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A Longitudinal Study of the Illinois High School Class of 2002: A Six-Year Analysis of Postsecondary Enrollment and Completion

David J. Smalley, Eric J. Lichtenberger, and Kathleen Sullivan Brown

Executive Summary

In 2003, the Illinois Education Research Council (IERC) began to follow the members of the Illinois public high school class of 2002 (the Class of 2002) on their journeys through postsecondary education. There is a wealth of higher education information on these students, including enrollment and the completion of certificates and degrees. Also, a sufficient amount of time has passed to adequately explore bachelor's degree completion patterns, as the study period runs from the fall semester of 2002 to the end of the spring semester of 2008.

In this report we provide a focused analysis of initial college enrollment and the attainment of intended outcomes for those enrolling at two-year and four-year institutions. We also highlight key findings regarding more specific pathways and completion patterns such as the bachelor completion rates for the students transferring from a two-year institution to a four-year institution. We explore the participation and completion outcomes by several student characteristics in addition to select characteristics of the students' respective high schools, as well as the postsecondary institutions in which they enrolled.

It is widely assumed that in Illinois, as in other states throughout the nation, disparities continue to exist across various groups in terms of postsecondary participation and degree completion. We believe the following results can be used to help identify some of those disparities in addition to the problem areas along the educational pipeline in an effort to inform the work of policymakers and practitioners. These results can then be used to improve key transition points, reduce geographic disparities, and improve time to degree attainment, all of which are priorities in the Illinois Public Agenda, President Barrack Obama's American Graduation Initiative, and Complete College America.

Key Findings

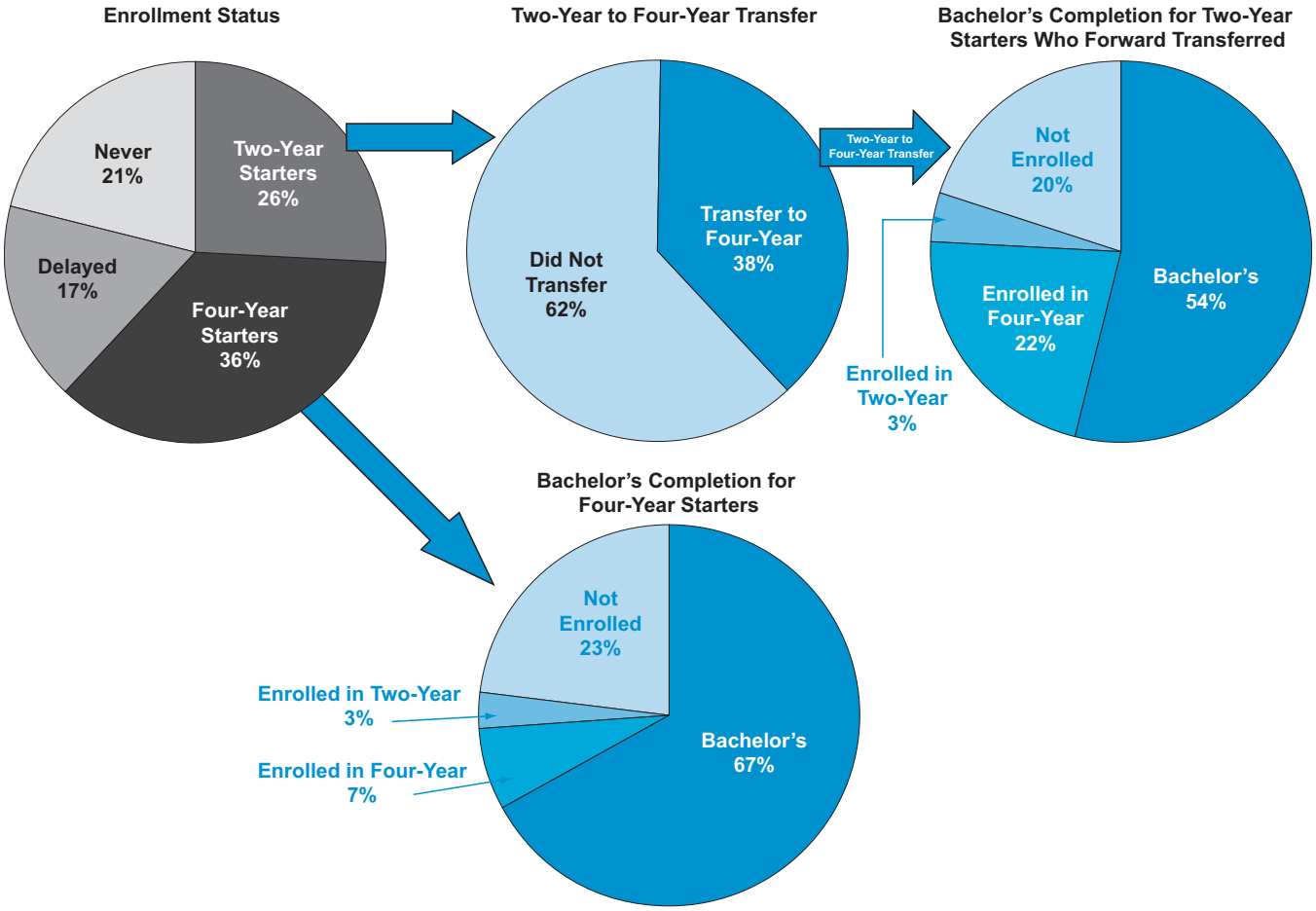
Enrollment

Overall, 79% of the students in the Class of 2002 had enrolled in postsecondary education for at least one semester before the end of the spring semester of 2008 (see Figure I). In terms of initial enrollment during the fall semester of 2002, 62% of students enrolled at a postsecondary institution, with 26% enrolling at a two-year institution (two-year starters) and 36% enrolling at a four-year institution (four-year starters). Seventeen percent of the Class of 2002 delayed their enrollment after that first fall semester. We found that nearly all (97%) of the students who initially enroll at a two-year institution are doing so at an Illinois community college.

Initial Enrollment at Four-Year Institutions

- Asian students (57%) had the highest initial four-year enrollment rate, followed by White students (41%), African-American students (34%), and Hispanic students (25%).
- Female students had a six percentage point advantage over their male counterparts (39% to 33%).
- College readiness (see page 3 for description) mattered, as nearly three-quarters of the most ready students initially enrolled at a four-year institution, which was nearly 20 percentage points higher than the next highest group.
- Students from the Southeast region, despite having the highest overall enrollment rate, had the lowest initial four-year enrollment rate (19%), while students from the Northeast had the highest initial four-year enrollment rate at 43%.

Figure I. Enrollment and Completion



Initial Enrollment at Two-Year Institutions

- White students had the highest initial two-year enrollment rate at 28% and African-American students had the lowest at 19%.
- In terms of parental income, students in the middle quartiles had the highest rates of enrollment.
- For college readiness, the likelihood of two-year enrollment was greatest for those falling within the three lowest categories of the index.
- Students from the Southeast by far had the highest initial two-year enrollment rate at 47%, while students from Chicago had the lowest initial two-year enrollment rate at 14%.

Outcomes

2002 Four-Year College Starters

Two-thirds (67%) of those initially enrolling at a four-year institution in the fall of 2002 earned a bachelor's degree within the six-year study period. In terms of non-completion status at the end of the study, 7% of the four-year starters were still enrolled at a four-year institution, while 3% were enrolled at a two-year institution. By the end of the study period:

- Female four-year starters were much more likely to earn a bachelor's degree than their male counterparts, 70% to 63% respectively.
- Asian and White four-year starters had the highest four-year degree completion rates at 73% and 72%, respectively, while African-American and Hispanic four-year starters had the lowest at 42% and 53%, respectively.
- Over half (53%) of the four-year starters with disabilities earned a bachelor's degree, indicating their bachelor's completion rate was much lower than that of the overall cohort.
- Parental income, college readiness, school funding, and the teacher academic characteristics all appeared to have a positive relationship with bachelor's completion; as those values increased so did the bachelor's completion rate.

2002 Two-Year College Starters

Among the two-year starters, 51% had transferred to a four-year institution, earned an associate's degree, or earned a certificate by the end of the six-year period. Regarding those non-mutually exclusive outcomes, 38% of the two-year group eventually transferred to a four-year institution, a little more than a quarter (26%) had earned an associate's degree, and only 6% had earned a certificate. Of the 38% of two-year starters who transferred from a two-year institution to a four-year institution in our study, 54% completed a bachelor's degree through this pathway and an additional 22% were still enrolled at a four-year institution at the end of the study. By the end of the study period:

- Female two-year starters had a two-year outcome attainment rate of 53%, while their male counterparts only had a rate of 48%. Interestingly, most of the aforementioned gender difference could be attributed to the six percentage point advantage for female students in the rate of associate's degree completion.
- Asian and White two-year starters had the highest two-year outcome attainment rates at 59% and 56% respectively, while the African-American and Hispanic two-year starters had the lowest rates at 36% and 41% respectively.
- Two-year starters from the Southeast region had the highest rate of two-year outcome attainment at 61%, two-year starters from several regions clustered between 55% and 50%, and the remaining two-year starters from the Chicago region had the lowest overall rate of two-year outcome attainment at 35%.
- College readiness had a positive relationship with the likelihood of attaining one or more of the two-year outcomes.

Discussion

Gender Gap

When the gender gap in college attainment is mentioned, people tend to assume it is one that favors male students as they have historically earned a higher proportion of bachelor's degrees; however this was only the case until 1982 when parity was reached. Since then female students have been earning a higher proportion of bachelor's degrees and the gap continues to grow (Peter & Horn, 2005). This is not only specific to bachelor's completion as the National Center of Educational Statistics has shown that female students have surpassed their male counterparts in enrollment, academic preparation, and college persistence, in addition to attainment since 2001 (Peter & Horn, 2005). Our findings have led us to similar conclusions as female students significantly outperformed their male counterparts in nearly all measures. The one area where male students had an advantage was in the proportion enrolling at the most selective institutions.

College Readiness

College readiness (Table I) was the strongest indicator of nearly all of the outcome measures we used in the study. This was similar to our previous work that established a relationship between college readiness and postsecondary enrollment and a greater likelihood of certificate/degree completion for the more and most college ready students (White, Mullin, & Brown, 2009). For the current study, we found the higher the level of college readiness, the greater the likelihood of initial four-year enrollment and bachelor's completion. It should be noted that college readiness was more important in determining initial four-year enrollment than the completion of bachelor's degrees, but it was still the strongest indicator of both measures by far.

Table I. IERC College Readiness Index

	High School GPA (self-reported)				
ACT	<= 2.4	2.5 - 2.9	3.0 - 3.4	3.5 - 4.0	Missing
<20	19.7%	8.0%	6.5%	1.9%	14.6%
20-22	3.1%	3.5%	5.2%	2.9%	4.0%
23-25	1.1%	1.7%	4.2%	4.8%	2.7%
26+	0.4%	0.8%	2.7%	9.5%	2.8%

Not/Least Ready | Minimally Ready | Somewhat Ready | More Ready | Most Ready

Two-Year to Four-Year Pathway "Forward Transferring"

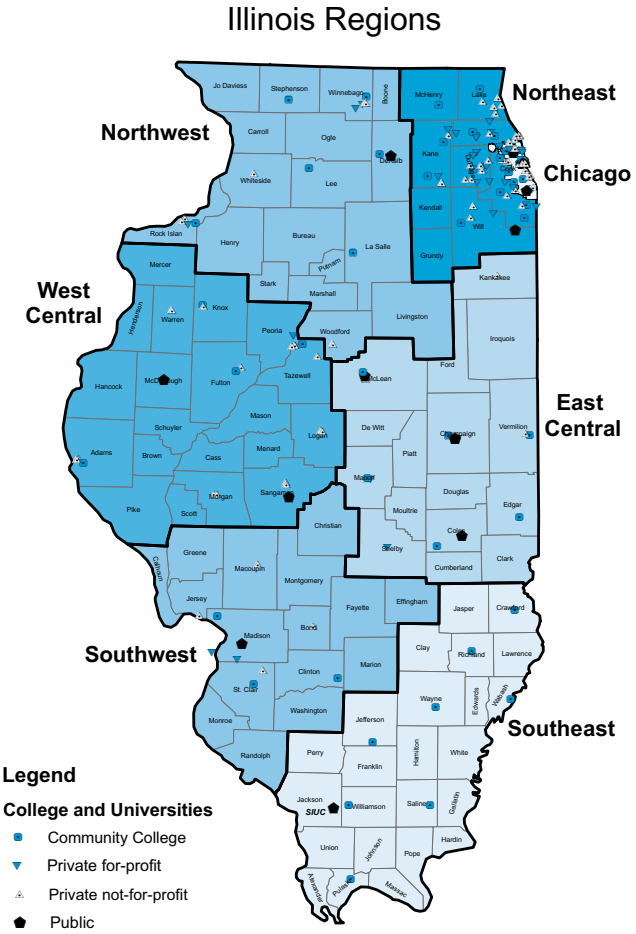
The results of the study suggest that even though the two-year to four-year transfer pathway is viable in terms of bachelor's completion, overall, it is not quite as likely to result in bachelor's degree completion as initially enrolling at a four-year institution. As one would expect, the students on the two-year to four-year pathway do not complete at the same rate and require more time to complete compared with students initially enrolling at a four-year institution. However, based on a comparison of students in the various college readiness categories who initially enrolled at a four-year institution with students in parallel readiness categories who took the two-year to four-year pathway, we found that forward transferring was related to increased bachelor's completion rates among the less ready students. For example, students in the not/least ready category who transferred from a two-year to four-year institution had a bachelor's completion rate of 40% and an additional 29% were still enrolled at a four-year institution at the end of the study, while only 38% of students in the not/least ready category who

initially enrolled at a four-year institution completed and only 9% were still in the educational pipeline.

Students from the Southeast Region and Proximity

Students from the Southeast region demonstrated a heavy reliance on two-year and out-of-state four-year institutions, suggesting the accessibility of a four-year in-state institution to the students in that region is an issue. In fact, students from all other regions initially enrolled at a four-year institution at significantly higher rates. One reason could be that there are no private institutions in the region and there is only one public four-year institution located within the region, Southern Illinois University Carbondale; but large travel distances may impede students from attending as it is somewhat geographically isolated from students in the region (see Figure II).

Figure II. Illinois Regions



We ran two logistic regression models to determine what was predictive of initial enrollment at a four-year institution and then bachelor's completion among those who initially enrolled. The detailed results of the logistic regression models and discussion are included in the report.

Recommendations for Further Investigation

The Illinois 2002 cohort study represents a vision of the results that would be available in the future with the development of the Illinois longitudinal data system. IERC welcomes feedback from other researchers and state policymakers on these and future findings in the interest of supporting P-20 education policy in the State of Illinois.

Future IERC supplementary reports will investigate reverse transfers, two-year to four-year transfers, time to degree completion, college selectivity, and college sector. Additional recommendations for further investigation include:

1. Determining the enrollment and completion patterns of out-of-state enrollees;
2. Establishing the impact of community college certificates and degrees on further education;
3. Analyzing the interaction of college readiness, socioeconomic status, and region on college selectivity and location;
4. Determining the interaction of gender, race/ethnicity, and socioeconomic status on the enrollment and completion patterns; and
5. Focusing on the pathways to completion for Hispanic students.

