rates at public institutions between lower income transfers (38 percent) and higher income transfers (43 percent).

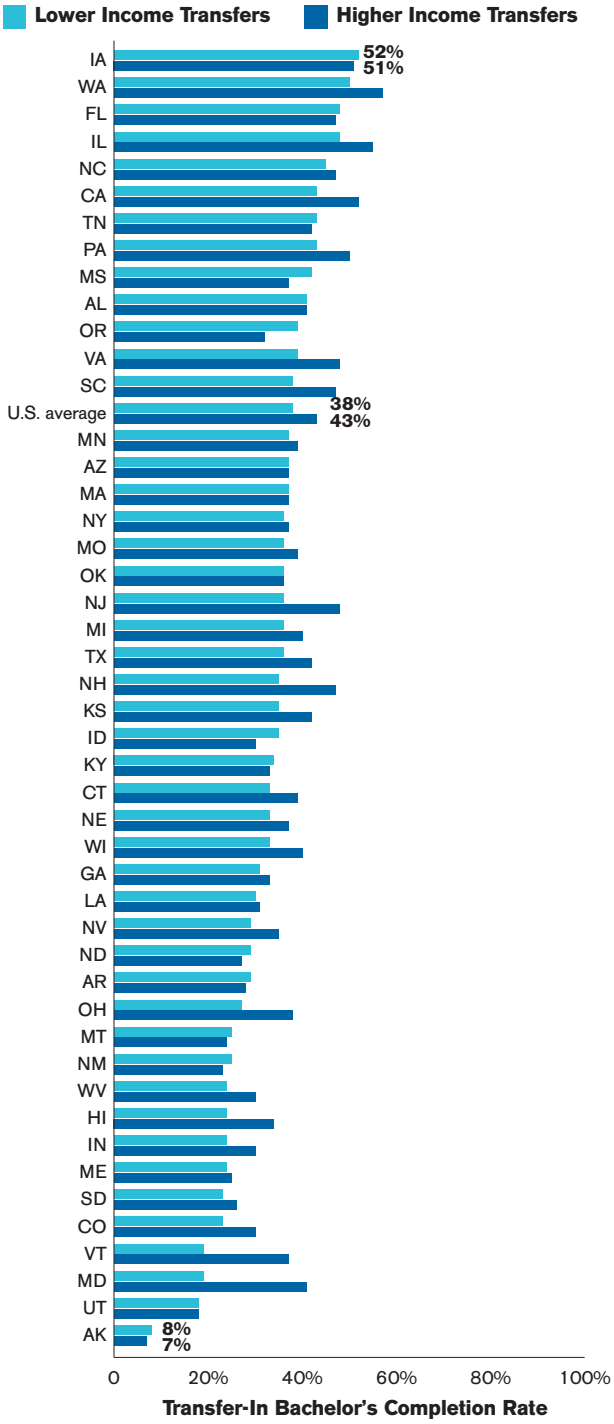
Figure 19. Average Transfer-In Bachelor's Completion Rates by Student Income and Institutional Characteristics



Similarly, although transfer students at very selective four-year institutions had substantially higher graduation rates than did transfer students at nonselective and moderately selective institutions, there was still a gap in completion rates between lower and higher income students at very selective institutions (52 vs. 60 percent, respectively). Interestingly, the gap in transfer-in bachelor's completion rates by income level was less than 1 percentage point for institutions that serve lower SES student bodies, and lower income transfer students were 2 percentage points *more* likely to earn a bachelor's degree than higher income transfer students at rural institutions. Overall, however, transfer-in bachelor's completion rates for lower income students were lower at four-year institutions that serve lower SES students (27 percent) or are in rural areas (30 percent) than at four-year institutions that serve higher SES students (38 percent) or are in suburban areas (33 percent).

