Illinois Education Research Council
Bringing Research to Policy and Practice
Policy Research: IERC 2011-5

Reverse Transfer Students and Postsecondary Outcomes: A Potential Opportunity

Eric J. Lichtenberger, Ph.D.

Executive Summary

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 community college has been described as a reverse transfer. These types of transfers have been depicted as the two primary forms of mobility among students enrolling at four-year colleges; however, since reverse transferring is associated with extremely low rates of bachelor's completion, it is the form of student mobility most deserving of attention (Goldrick-Rab & Pfeffer, 2009). Recent research has established that nearly one-fifth of college going students reverse transfer; but more alarmingly, less than a quarter of reverse transfer students eventually earn a bachelor's degree and even fewer earn a certificate or associate's degree while at their respective community college (Smalley, Lichtenberger, and Brown, 2010; Goldrich-Rab and Pfeffer, 2009).

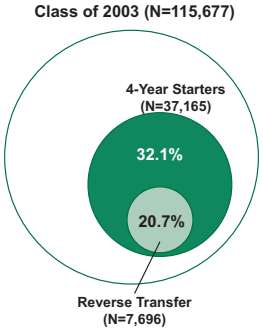
Understanding the predictors of reverse transferring and what happens to reverse transfer students once they move to a community college could help policymakers as they develop strategies to increase the proportion of individuals with quality postsecondary degrees within the state of Illinois. As argued by Adelman (2005) and Goldrich-Rab and Pfeffer (2009) it would be helpful if community colleges and "parent" feeder four-year institutions of reverse transfer students established joint monitoring and advising systems for potential reverse transfers at early stages of their college careers. The results of this study could be used to help identify the risk factors related to reverse transferring as such monitoring programs are developed.

The study starts by establishing the factors associated with reverse transferring. It then provides the outcomes of the reverse transfer students at each transition point. The outcomes include the move from the initial four-year institution to the community college, potential certificate and associate's degree attainment at the community college, the potential return to a four-year institution, and bachelor's completion at the four-year institution conditional upon return.

Key Findings

Overall, roughly one-third (32.1%) of the Illinois High School Class of 2003 enrolled at a four-year institution the fall semester following high school graduation. Of those four-year starters, approximately one-fifth (20.7%) reverse transferred during the study (fall 2003 through spring 2010).

Figure A:
The Proportion of Four-Year Starters and Reverse Transfer Students from the Class of 2003



Predictors of Reverse Transferring

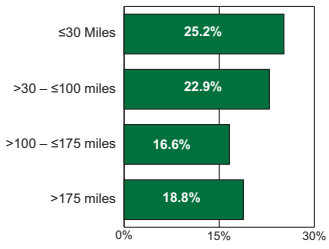
There were stark gender differences, as male students were significantly more likely to reverse transfer in a timeframe closer to their initial enrollment at a four-year institution than their female counterparts.

The factors related to financial aid played a significant role in the likelihood of reverse transferring. Expecting to receive financial aid and expecting to work while enrolled were both related to increased odds of reverse transferring. Also, the size of one's family was positively related to reverse transferring. Parental income was a significant factor and students in the middle income categories had a higher likelihood of reverse transferring when compared with their peers in the high income category.

In terms of academic preparation, high school GPA significantly factored into the likelihood of reverse transferring; odds ratios indicated the lower the GPA, the greater the odds of reverse transferring. Regarding performance on the ACT, scores on the English and Mathematics tests were both significant and higher scores indicated lower odds of reverse transferring. However, scores on Reading lacked statistical significance and higher scores on Science were associated with greater odds of reverse transferring.

In terms of the selectivity of the initial four-year institution, students who enrolled at the most and highly competitive institutions were less likely to reverse transfer. Regarding the sector of the institution, students enrolling at a public four-year institution were significantly more likely to reverse transfer, as were students who initially enrolled in-state, as opposed to out-of-state. Generally speaking, if a student enrolled closer to home they were more likely to reverse transfer (see below).

Figure B:
Rate of Reverse Transfer by Distance between High School and Initial 4-Year Institution for Four-Year Starters (N=37,165)

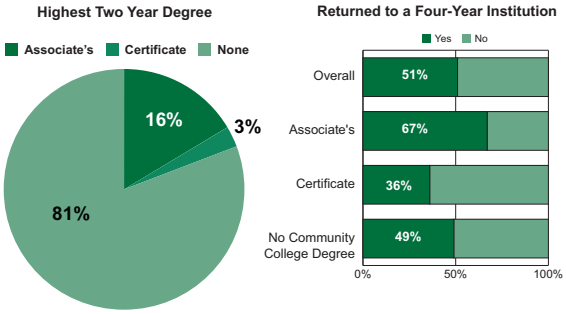


The descriptive results indicated that most reverse transfer students gravitate towards home when moving to a community college; however, a sizeable group of reverse transfer students who initially enrolled farther from home (between 15% and 22%) are opting to utilize a community college in the same area as their initial four-year institution.