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Previous IERC studies on the Illinois Class of 2002:

The demographics and academics of college readiness in Illinois (IERC 2005-3), by Yuqin Gong and Jennifer B. Presley

The demographics and academics of college going in Illinois (IERC 2006-2), by Yuqin Gong and Jennifer B. Presley

Following the Illinois high school class of 2002: Three years into college (IERC 2006-5), by Yuqin Gong, Jennifer B. Presley, and Bradford R. White

The Illinois Class of 2002—an overview: A descriptive summary four years after high school (IERC 2009-1), by Christopher M. Mullin, Kathleen Sullivan Brown, and Bradford R. White

The Illinois Class of 2002 and college readiness: A descriptive summary four years after high school (IERC 2009-2), by Bradford R. White, Christopher M. Mullin, and Kathleen S Brown

The Illinois Class of 2002 and gender: A descriptive summary four years after high school (IERC 2009-3), by Kathleen Sullivan Brown, Christopher M. Mullin, and Bradford R. White

The Illinois Class of 2002 and parent income: A descriptive summary four years after high school (IERC 2009-4), by Bradford R. White, Christopher M. Mullin, and Kathleen Sullivan Brown

The Illinois Class of 2002 and race/ethnicity: A descriptive summary four years after high school (IERC 2009-5), by Kathleen Sullivan Brown, Christopher M. Mullin, and Bradford R. White

Introduction

In 2003, the Illinois Education Research Council (IERC) began to follow the members of the Illinois public high school class of 2002 (the Class of 2002) on their journeys through postsecondary education. There is a wealth of higher education information on these students, including information regarding enrollments and the completion of certificates and degrees. Also, a sufficient amount of time has passed to adequately explore bachelor's degree completion patterns, as the study period runs from the fall semester of 2002 to the end of the spring semester of 2008. We start the study by analyzing the students' initial level of enrollment in higher education and then determine whether they achieved an intended outcome, for instance, obtaining a bachelor's degree for those initially enrolling at a four-year institution.

There are several current initiatives on both the national and state levels related to college completion. Most of the current initiatives are evidence of a shift from ensuring parity in postsecondary access to one of improving outcomes related to success and achievement, namely persistence and the completion of degrees in a timely manner. For example, Bowen, Chingos, and McPherson (2009) argued that too much focus has been placed on access to higher education rather than educational attainment. In other words, no longer is it sufficient to measure initial college enrollment and potential disparities that may exist between various demographic groups, as the completion of quality degrees has been identified as a major goal across institutions at both the state and national levels. The shift has also come in a time when most high school graduates aspire at the very least to earn a bachelor's degree and plan on enrolling at a four-year institution immediately after high school. Eighty-two percent of the Class of 2002 had the goal of obtaining a bachelor's degree, with almost all saying they would attend college full-time. However aspirations and plans do not necessarily relate to college readiness or one's ability to navigate the higher education system. In the current study, we focused on the process of moving from high school, to enrolling in college, and then the enrollment patterns that could potentially lead to the completion of a degree. We refer to this as the educational pipeline.

In 2009, President Barack Obama introduced the American Graduation Initiative which has the goal that by 2020 America will once again have the highest proportion of college graduates in the world. Another national initiative, Complete College America, was established in 2009 to significantly increase the number of Americans with a college degree or credential of value and to close attainment gaps for traditionally underrepresented populations. As of June 2010, Illinois and 21 other states have joined the Complete College America's Alliance of States, which is a pledge by the state and its public colleges and universities to make college completion a top priority and commits to the following three actions: set completion goals, develop action plans and move key policy levers, and collect and report common measures of progress. Furthermore, the current study readily fits into the framework established by the goals and recommendations set forth in the Illinois Public Agenda for College and Career Success (Illinois Board of Higher Education, 2008), such as improving transitions along the educational pipeline, reducing geographic disparities in educational attainment, ensuring college affordability, and increasing the number of quality postsecondary credentials.

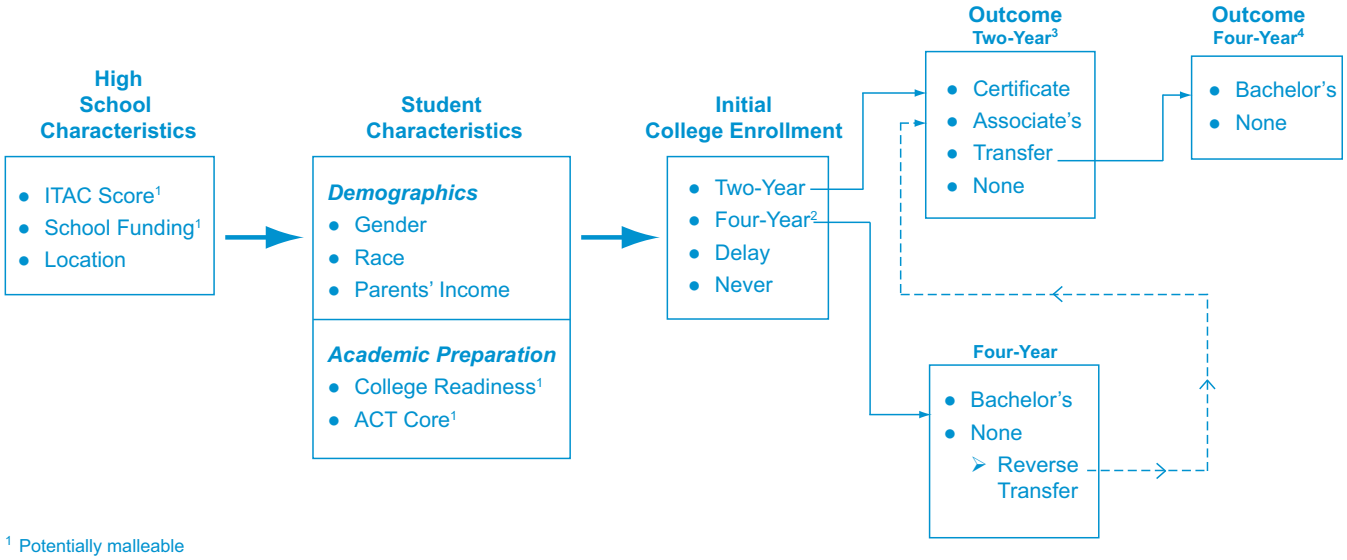
Purpose

It is widely assumed that in Illinois, as in other states throughout the nation, disparities continue to exist across various groups in terms of postsecondary participation and degree completion. We believe the following results can be used to help identify some of those disparities in addition to the problem areas along the educational pipeline in an effort to inform the work of policymakers and practitioners. Such information could be used to improve key transition points along the educational pipeline, reduce geographic disparities, and improve time to degree attainment, all of which are priorities of the Illinois Public Agenda and the other previously mentioned initiatives.

Framework of Study

In this report we provide a focused analysis of initial college enrollment and the attainment of intended outcomes for those enrolling at two-year and four-year institutions. We also highlight key findings regarding the more specific pathways and completion patterns such as the bachelor completion rates for the students transferring from a two-year institution to a four-year institution. Supplementary reports will be developed that provide additional background information and analysis regarding the following specific pathways and completion patterns: reverse transfers, two-year to four-year transfers, a sector analysis of initial enrollment and the alignment with completion, the selectivity of initial college enrollment and its alignment with completion, and time to bachelor completion measured by cumulative completion rates and survival analysis. As illustrated by our framework (Figure 1), we explored the participation and completion outcomes by several student characteristics in addition to select characteristics of the students' respective high schools, as well as the postsecondary institutions in which they enrolled. It was our belief that high schools potentially could impact the students' college readiness through the rigor of their academic programs and high school graduation requirements. Those malleable factors, along with other student characteristics, impact initial college enrollment and continue to impact the likelihood of attaining an intended outcome based on the initial enrollment type.

Figure 1. Framework of Study



[1] Potentially malleable
[2] By sector and selectivity
[3] Two-year outcomes are not mutually exclusive, so more than one could occur
[4] For two-year to four-year transfers

Methods

Data

In 2001, Illinois began administering the ACT test to all 11th graders in the State's public schools as part of the Prairie State Achievement Examination (PSAE). For the first time scores and background information were available for nearly all public school students who would be completing high school one year later, rather than just those who elected to take the test because they were expecting to apply to a postsecondary institution requiring ACT scores for admission. We received the 2002 senior class data from ACT under shared data agreements with the Illinois Board of Higher Education and ACT and refer to this cohort of Illinois public high school students as the Class of 2002.

Student college enrollment and degree completion information was obtained from the National Student Clearinghouse (NSC), a national collaborative, in which nearly 3,300 postsecondary institutions participate, covering 92% of all postsecondary student enrollments (National Student Clearinghouse, 2010). The data enable us to examine student transfers among different institutions both in-state and out-of-state. This is a valuable advantage in studying student mobility in higher education, as many studies are designed using the institutional perspective, focusing on retention at a single institution rather than student persistence across institutions.

Delimitations

This study is delimited to Illinois Public High School students who took the PSAE/ACT during their junior year in 2001, so being a member of the cohort did not necessarily guarantee high school graduation in the spring of 2002. Private high school students and out-of-state high school graduates that migrated to Illinois higher education institutions were not included in the study. Since we only had data available from the fall semester of 2002 through the spring semester of 2008, we were unable to take into account dual enrollment or dual credit from earlier semesters.

Definitions

Student Characteristics

Gender[1], race/ethnicity, disability status, and parental income were all derived from the ACT survey. The college readiness index was created by IERC as a combination of high school grade point average and overall ACT score and is modeled on the work of Berkner and Chavez (1997). The college readiness index is categorized into five levels—from not/least ready, through minimally ready, somewhat ready, more ready, and most ready. Please see Table 1 for more specific details. We analyzed responses on the ACT questionnaire as to whether the student completed ACT core courses in order to create the ACT core variable.

[1]There were 601 individuals who did not provide gender information and they were excluded from the gender specific portion of the tables.

Table 1. IERC College Readiness Index

ACT	High School GPA (self-reported)				
	<= 2.4	2.5 - 2.9	3.0 - 3.4	3.5 - 4.0	Missing
<20	19.7%	8.0%	6.5%	1.9%	14.6%
20-22	3.1%	3.5%	5.2%	2.9%	4.0%
23-25	1.1%	1.7%	4.2%	4.8%	2.7%
26+	0.4%	0.8%	2.7%	9.5%	2.8%

Not/Least Ready | Minimally Ready | Somewhat Ready | More Ready | Most Ready

High School Characteristics

The IERC Index of Teacher Academic Capital (ITAC) involved statistically combining five different teacher attributes aggregated to the school level. See White, Presley, & DeAngelis (2008) on the development of this index (Table 2). The school funding information was derived from Illinois State Board of Education public reports and connected to each student's corresponding high school. The regions are based on the Regional Offices of Education in Illinois for which the corresponding high school is located. For specific information, see Figure A in the Appendix.

Table 2. ITAC Components and Weights

ITAC Component	Weight
Teachers' Mean ACT Composite Score	0.91
Teachers' Mean ACT English Score	0.90
% of Teachers Failing the Basic Skills Test on Their First Attempt	-0.36
% of Teachers with Emergency/Provisional Certification	-0.50
Teachers' Mean Undergraduate College Competitiveness Ranking	0.45

College Characteristics

Sector of College

College sector is based on the National Student Clearinghouse designation of a college as public or private. For Illinois institutions we used the Illinois Board of Higher Education designation as private not-for-profit or private for-profit. Based on these three categories and the college's state information, we were able to create five categories. Institutions in Illinois are designated as a public university, private not-for-profit, or private for-profit. Institutions outside of Illinois are categorized as out-of-state public or out-of-state private. Two-year institutions are not included in the sector analysis, as our results indicated nearly all students (97%) initially enrolling at a two-year college do so at an institution within the Illinois Community College System.

Selectivity of College

Barron's Profiles of American Colleges (2003) ranks higher education institutions in the United States on a six-level competitiveness scale, ranging from most competitive to non-competitive. An institution's annual ranking is based on a number of

indicators of the academic quality of its freshman class, such as the percentage of applicants accepted for admission and the median SAT or ACT scores. We used rankings from the 25th edition in 2003, since these data were those that were available to the Class of 2002. We combined the top two categories (most/highly competitive) and the bottom two categories (less/noncompetitive) to create four categories for our analysis. The middle two categories are very competitive and competitive.

Outcomes

Initial Enrollment

The overall enrollment measure includes those initially enrolling at a four-year institution (four-year starters), those initially enrolling at a two-year institution (two-year starters), and those delaying their enrollment. Obviously, there were also individuals who did not enroll in postsecondary education during the study period and they are aptly labeled the "never enrolled" group. If there was concurrent enrollment at both a four-year and two-year institution, the four-year enrollment superseded the two-year enrollment.

Bachelor's Completion

We assume the intent of a student who enrolls at a four-year institution is to complete a baccalaureate program; therefore, the attainment of a bachelor's degree is measured as a completion in our study. We also analyzed those who have not completed within the six-year period to see if they were still enrolled which would keep them in the educational pipeline moving towards completion.

Outcomes for 2002 Two-Year College Starters

We cannot attribute a specific intent of enrollment for students who initially enrolled at a two-year institution because individuals enroll at a two-year institution for a variety of reasons—for example they may enroll in remedial courses in order to become better prepared for college or they may enroll in a sequence of technical courses required for job advancement. In other words, the intended outcome of the student is unknown and not as clear cut as it is for those initially enrolling at a four-year institution. However, we were still able to analyze three positive outcomes and the lack of attainment of any of the three outcomes was considered having an unknown or unmet outcome. Specifically, the three measurable positive outcomes are earning a certificate, earning an associate's degree, or transferring to a four-year institution. When a student transfers to a four-year institution, their intended outcome evolves and becomes bachelor's completion. It should be noted that we made no distinction between the various types of associate's degrees and that certificates included all career and technical education certificates of one year or more.

At times, in both the tables and the figures, percentages might not add up to 100% due to rounding.

Findings

Enrollment Patterns

It is important to look at enrollment patterns in different ways. Economists and other researchers agree that participating in postsecondary education is more important than ever, as it is associated with higher salary potential and those with college degrees are at a lower risk of unemployment, which is particularly important during economic downturns. The democratizing effects of higher education have historically been cited as a justification for subsidizing public four-year institutions (Dewey, 1916) and within the last several decades two-year institutions or community colleges (Hirose-Wong, 1999). Furthermore, postsecondary enrollment is a prerequisite for degree completion, so if disparities exist in initial enrollment or at the beginning of that section of the educational pipeline, there will surely be disparities when that section of the educational pipeline ends.

Overall, 79% of the students in the Class of 2002 had enrolled in postsecondary education for at least one semester before the end of the spring semester of 2008.

Table 3 presents rates of initial college enrollment for the entire 2002 cohort broken down by student characteristics, academic preparation, and high school characteristics. Overall, 79% of the students in the Class of 2002 had enrolled in postsecondary education for at least one semester before the end of the spring semester of 2008. This is only a five point increase from the overall postsecondary enrollment rate of the Class of 2002 (74%) three years into college (Gong, Presley, & White, 2006), demonstrating only a small percentage of students delay their initial enrollment after three years. It should be noted that the overall enrollment rate includes initial four-year enrollment, initial two-year enrollment, and delayed enrollment and specific differences in those rates are to be discussed. In terms of initial enrollment at the beginning of the study period, 26% of the students enrolled at a two-year institution and 36% of students enrolled at a four-year institution; therefore, 62% of students enrolled at a postsecondary institution during the fall semester of 2002. A comparison of the initial two-year and four-year enrollment rates suggests that if one enrolls immediately after high school, it is slightly more likely to be at a four-year institution.

Sixty-two percent of the Class of 2002 enrolled in postsecondary education during the fall semester of 2002.

Overall

Regarding gender, female students had a higher overall enrollment rate compared with their male counterparts (82% to 76% respectively). In terms of race, Asian students had the highest overall enrollment rate at 90%, followed by White students at 84%, African-American students at 76%, and Hispanic students at 68%. Parental income, college readiness, ITAC score, and school funding all had a positive relationship with overall enrollment—as those values increased so did the overall enrollment rate. Regional differences were also evident, as students from the Southeast region had the highest overall enrollment rate at 85%, closely followed by students from the Northeast region at 83%, while students from Chicago had the lowest overall enrollment rate at 65%. Disabled students had a much lower overall enrollment rate when compared to the entire cohort (66% to 79%) and students completing the ACT core were more likely to enroll than students who did not (88% to 72%).

Initial Enrollment at Four-Year Institutions "2002 Four-Year College Starters"

Thirty-six percent of the Class of 2002 enrolled at a four-year institution during the fall semester of 2002.