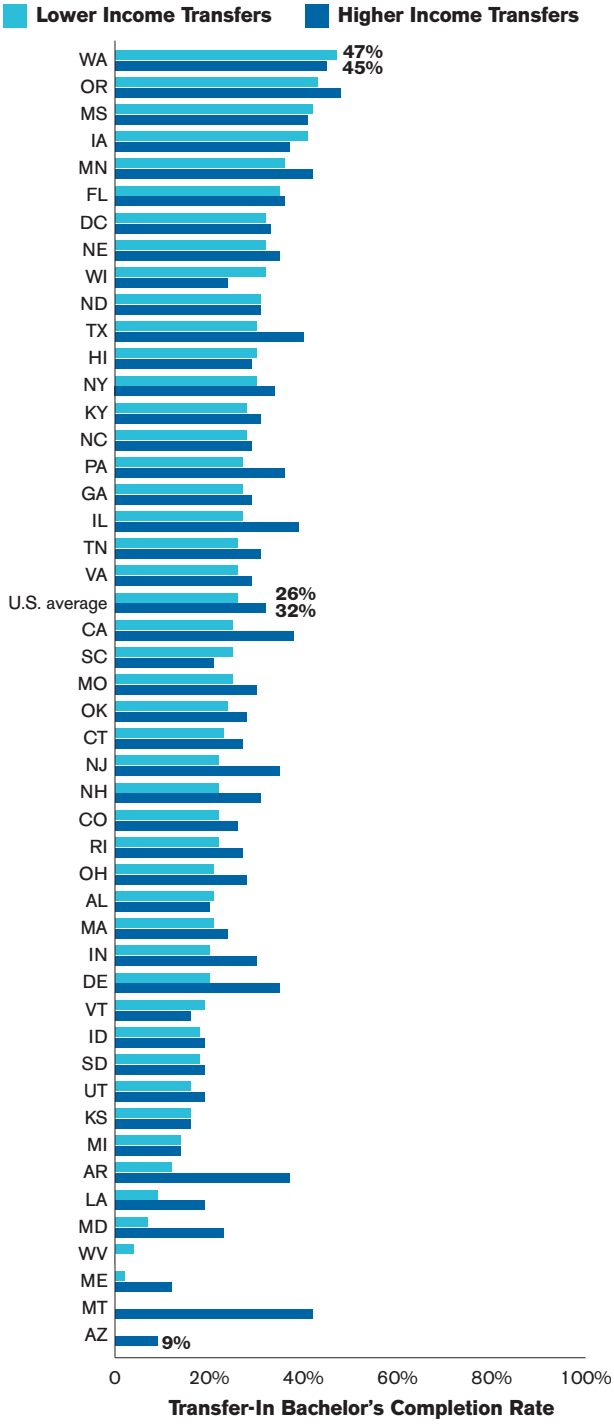
In most states, higher income transfer students were more likely than lower income transfer students to complete a bachelor's degree at a four-year institution within six years of starting college at a community college. In some states, the gap was noticeably larger. However, in a handful of states, the gap was only a few percentage points or nonexistent. Figure 20 compares average bachelor's completion rates for lower and higher income students who transferred to public four-year institutions by state. Figure 21 shows the comparable figures for students who transferred to private nonprofit four-year institutions. Both figures are in descending order by lower income transfer completion rate.

Figure 20. Average Transfer-In Bachelor's Completion Rates at Public Institutions by Student Income and State



Note. For confidentiality, states with fewer than three institutions reporting are not shown.

Figure 21. Average Transfer-In Bachelor's Completion Rates at Private Nonprofit Institutions by Student Income and State