Outcomes at Community Colleges

Sixteen percent of reverse transfer students earned an associate's degree, while 3% earned a certificate as their highest degree (see Figure C). There were differences in the likelihood of returning to a four-year institution based on the highest degree attained at a community college. Two-thirds of those earning an associate's degree returned to a four-year institution, roughly one-half of those not earning an associate's degree or certificate returned; and slightly more than one-third of certificate earners made it back to a four-year institution.

Figure C:
Outcomes at Community Colleges for Reverse Transfer Students (N=7,696)



Returning to a Four-Year Institution

Overall, half of reverse transfer students returned to a four-year institution; however, only 28.9% returned to the same institution. When comparing the selectivity of the four-year institutions if they differ, a reverse transfer student is much more likely to return to an institution that is equally or less competitive, rather than more competitive relative to their initial four-year institution.

Earning an associate's degree was among the most important factors in predicting a timely return to a four-year institution. Regarding race, Asian and African-American reverse transfer students were more likely to return to a four-year institution relative to their white

peers. The size of a reverse transfer student's family was also related to the likelihood of returning; the larger the family, the lower the odds of making it back to a four-year institution.

Nearly all of the variables related to academic preparation were insignificant in predicting an accelerated time to return. On the other hand, many of the characteristics of a reverse transfer student's initial four-year institution were statistically significant in terms of predicting the likelihood of returning. Reverse transfer students who initially enrolled at a highly or most competitive institution were more likely to return to a four-year institution, as were those who initially enrolled out-of-state, and those who initially enrolled a greater distance from home.

Bachelor's Completion

One-quarter of all reverse transfer students eventually earned a bachelor's degree. When looking at the bachelor's completion rate conditional upon one's return to a four-year institution, it was slightly less than 50%.

Once again, males were outperformed by their female peers as they were significantly less likely to complete a bachelor's degree. Although African-American students were significantly more likely to return to a four-year institution when compared with white students, they were significantly less likely to complete their respective bachelor's program.

Not a single factor specific to a student's preparation for college was statistically significant in terms of a timely bachelor's completion. Earning an associate's degree was related to an increased odds of bachelor's completion.

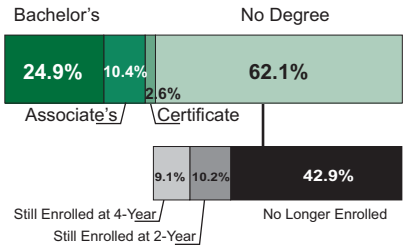
Returning to the same four-year institution or an equally rather than less competitive institution was related to an increased odds of completion. Returning to an institution within Illinois, rather than out-of-state, was also related to greater odds of bachelor's completion, all else being equal.

Overall Patterns

Gaining a better understanding of this form of student mobility is important in that reverse transfer students have an extremely low likelihood of completing a bachelor's degree when compared with other four-year starters. In fact, if reverse transfer students are removed from the larger group of four-year starters, the overall bachelor's completion rate for four-year starters increases from 72% to 84%. What was more striking was that among all four-year starters, roughly half of the dropouts (non-completers who were no longer enrolled at the end of the study) were reverse transfer students. Therefore reverse transfer students make up a disproportionately low number of bachelor's completers and a disproportionately high number of dropouts.

When outcomes at the community college are taken into consideration (see Figure D), the overall postsecondary outcome picture slightly improves but remains somewhat bleak. In total, 37.9% of reverse transfer students earned a postsecondary certificate or degree before the end of the study period and an additional 19.3% of reverse transfer students were still enrolled at a community college (10.2%) or four-year institution (9.1%) at the end of the study. Therefore, slightly more than 42.9% reverse transfer students had no degree and were no longer enrolled at the end of the study.

Figure D:
Highest Degree and End of Study Status for Reverse Transfer Students (N=7,696)



Performance on the ACT and Reverse Transferring

Most of the factors related to academic preparation during high school and college readiness were statistically significant in predicting reverse transferring; however, only a few of those factors remained significant as the outcome measures advanced to predicting a student's return to a four-year institution and none of the factors were significant in terms of bachelor's completion. Regarding performance on the ACT, which has been used to develop measures of college readiness, only three out of four of the ACT subtests were significantly associated with reverse transferring. Notably, one of those subtests—ACT Science—had a positive relationship with

the outcome measure, so as ACT Science scores increased, so did the odds of reverse transferring. It should be noted that scores on ACT English and ACT Mathematics were significantly related to a decreased likelihood of reverse transferring, while scores on Reading lacked statistical significance. Although the current study used a different outcome measure (reverse transferring), the results were somewhat similar to a recent study conducted by Bettinger, Evans, and Pope (2011). Bettinger et al. (2011) explored the relationship between the four ACT subtests and college achievement and found that scores on English and Mathematics were significant and positively related to college achievement, while scores on Reading and Science were sometimes negatively associated with the same outcomes, but most of the time lacked statistical significance.