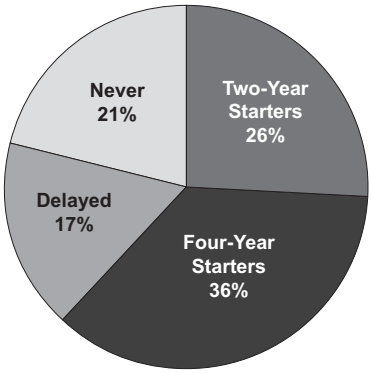
Thirty-six percent of the Class of 2002 enrolled at a four-year institution during the fall semester of 2002. Disparities in terms of initial four-year enrollment between various groups were evident, as female students had a six percentage point advantage over their male counterparts (39% to 33%), indicating most of the overall difference mentioned in the previous paragraph can be attributed to the difference in the initial rate of four-year enrollment and the corresponding difference in the proportion never enrolling. In terms of race, Asian students had the highest initial four-year enrollment rate at 57%, which was 16 percentage points higher than White students (41%), 23 percentage points higher than African-American students (34%), and more than double the rate of Hispanic students (25%). Although differences at the upper end of the college readiness index and parental income were somewhat muted in terms of overall enrollment, the differences in initial four-year enrollment rates were rather large (see Table 3). For example, roughly three-quarters (74%) of the most ready students initially enrolled at a four-year institution, which was nearly 20 percentage points higher than the more ready students (55%), while there was only a three percentage point difference between those two groups in overall enrollment. Regional differences shifted when focusing on initial four-year enrollment, as students from the Southeast region, despite having the highest overall enrollment rate, had the lowest initial four-year enrollment rate (19%). Students from the Northeast region had the highest initial four-year enrollment rate at 43% and students from all of the other regions clustered within two percentage points of 30%.

Initial Enrollment at Two-Year Institutions "2002 Two-Year College Starters"

A little more than one-quarter of the Class of 2002 (26%) enrolled at a two-year institution during the fall semester of 2002.

Analyzing enrollment trends at two-year institutions is important, as nationally over the last several years enrollment at four-year institutions has leveled off, while enrollment at two-year institutions has increased, so nearly all of the growth in postsecondary enrollment can be attributed to two-year enrollment (Aud, Hussar, Planty, Snyder, Bianco, Fox, Frohlich, Kemp, & Drake, 2010). A little more than one-quarter of the Class of 2002 (26%) enrolled at a two-year institution during the fall semester of 2002. The relationships in the patterns regarding initial two-year enrollment shifted from those exhibited in overall and initial four-year enrollment. White students had the highest initial two-year enrollment rate at 28% and African-American students had the lowest at 19%. In terms of parental income and initial two-year enrollment, the middle quartiles had the highest rates, closely followed by the low quartile, and then a large gap existed with the high quartile having the lowest rate (18%) by far. In terms of college readiness, the likelihood of two-year enrollment was greatest for those falling within the lower three categories of the index, as students who were minimally (35%) and somewhat college ready (32%) enrolled at a two-year institution at the highest rates, closely followed by the students in the not/least ready category (29%), while the students within the most ready category had the lowest rate (10%). Disabled students had a similar initial two-year enrollment rate relative to the entire cohort, 27% to 26%, respectively. As previously stated, students from the Southeast region had the highest overall enrollment rates and the lowest initial four-year enrollment rates, so to make up for the latter, students from the Southeast region by far had the highest initial two-

Table 3. Initial College Enrollment



		Enrolled in Postsecondary Education				
		Never Enrolled	Delayed Enrollment	2-Year Institution	4-Year Institution	Total Enrolled
	N	23,629	19,397	28,875	41,234	89,506
Overall Cohort	113,135	21%	17%	26%	36%	79%
STUDENT CHARACTERISTICS						
Gender						
Female	57,949	18%	17%	26%	39%	82%
Male	54,585	24%	17%	25%	33%	76%
Race/Ethnicity						
African-American	11,771	24%	23%	19%	34%	76%
American Indian/Alaskan Native	579	41%	25%	22%	12%	59%
White (Non-Hispanic)	66,699	16%	15%	28%	41%	84%
Hispanic	8,730	32%	21%	22%	25%	68%
Asian/Pacific Islander	4,692	10%	12%	21%	57%	90%
Other/Multiracial	3,966	24%	19%	26%	30%	76%
Prefer Not to Respond	16,698	35%	21%	23%	21%	65%
Disabled	7,598	34%	20%	27%	18%	66%
Parental Income						
High $80k->$100k	17,210	10%	13%	18%	59%	90%
Mid-high $50k-<$80k	18,710	13%	14%	29%	44%	87%
Mid-low $30k-<$50k	21,392	21%	17%	31%	31%	79%
Low $<30k	20,581	28%	22%	26%	23%	72%
No Information	35,242	26%	18%	24%	32%	74%
STUDENT ACADEMIC PREPARATION						
College Readiness Index						
Most Ready	22,336	6%	10%	10%	74%	94%
More Ready	19,742	9%	13%	24%	55%	91%
Somewhat Ready	19,598	16%	16%	32%	36%	84%
Minimally Ready	12,518	24%	20%	35%	20%	76%
Not/Least Ready	38,941	37%	23%	29%	11%	63%
ACT Core						
Completed	45,295	11%	14%	22%	53%	88%
Not Completed	58,197	27%	20%	28%	24%	72%
No Information	9,643	27%	19%	23%	31%	73%
HIGH SCHOOL CHARACTERISTICS						
ITAC Score						
High Quartile	27,363	13%	14%	22%	50%	86%
Mid-high Quartile	27,309	18%	16%	29%	37%	81%
Mid-low Quartile	27,380	22%	18%	27%	32%	77%
Low Quartile	27,415	30%	21%	24%	26%	70%
Missing Information	3,668	18%	20%	26%	36%	82%
School Funding						
High Quartile $9,211+	27,297	15%	15%	22%	48%	85%
Mid-high Quartile $6,561-$9,210	27,454	20%	17%	29%	35%	80%
Mid-low Quartile $5,617-$6,560	27,397	20%	17%	30%	33%	80%
Low Quartile <$5,617	27,037	29%	20%	20%	30%	71%
Missing Information	3,950	16%	18%	29%	37%	84%
Location						
Chicago	15,310	35%	22%	14%	29%	65%
Northeast	53,986	17%	16%	24%	43%	83%
Northwest	10,413	24%	16%	32%	28%	76%
West Central	8,554	22%	16%	30%	32%	78%
East Central	8,487	20%	17%	31%	32%	80%
Southwest	9,237	20%	19%	29%	32%	80%
Southeast	4,525	15%	19%	47%	19%	85%
Missing Information	2,623	12%	18%	30%	40%	88%

year enrollment rate at 47%. This was 15 percentage points higher than students from the next highest region (Northwest at 32%). Students from Chicago had the lowest initial two-year enrollment rate at 14%.

Delayed Enrollment

Seventeen percent of the Class of 2002 delayed their enrollment beyond that first semester.

Seventeen percent of the Class of 2002 delayed their enrollment beyond that first semester. In other research it has been found that delayed entrants were more likely to come from low-income families, be first generation college students, speak a language other than English as their primary language, and less likely to be White (Horn, Cataldi, & Sikora, 2005). Bozick and DeLuca (2005) found that delayed entrants tend to come from families with few socioeconomic resources and they have performed poorly on standardized tests. Our results were similar as students in the low and mid-low income categories had higher rates of delayed enrollment compared with those in the high and mid-high categories, as did students lower on the college readiness index and those not completing the ACT core. Patterns in school funding and teacher quality (ITAC) were similar, as students in the lower categories had higher rates of delayed enrollment. African-American and Hispanic students had higher delayed enrollment rates compared with White and Asian students. In terms of region, students from Chicago had the highest delayed enrollment rate at 22%.

African-American and Hispanic students had higher delayed enrollment rates compared with White and Asian students.

Bachelor's Degree Completion for 2002 Four-Year College Starters

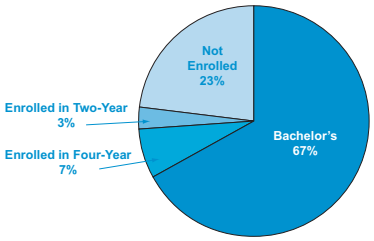
Overall

It should be noted that the outcomes presented in Table 4 are specific to those initially enrolling at a four-year institution in the fall semester of 2002 (four-year starters). A simple measure of degree completion was used—bachelor's degree completion within six years. Information regarding those who did not obtain a bachelor's degree within the six-year time frame is also presented to provide a more complete picture of the educational pipeline. The non-completers were placed into one of three categories: 1) enrolled at a four-year institution; 2) enrolled at a two-year institution; or 3) not enrolled. Logically, those in the first category had not earned a bachelor's degree but were still enrolled at a four-year institution during the spring semester of 2008, indicating a continued effort to complete. Those in the second category—enrolled at a two-year institution—had not earned a bachelor's degree but were enrolled at a two-year institution, also indicating a continued effort to complete, but with a different current intended outcome and a potentially greater time to achieve the original intended outcome, bachelor completion. Those in the third category had not earned a bachelor's degree and were not enrolled at the end of the study. Although it remains possible for members of this group to re-enroll and eventually complete, their pathway to degree completion would generally take more time compared with the other two groups.

Two-thirds (67%) of four-year starters earned a bachelor's degree within the six-year study period—by the end of spring semester of 2008.

Two-thirds (67%) of four-year starters earned a bachelor's degree within the six-year study period—by the end of spring semester of 2008. In terms of the pipeline measures mentioned above, another 7% of the four-year starters were still enrolled at a four-year institution at the end of the study, while 3% reverse transferred and were still enrolled at a two-year institution. However, at the end of the study 23% of four-year starters were no longer enrolled and failed to earn a bachelor's degree.

Table 4. Outcomes for 2002 Four-Year College Starters



	Total 4-Year Initial Enrollment	Obtained Bachelors Degree	Did Not Obtain Bachelor's in 6 Years: Enrolled at a 4-Year Institution	Enrolled at a 2-Year Institution	Not Enrolled
	N	27,620	2,760	1,300	9,537
Overall Cohort	41,234	67%	7%	3%	23%
STUDENT CHARACTERISTICS					
Gender					
Female	22,817	70%	6%	3%	20%
Male	18,218	63%	7%	3%	27%
Race/Ethnicity					
African-American	4,029	42%	12%	5%	40%
American Indian/Alaskan Native	68	60%	7%	4%	28%
White (Non-Hispanic)	27,598	72%	5%	3%	20%
Hispanic	2,158	53%	9%	5%	33%
Asian/Pacific Islander	2,669	73%	8%	4%	15%
Other/Multiracial	1,185	59%	10%	4%	27%
Prefer Not to Respond	3,527	60%	7%	4%	30%
Disabled	1,373	53%	9%	4%	34%
Parental Income					
High $80k->$100k	10,179	78%	5%	2%	15%
Mid-high $50k-<$80k	8,264	71%	7%	3%	19%
Mid-low $30k-<$50k	6,675	62%	7%	4%	27%
Low $<30k	4,806	50%	10%	5%	35%
No Information	11,310	65%	6%	3%	26%
STUDENT ACADEMIC PREPARATION					
College Readiness Index					
Most Ready	16,591	82%	4%	1%	12%
More Ready	10,815	68%	7%	3%	22%
Somewhat Ready	7,011	56%	9%	4%	31%
Minimally Ready	2,552	42%	12%	6%	40%
Not/Least Ready	4,265	38%	9%	6%	46%
ACT Core					
Completed	23,974	72%	6%	3%	20%
Not Completed	14,236	60%	8%	4%	28%
No Information	3,024	63%	7%	4%	26%
HIGH SCHOOL CHARACTERISTICS					
ITAC Score					
High Quartile	13,709	76%	5%	2%	16%
Mid-high Quartile	10,161	71%	6%	3%	21%
Mid-low Quartile	8,854	63%	8%	4%	26%
Low Quartile	7,176	51%	10%	4%	35%
Missing Information	1,334	58%	7%	4%	32%
School Funding					
High Quartile $9,211+	13,062	73%	6%	3%	18%
Mid-high Quartile $6,561-$9,210	9,476	69%	6%	3%	22%
Mid-low Quartile $5,617-$6,560	9,085	68%	7%	3%	22%
Low Quartile <$5,617	8,169	55%	9%	4%	32%
Missing Information	1,442	60%	7%	3%	30%
Location					
Chicago	4,511	45%	11%	5%	39%
Northeast	23,401	72%	6%	3%	20%
Northwest	2,954	67%	6%	3%	25%
West Central	2,755	69%	5%	2%	23%
East Central	2,740	68%	6%	4%	22%
Southwest	2,955	64%	9%	4%	24%
Southeast	878	62%	8%	4%	26%
Missing Information	1,040	58%	8%	4%	31%

Gender

In terms of gender, more males are leaving the postsecondary educational pipeline.

There was an obvious gender gap in terms of bachelor's degree completion. Among four-year starters, female students were much more likely to earn bachelor's degrees than their male counterparts, 70% to 63% respectively. In terms of the pipeline measures for non-completers, the rates of both four-year and two-year enrollment for female and male students were almost identical. Unfortunately, this equates to the male students being much more likely to not be enrolled at the end of the study relative to female students (27% to 20%). In other words, compared with female students, male students had a much lower degree completion rate, the same rate of two-year and four-year enrollment at the end of the study, and therefore a much higher rate of non-enrollment at the end of the study. This is problematic since female students also had a higher rate of initial four-year enrollment, indicating more males are leaving the postsecondary educational pipeline.

Race

- *Asian and White students had the highest bachelor's degree completion rates at 73% and 72%.*
- *African-American and Hispanic students had the lowest at 42% and 53%, respectively.*

Among the four-year starters, there were large differences in terms of race as Asian and White students had the highest bachelor's degree completion rates at 73% and 72%, respectively, while African-American and Hispanic students had the lowest at 42% and 53%, respectively. African-American students also had the highest rate of non-enrollment without degree completion at the end of the study at 40%, along with the highest rates of four-year and two-year continued enrollment at the end of the study at 12% and 5%, in that order. Conversely, on top of the 73% bachelor's completion rate for Asian students, they had an additional 8% still enrolled at a four-year institution, and an additional 4% still enrolled at a two-year institution, indicating by the end of the study, 85% either completed a bachelor's degree or were currently on a pathway to degree completion. In contrast, only 60% of the African-American group had completed a bachelor's degree or were currently on a pathway to degree completion. Although the White group had the second highest bachelor's degree completion rate (72%), it had the lowest rates of four-year and two-year enrollment at the end of the study. The Hispanic group had a 53% completion rate, which was well below that of the Asian and White groups, but 11% higher than that of the African-American group. They also had the second highest four-year enrollment rate and the highest two-year enrollment rate, along with the African-American group, at the end of the study.

Disability Status

53% of the students with disabilities who initially enrolled at a four-year institution earned a bachelor's degree.

Over half of the students with disabilities who initially enrolled at a four-year institution earned a bachelor's degree (53%). This completion rate was 14 percentage points lower than the overall cohort. More than a third of disabled students (34%) were not enrolled at the end of the study and the two-year and four-year pipeline rates were only minimally higher than those of the overall cohort indicating only a small amount of the difference could potentially be eliminated in later semesters.

Parental Income

As one would expect, parental income appeared to have a positive relationship with bachelor's completion; as parental income increased, so did the rate. Among the four-year starters, students in the high income group had a bachelor's completion rate of 78% and only 15% were not enrolled at the end of the study. On the other

hand, students in the low income group had the lowest rate of bachelor's completion at 50%, but they also had the highest rate of both four-year and two-year enrollment at the end of the study, indicating a longer time to potential completion. However, the two relatively higher pipeline rates could not make up for the fact that 35% of the low income students were not enrolled at the end of the study.

College Readiness

College readiness also had a positive relationship with bachelor's completion; as the level of college readiness increased so did the rate of degree completion. Among students initially enrolling at a four-year institution, the most ready students had the highest rate of degree completion (82%) and only 12% were not enrolled at the end of the study. The not/least ready and minimally ready students seemed to cluster together and had the two lowest rates of bachelor's completion at 38% and 42%, respectively. They also had the highest rate of non-enrollment at the end of the study, 46% for not/least ready students and 40% for minimally ready students.