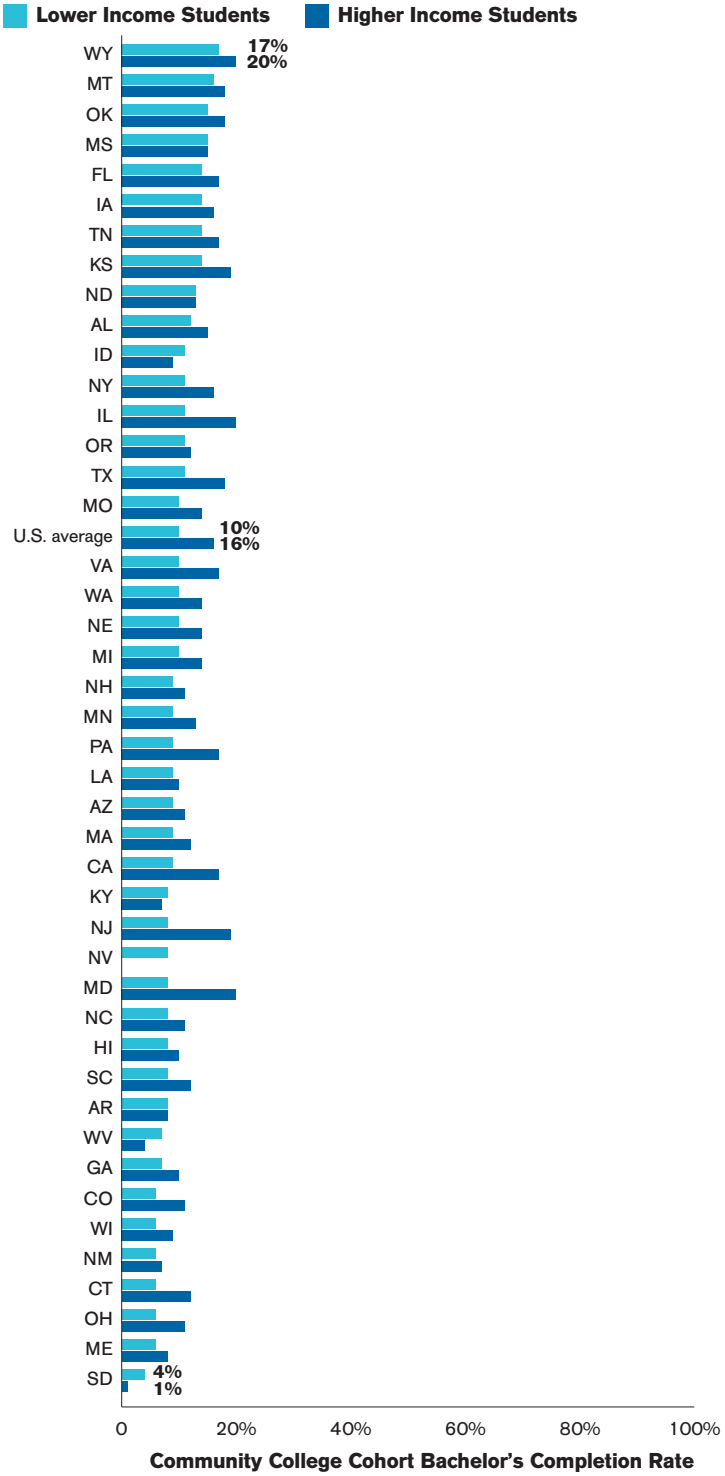
Note. For confidentiality, states with fewer than three institutions reporting are not shown. In Montana and Arizona, data were withheld due to small numbers ($n < 10$) of lower income transfer students.

Because the majority of community college students who transfer attend public four-year institutions, we briefly discuss the results for these institutions (shown in Figure 20), although we also show average outcomes for private nonprofit four-year institutions (see Figure 21). States that had bachelor's completion rates that were above the national average (see Figure 12) at public four-year institutions but where the gap in completion rates between lower and higher income students was relatively large include California, Illinois, New Hampshire, New Jersey, Pennsylvania, South Carolina, Virginia, and Washington. This suggests that on average, public four-year institutions in these states had especially good outcomes with higher income transfer students but were less successful in serving lower income transfer students. In a handful of states with above-average transfer-in bachelor's completion rates at public four-year institutions overall, lower and higher income transfer students earned bachelor's degrees at similar rates. These include Florida, Iowa, North Carolina, and Tennessee.

Community College Cohort Bachelor's Completion Rates

Figure 22 shows the average community college cohort bachelor's completion rates by state for lower income students compared to higher income students. In this figure, the states are ranked by the cohort completion rate for lower income students. Some of the states that were strong nationally in terms of community college cohort bachelor's completion rates for all students (see Figure 14) were also near the top in Figure 22, meaning that they produced superior bachelor's outcomes both for community college students generally and for lower income students in particular. These include Florida, Illinois, Iowa, Kansas, Mississippi, Montana, New York, Oklahoma, Tennessee, Texas, and Wyoming. However, of states ranked in the top 10 in Figure 22, only in Mississippi and North Dakota was there no gap in outcomes between lower income and higher income students. In some states, the gap between lower and higher income students is particularly stark. These include California, Illinois, Maryland, New Jersey, Pennsylvania, and Texas.

Figure 22. Community College Cohort Bachelor's Completion Rates by Student Income and State



Note. For confidentiality, states with fewer than three institutions reporting are not shown. In Nevada, three institutions reported data on students defined as lower income, while only two reported on students defined as higher income.

Conclusions and Implications

Main Takeaways

The analyses summarized above, using novel measures derived from a rich set of NSC data, offer an array of new insights into outcomes of students who start at community colleges and transfer to four-year institutions—while also raising many questions. As a starting point, we highlight the following takeaways.

Institutional practices—not just institutional characteristics—matter.

We found great variation in individual institutions' performance on both the community college and four-year institution measures. This variation is evident in the plots of individual institutional performance in Figures 1, 3, 5, and 10.