Policy Implications

Reverse Transferring of College Credit along with the Student

Within the last couple of years the reverse transferring of credit from a four-year institution to a community college has received more attention, particularly for the purpose of retroactively awarding associate's degrees to forward transfer students who earn a minimum number of credits at a community college before transferring in good academic standing to a four-year institution (Garber, Kleeman, Marshall, Parke, & Wunderle, 2010; Mangan, 2011). It would be beneficial if this retroactive policy could be expanded to facilitate the active transferring of credit from the initial four-year institution to the community college for reverse transfer students to increase the likelihood of associate's degree completion. If a reverse transfer student fails to return to a four-year institution, as only half are able to do, at the very least they would have an easier time earning an associate's degree, which could increase their employability and/or salary. More importantly, the current study demonstrated the positive impact of earning an associate's degree, not only in terms of increasing the likelihood of returning to a four-year institution, but also for completing a bachelor's degree in a time-frame closer to return.

Longitudinal Databases and Research

Even though the current study was limited in the fact that information specific to student academic performance during one's stay at a four-year institution was unavailable, it represents a vision of what could be accomplished as more states develop longitudinal data systems bringing together student-level information from K-12 schools, community colleges, and four-year institutions. Furthermore, this limitation, in addition to the policy recommendation mentioned above, both reinforce the need for cooperation and collaboration between educational entities from various levels and across sectors as longitudinal databases are developed and comprehensive research agendas are set.

Acknowledgments

First and foremost, I would like to thank Jennifer Barnhart for bringing my disparate ideas together as this report evolved. I would also like to thank Scott Parke, Nathan Wilson, and Allison Witt for their feedback on an earlier version of this report. Finally, I would like to thank Brenda Klostermann and Jacqueline Twitty for their editorial assistance and support during the development of this report.

Introduction

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 community college has been described as a reverse transfer. These types of transfers have been depicted as the two primary forms of mobility among students enrolling at four-year colleges (Goldrick-Rab & Pfeffer, 2009). Since this study stemmed from analyzing how students who initially enroll at a four-year institution utilize the community college system (Lichtenberger, 2011), the focus of this report is on reverse transfer rather than lateral. The study starts by establishing the factors associated with transferring in reverse in addition to tracking the outcomes of the reverse transfer students at each transition point. The outcomes include the move from the initial four-year institution to the two-year institution, potential certificate and associate's degree attainment at the two-year institution, the potential return to a four-year institution, and bachelor's completion at the four-year institution conditional upon return.

Understanding the predictors of reverse transferring could help policymakers as they develop strategies to increase the proportion of individuals with quality postsecondary degrees within the state of Illinois. Recent research has established that nearly one-fifth of students initially enrolling at a four-year institution reverse transfer; but more alarmingly, less than a quarter of reverse transfer students eventually earn a bachelor's degree and even fewer earn a certificate or associate's degree while at their respective community college (Smalley, Lichtenberger, & Brown, 2010; Goldrich-Rab & Pfeffer, 2009).

A recent study using a census of high school graduates from 2002 established that only 22% of reverse transfer students earned a bachelor's degree and additional 14% earned a certificate or associate's degree from a two-year institution; therefore, over 60% of reverse transfer students failed to earn a degree or certificate before the end of the study (Smalley, Lichtenberger, & Brown, 2010). Goldrick-Rab and Pfeffer (2009) had similar results—22% of reverse transfer students earned a bachelor's degree—and argued that the low rate of bachelor's completion associated with reverse transferring makes it the form of student mobility most deserving of attention.

As argued by Adelman (2005) and Goldrich-Rab and Pfeffer (2009) it would be helpful if community colleges and "parent" feeder four-year institutions of reverse transfer students established joint monitoring and advising systems for potential reverse transfers at early stages of their college careers. In other words, it would be beneficial to identify students at four-year institutions at risk of reverse transferring so that appropriate interventions could be provided to increase their likelihood of retention. In addition, for students who do in fact reverse transfer, community colleges could provide supports related to completing an associate's degree or certificate or counsel a reverse transfer student back to a four-year institution by providing information regarding the transferability of courses.

◆ As argued by Goldrick-Rab and Pfeffer (2009), the **low rate of bachelor's completion** associated with reverse transferring makes it the form of student mobility most deserving of attention.

Literature Review

Who are Reverse Transfer Students?

Research has shown that reverse transfer students typically differ from other students who enroll at four-year colleges, in terms of both demographics and academic preparedness. Regarding family background, reverse transfer students are more similar in profile to community college entrants (Adelman, 2005) and four-year college drop-outs (Kalogrides & Grodsky, 2011) than they are to other four-year starters and particularly those who complete a bachelor's program. Specifically, reverse transfer students are more likely to be lower on the socioeconomic scale relative to other four-year starters (Smalley, et al., 2010; Adelman, 2005; Kalogrides & Grodsky, 2011; Goldrick-Rab & Pfeffer, 2009). In addition, reverse transfer students are more likely to have lower levels of parental education and to be from the working class (Goldrick-Rab & Pfeffer, 2009). Nonetheless, reverse transfer students are just as likely to receive grants or scholarships (Adelman, 2005) and are fairly similar to other four-year starters in terms of the college savings behaviors of their parents and the discussions about college admissions with their parents (Kalogrides & Grodsky, 2011).