Among students initially enrolling at a four-year institution, the most ready students had the highest rate of degree completion (82%).

ITAC Score

As the ITAC score increased, the bachelor's completion rate increased, and the rates of two-year and four-year enrollment at the end of the study decreased, along with the non-enrollment rate. This means that students who attended a high school with teachers with stronger academic backgrounds generally do better in college.

School Funding

Although school funding had a similar relationship with bachelor's completion rates as college readiness and the ITAC score, the variance between the different categories was not as great relative to the last couple of variables, as the top three categories—high (73%), mid-high (69%), and mid-low (68%) quartiles—only had a spread of 5% in terms of degree completion, and the end of study two-year, four-year, and non-enrollment rates had even less variation. The largest difference was between that cluster of the top three groups (73%-68%) and the low quartile (55%) group.

Region

There were significant regional differences in terms of bachelor's degree completion. Students from the Northeast region had the highest rate of degree completion at 72%, students from five of the other regions—West Central (69%), East Central (68%), Northwest (67%), Southwest (64%), and Southeast (62%)—somewhat clustered together in the middle, while students from the Chicago region had a significantly lower degree completion rate at 45%. Students from the Chicago region also had the highest rate of four-year (11%) and two-year (5%) enrollment at the end of the study indicating they had a relatively higher proportion of students still in the pipeline, but then again students from the Chicago region also had the highest rate of non-enrollment at the end of the study (39%). So even if all of the students from the Chicago region still in the pipeline eventually completed, they would have a lower completion rate than that of the students from each of the other regions in the state.

There were significant regional differences in terms of bachelor's degree completions:

- *Northeast (72%)*
- *West Central (69%)*
- *East Central (68%)*
- *Northwest (67%)*
- *Southwest (64%)*
- *Southeast (62%)*
- *Chicago (45%)*

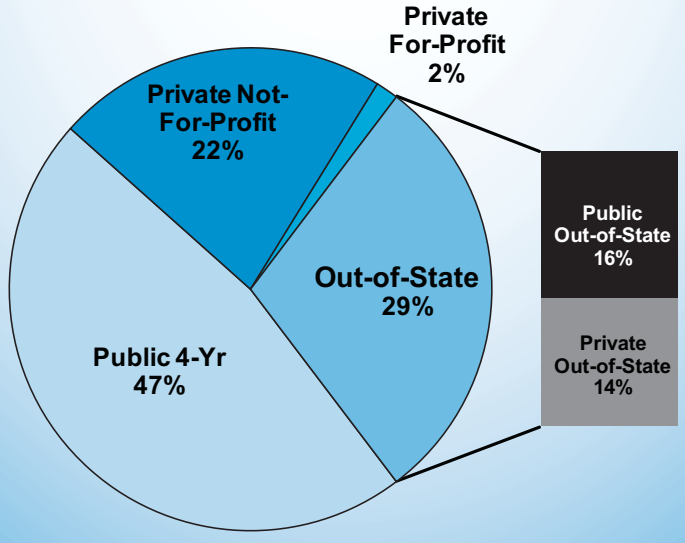
College Sector

In Illinois, as in many states, there are several factors that influence the sector in which a student decides to enroll. Enrolling within the state affords a student access to state subsidized community colleges and universities, as well as state financial aid programs. Coincidentally, in fiscal year 2002, the maximum Illinois MAP (need-based) grant completely covered the average tuition and fees at an Illinois public university (IBHE, 2010). Attending out-of-state public institutions means paying non-resident tuition rates, which in general are higher than in-state tuition, and not having access to the Illinois MAP grant. Given that our study is comprised of Illinois high school students, we thought it would be informative to see where students attend both inside and outside of Illinois as well as whether the institution is public or private.

We found that nearly all of the students who initially enrolled at a two-year institution did so at an Illinois community college, so we concentrated our analysis on students' four-year selection. In fact, of the nearly 29,000 students in our cohort who initially enrolled at a two-year institution during the fall semester of 2002, over 97% enrolled at an institution within the Illinois Community College System. Because our sector analysis focused on four-year institutions, the five sectors included were Illinois public, Illinois private not-for-profit, Illinois private for-private, out-of-state public, and out-of-state private.

As illustrated by Figure 2, nearly half (47%) of the students chose an Illinois public university. Twenty-nine percent left the state to enroll, with more than half enrolling at an out-of-state public university. Focusing on enrollment at private institutions regardless of location, 37% enrolled at a private institution, with a third of those enrolling out-of-state. As noted in a recent report by the Postsecondary Education Opportunity organization (Mortenson, 2010), Illinois is a net exporter of its high school graduates. In 2008, Illinois exported 10,970 more freshman than they imported ranking it 51st of the 52 states and territories. Our cohort also shows a high rate of out-of-state (29%) enrollment, which warrants further investigation regarding the degree completion and post-graduation employment patterns of these students. More specifically, to what extent does the initial loss of Illinois college students to out-of-state postsecondary institutions lead to the loss of human capital and does that negatively impact Illinois' workforce?

Figure 2. Initial Four-Year Enrollment by College Sector



N=41,234

At times, in both the tables and the figures, percentages might not add up to 100% due to rounding.

Table 5. Initial Four-Year Enrollment by College Sector

	Total 4-Year Initial Enrollment	Illinois Institutions			Out-of-State Institutions	
		Public 4-Year	Private Not-For-Profit	Private For-Profit	Public	Private
	N	19,347	9,163	627	6,482	5,615
Overall Cohort	41,234	47%	22%	2%	16%	14%
Student Characteristics						
Gender						
Female	22,817	47%	23%	1%	16%	14%
Male	18,218	47%	21%	3%	16%	14%
Race/Ethnicity						
African-American	4,029	49%	18%	2%	19%	12%
American Indian/Alaskan Native	68	50%	19%	1%	15%	15%
White (Non-Hispanic)	27,598	46%	22%	1%	17%	14%
Hispanic	2,158	50%	29%	5%	8%	8%
Asian/Pacific Islander	2,669	58%	22%	2%	9%	9%
Other/Multiracial	1,185	46%	28%	3%	11%	13%
Prefer Not to Respond	3,527	43%	23%	3%	15%	16%
Disabled	1,373	43%	21%	3%	16%	17%
Parental Income						
High $80k->$100k	10,179	41%	18%	0%	23%	17%
Mid-high $50k-<$80k	8,264	49%	23%	1%	14%	13%
Mid-low $30k-<$50k	6,675	49%	25%	2%	12%	12%
Low <$30k	4,806	52%	26%	3%	10%	9%
No Information	11,310	47%	22%	2%	15%	14%
Student Academic Preparation						
College Readiness Index						
Most Ready	16,591	42%	22%	0%	17%	18%
More Ready	10,815	49%	21%	1%	17%	11%
Somewhat Ready	7,011	54%	21%	2%	13%	9%
Minimally Ready	2,552	50%	24%	4%	12%	10%
Not/Least Ready	4,265	45%	26%	6%	12%	11%
ACT Core						
Completed	23,974	47%	22%	1%	17%	14%
Not Completed	14,236	48%	23%	3%	14%	12%
No Information	3,024	46%	22%	2%	16%	14%
High School Characteristics						
ITAC Score						
High Quartile	13,709	41%	20%	1%	20%	17%
Mid-high Quartile	10,161	48%	24%	1%	15%	12%
Mid-low Quartile	8,854	51%	24%	2%	13%	11%
Low Quartile	7,176	53%	21%	3%	12%	11%
Missing Information	1,334	40%	26%	2%	15%	17%
School Funding						
High Quartile $9,211+	13,062	42%	21%	1%	20%	16%
Mid-high Quartile $6,561-$9,210	9,476	47%	24%	1%	15%	13%
Mid-low Quartile $5,617-$6,560	9,085	50%	22%	1%	14%	13%
Low Quartile <$5,617	8,169	52%	23%	3%	12%	11%
Missing Information	1,442	43%	26%	2%	14%	16%
Location						
Chicago	4,511	53%	23%	5%	11%	9%
Northeast	23,401	43%	22%	1%	19%	15%
Northwest	2,954	46%	25%	1%	13%	16%
West Central	2,755	52%	28%	0%	10%	10%
East Central	2,740	60%	24%	1%	6%	9%
Southwest	2,955	55%	15%	0%	15%	14%
Southeast	878	49%	11%	0%	21%	18%
Missing Information	1,040	38%	29%	2%	16%	15%

College Sector (continued)

For students initially enrolling at a four-year institution (four-year starters), differences regarding the sector of the institution in which they enrolled were evident across the race groups. In terms of enrolling in-state versus out-of-state, African-American and White students left the state at the highest rates (both groups at 31%), while Hispanic and Asian students had the lowest out-of-state enrollment rates (16% and 18% respectively). As shown in Table 5, a disproportionately high number of Asian students enroll at an Illinois public university (58%); this corresponds to their low out-of-state enrollment rate. Regarding public versus private, more than a third (34%) of Hispanic students enrolled at an in-state private institution, both not-for-profit and for-profit, and this was by far the highest rate of any of the race groups. Furthermore, among African-American and White students who initially enrolled at an institution outside of Illinois, a slightly higher proportion enrolled at a public institution.

Parental income also appeared to be related to college sector; we found the lower the student's level of parental income, the greater the likelihood of enrolling at an in-state institution within any of the three sectors (public, private for-profit, and private not-for-profit). This could be related to the MAP grant, which is need-based aid in Illinois, as it can only be used at a postsecondary institution within Illinois. Conversely, the higher the student's level of parental income, the greater the likelihood of enrolling outside of Illinois at both public and private institutions.

In terms of college readiness and sector, the higher the level of college readiness, the greater the likelihood of enrolling outside of Illinois at both public and private institutions. Also, in most cases, the lower the level of college readiness, the greater the likelihood of enrolling within Illinois at a private institution, particularly at a for-profit college. Middle-of-the-road students (those within the somewhat, minimally, and more college readiness categories) were more likely to enroll at an Illinois public institution than their not/least ready and most ready counterparts.

Regional differences were also evident, as geographic proximity/access to certain institutions seemed to be related to the enrollment patterns. Students from the East Central region enrolled at an Illinois public university at the highest rate (60%), perhaps due to their close proximity to such institutions within the region. Illinois' land-grant institution, the University of Illinois at Urbana-Champaign, and two other state universities, Eastern Illinois University and Illinois State University, are located within the East Central region. Conversely, students from the Southeast region had the highest out-of-state enrollment rate (39%), including the highest enrollment rate at an out-of-state public university (21%). This may be due to the lack of private institutions and the fact that there is only one public institution within the region, Southern Illinois University Carbondale, and it is somewhat geographically isolated from students in the region due to its location. Also, students from the West Central region enrolled at an in-state private not-for-profit institution at the highest rate (28%); perhaps due their proximity to Bradley University.

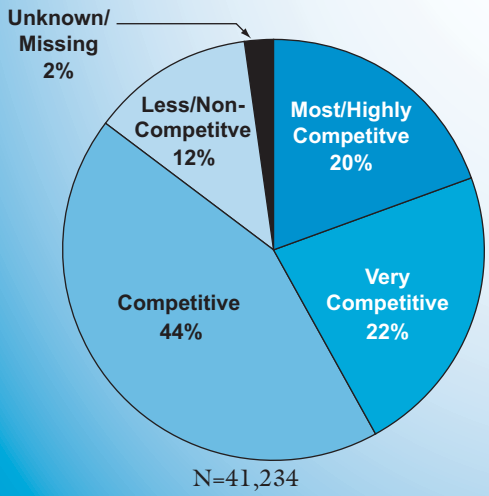
College Selectivity

Another dimension of college choice is the selectivity of the institution in which the student enrolls. The four-year institutions are rated by the Barron's index as non-competitive or open enrollment, to most/highly competitive institutions. Barron's criteria for rating an institution is based on the ACT and high school GPA criteria for admitting students and those categories are closely related to the IERC college readiness index. In the current study, as was done in some of our previous research, we collapsed the Barron's selectivity ratings from six to four categories to more closely reflect the college readiness index (Gong & Presley, 2006). As with the college sector analysis, we have chosen to only analyze students who initially enrolled at a four-year institution, as all community colleges within Illinois have open enrollment.

Overall

As illustrated on Figure 3, exactly one-fifth (20%) of students who initially enrolled at a four-year institution did so at a most/highly competitive institution and a slightly higher proportion, 22%, enrolled at an institution in the very competitive category. The highest proportion of students (44%) enrolled at a competitive institution and this proportion was higher than the previous two categories combined. Finally, 12% enrolled at a less/non competitive institution.

Figure 3. Overall College Selectivity

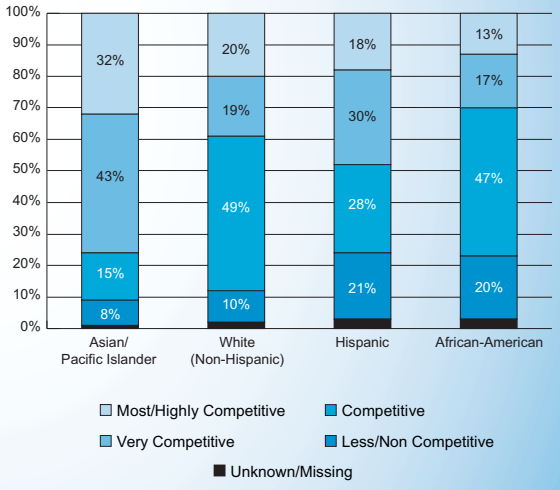


N=41,234

Once again, gender differences were evident, but in this case the difference favored male students. In terms of enrollment at the most/highly competitive institutions, male students (22%) had a three percentage point advantage relative to female students (19%), while female students had higher rates of enrollment at both very competitive and competitive institutions. This would indicate that though a smaller proportion of males may enroll at a four-year institution, a higher proportion of those enrolling do so at the most selective institutions.

In terms of race (see Figure 4), Asian students are significantly more likely to enroll at a more selective institution than any other group. Seventy-five percent of Asian students enrolled at an institution categorized as most/highly competitive or very competitive. This was nearly double the rate of White students (39%) and more than double the rate of African-American students (30%).

Figure 4. Race and College Selectivity

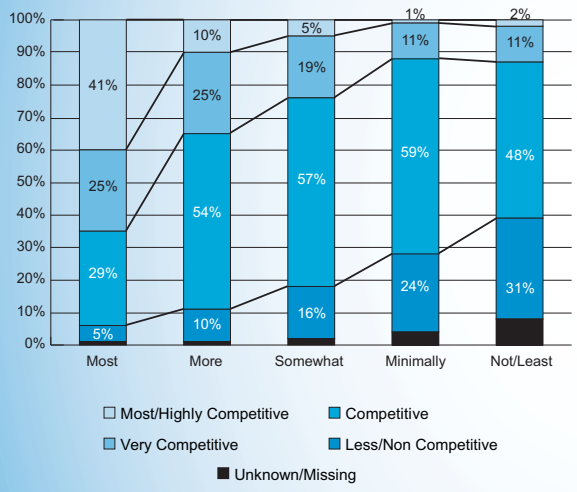


The higher the parental income, the greater the likelihood of enrolling at a most/highly competitive institution and the lower the likelihood of enrolling at a least competitive institution. In general, the higher the selectivity, the higher the expense; so this pattern would make sense as that the ability of a family to pay would be related to the selectivity choice.

(continued on page 24)

Since selectivity is a measure of both a student's choice and ability to attend an institution, and college readiness could be considered a measure of a student's likelihood to gain acceptance at a more selective institution, it would make sense that college readiness and selectivity would be related in some manner. The patterns in this relationship are more discernible at the ends of the selectivity scale (Figure 5), as the most ready students are much more likely to enroll at the most selective institutions (41%) and the least ready students are much more likely to enroll at the less competitive institutions (31%). However, the pattern was not quite as linear with regards to competitive institutions as the minimally ready and somewhat ready students were most likely to enroll at a competitive institution.