For both community colleges and four-year institutions, the variation among individual institutions with similar characteristics (e.g., urban colleges) was generally greater than the variation between types of institutions. Among community colleges especially, there were only small differences in average performance between types of institutions with different characteristics, such as urbanicity or average student SES. Some colleges had greater success with transfer students than did others with similar institutional or student characteristics, including characteristics that might be considered barriers to student success, such as location in a rural area or serving a disadvantaged student body. Importantly, this implies that how institutions serve transfer students matters: Institutional practices that serve transfer students well can lead to better-than-expected outcomes for institutions with relatively few resources or more educationally disadvantaged students. It also indicates that institutions could improve their transfer performance if they changed the way they serve transfer students and worked more closely with their transfer partners.

Among four-year institutions, transfer students had better outcomes at public institutions, very selective institutions, and institutions with higher SES students.

While outcomes varied substantially among individual four-year institutions, on average, the type of four-year institution that students transferred to was more important than the type of community college they transferred from. Average bachelor's completion rates were more than 10 percentage points higher for students who transferred to public four-year institutions than for those who transferred to private nonprofit four-year institutions (although the variation in outcomes among the latter was much greater). However, the average outcomes for both types of institutions far exceeded (by 34 and 23 percentage points respectively) those of for-profit four-year institutions. Community college students who transferred to very selective four-year institutions had bachelor's completion rates that were on average 36 percentage points higher than those of students who transferred to nonselective institutions. Four-year institutions that serve students from higher SES backgrounds had better outcomes than did those that serve a greater proportion of lower SES students. We conducted a regression analysis (results not reported here)

indicating that institutional selectivity was a stronger positive correlate of bachelor's completion for transfer students than was student body SES.[16]

Outcomes varied remarkably by state.

For both two-and four-year institutions, there were marked differences by state in average outcomes on all of our institutional measures. Florida, Illinois, and New Jersey performed above the national average on all measures. Virginia and Wyoming had average outcomes that were above the national average on all but one of the measures, and states that were above the national average on all but two of the measures included California, Iowa, Mississippi, New Hampshire, New York, Tennessee, Texas, and Washington. In most states, average outcomes for two- and four-year institutions were more mixed. Several states performed below average on all measures.

Rigorous studies have failed to find a connection between the presence of strong statewide transfer policies and higher rates of transfer or bachelor's completion among transfer students (see Anderson, Alfonso, & Sun, 2006; Roksa & Keith, 2008). This could be a result of the varying efficacy with which policies are implemented across states—simply enacting policies does not mean that they will be implemented in a way that changes institutional behavior (see Bailey, Jaggars, & Jenkins, 2015, p. 190). Whether due to specific policies or the history and culture of transfer and transfer relationships in particular states, there are striking differences in average outcomes by state that warrant further exploration.

Strong baccalaureate completion for community college students requires both high transfer-out rates and high transfer-in bachelor's completion rates.

None of the states ranked in the top 10 in average community college cohort bachelor's completion rates had transfer-out rates below the national average, with the exception of Iowa, which was less than 1 percentage point below the national average. Some states had relatively high completion rates among students who transferred but below-average transfer-out rates. Even some states ranked in the top 10 for bachelor's completion rates among transfer students had relatively low cohort completion rates as a result of their low transfer-out rates.

The connection between earning a community college credential before transferring and the probability of earning a bachelor's degree is not clear in most states.

Despite research indicating that earning a community college credential before transferring is associated with a higher probability of completing a bachelor's degree (Crook, Chellman, & Holod, 2012; Ehrenberg & Smith, 2004; Kopko & Crosta, 2015; Shapiro, Dundar, Ziskin, Chiang, et al., 2013), in most states, the link is not apparent.[17] For example, Texas had above-average transfer-out rates and transfer-out bachelor's completion rates (Texas is also above average in terms of community college cohort bachelor's completion rates). However, the state had below-average transfer-with-award rates. States with similar patterns include Kansas, Maryland, and Tennessee.

Lower income transfer students had worse outcomes than higher income students on almost all measures.

Lower income students were less likely than higher income students to transfer or earn a bachelor's degree after transfer. However, they were equally likely to earn an associate degree or certificate before they transferred. The gap in transfer-out bachelor's completion rates between lower and higher income students was smaller on average in community colleges that serve a relatively high proportion of students from low socioeconomic backgrounds.

In a handful of states, the bachelor's completion gap between lower income and higher income transfer students was small or nonexistent.

Most states followed the national pattern, in which lower income transfer students completed bachelor's degrees at lower rates than did higher income transfer students. In some states where community college transfer students had relatively high rates of bachelor's completion overall, the achievement gap by income was particularly stark—up to 15 percentage points. In a few such states, however, including Florida and Iowa, there was more parity between the completion rates of lower and higher income transfer students.

Implications for Institutional Leaders

Two- and four-year institutions should regularly monitor their performance in serving transfer students using common metrics that track students all the way to bachelor's completion.