It is not surprising that students who reverse transfer tend to have academic difficulties during college (Adelman, 2005; Goldrick-Rab & Pfeffer, 2009; Hillman, Lum, & Hossler, 2008; LeBard, 2009). These academic difficulties at the postsecondary level could arguably be traced back to their academic preparation at the high school level as reverse transfer students tend to lack college readiness and are academically weaker when compared with other four-year college going students (Smalley et al., 2010; Adelman, 2005; Kalogrides & Grodsky, 2011). In terms of academic preparedness reverse transfer students tend to fall somewhere in between other four-year starters and community college entrants (Adelman, 2005).

Regarding the likelihood of reverse transferring based on one's locale, the research has been somewhat mixed. While some have suggested that growth in reverse transfer enrollments is greatest in large metropolitan areas (Phelan, 1999), others have found that students from more rural locales are also at a high risk of reverse transferring (Smalley et al., 2010).

- In the current study, **reverse transfer students** were defined as students who initially enrolled at a four-year college and later transferred to a community college. Students enrolling at a community college over the summer, after earning a bachelor's degree, or while enrolled at a four-year institution were excluded from the definition (see Methods for more details).

Methods

Data

The more methodologically sound studies are somewhat limited in the fact that the data used to answer the research questions are somewhat outdated. The most recent and relevant studies, Goldrick-Rab and Pfeffer (2009) and Kalogrides and Grodsky (2011), both use data from the National Education Longitudinal Study of high school graduates from 1992, which means the members of this cohort graduated from high school nearly two decades ago.

The current study uses the 37,165 members of the Illinois high school class of 2003 who initially enrolled at a four-year institution during the fall semester of 2003. This was roughly one-third of the entire cohort of Illinois high school graduates from 2003 (N=115,677). The postsecondary enrollment and degree completion data are from the National Student Clearinghouse and cover 92% of all postsecondary enrollments (National Student Clearninghouse, 2010). The data allow for the examination of student transfers among different institutions both in-state and out-of-state. This is a valuable advantage in studying student mobility, such as reverse transfers, as many studies are designed using the institutional perspective and tend to focus on retention at a single institution rather than student persistence across institutions.

The information specific to the students' demography and academic preparation was gleaned from the Student Interest Profiler of the ACT. The state of Illinois uses the ACT at part of its Prairie State Achievement Examination; therefore, it is administered to every high school junior, not just those who anticipate enrolling in college. It should be noted that this study does not include private high school graduates from Illinois, nor does it include out-of-state students who migrated to Illinois higher education institutions. Furthermore, taking the ACT as a junior does not necessarily guarantee high school graduation during the following year. Information specific to the selectivity of the four-year institutions was obtained from Barron's Profile of American Colleges (2003) since these data were available to the Class of 2003. Information related to each student's respective high school was obtained from the Illinois High School Report Card.

For the purposes of this study the definition of undergraduate reverse transfer students (URTSs) established by Townsend and Dever (1999) was used. The definition did not take into account temporary reverse transfer students, or those enrolling, usually over the summer, to earn credit that can be transferred to their four-year institution. In other words, there had to be a disruption in enrollment from a four-year institution and not necessarily the first institution at which they were enrolled. Individuals who earned a bachelor's degree from a four-year institution by sake of finishing their last few graduation requirements at a community college in a semester in which they were not enrolled at a four-year institution were also excluded. Students who enrolled at a community college after earning a bachelor's degree were excluded as well. According to Adelman (2005) students who attend a community college after earning a bachelor's degree are post-baccalaureate students, not reverse transfers. Among the four-year starters, there were 7,696 students who initially enrolled at a four-year institution and transferred to a community college for at least one semester, not counting concurrent nor summer enrollment.

Descriptive and predictive statistics were calculated using SPSS. For the predictive analyses, a form of survival analysis called Cox regression was used. A Cox regression model is a statistical technique used to explore the relationship between a set of explanatory/independent variables and a time-based event of interest, namely reverse transferring. It provides an estimate of the treatment effect on survival after adjusting for the explanatory variables, which allows for an estimation of the probability of an event of interest, given the characteristics of the study group members (Walters, 2001).