Figure 5. Readiness and College Selectivity



In terms of region, proximity to institutions falling within the various selectivity categories appeared to be related to the respective enrollment rates. Students from the Northeast and Chicago regions had the highest rates of enrollment at the most/highly or very competitive schools, at 58% and 44% respectively. Students from those regions have a closer proximity to institutions meeting that distinction such as University of Chicago, Northwestern, Loyola, and DePaul. Focusing on the most competitive institutions, students from the East Central regions had the highest enrollment rate, perhaps due to their proximity to the largest in-state institution with that distinction, the University of Illinois at Urbana-Champaign. A majority of the students from the Northwest, West Central, East Central, and Southeast regions were enrolled at competitive institutions, perhaps because of proximity to a large state institution in the competitive category within those regions, for example, Northern Illinois University in the Northwest Region. Students from the Southwest and Chicago regions had the highest rates of enrollment at the less competitive institutions. In a future research report, we plan to explore the interaction of college readiness, socioeconomic status, and region in an effort to determine how those variables impact student mobility in terms of initial college choice. For example, are the moderately ready students more likely to enroll at an institution closer to home, than their more ready counterparts and does parental income trump college readiness in terms of the distance one travels to initially enroll?

Table 6. Initial Four-Year Enrollment by College Selectivity

	Total 4-Year Initial Enrollment	Most/Highly Competitive	Very Competitive	Competitive	Less/Non Competitive	Unknown/ Missing
	N	8,310	8,921	18,183	4,884	936
Overall Cohort	41,234	20%	22%	44%	12%	2%
Student Characteristics						
Gender						
Female	22,817	19%	23%	45%	11%	2%
Male	18,218	22%	20%	43%	12%	2%
Race/Ethnicity						
African-American	4,029	13%	17%	47%	20%	3%
American Indian/Alaskan Native	68	18%	13%	41%	24%	4%
White (Non-Hispanic)	27,598	20%	19%	49%	10%	2%
Hispanic	2,158	18%	30%	28%	21%	3%
Asian/Pacific Islander	2,669	32%	43%	15%	8%	1%
Other/Multiracial	1,185	19%	29%	35%	15%	2%
Prefer Not to Respond	3,527	20%	21%	39%	16%	3%
Disabled	1,373	12%	19%	47%	17%	6%
Parental Income						
High $80k->$100k	10,179	29%	22%	41%	6%	1%
Mid-high $50k<-$80k	8,264	20%	21%	47%	10%	2%
Mid-low $30k-<$50k	6,675	15%	22%	46%	14%	3%
Low <$30k	4,806	12%	23%	43%	20%	3%
No Information	11,310	19%	21%	44%	13%	3%
Student Academic Preparation						
College Readiness Index						
Most Ready	16,591	41%	25%	29%	5%	1%
More Ready	10,815	10%	25%	54%	10%	1%
Somewhat Ready	7,011	5%	19%	57%	16%	2%
Minimally Ready	2,552	1%	11%	59%	24%	4%
Not/Least Ready	4,265	2%	11%	48%	31%	8%
ACT Core						
Completed	23,974	24%	23%	43%	9%	2%
Not Completed	14,236	14%	20%	45%	17%	3%
No Information	3,024	19%	21%	44%	13%	3%
High School Characteristics						
ITAC Score						
High Quartile	13,709	28%	26%	39%	6%	2%
Mid-high Quartile	10,161	20%	21%	50%	7%	2%
Mid-low Quartile	8,854	15%	19%	48%	15%	3%
Low Quartile	7,176	12%	18%	42%	24%	3%
Missing Information	1,334	19%	22%	42%	15%	3%
School Funding						
High Quartile $9,211+	13,062	27%	26%	38%	8%	2%
Mid-high Quartile $6,561-$9,210	9,476	17%	19%	51%	10%	2%
Mid-low Quartile $5,617-$6,560	9,085	19%	16%	50%	11%	3%
Low Quartile <$5,617	8,169	15%	23%	39%	21%	2%
Missing Information	1,442	19%	21%	43%	14%	3%
Location						
Chicago	4,511	14%	30%	29%	25%	2%
Northeast	23,401	23%	25%	43%	7%	2%
Northwest	2,954	15%	19%	58%	6%	2%
West Central	2,755	18%	14%	53%	11%	4%
East Central	2,740	25%	9%	57%	6%	4%
Southwest	2,955	12%	9%	40%	36%	4%
Southeast	878	16%	8%	56%	15%	5%
Missing Information	1,040	14%	24%	44%	15%	3%

Predicting Enrollment and Completion using Logistic Regression

Two separate logistic regression models were developed, the first to predict the likelihood of initially enrolling at a four-year institution and the second, the likelihood of bachelor's completion among those who initially enrolled at a four-year institution. The models are presented together to demonstrate the predictive importance of each variable across the two different outcomes. The models included all the high school and student characteristics previously mentioned in the framework. We decided to include each of the variables to see if the patterns established in the descriptive results held true. An advantage of using logistic regression is that it provides the importance of each characteristic we used to predict the outcomes holding all of the other characteristics at a fixed value (see Figure 6 for an example).

Table 7. Logistic Regression Results for Students Initially Enrolling at a Four-Year Institution

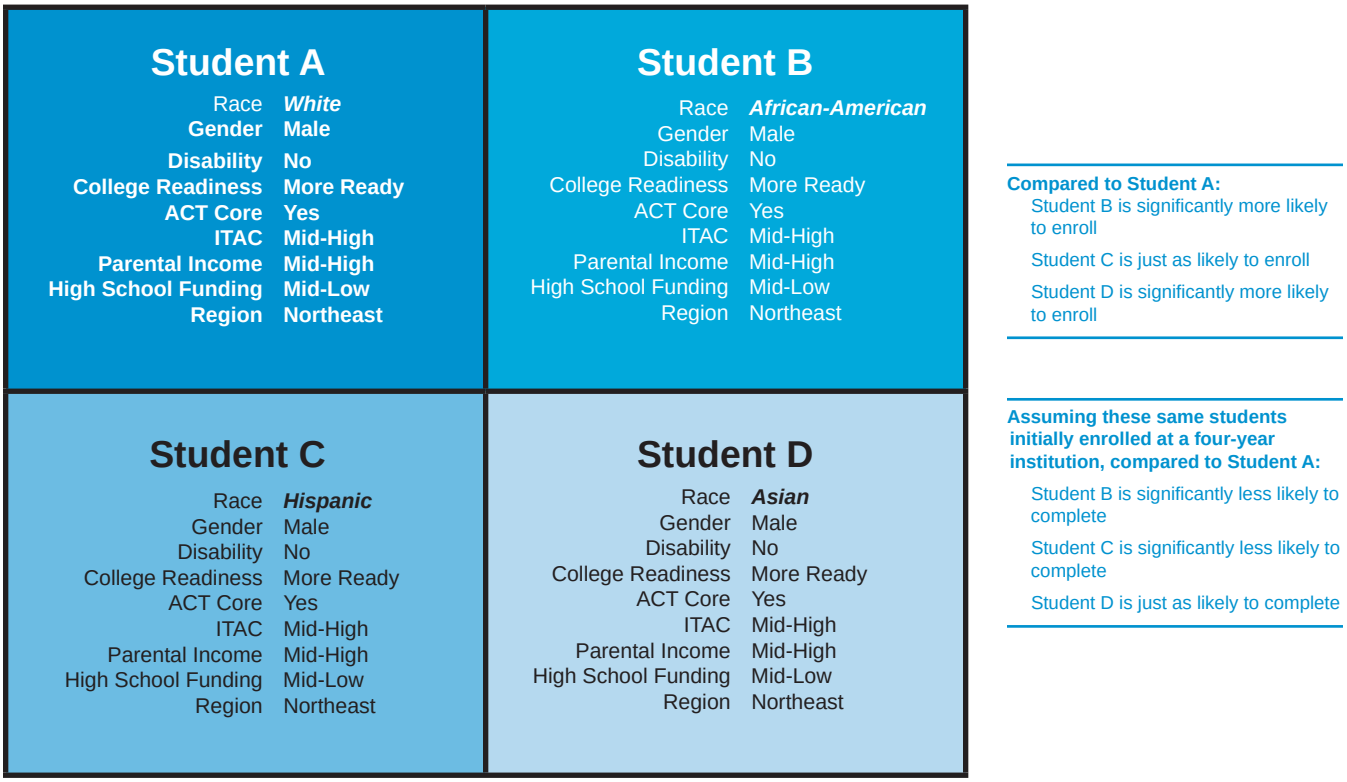
	Enrollment in 4-Year Institutions			Bachelor's Completion*		
	Wald	Sig.	Odds Ratio**	Wald	Sig.	Odds Ratio**
Student Characteristics						
Gender (Female Students)	76.728	.000	1.185	197.938	.000	1.506
Race (White Students)	554.333	.000		76.768	.000	
African-American to White	427.113	.000	2.173	66.060	.000	.641
Hispanic to White	4.115	.042	.921	26.250	.000	.721
Asian to White	80.653	.000	1.483	.138	.710	.979
Disability	55.665	.000	.728	18.633	.000	.737
Parental Income (Low)	821.666	.000		181.701	.000	
High to Low	682.597	.000	2.277	140.575	.000	1.757
Mid-High to Low	268.093	.000	1.628	67.669	.000	1.466
Mid-Low to Low	39.829	.000	1.198	8.029	.005	1.139
Academic Prepartation						
College Readiness (Not/Least Ready)	8679.132	.000		1410.074	.000	
Most to Not/Least	7238.179	.000	24.583	709.120	.000	5.852
More to Not/Least	4479.451	.000	11.300	258.619	.000	2.864
Somewhat to Not/Least	2141.157	.000	5.289	92.528	.000	1.909
Minimally to Not/Least	739.024	.000	2.908	7.540	.006	1.228
ACT Core (Did not complete Core)	567.496	.000	.621	17.449	.000	.880
School Characteristics						
ITAC (Low)	112.303	.000		100.649	.000	
High to Low	97.998	.000	1.434	67.619	.000	1.580
Mid-High to Low	18.532	.000	1.159	16.897	.000	1.241
Mid-Low to Low	14.342	.000	1.125	.119	.731	1.016
High School Funding (Low)	103.975	.000		9.441	.024	
High to Low	62.043	.000	1.359	.133	.716	1.022
Mid-High to Low	1.539	.215	1.045	1.978	.160	.925
Mid-Low to Low	.747	.387	1.031	3.494	.062	.903
High School Region	573.517	.000		15.216	.019	
Chicago to Southeast	456.475	.000	4.439	7.874	.005	1.378
Northeast to Southeast	161.717	.000	2.099	11.446	.001	1.395
Northwest to Southeast	42.447	.000	1.514	6.675	.010	1.320
West Central to Southeast	94.867	.000	1.858	10.367	.001	1.411
East Central to Southeast	71.394	.000	1.718	3.945	.047	1.238
Southwest to Southeast	164.094	.000	2.211	7.848	.005	1.337
Constant	2472.655	.000	.028	93.996	.000	.299

p≤.001

* For students initially enrolling at a four-year institution only

** Odds ratio: <1=less likely, 1=no difference, >1=more likely

Figure 6. Logistical Regression Practical Comparison



Predicting Initial Four-Year Enrollment

The model accurately predicted group membership related to initial enrollment at a four-year institution for over three-quarters (75.5%) of the cases (see Table A in the Appendix for the classification table). Almost all of the variables were statistically significant at the $p \leq .001$ level with the exception of school funding, as would be expected with the large number of students included in the analysis. Only one of the dummy variable comparisons in the school funding variable was statistically significant in predicting enrollment and that was the comparison of students in the high funding category to the students in the low funding category.

Table 7 shows a gender difference favoring female students as they were significantly more likely to have initially enrolled at a four-year institution compared with their male counterparts. In terms of race, African-American and Asian students, compared with White students, were significantly more likely to enroll at a four-year institution. The difference between African-American and White students deviated from the descriptive results where White students had a seven percentage point advantage over their African-American counterparts in terms of initial enrollment at a four-year institution (41% to 34%—see Table 3). The difference between the descriptive and predictive results was due to the logistic regression model controlling for differences between the race groups, as the model holds characteristics such as parental income, region, and college readiness at a fixed value (see Figure 6). In others words, when White students and African-American students come from similar economic circumstances and have similar academic preparation, the model

predicts greater initial four-year enrollment for African-American students; however, disparities continue to exist as a lower proportion of African-American students are in the upper income categories relative to White students (14% to 43%) and a lower proportion are most/more ready for college (10% to 48%).

Of all of the variables, college readiness had the greatest predictive weight, as the odds of the most prepared students initially enrolling were nearly 25 times greater than the odds of the students falling within the not/least prepared category. The importance of college readiness was evident even towards the bottom of the index, as minimally ready students were almost three times more likely to enroll relative to students in the not/least ready category. In terms of region, using students from the Southeast region as the group of reference, students from all other regions were more likely to initially enroll at a four-year institution.

Of all of the variables, college readiness had the greatest predictive weight, as the odds of the most prepared students initially enrolling were nearly 25 times greater than the odds of the students falling within the not/least prepared category.

Predicting Bachelor's Completion among 2002 Four-Year College Starters

The logistic regression model used to measure bachelor's completion was slightly less accurate in predicting group membership in terms of completion than the enrollment model. The completion model was able to accurately predict group membership for 72.9% of the cases (see Table B in the Appendix for classification table).

Gender became more important in moving from initial enrollment to completion, as the odds ratio increased from 1.19 to 1.51. On the other hand, race became less important (but still statistically significant) in moving from initial enrollment to completion; and the patterns in the dummy variable comparison were different (see Table 7). African-American and Hispanic students were significantly less likely to complete than White students and there was no statistically significant difference between Asian students and White students. In the previous enrollment model, Asian and African-American students were more likely to enroll relative to White students and there was no statistically significant difference between Hispanic and White students. The analysis of the effects of race on enrollment and ultimately completion suggests that although access to four-year institutions is no longer an issue, disparities in achievement, as measured by bachelor's attainment, remain. Parental income was similar to race in that it was much less important but still statistically significant in moving from enrollment to completion. Students in the high and mid-high parental income categories were significantly more likely to complete compared with students in the low parental income category.

The odds of the most ready students completing a bachelor's degree were nearly six times greater than the odds of the not/least ready students.

College readiness remained the most important predictor, even though it was less predictive of completion than enrollment. The odds of the most ready students completing a bachelor's degree were nearly six times greater than the odds of the not/least ready students. However in comparing the minimally ready to not/least ready students, there was no significant difference in terms of likelihood of completion.

Of all of the variables, the ITAC score maintained more of its predictive value in moving from enrollment to completion, particularly at the upper end of the ITAC index. However, the comparison of students from schools in the mid-low category to those from schools in the low category was not statistically significant in terms of

(continued on page 30)

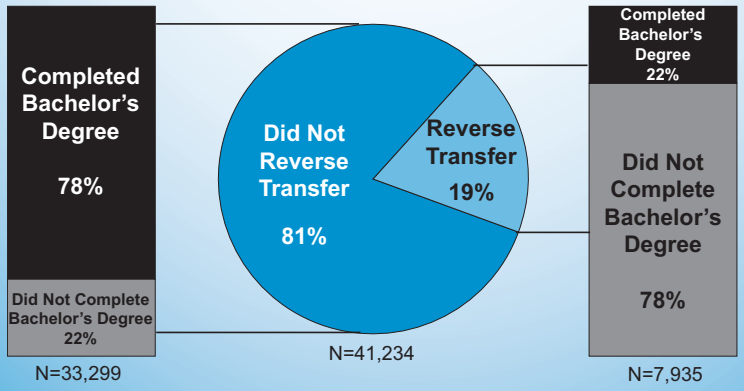
Reverse Transfer

Moving from a four-year institution to another four-year institution has been described in recent research as a lateral transfer, while moving from a four-year institution to a two-year institution, particularly a community college, is described as a reverse transfer. Goldrick-Rab and Pfeffer (2009) have found that students who reverse transfer tend to be less academically prepared for college and come from families with low levels of parental income and parental education. In this study there were 7,935 students who had initially enrolled at a four-year institution during the fall of 2002 and at a later point enrolled at a two-year institution for one or more semesters during the fall or spring semesters (non-concurrently); summer enrollment at a two-year institution was not considered. These students were identified as reverse transfers and they made up 19% of the students initially enrolling at a four-year institution (Figure 7).