Community colleges should regularly examine not only the rate at which their students transfer but also the rate at which students who transfer earn bachelor's degrees at their most common four-year destination institutions. For institutions in the vast majority of states, the best source of that information comes from NSC. Community colleges should identify and strengthen relationships with four-year institutions that graduate relatively high proportions of transfer students. For example, a four-year institution that receives 20 percent of students in a given transfer cohort from a community college, but that accounts for 25 percent of the bachelor's degrees awarded to those students, is one that does well by its transfer students and that the community college should encourage students to attend. Community colleges should also identify four-year institutions where their transfer students have low graduation rates. The findings from our analysis indicate that community colleges should be especially vigilant regarding institutional agreements with and student advising related to for-profit institutions, given their low average bachelor's degree attainment rates for community college transfer students. They may also want to explore the possibility of expanding partnerships with very selective institutions that have strong completion rates for community college transfer students, especially if those institutions are willing and able to substantially expand slots for transfer students.

Four-year institutions need to pay closer attention to graduation rates for their overall population of community college transfer students as well as for students transferring from particular community colleges. NSC data would enable them to understand transfer student success rates by

students' institution of origin. Sharing and discussing the implications of data on the performance of transfer students with feeder community colleges is one way that four-year institutions could work to strengthen transfer partnerships.

Institutions should benchmark their effectiveness in serving transfer students against high-performing institutions and their own historical performance.

Community colleges and four-year institutions will want to gauge their transfer student outcomes against those of similar institutions, especially those in their own state, which operate in the same higher education policy context. By tracking these measures for every institution, state agencies could encourage the adoption of the practices of high-performing institutions. Given differences in student populations and program mixes across institutions, colleges and universities should also assess improvement over time against their own historical performance.

Implications for Policymakers

States can use the results presented here to identify strategic opportunities to improve transfer and degree outcomes.

The results presented on average outcomes by state indicate that different states have different areas of strength and weakness. Before policymakers act to improve transfer outcomes, they should examine their state's performance on each of the measures outlined in this report. The following are examples of how a state's performance on particular measures could help indicate where they should focus their efforts to improve outcomes for community college transfer students.

Transfer-out rates. In general, we observed a strong association between high transfer-out rates and high rates of bachelor's completion among community college students. All states therefore should explore ways to increase transfer-out rates. Some states had relatively high rates of bachelor's degree completion among transfer students but relatively low transfer-out rates. These included California, Iowa, and Washington. Increasing transfer-out rates in these states could substantially increase overall bachelor's completion rates for students who enter higher education through community colleges. However, some states, such as California, face capacity constraints in their public four-year systems. For such states, absent substantial investments in capacity, an alternative strategy could be to foster the movement already underway to develop baccalaureate programs at community colleges.

Transfer-with-award rates. In our national sample, only 29 percent of community college students earned an occupational certificate or associate degree before transferring to a four-year institution. While some research indicates that students who earn a community college credential before transferring are more likely to earn a bachelor's degree, our analysis suggests that this may not be the case in every state. States should examine why students are not completing community college credentials before they transfer, and whether encouraging associate degree completion before transfer might boost bachelor's attainment.

States should also consider that increasing transfer-with-award rates can have benefits other than increasing the likelihood that students will earn bachelor's degrees. Some research has indicated that completing a community college credential before transferring carries economic benefits for both students and taxpayers (Belfield, 2013). This is due in part to the fact that taking lower division coursework is less costly at a community college than at a four-year institution (both to students and to taxpayers). Thus, states with particularly low transfer-with-award rates may not be using their higher education resources as efficiently as they could. Moreover, a substantial proportion of students who transfer do not earn a bachelor's degree, so many of those who transfer without an associate degree end up with no degree, and thus without the economic benefits associated with having a college credential. To help address this issue, two- and four-year institutions in some states are putting in place "reverse transfer" agreements that give community college students who have transferred to four-year institutions the opportunity to apply credits earned at the four-year college toward the receipt of an associate degree.

Transfer-in bachelor's completion rates. Transfer-out rates at Maryland community colleges were above the national average, but bachelor's completion rates for students who transferred to public and private nonprofit four-year institutions in the state were below the national average. Working on increasing success rates among students who transfer to four-year institutions would help to boost overall bachelor's completion in the state. Other states with transfer-out rates at or above the national average but with lower-than-average transfer-in bachelor's completion rates include Kansas, Michigan, and Oklahoma (at both public and private nonprofit four-year institutions), and Mississippi, Montana, New York, and Texas (at public four-year institutions).