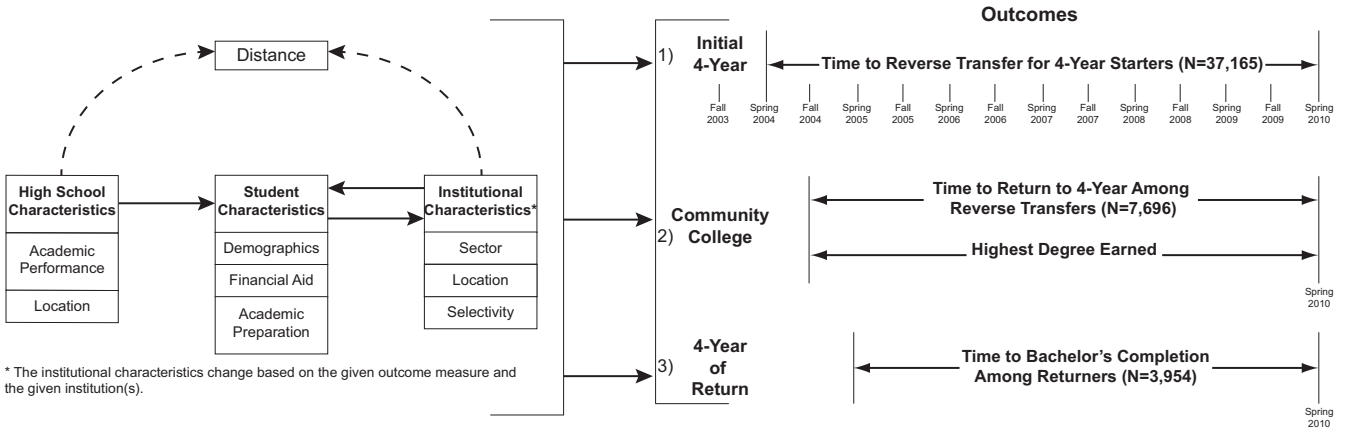
Research Questions

1. Among students who initially enrolled at a four-year institution, what factors are related to an accelerated time to reverse transfer?
2. Among reverse transfer students, which outcomes were attained at the community college, namely certificate or associate's degree completion, and/or returning to a four-year institution?
3. Among reverse transfer students, what factors are related to an accelerated time to return to a four-year institution?
4. Among those who return to a four-year institution, what factors are related to an accelerated time to bachelor's degree completion?

For a list of the student demographic and academic factors, as well as the factors related to the students' respective high schools and postsecondary institutions, see Appendix A.

As illustrated in Figure 1 and argued in a previous study (Smalley et al., 2010) it was hypothesized that a high school impacts a student's academic preparedness through the rigor of its programs and graduation requirements. Those malleable factors, along with student demographic characteristics, in addition to factors related to financial aid, are associated with a student's first four-year institution, as evidenced by the given institution's sector, selectivity, and location. It should be noted that the selection process between a student and a potential four-year institution is two-way, where a student selects one or more postsecondary institutions and the institution accepts or rejects the student based on their admissions policies. The student characteristics along with the characteristics of the initial four-year institution are associated with a student's odds of an accelerated time to reverse transfer, as depicted on the outcomes side of the conceptual diagram. Among reverse transfer students, the same student characteristics and institutional factors potentially impact one's odds of an accelerated time to return, as does one's performance at their community college as measured by a student's highest degree earned. Finally, for the reverse transfer students who returned to a four-year institution, the same student characteristics, in addition to the characteristics of the four-year institution of return as compared to the initial four-year institution, as well as their performance at the community college are potentially associated with an accelerated time to bachelor's completion.

Figure 1:
Conceptual Diagram

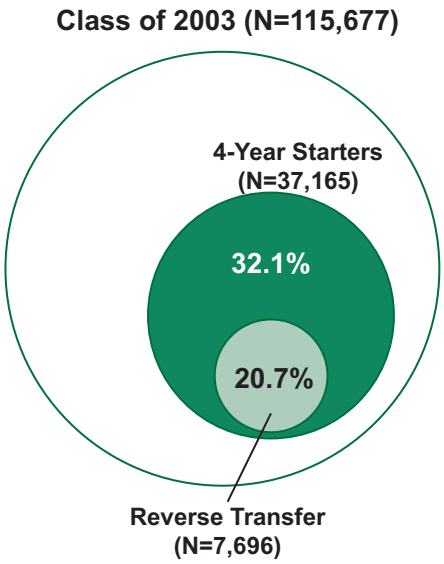


Results

Reverse Transferring

Roughly one-third (32.1%) of the Illinois High School Class of 2003 enrolled at a four-year institution the fall semester immediately following high school graduation. By the end of the study period, fall of 2003 to spring of 2010, there were 7,696 reverse transfer students, which equated to roughly one-fifth of the four-year starters (Figure 2) or about 6.7% of the entire Class of 2003. This proportion was fairly similar with previous research using an earlier cohort (Smalley et al., 2010).