In examining reverse transfer as an outcome in and of itself, there were no obvious gender differences. However, there were some differences based on race as African-American students had a reverse transfer rate of 29%, Hispanic students closely followed at 24%, while Asian and White students only had a rate of 17%. Similarly to Goldrick-Rab and Pfeffer (2009) we found that parental income and college readiness had a negative relationship with the likelihood of reverse transfer, so as income and readiness increased, the likelihood of reverse transferring decreased. Regional differences were also evident, as students from the Chicago and Southeast regions had the highest reverse transfer rates at 26% and 24% respectively, while students from all other regions were clustered within two percentage points of 19%. It should be noted that students from the Northeast region had the lowest reverse transfer rate at 17%.

Less than one-quarter of reverse transfer students went on to complete a bachelor's degree (Figure 7); this rate is much lower than that of the students initially enrolling at a four-year institution who did not reverse transfer (78%). However, it should be noted that this measure includes all reverse transfer students and not just those who transfer back to a four-year institution. If we limited the measure to only the reverse transfer students who transferred back to a four-year institution, the bachelor's completion rate would be much higher and this will be addressed in the follow-up study. In terms of two-year outcomes for reverse transfers, 17% had earned an associate's degree, and 5% earned a certificate before the end of the six-year study period. When looking at the highest degree earned (making the outcomes mutually exclusive) 22% had earned a bachelor's degree, 11% (down from 17%) had earned an associate's degree, and 3% (down from 5%) had earned a certificate indicating there was some overlap in terms of degrees and certificates completed.

Figure 7. Reverse Transfer and Bachelor's Degree Completion



predicting completion. Although students from all other regions were significantly more likely to initially enroll at a four-year institution relative to students from the Southeast region, only students from the Northeast and West Central were significantly more likely to complete.

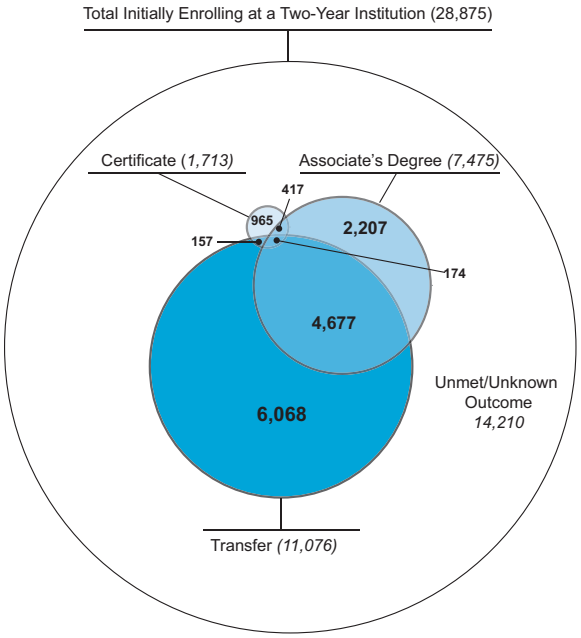
Outcomes for 2002 Two-Year College Starters

Thirty-eight percent of the two-year starters eventually transferred to a four-year institution, a little more than a quarter (26%) had earned an associate's degree, and only 6% had earned a certificate.

The two-year pipeline is somewhat different from the four-year pipeline as multiple intended outcomes are possible for two-year starters and the outcomes are not mutually exclusive. There were three intended outcomes for two-year starters: 1) earning a certificate; 2) earning an associate's degree; 3) transferring to a four-year institution; along with having an unknown or unmet outcome. The first three outcomes are presented in a non-mutually exclusive manner on Table 8. Fifty-one percent of all students had transferred to a four-year institution, earned an associate's degree, or earned a certificate by the end of the six-year period. Thirty-eight percent of the two-year starters eventually transferred to a four-year institution, a little more than a quarter (26%) had earned an associate's degree, and only 6% had earned a certificate.

Figure 8 illustrates the overlap of the three intended outcomes for the two-year starters using a Venn diagram and a corresponding table. It is possible to calculate many percentages using numbers gleaned from Figure 8. We found that nearly two-thirds of associate's degree earners eventually transfer to a four-year institution (65% or 4,677+174/7,475). We can also see that 44% of those transferring from a two-year to a four-year institution had earned an associate's degree (4,677+174/11,076) and more than half (56%) of those earning a certificate do not go on to earn an associate's degree nor do they transfer (965/1713). We can also see by the overlap

Figure 8. Outcomes for Two-Year Starters[1]



	n	Percent of Initial 2-yr
Total Transfer	11,076	38%
Transfer Only	6,068	21%
Transfer and Associate's Only	4,677	16%
Transfer and Certificate Only	157	1%
Transfer and Associate's and Certificate	174	1%
Total Associate's	7,475	26%
Associate's Only	2,207	8%
Associate's and Certificate Only	417	1%
Transfer and Associate's Only	4,677	16%
Transfer and Associate's and Certificate	174	1%
Total Certificate	1,713	6%
Certificate Only	965	3%
Transfer and Certificate Only	157	1%
Transfer and Associate's and Certificate	174	1%
Associate's and Certificate Only	417	1%
Total Unmet/Unknown Outcome	14,210	49%
Total At Least One Outcome	14,665	51%

[1] See the appendix for a larger view of Figure 8.

of all three circles that only a limited number (less than one percent) of two-year starters eventually attain all three outcomes (174/28,875). It should be noted that these outcomes are for the two-year starters only and therefore we did not include the outcomes for students who delay their enrollment at a two-year institution.

Gender

As shown in Table 8, there was a five point gender difference as 53% of the female students initially enrolling at a two-year institution successfully attained at least one outcome as defined above, while 48% of their male counterparts attained at least one such outcome. Interestingly, most of the aforementioned gender difference could be attributed to the six percentage point difference in the rate of associate's degree completion in favor of the female students and the almost correspondingly high difference (five percentage points) in favor of the male students in terms of having an unknown/unmet outcome.

Female students were more likely than males to achieve at least one of the two-year outcomes.

Race

In terms of overall outcome attainment, there were large differences among the race groups, as the Asian and White students had the highest rates at 59% and 56% respectively, while the African-American and Hispanic students had the lowest rates at 36% and 41% respectively. Conversely, the African-American and Hispanic students had the highest proportion with an unknown/unmet outcome at 64% and 59% respectively. There were only minimal differences between the groups in terms of certificate completion rates. However, differences were evident in terms of associate's degree completion rates as White students had the highest rate at 31% and African-American students had the lowest rate at 12%. Asian students had the highest transfer rate at 50%, followed by White students at 42%, and then Hispanic and African-American students at 30% and 28%, respectively.

Parental Income

As with most of the other outcomes, parental income had a positive relationship with the likelihood of attaining one or more of the outcomes. Surprisingly, only a small overall difference (three percentage points) existed between students in the high income category and students in the mid-high income category. There were only minimal differences between all of the income categories in terms of certificate completion, but the relationship was negative, so as parental income decreased the rate of certificate completion slightly increased. The relationship between associate's degree completion and parental income was not as linear and the students within the mid-high category had the highest rate at 31%, followed by the students in the mid-low (27%) and high (26%) income categories. The relationship between parental income and the likelihood of transfering to a four-year institution was positive, but once again the difference between students in the high and mid-high income categories was rather small (four percentage points). The relationship between parental income and the proportion having unknown/unmet outcomes was negative, so as parental income increased, the proportion decreased.

Table 8. Outcomes for 2002 Two-Year College Starters

	Total Initial 2-Year	2-Year Outcome Obtained[1]	Outcome(s) Met[2]			Outcome Unknown/ Unmet
			Certificate	Associates	Transfer to 4-Year	
	N	14,665	1,712	7,472	11,076	14,210
Overall Cohort	28,875	51%	6%	26%	38%	49%
STUDENT CHARACTERISTICS						
Gender						
Female	15,226	53%	7%	29%	39%	47%
Male	13,524	48%	5%	23%	38%	52%
Race/Ethnicity						
African-American	2,253	36%	5%	12%	28%	64%
American Indian/Alaskan Native	129	40%	7%	19%	27%	60%
White (Non-Hispanic)	18,654	56%	6%	31%	42%	44%
Hispanic	1,944	41%	6%	19%	30%	59%
Asian/Pacific Islander	972	59%	5%	18%	50%	41%
Other/Multiracial	1,048	46%	4%	21%	35%	54%
Prefer Not to Respond	3,875	41%	6%	17%	32%	59%
Disabled	2,072	37%	6%	16%	26%	63%
Parental Income						
High $80k->$100k	3,077	60%	4%	26%	50%	40%
Mid-high $50k-<$80k	5,364	57%	6%	31%	46%	43%
Mid-low $30k-<$50k	6,533	51%	6%	27%	37%	49%
Low $<30k	5,427	42%	7%	21%	29%	58%
No Information	8,474	49%	6%	25%	37%	51%
STUDENT ACADEMIC PREPARATION						
College Readiness Index						
Most Ready	2,298	80%	4%	45%	68%	20%
More Ready	4,724	69%	5%	40%	55%	31%
Somewhat Ready	6,271	58%	6%	31%	43%	42%
Minimally Ready	4,426	46%	6%	22%	33%	54%
Not/Least Ready	11,156	35%	6%	15%	25%	65%
ACT Core						
Completed	10,072	61%	5%	31%	49%	39%
Not Completed	16,566	45%	7%	23%	32%	55%
No Information	2,237	48%	6%	25%	36%	52%
HIGH SCHOOL CHARACTERISTICS						
ITAC Score						
High Quartile	6,134	54%	4%	24%	44%	46%
Mid-high Quartile	7,835	52%	5%	25%	41%	48%
Mid-low Quartile	7,484	51%	7%	29%	37%	49%
Low Quartile	6,464	45%	8%	25%	31%	55%
Missing Information	958	52%	5%	23%	42%	48%
School Funding						
High Quartile $9,211+	6,114	51%	4%	21%	42%	49%
Mid-high Quartile $6,561-$9,210	7,998	53%	6%	28%	40%	47%
Mid-low Quartile $5,617-$6,560	8,135	52%	6%	29%	38%	48%
Low Quartile <$5,617	5,475	45%	7%	23%	32%	55%
Missing Information	1,153	55%	5%	27%	43%	45%
Location						
Chicago	2,096	35%	6%	14%	24%	65%
Northeast	12,726	50%	5%	20%	41%	50%
Northwest	3,384	52%	6%	32%	37%	48%
West Central	2,537	51%	4%	30%	36%	49%
East Central	2,593	52%	4%	32%	37%	48%
Southwest	2,649	55%	11%	34%	37%	45%
Southeast	2,111	61%	11%	41%	43%	39%
Missing Information	779	56%	4%	26%	46%	44%

Notes: 1. Outcome is earning a certificate or associate's or transfer to a 4-year institution.
2. Students can achieve more than one outcome, percentage can add up to more than total for 2-yr outcome obtained.

College Readiness

College readiness had a positive relationship with the likelihood of attaining one or more of the outcomes. Starting with the not/least ready category at 35%, the differences were between 11 and 12 percentage points for each successive college readiness group in terms of the overall outcome attainment rates and in the end, 80% of the students in the most ready category had attained at least one outcome. There were only minimal differences between all of the college readiness groups in terms of certificate completion. The relationship between college readiness and associate's degree completion was linear and positive, as was the relationship between college readiness and two-year to four-year transfer. However, there was a greater spread in terms of the two-year to four-year transfer rates from high to low compared to the associate's completion rates.

Region

Students from the Chicago region had the lowest overall outcome attainment rate at 35% and students from several regions clustered between 50% and 55%. Students from the Southeast region had the highest outcome attainment rate at 61%. As a variable, region was unique in that there was a greater differentiation in the rate of certificate completion, as students from the Southwest and Southeast regions completed certificates at the rate of 11%, which was almost twice the rate of the next highest regions, or Chicago and Northwest at 6%. Students from the Southeast region also had the highest rate of associate's degree completion at 41%, while several regions clustered within two percentage points of 32%, and students from the Chicago and the Northeast regions had the lowest rates at 14% and 20% respectively. Students from the Southeast region also had the highest rate of two-year to four-year transfer at 43%, closely followed by those from the Northeast region at 41%. Students from the Chicago region had the lowest transfer rate at 24% and the remaining students from the other four regions clustered around 36–37%.

Two-Year to Four-Year or "Forward" Transfer

Given that the State of Illinois has a strong community college system with a stated goal of preparing students for transfer and an Illinois Articulation Initiative (IAI) that helps students more easily transition from a two-year to a four-year institution, it is assumed that forward transferring is a viable option for students wishing to complete a bachelor's degree. As mentioned in the methods section, we assumed the intended outcome of enrolling at a four-year institution is bachelor's completion and therefore have assumed bachelor's completion as the intended outcome for those forward transferring from a two-year to a four-year institution.

More than eleven thousand students in our study forward transferred and at the end of the study 54% had completed a bachelor's degree through this pathway (Figure 9). Compared to the bachelor's completion rate of four-year starters, 67%, the rate for forward transfers is lower. It is important to note that the bachelor's completion rate (54%) is only for those transferring and therefore excludes students who may have intended to transfer but never did.

At the end of the six-year study we also determined whether a given student was still enrolled at college. Twenty-two percent of the students who took this pathway were still enrolled at a four-year institution. This means a large number of students are still in the educational pipeline and could potentially complete after the study period ended. This proportion is much larger than that of four-year starters, as only 7% of the students who started on that pathway were still enrolled at a four-year institution at the end of the study.

As in all pathways in this study, students who were most college ready completed at the highest rates (see Table 9). Seventy-one percent of the most ready students completed a bachelor's degree through this pathway, while only 40% of the not/least ready students completed. It is also interesting that White students were most successful using this pathway, as nearly three out of every five (59%) completed before the end of the study.

Figure 9 illustrates the bachelor's completion rates among forward transfers by two-year outcome type and includes the entire group of two-year starters who transferred as previously shown on Figure 8. We found rather large differences in bachelor's completion rates based on the two-year outcome type, as transferring and obtaining an associate's degree (only) appeared to be related to much higher bachelor's completion rates. Those who transferred and earned an associate's degree (group B) had the highest bachelor's completion rate at 64%. Furthermore, this rate was not all that much lower than the overall bachelor's completion rate for the four-year starters (67%); however, we did not consider time to degree completion in this measure and expect that cumulative rates of completion at the end of four years and five years would be lower for the transfer group. We will explore this in the follow-up study.