Policies and practices in high-performing states. States with below-average outcomes should examine what can be learned from states that are ranked higher on overall cohort bachelor's degree completion rates for both community college entrants generally and for lower income community college entrants in particular. In examining states with better outcomes, it is important to examine what might lie behind those outcomes. Do they have exemplary transfer policies? Is there a higher value placed on the transfer route to a bachelor's degree by students and others in these states? Or can their superior outcomes be attributed to other factors?

Institutions and states should focus on narrowing equity gaps in transfer outcomes.

While there were some exceptions, in general, transfer students from lower income backgrounds had worse outcomes than did higher income students. Both institutions and states should work to narrow these gaps in achievement. To do this, they need to begin by making use of data that better enable outcomes to be disaggregated for lower and higher income students. Pell eligibility is often used to identify lower income students; however, in community colleges especially, not all students fill out the Free Application for Federal Student Aid (FAFSA), making it difficult to identify some lower income students. If institutions or states have student home address records, they can follow the method we used in this analysis, which is to geocode address records, match them with census tracts, and use information on the population in each census tract to create proxy measures of family income and SES for students who live in a tract. On statewide and regional levels, this method can be applied using

smaller geographical areas from the census, such as block groups or blocks, to increase homogeneity and accuracy in proxy measures of income and SES.

Very selective four-year institutions should be encouraged to enroll more community college transfer students.

Students who transfer to the most selective four-year institutions have much better outcomes than do those who transfer to less selective four-year institutions. Further research is needed to determine how much these outcomes are the result of the characteristics of the students who transfer to selective four-year institutions and how much they are due to students' experience at such institutions. Policymakers, foundations, and student advocacy groups should explore ways to encourage very selective four-year institutions to expand enrollment by transfer students. A growing number of four-year institutions are becoming more selective with their freshman classes while expanding enrollment overall by partnering with community colleges to recruit transfer students who are well prepared for upper division coursework. One example that has received national attention is the University of Central Florida and its DirectConnect transfer partnerships with Valencia College and other state colleges in its region.[18]

Policymakers and institutional leaders nationwide should engage in efforts to improve outcomes for students who transfer to less selective four-year institutions, particularly public regional universities.

Only about 17 percent of community college transfer students in our sample enrolled in very selective four-year institutions; the rest enrolled in moderately selective or nonselective institutions. Thus, while policymakers should explore avenues for expanding transfer students' access to very selective institutions, such institutions are unlikely to serve the majority of transfer students anytime soon due to capacity constraints. For the foreseeable future, the majority of community college transfer students will likely continue to enroll in less selective four-year institutions, particularly public regional comprehensive institutions, which are today the most common destination institutions for transfer students. As we show in this report, students who transfer to less selective four-year institutions such as regional comprehensives are less likely on average to earn bachelor's degrees than are those who transfer to selective institutions. However, less selective four-year institutions are beginning to see the importance to their missions and revenue streams of enrolling community college transfer students and are more actively working with community colleges to improve outcomes for these students (Jenkins et al., 2014). Policymakers can build on this momentum by exploring ways to encourage and support these institutions as they seek to better serve transfer students.

Areas for Further Research

The results of our descriptive analysis raise numerous questions for further research. The dataset created for this report could be used with more in-depth quantitative analyses to address issues such as the following.

The Role of State Policy

Our results raise the question of why there is such large variation in average transfer outcomes by state. Over two thirds of states have adopted statewide policies to facilitate transfer from community colleges to in-state four-year institutions (see Education Commission of the States, 2014; Mullin, 2012), but the research to date provides little empirical evidence that state transfer policies improve transfer rates (Anderson et al., 2006; Roksa & Keith, 2008). The dataset created for this report would make it possible to examine the association between state policies and rates of bachelor's completion across all 50 states. In particular, it would be possible to address questions such as:

- Is there a correlation between the presence of state transfer policies and higher rates of bachelor's completion among students who start at community colleges and transfer to four-year institutions?
- Are certain types of policies (such as common course numbering or program-related transfer agreements) associated with better outcomes for transfer students?

The Economic Benefits of Improving Transfer Outcomes

Together with data from research on higher education costs and the returns to transfer, the dataset developed for this report could be used to estimate the economic benefits to students and taxpayers of improving transfer outcomes. Such analyses would allow researchers to examine questions such as:

- How many more credentials could be produced by increasing the efficiency of the transfer process?
- In which states or among which types of institutions are there the greatest opportunities to increase degree completion rates through more efficient transfer?
- What would be the economic benefits for students and taxpayers of increasing community college transfer student outcomes among public institutions nationally? In particular states?