Figure 2:
The Proportion of Four-Year Starters and Reverse Transfer Students from the Class of 2003



As shown in Figure 3, only a small proportion (15%) of reverse transfers occurred during that first academic year; however, from spring of 2004 to fall of 2004 more than a quarter of reverse transfers took place. Cumulatively, more than half of reverse transfers occurred by the end of academic year 2004-2005; however, what was surprising was that a small proportion of students transferred to a community college well into the study, at points that would suggest junior or senior level status and beyond if the students had persisted. The data suggest that persistence was a problem for such students and many of these reverse transfer students are utilizing the community colleges as a means of reentering postsecondary education after stopping out for a semester or more. For example, among the 7,696 reverse transfer students identified in the current study, 5,991 had persisted at a four-year institution from fall of 2003 to spring of 2004 and 1,138 had persisted by sake of reverse transferring to a community college; however, an additional 567 or 7% had stopped out or were not enrolled at a postsecondary institution during the spring semester of 2004. In terms of time to reverse transfer for these stop-outs, only half had reverse transferred by the spring semester of 2005 or within an academic year of stopping out (Figure 4).

Figure 3:
Cumulative Rate of Reverse Transfer

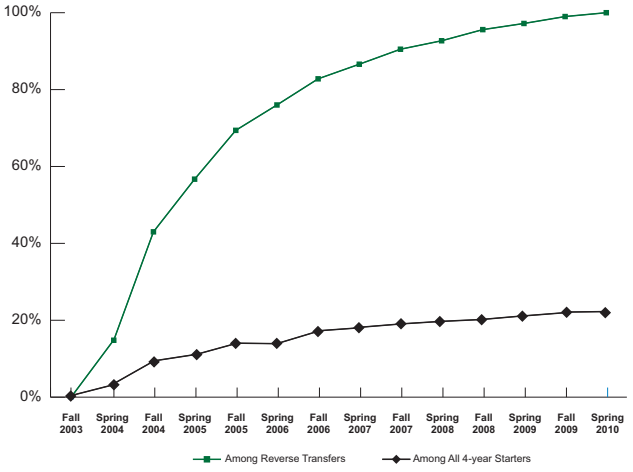
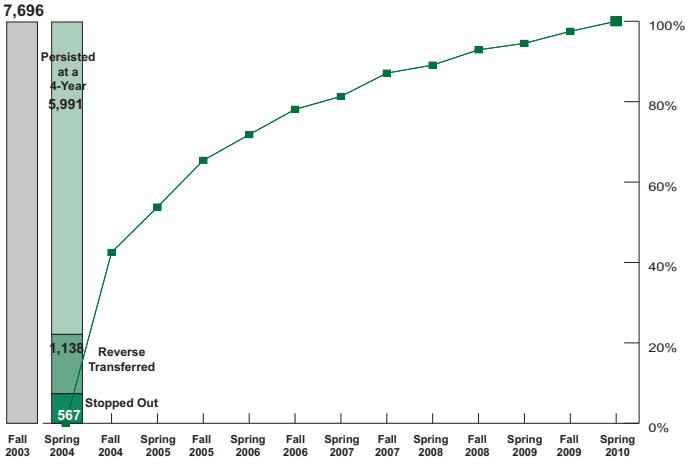


Figure 4:
Cumulative Number of Semesters to Reverse Transfer for Initial Stopouts (n=567)



Predictors of Reverse Transferring

Demographics

Gender was statistically significant in predicting time to reverse transfer as male students were much more likely to reverse transfer in a timeframe closer to their initial enrollment relative to their female counterparts, even after holding all other factors at a fixed value. This deviates somewhat from previous research that failed to establish a statistically significant difference between male and female students in terms of their likelihood of reverse transfer, most notably Goldrich-Rab and Pfeffer (2009). The difference between male and female students regarding their likelihood of reverse transferring is problematic, as male students have relative disadvantages throughout the educational pipeline, namely lower high school graduation rates and lower rates of enrollment at four-year institutions upon high school graduation.

Factors Related to Financial Aid

As shown in Table 1, parental income was a significant factor such that students in the middle income categories had a higher likelihood of reverse transferring when compared with their peers in the high income category. Expecting to receive financial aid and expecting to work while enrolled were both related to increased odds of reverse transferring. Also, the size of one's family was positively related to reverse transferring; therefore, as the number of siblings increased, so did the odds of reverse transferring.

Academic Preparation

The associations between scores on the four subtests that comprise the ACT and one's risk of reverse transferring were somewhat fascinating. More specifically, scores on the English and Mathematics tests were both significant and increased scores indicated lower odds of reverse transferring; however, Reading scores lacked statistical significance and higher scores in Science were associated with greater odds of reverse transferring. The results specific to the English, Mathematics, and Science scores were similar to a recent study that explored the relationship between the different ACT subtest scores and college GPA and the likelihood of dropping out of college. Bettinger, Evans, and Pope (2011) found that Mathematics and English scores consistently predict lower dropout rates while Reading and Science predict small but higher dropout rates, although rarely at the level of significance.

High school GPA significantly factored into the likelihood of reverse transferring; odds ratios indicated the lower the GPA, the greater the odds of reverse transferring. In terms of high school class rank, the only statistically significant difference was in comparing the extremes, as students from the top quarter had nearly 40% lower odds of reverse transferring in a timeframe closer to initial enrollment than their peers in the bottom quarter, all else being equal. Exploring the factors related to participation in AP courses during high school yielded some interesting results. The two AP subject areas not directly covered by the ACT (Social Studies and Foreign Language) were associated with a decreased likelihood of reverse transferring. Participation in AP Science had a positive relationship with reverse transferring, as students who participated in AP Science had significantly higher odds of reverse transferring than their peers who did not.