Figure 9. Bachelor's Completion Rate among the Two-Year to Four-Year Transfers by Two-Year Outcome Type

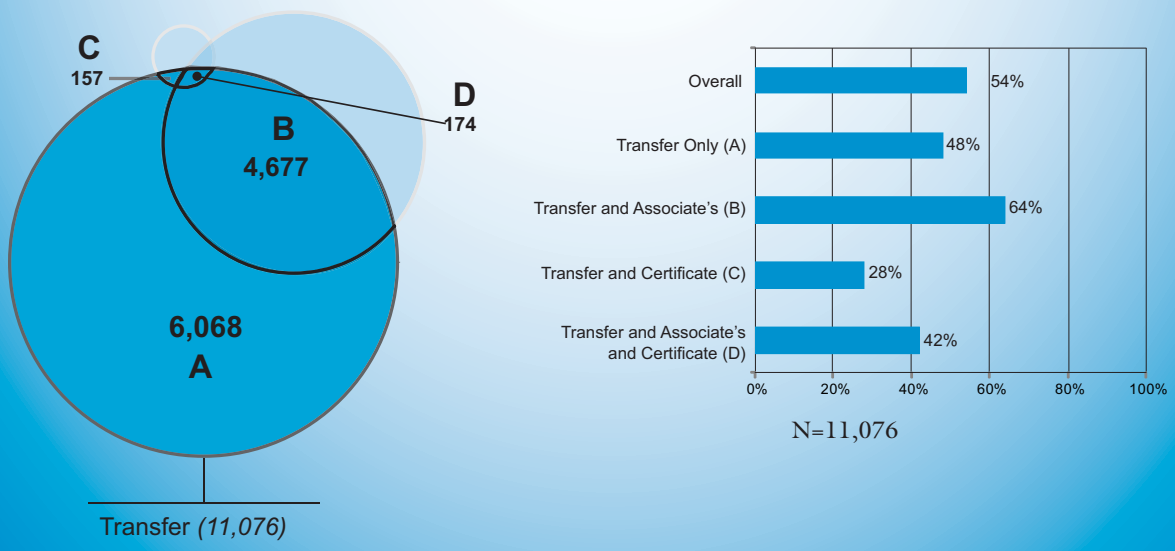
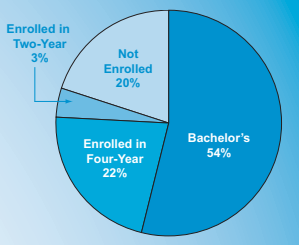


Table 9. Two-Year to Four-Year Transfer

			Did Not Obtain Bachelor's in 6 Years		
	Total 2-4 Year Transfer	Obtained Bachelor's Degree	Enrolled at a 4-Year Institution	Enrolled at a 2-Year Institution	Not Enrolled
	N	5,982	2,461	369	2,248
Overall Cohort	11,076	54%	22%	3%	20%
STUDENT CHARACTERISTICS					
Gender					
Female	5,908	56%	21%	3%	19%
Male	5,127	52%	23%	3%	22%
Race/Ethnicity					
African-American	631	26%	36%	4%	35%
American Indian/Alaskan Native	35	40%	29%	11%	20%
White (Non-Hispanic)	7,742	59%	19%	3%	18%
Hispanic	587	40%	32%	3%	25%
Asian/Pacific Islander	489	50%	25%	4%	20%
Other/Multiracial	369	44%	31%	4%	21%
Prefer Not to Respond	1,223	48%	27%	3%	22%
Disabled	540	44%	26%	5%	26%
Parental Income					
High $80k -> $100k	1,542	59%	19%	3%	19%
Mid-high $50k - <$80k	2,442	58%	20%	4%	18%
Mid-low $30k - <$50k	2,404	53%	23%	3%	21%
Low < $30k	1,568	44%	28%	4%	24%
No Information	3,120	54%	22%	3%	21%
STUDENT ACADEMIC PREPARATION					
College Readiness Index					
Most Ready	1,552	71%	14%	2%	13%
More Ready	2,593	63%	19%	3%	16%
Somewhat Ready	2,724	56%	21%	3%	20%
Minimally Ready	1,467	45%	27%	4%	24%
Not/Least Ready	2,740	40%	29%	4%	27%
ACT Core					
Completed	4,960	58%	20%	3%	18%
Not Completed	5,312	51%	24%	4%	22%
No Information	804	52%	21%	3%	23%
HIGH SCHOOL CHARACTERISTICS					
ITAC Score					
High Quartile	2,714	57%	23%	3%	17%
Mid-high Quartile	3,197	58%	20%	3%	19%
Mid-low Quartile	2,736	53%	23%	3%	21%
Low Quartile	2,025	48%	24%	4%	24%
Missing Information	404	48%	25%	4%	24%
School Funding					
High Quartile $9,211+	2,556	53%	24%	3%	19%
Mid-high Quartile $6,561 - $9,210	3,207	57%	21%	3%	19%
Mid-low Quartile $5,617 - $6,560	3,067	57%	20%	3%	20%
Low Quartile < $5,617	1,755	47%	26%	4%	23%
Missing Information	491	51%	23%	4%	23%
Location					
Chicago	501	25%	41%	5%	30%
Northeast	5,207	54%	24%	3%	19%
Northwest	1,247	60%	19%	2%	19%
West Central	908	60%	17%	3%	20%
East Central	968	60%	18%	2%	21%
Southwest	979	53%	21%	3%	23%
Southeast	909	56%	17%	5%	22%
Missing Information	357	50%	24%	4%	23%



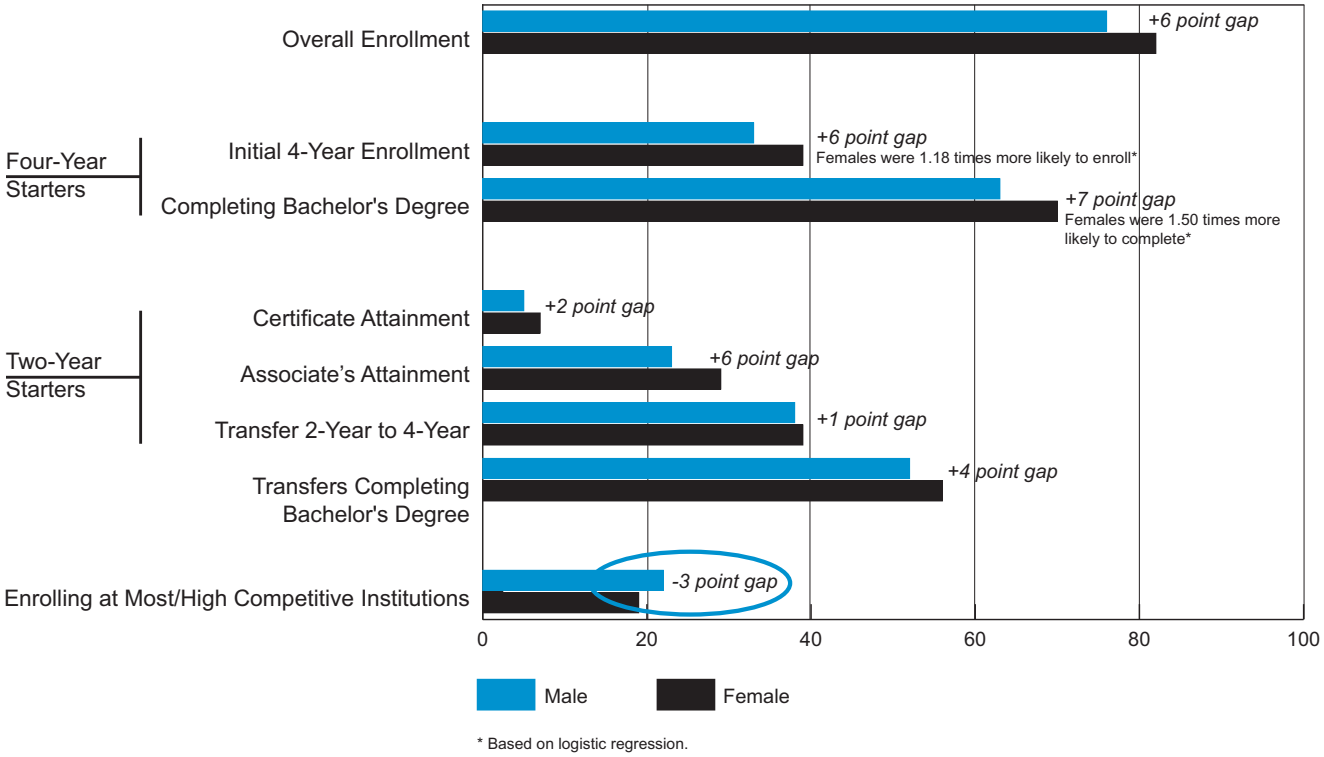
Discussion

Gender

When the gender gap in college attainment is mentioned, people tend to assume it is one that favors male students as they have historically earned a higher proportion of bachelor's degrees; however this was only the case until 1982 when parity was reached. Since then female students have been earning a higher proportion of bachelor's degrees and the gap continues to grow (Peter & Horn, 2005). This is not only specific to bachelor's completion as the National Center of Educational Statistics has shown that female students have surpassed their male counterparts in enrollment, academic preparation, and college persistence, in addition to attainment since 2001 (Peter & Horn, 2005). Our findings (see Figure 10) have led us to similar conclusions as female students significantly outperformed their male counterparts in nearly all measures. The one area where male students had an advantage was in the proportion enrolling at the most selective institutions. It will be interesting to see if the gap favoring female students continues to widen in Illinois using additional, more recent cohorts.

Figure 10. Gender Gap

(Female students are used as the point of reference)



* Based on logistic regression.

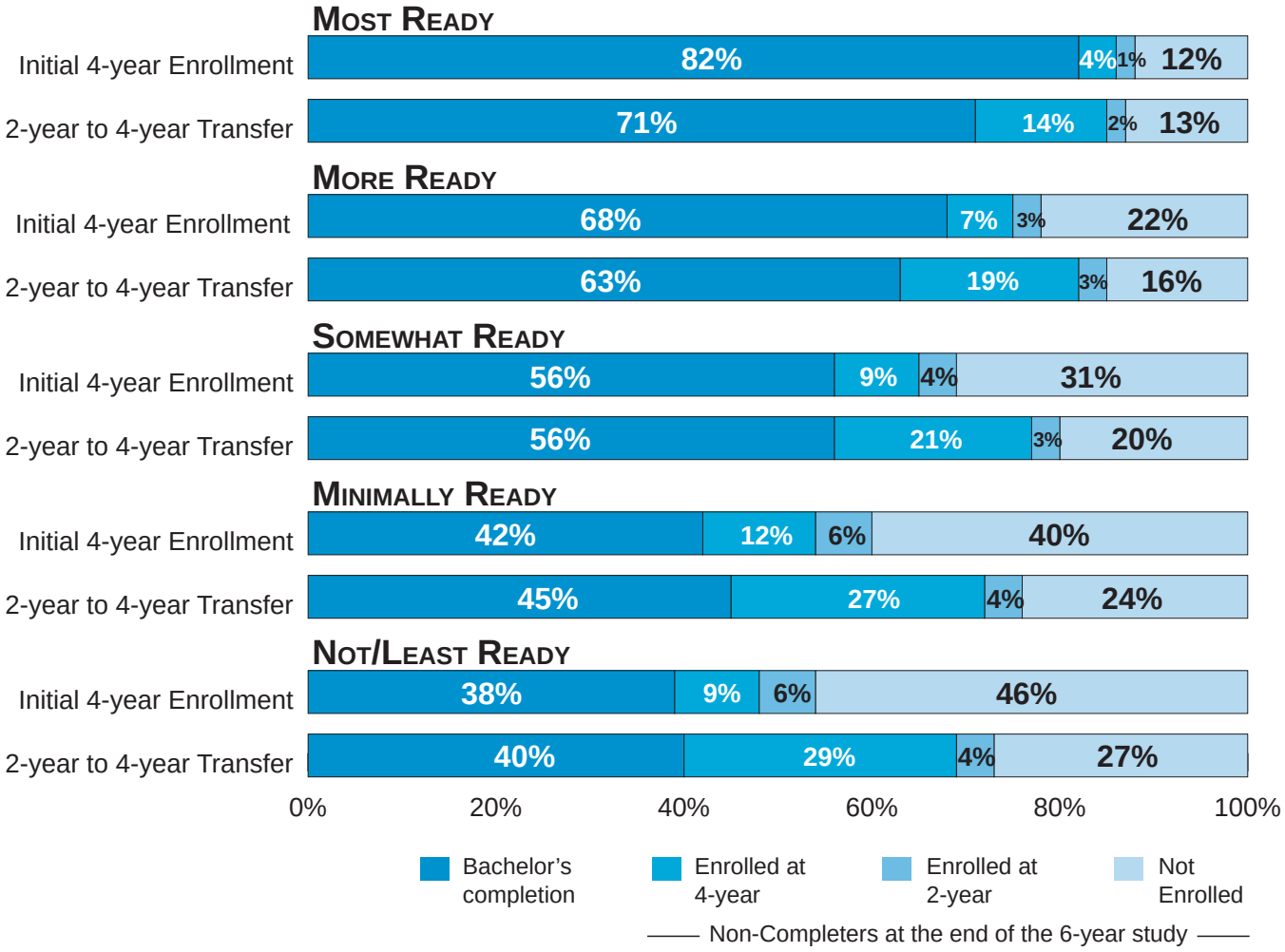
College Readiness

College readiness was the strongest indicator of nearly all of the outcome measures we used in the study. This was similar to our previous work that established a relationship between college readiness and postsecondary enrollment and a greater likelihood of certificate/degree completion for the more and most college ready students (White, Mullin, & Brown, 2009). For the current study, we found the higher the level of college readiness, the greater the likelihood of initial four-year enrollment and bachelor's completion. It should be noted that college readiness was more important in determining initial four-year enrollment than the completion of bachelor's degrees, but it was still the strongest indicator of both measures by far. We also found that college readiness maintained its importance across the more specific pathways. For example, among students initially enrolling at a two-year institution, the students who were more college ready had a greater likelihood of transferring to a four-year institution and among those transferring, completing a bachelor's degree. This held true even though the minimally and somewhat ready students initially enrolled at a two-year institution at the highest rates.

Two-Year to Four-Year Pathway "Forward Transferring"

The results of the study suggest that even though the two-year to four-year transfer pathway is viable in terms of bachelor's completion, overall, it is not quite as likely to result in bachelor's degree attainment as initially enrolling at a four-year institution. The students on the two-year to four-year pathway do not complete at the same rate and require more time to complete compared with four-year starters. However, based on a comparison of students in the various college readiness categories who initially enrolled at a four-year institution with students in parallel readiness categories who took the two-year to four-year pathway, we found that forward transferring was related to better outcomes for students falling on the lower part of the readiness index (see Figure 11). For example, students in the not/least ready category who transferred from a two-year to a four-year institution had a bachelor's completion rate of 40% and an additional 29% were still enrolled at a four-year institution at the end of the study, while only 38% of students in the not/least ready category who initially enrolled at a four-year institution completed and only 9% were still in the pipeline. We initially thought we were skewing the results by the nature of the comparison. First of all, the two-year to four-year transfer group, by sake of transferring, demonstrated the ability to navigate that portion of the higher education system. Secondly, the students initially enrolling at a four-year institution who had difficultly navigating the higher education system would not have persisted, while transferring from a two-year to a four-year institution is sort of a default persistence measure. For these reasons one could assume similar, if not better, bachelor's completion rates for the two-year to four-year transfer group. However, this was not evident throughout the college readiness index, as the pattern only held true for students in the lower readiness categories.