Separate analyses could be conducted to examine the potential economic benefits of improving transfer outcomes for lower income students.

The Transfer Patterns of Lower Income Students

More in-depth multivariate analyses of the dataset used here could be conducted to address questions such as:

- What institutional factors—such as institutional sector, student demographics, or selectivity of the receiving institution—are associated with higher rates of transfer and degree completion by lower income students?
- Among which types of institutions—and in which states—is there the greatest opportunity to increase the number of lower income graduates?

Further research is also needed to examine why lower income students lag higher income students on most of the measures on average but have similar average transfer-with-award rates.

The Potential for Increasing Transfer Enrollment in Very Selective Institutions

The finding that students who transfer to very selective four-year institutions are more likely to earn bachelor's degrees than students who transfer to nonselective colleges raises the question of whether very selective institutions could significantly expand their enrollment of transfer students. Combined with data from IPEDS and other sources, the dataset created for this analysis could be used to examine which very selective institutions are enrolling proportionally more transfer students and what the potential for expanded transfer enrollment might be in selective institutions generally.

The Benefits of Earning a Community College Credential Before Transferring

Some studies have found that earning a community college credential before transferring increases the chances that students will earn a bachelor's degree. The patterns we observed in Kansas, Maryland, Tennessee, and Texas, which have above-average transfer-out rates and transfer-out bachelor's completion rates but below-average transfer-with-award rates, call such findings into question. These findings challenge the idea that "2 + 2" is always the best pathway to a bachelor's degree for community college transfer students. The dataset used in this analysis could be used to further examine which students are earning community college credentials before they transfer and how the connection between transfer-with-award rates and bachelor's completion rates among transfer students varies by state.

The Effects of "Swirling" Enrollment on Transfer Outcomes

Further analysis of the NSC dataset indicates that, among students who started at a community college and earned a bachelor's degree from a four-year institution within six years, 34 percent attended more than two institutions (two- and/or four-year) before they graduated. This raises questions about transfer student enrollment patterns in general, as well as the effect of such "swirling" between multiple institutions on key transfer outcomes, which could be addressed through more in-depth analysis.

Transfer Outcomes of Dual Enrollment Students

We intentionally excluded from our sample students who were under the age of 18 at the time of their first college enrollment in fall 2007 because they were likely still enrolled in high school. We suspected based on previous research on dual high school enrollment that the transfer patterns of these students would differ substantially from those of students who entered college after high school. Our preliminary analysis on the transfer outcomes of dual enrollment students (not reported here) supports this hypothesis. Given that dual enrollment students comprise a substantial portion of community college students in many states and colleges—they accounted for 15 percent of students in our dataset who entered higher education for the first time in fall 2007—further research is needed on how the transfer patterns and outcomes of these students differ from those of students who start college after high school.

Final Thoughts

The descriptive analyses presented in this report show the variation in community college transfer student outcomes for two- and four-year institutions by key institutional characteristics and by state. They provide a means for institutional leaders and state policymakers to benchmark the performance of their own institutions in serving transfer students and thereby encourage changes in policies and practices that would improve student outcomes. The results presented here highlight opportunities for improving institutional effectiveness. They also show what magnitude of improvement is possible, based on the outcomes of high-performing institutions. They do not, however, provide guidance on how institutions can improve their performance. Such guidance needs to come from research on two- and four-year institutions that are effective in enabling students—and particularly those from lower income backgrounds—to transfer and earn college credentials. The practices of effective two- and four-year transfer partnerships are the focus of a qualitative study that CCRC and the Aspen Institute are conducting to complement the quantitative research presented here. The results will be used to create a "playbook" for institutional leaders on creating effective transfer partnerships, which will be published in spring 2016.