Expectations

The results related to one's highest expected degree were significant and somewhat counterintuitive. Students who expected to stop their educational pursuits after completing their undergraduate program and those who adapted their goals after originally expecting to earn less than a bachelor's degree were significantly less likely to reverse transfer relative to those expecting to earn more than a bachelor's degree, all else being equal. Perhaps students with lower expectations who initially enrolled at a four-year institution were more flexible and realistic in developing their educational plans during high school and this translates to increased postsecondary success. A related finding is that students who stated they needed help in developing their career and educational plans were less likely to reverse transfer.

Interestingly, students who expressed the need for help in some of the key areas related to postsecondary success, such as reading comprehension, writing, and mathematics, were less likely to reverse transfer. Perhaps stating a need, regardless of whether it is warranted, would be related to an increased likelihood that the student would seek help in those perceived deficit areas, decreasing the likelihood of reverse transferring due to academic difficulties. In other words, such students believe they need assistance and seek it, while those

Table 1:
Predicting Time to Reverse Transfer among Four-Year Starters

	B	Sig.	Odds Ratio
Gender: Male to Female	.115	.001	1.122
Race		.044	
Black to White	-.098	.093	.907
Hispanic to White	.103	.122	1.109
Asian to White	-.029	.681	.971
Parental Income		.000	
Mid-High to High	.151	.000	1.163
Mid-Low to High	.182	.000	1.200
Low to High	.083	.133	1.087
Expected to Work	.211	.000	1.235
Expected to Receive Aid	.093	.049	1.097
Number of Siblings	.035	.005	1.035
Completed ACT Core	-.044	.184	.957
ACT English	-.021	.000	.980
ACT Math	-.022	.000	.979
ACT Reading	-.002	.685	.998
ACT Science	.024	.000	1.024
Class Rank		.000	
Top to Bottom	-.424	.002	.655
Second to Bottom	-.194	.135	.824
Third to Bottom	-.098	.449	.907
HS GPA		.000	
2.5-2.9 to ≤2.4	-.125	.022	.882
3.0-3.4 to ≤2.4	-.369	.000	.692
≥3.5 to ≤2.4	-.909	.000	.403
AP English	.060	.140	1.062
AP Social Studies	-.090	.030	.914
AP Math	-.012	.774	.988
AP Foreign Language	-.090	.026	.914
AP Science	.086	.037	1.090
HS Program Type		.391	
CTE to College Prep	.025	.623	1.026
General to College Prep	.052	.172	1.053
Highest Expected Degree		.000	
Less than Bachelor's to Bachelor's +	-.241	.002	.786
Bachelor's to Bachelor's +	-.110	.001	.896
Need Help Making Educational Plans	-.167	.000	.846
Need Writing Help	-.052	.202	.950
Need Help Improving Studying Skills	.164	.000	1.178
Need Help with Comprehension	-.125	.001	.882
Need Help with Mathematics	-.105	.005	.900
Region		.004	
NE to Chicago	.204	.001	1.226
NW to Chicago	.192	.022	1.212
WC to Chicago	.180	.036	1.197
EC to Chicago	.209	.016	1.232
SW to Chicago	.111	.165	1.118
SE to Chicago	.434	.000	1.543
High School Mean ACT	-.077	.000	.926
Distance from HS to Initial Four-Yr		.014	
>30 – ≤100 to ≤30	-.045	.319	.956
>100 – ≤175 to ≤30	-.135	.005	.874
>175 to ≤30	-.142	.009	.868
Public to Private	.170	.000	1.185
In-state to Out-of-State	.126	.005	1.135
Highly/Most Competitive to Other	-.357	.000	.700

Odds of an Accelerated Time to Reverse Transfer

- **Male students** had significantly greater odds of reverse transferring when compared with their female counterparts.
- Students in the **middle income** categories had greater odds of reverse transferring relative to their peers in the high income category.
- Higher scores on **ACT English** and **ACT Math** were associated with lower odds of reverse transferring, while the opposite was true for ACT Science.
- The higher the **high school grade point average**, the lower the odds of reverse transferring.
- Stating the need for **help developing one's study skills** was associated with increased odds of reverse transferring.
- Students who enrolled **farther than 100 miles** from home had lower odds of reverse transferring.
- Initially enrolling at a **highly or most competitive institution** was associated with lower odds of reverse transferring.

without the stated need do not realize their own relative limitations. However, stating the need for assistance in developing study skills was related to significantly increased odds of reverse transferring.