Figure 11. College Readiness Pathways and Bachelor's Completion

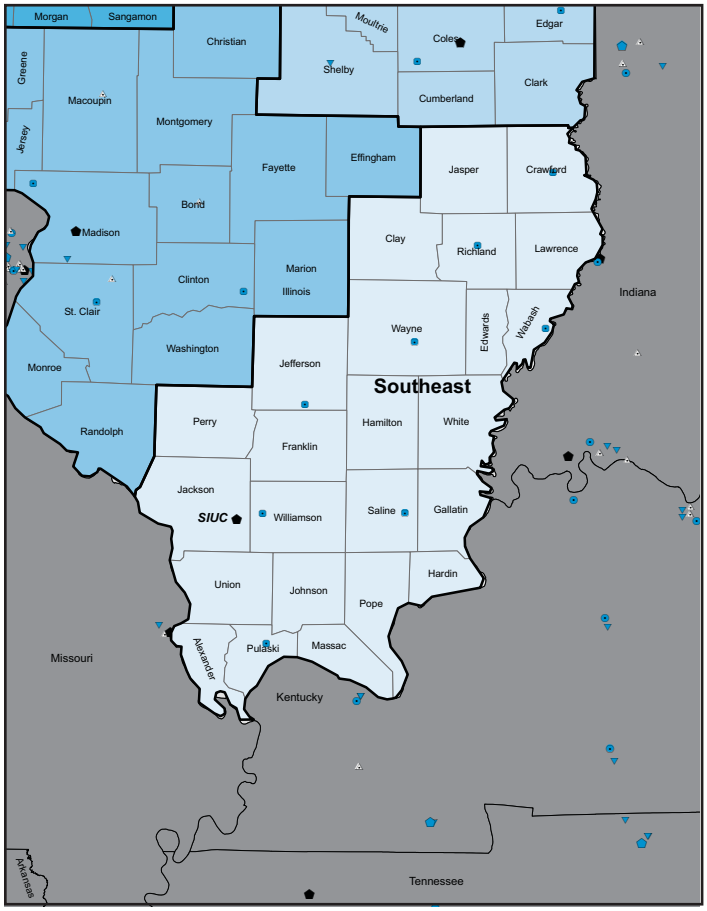


Students from the Southeast Region and Proximity

The accessibility of a postsecondary institution is important as Card (1993) suggested that the presence of a local college lowers the costs and/or raises the benefits of education among children with poor family backgrounds. Students from the Southeast region demonstrated a heavy reliance on two-year and out-of-state four-year institutions, suggesting the accessibility of a four-year in-state institution to those students is an issue. In fact, students from all other regions initially enrolled at a four-year institution at significantly higher rates. One reason could be that there are no private institutions in the region and there is only one public four-year institution located within the region, Southern Illinois University Carbondale; but large travel distances may impede students from attending as it is somewhat geographically isolated from the students in the region (See Figure 12). In fact, students from some of the counties in the Southwest region probably have better access to Southern Illinois University Carbondale, in terms of distance. As previously stated, students from the Southeast region initially enrolled at a two-year institution at significantly higher rates than students from all other regions and as shown on Figure 12, there are several community colleges within the Southeast region. Rouse (1995) found that closer proximity to a community college is related

to an increase in total years of education, but it is unlikely to increase the odds of completing a bachelor's degree. She also concluded that some students are diverted away from a four-year institution to a two-year institution due to proximity, but those diverted away probably would not have completed the bachelor's degree regardless of their initial enrollment at a two-year institution. It will be interesting to see if the students in the Southeast region who are diverted away from a four-year institution to a nearby two-year institution, due to accessibility, are just as likely to complete a bachelor's degree as similar students who initially enroll at a four-year institution.

Figure 12. Southeast Region and Surrounding Area



Legend

College and Universities

- Community College
- Private for-profit
- Private not-for-profit
- Public

Recommendations for Further Investigation

The Illinois 2002 cohort study represents a vision of the results that would be available in the future with the development of the State's longitudinal data system. IERC welcomes feedback from other researchers and state policymakers on these and future findings in the interest of supporting P-20 education policy in the State of Illinois.

In addition to the supplementary reports mentioned earlier specific to reverse transfers, two-year to four-year "forward" transfers, time to degree completion, selectivity, and sector; the following are recommendations for further investigation.

1. Out-of-State Enrollees

We propose exploring the migration patterns of students who initially enroll at an out-of-state four-year institution. Some of our previous research has shown that Illinois sends a large number of freshman students to other states; however, after that initial enrollment, a higher proportion laterally transfer back to an Illinois institution than are lost due to lateral transfer from those initially enrolling at an Illinois institution transferring to an institution in another state (Gong & Presley, 2006). Even so, the proportion coming back is relatively small in terms of the initial out-migration of Illinois students. We currently have access to employment and earnings information for the same students and can determine if individuals gain employment within Illinois after completing a bachelor's degree out-of-state. In other words, to what extent does the initial loss of Illinois college students to out-of-state postsecondary institutions lead to the loss of human capital and does that negatively impact Illinois' workforce?

2. Impact of Community College Certificates and Degrees on Further Education

Exploring the sequential impact of the two-year outcomes on the likelihood of transferring to a four-year institution and ultimately completing a bachelor's degree may be helpful for policy purposes. In other words, do certificates and associate's degrees from two-year institutions help increase the flow further down the educational pipeline?

3. Interaction of College Readiness, Socioeconomic Status, and Region on College Selectivity and Location

We propose analyzing the distance between a student's respective high school and the institution in which they initially enroll and determining the impact socioeconomic status and college readiness have on a student's mobility and the selectivity of that institution.

4. Interaction of Race, Gender, and Socioeconomic Status on Enrollment and Completion Patterns

In the current study we established the importance of each of the previously mentioned variables on their own, but we feel it would be necessary to analyze the interaction of gender, race/ethnicity, and socioeconomic status on the enrollment and completion patterns.

5. Focusing on the Pathways to Completion for Hispanic Students

We believe conducting a focused analysis of Hispanic students and their pathways to postsecondary completion is important because of the group's projected growth in the proportion of Illinois high school graduates over the next five years. According to a report by the Western Interstate Commission for Higher Education (2008) Hispanic students will soon surpass African-America students and in 2015, Hispanic students will be the largest minority group in terms of the proportion of high school graduates (18%). Furthermore, Hispanic students will be the only group to experience an increase in the proportion of high school graduates, going from 15% of total number of high school students graduating in 2009-10 to 18% in 2014-15. Since many current state and national initiatives involve increasing the number of degree earners, it would be useful to determine the specific issues related to access to postsecondary education in addition to the pathways to degree completion for Hispanic students.

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Appendix

Figure A. Illinois Regions

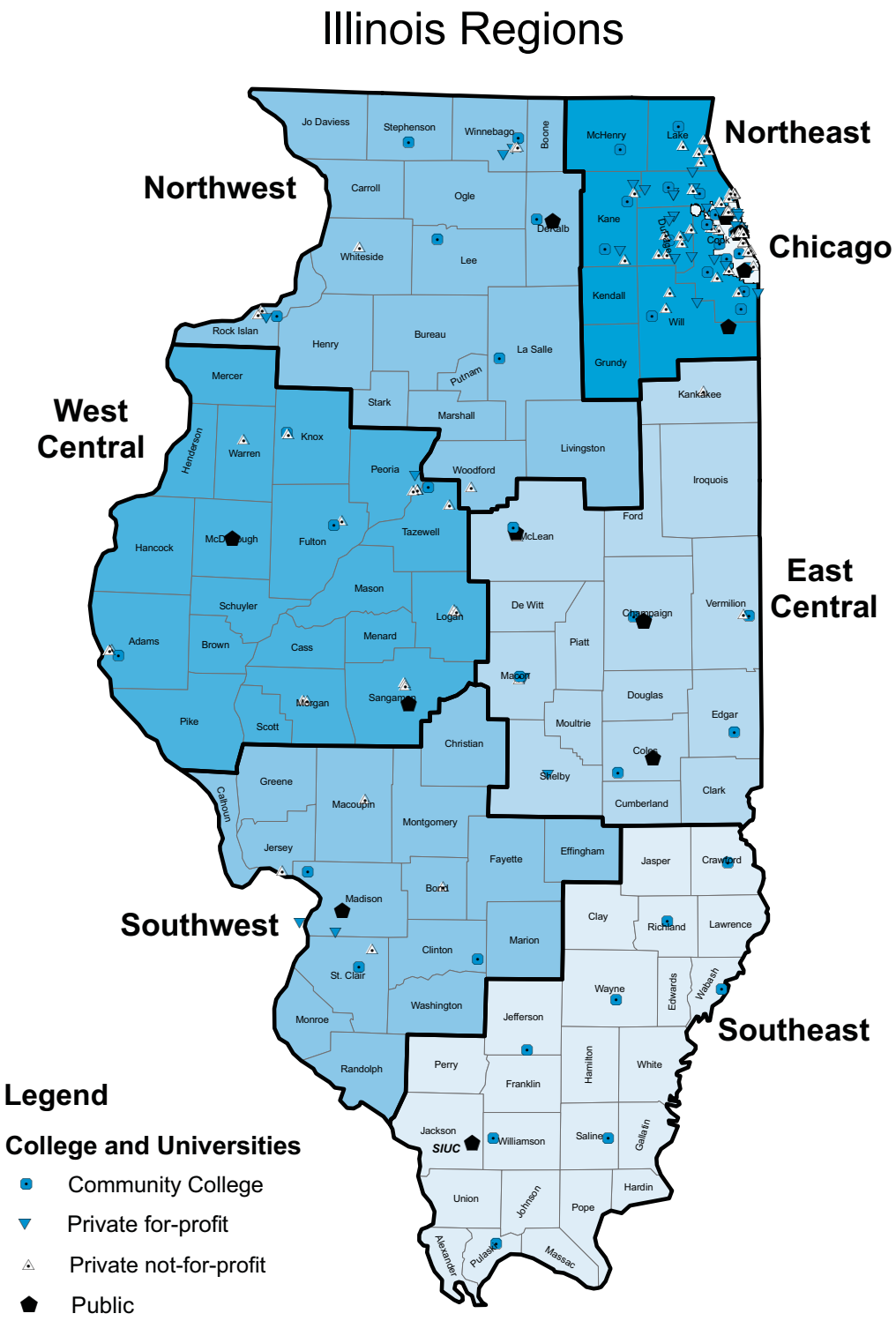
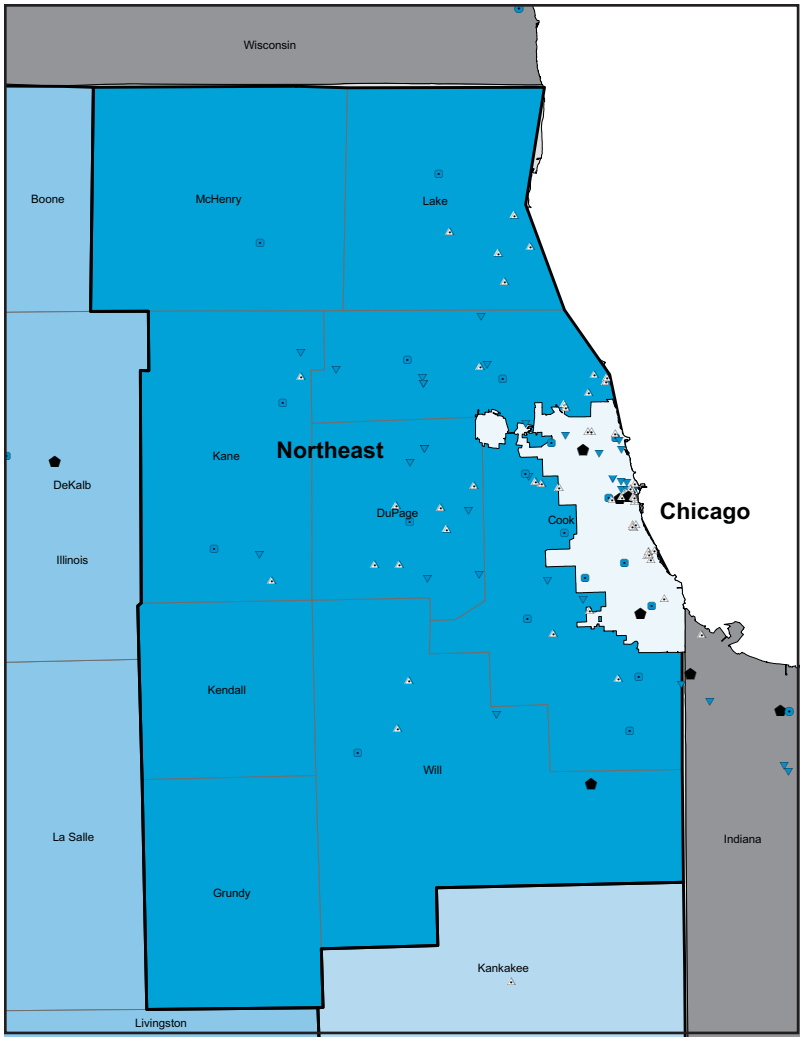


Figure B. Northeast Region

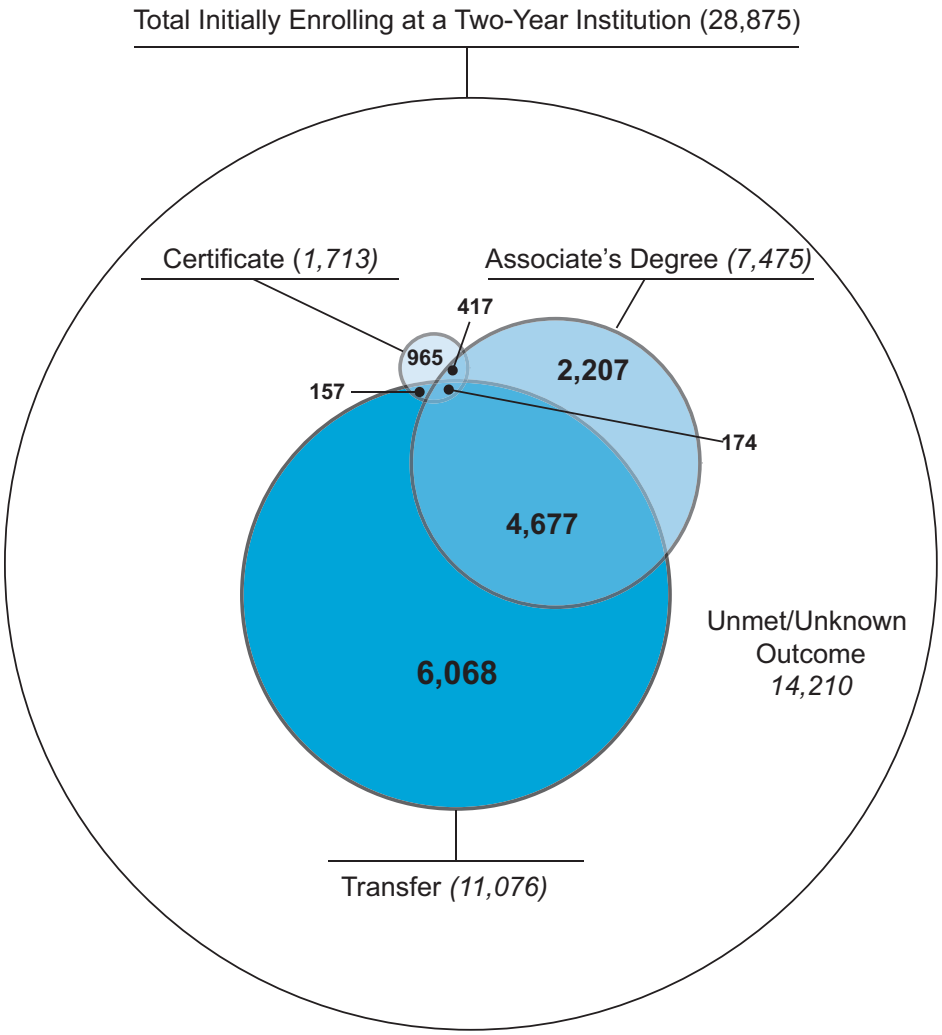


Legend

College and Universities

- Community College
- Private for-profit
- Private not-for-profit
- Public

Figure C. Outcomes for Two-Year Starters



	n	Percent of Initial 2-yr
Total Transfer	11,076	38%
Transfer Only	6,068	21%
Transfer and Associate's Only	4,677	16%
Transfer and Certificate Only	157	1%
Transfer and Associate's and Certificate	174	1%
Total Associate's	7,475	26%
Associate's Only	2,207	8%
Associate's and Certificate Only	417	1%
Transfer and Associate's Only	4,677	16%
Transfer and Associate's and Certificate	174	1%
Total Certificate	1,713	6%
Certificate Only	965	3%
Transfer and Certificate Only	157	1%
Transfer and Associate's and Certificate	174	1%
Associate's and Certificate Only	417	1%
Total Unmet/Unknown Outcome	14,210	49%
Total At Least One Outcome	14,665	51%

Table A. Classification Table for Predicting Initial Four-Year Enrollment *

Observed			Predicted		
			Enrolled		Percentage Correct
			No	Yes	
Step 1	Enrolled	No	32,040	7,578	80.9
		Yes	8,589	17,795	67.4
	Overall Percentage				75.5

* The cut value is .500

Table B. Classification Table for Predicting Bachelor's Completion among Four-Year Starters *

Observed			Predicted		
			Enrolled		Percentage Correct
			No	Yes	
Step 1	Enrolled	No	2,692	5,560	32.6
		Yes	1,590	16,542	91.2
	Overall Percentage				72.9

* The cut value is .500

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