Endnotes

1. A 2011 National Center for Education Statistics study based on a representative sample of students who started higher education for the first time in 2003–04 found that 81 percent of students who began at a community college indicated that they intended to earn a bachelor's degree or higher (Horn & Skomsvold, 2011, Table I-A). Previous reports from the National Student Clearinghouse found that 25 percent of students who began higher education in a community college transferred to a four-year institution within five years (Hossler et al., 2012), and among community college students who transferred to four-year institutions in 2005–06, 62 percent earned a bachelor's degree within six years of transferring (Shapiro, Dundar, Ziskin, Chiang, et al., 2013).
2. Dougherty and Reddy's (2013) review of performance funding in eight leading states found that only two—Missouri and Tennessee—included measures related to transfer from two- to four-year institutions, and in both cases, the measures applied to community colleges, not four-year institutions.
3. This does not mean that 46 percent of bachelor's graduates started at a community college; rather, they were enrolled at a community college at some point before earning their bachelor's. Some of these students were enrolled in a community college for only one term, but nearly 80 percent were enrolled for two or more terms.
4. NSC extracted from its database a cohort of first-time-ever-in-college students who entered higher education through a community college in the 2007–08 academic year. Geocoding procedures were used to obtain longitude and latitude coordinates, census tract number, and Federal Information Processing Standard county code from the student's first available address. The final file provided to CCRC did not contain personally identifiable information or addresses.
5. NSC uses this method for identifying degree-seeking students (as opposed to students who are taking a small number of courses for purposes other than earning a degree) in its "Completing College" signature reports. Specifically, we followed the method used in NSC Signature Report 6, which examines completions by students who started higher education in fall 2007 (Shapiro, Dundar, Ziskin, Yuan, & Harrell, 2013, p. 14).
6. Of the 1,275,701 students who enrolled for the first time in community college in the fall of 2007, we excluded 189,460 students identified as dual enrollment students by their age at first enrollment, and we excluded an additional 366,870 students identified as non-degree-seeking based on their enrollment intensity within their first year and a half in college (see endnote 5).
7. We also examined the results using a seven-year tracking period for the same fall 2007 community college cohort and found that while completion rates increased overall, the patterns of results across institutional characteristics and states were largely unchanged. For example, tracking students into the seventh year increased the community college cohort bachelor's completion rate from 14 percent to 17 percent, but the states ranked above and below the national average remained the same.
8. Compared with students who transferred to public four-year colleges, students who transferred to for-profit four-year institutions tended to have larger gaps between the end of their enrollment at the two-year institution and their first enrollment at the four-year institution, which would partially explain the lower transfer-in bachelor's completion rates among for-profit institutions. Still, Shapiro, Dundar, Ziskin, Chiang, et al. (2013) tracked students six years after transfer (thereby controlling for gaps in students' enrollment) and found higher completion rates among public institutions (65 percent) than among private for-profits (35 percent).

9. For a discussion of a similar approach to creating proxy measures of student family income and socioeconomic status, see Crosta, Leinbach, and Jenkins (2006).
10. When computing statewide averages or averages by institutional characteristics, we weighted each community college's transfer-out rate and cohort bachelor's completion rate by the number of students in the college's fall 2007 cohort; transfer-with-award rates and transfer-out bachelor's completion rates were weighted by the number of students transferring out of the college; and transfer-in bachelor's completion rates were weighted by the number of students transferring into each four-year institution.
11. We ran regressions (not reported here) on each of the transfer outcomes and found these institutional characteristics to be statistically significant correlates of the outcome measures, particularly among four-year institutions.
12. Our taxonomy is available by request.
13. As a reminder, if the institution awarded 40 percent or more occupational associate degrees, it was categorized as primarily occupational. If the institution awarded less than 40 percent occupational associate degrees, it was categorized as primarily academic. Forty percent was chosen as the cut point based on an examination of the distribution of colleges by award types.
14. Comparing its database to IPEDS enrollments, NSC reported a national coverage rate of 92 percent for fall 2007 enrollments at public two-year institutions. Coverage varies by state; there were 14 states with less than 90 percent coverage, and there were no data on community colleges in Alaska, Delaware, and the District of Columbia. Given that non-reporting is typically an institution-level event, the data presented in this report may not reflect the exact numbers of community colleges in each state. For confidentiality, we are not reporting findings for state outcomes with less than three institutions in the dataset. Detailed information on coverage for the fall 2007 cohort can be found at https://nscresearchcenter.org/workingwithourdata/.
15. See endnote 8.
16. The regression also confirmed that community college institutional characteristics were less correlated with transfer student outcomes than were the characteristics of four-year institutions.
17. We found a positive correlation between transfer-with-award rates and transfer-out bachelor's completion rates for community colleges in the United States overall ($r = 0.19$, $p < .001$), but the correlation coefficients varied remarkably by state, ranging from -0.68 to 0.86. Most states' correlations were not statistically significant, and a few states had significantly negative coefficients.
18. The University of Central Florida's DirectConnect partnerships were recently profiled by PBS (2015) and *Politico* magazine (Amrhein, 2015).

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CCRC COMMUNITY COLLEGE RESEARCH CENTER
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

Community College Research Center
Teachers College, Columbia University
525 West 120th Street, Box 174
New York, New York 10027
Tel: 212.678.3091 Fax: 212.678.3699
ccrc@columbia.edu
http://ccrc.tc.columbia.edu