High School Characteristics

The mean ACT composite score of each student's respective high school significantly factored into the likelihood of reverse transferring. As the mean ACT score increased, the likelihood of reverse transfer significantly decreased, all else being equal. This suggests that one's high school context is important in predicting this type of student mobility even after holding other individual factors constant. The region in which the high school is located also played a role in predicting reverse transferring, as students from all other regions, save the Southwest, were more likely to reverse transfer relative to students from Chicago, all else being equal.

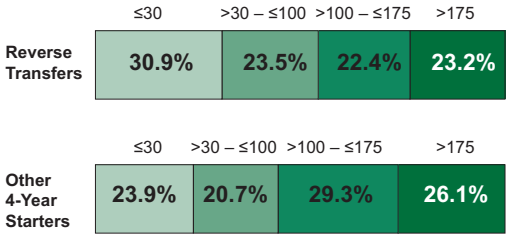
Characteristics of the Four-Year Institutions

The distance between the student's high school and their initial four-year institution also played a significant role in predicting time to reverse transfer, as students who enrolled more than 100 miles from their high school were significantly less likely to reverse transfer when compared with students who enrolled within 30 miles of their respective high school. It should be noted that there was no difference between the students who enrolled within 30 miles and those who enrolled more than 30 miles but less than or equal to 100. In terms of the selectivity of the initial four-year institution, students who enrolled at a most or a highly competitive institutions based on Barron's, were significantly less likely to reverse transfer than students enrolled at all other institutions. Regarding the sector of the institution, students enrolling at a public institution were significantly more likely to reverse transfer, as were students who initially enrolled in-state, as opposed to out-of-state.

Reverse Transferring and Distance from Home

As depicted in Figure 5, reverse transfer students were more likely to initially enroll at a four-year institution closer to home when compared with other four-year starters. While 30.9% of reverse transfer students were enrolled within 30 miles of home, less than a quarter of other four-year starters (23.9%) met that same distinction for difference of seven percentage points.

Figure 5:
Distance in Miles between High School and Initial Four-Year Institution



- Reverse transfer students tend to initially **enroll at a four-year institution closer to home** when compared with other four-year starters.

In terms of the distance between a student's home and the initial four-year institution and the distance between one's home and the community college to which the student reverse transferred, there were some interesting patterns. As shown in Table 2, 80% of reverse transfer students, regardless of the distance between their home and initial four-year institution, enrolled at a community college within 30 miles of their home. This indicated that most reverse transfer students gravitate towards home. For reverse transfer students who enrolled at a four-year institution within 30 miles of their home, over 90% enrolled at a community college within that same distance. For the students initially enrolling farther from home, only about three-quarters enrolled at a community college within 30 miles of home. The results suggest that a sizable group—between 15.3% and 22.0%—of reverse transfer students who initially enrolled farther from home are opting to utilize a community college in the same area as their four-year institution. For example, roughly 20% of the four-year starters who enrolled at a four-year institution more than 175 miles from their home also enrolled at a community college more than 175 miles from their home. While this is not proof positive that the community college and initial four-year institution are within the same area, such an assumption is reasonable. An example would be a student from the Northwest region initially enrolling at Southern Illinois University Carbondale and rather than reverse transferring to Blackhawk Community College, they remain in Southeast region of Illinois and reverse transfer to John A. Logan Community College.

Table 2:
Distance in Miles between High School and Initial Four-Year by Distance between High School and Community College

			High School to Community College				
			≤30	>30 to ≤100	>100 to ≤175	>175	Total
High School to Initial Four-Year	≤30	Count	2,166	106	23	81	2,376
		Row %	91.2%	4.5%	1.0%	3.4%	100.0%
	>30 to ≤100	Count	1,322	398	28	64	1,812
		Row %	73.0%	22.0%	1.5%	3.5%	100.0%
	>100 to ≤175	Count	1,330	68	263	60	1,721
		Row %	77.3%	4.0%	15.3%	3.5%	100.0%
	>175	Count	1,340	56	42	349	1,787
		Row %	75.0%	3.1%	2.4%	19.5%	100.0%
Total		Count	6,158	628	356	554	7,696
		Row %	80.0%	8.2%	4.6%	7.2%	100.0%

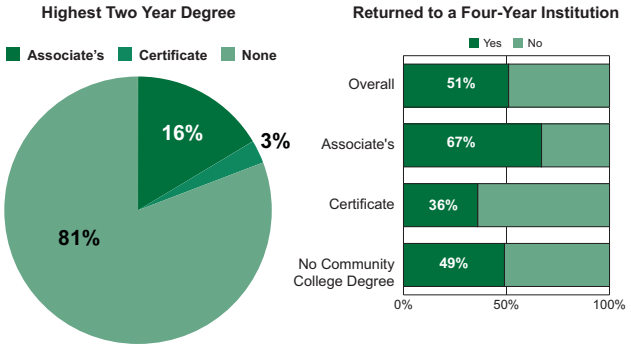
- Most reverse transfer students (80%) enrolled at a **community college within 30 miles of home**.
- The results suggest that a sizeable group (around 20%) of the reverse transfer students who enrolled at a four-year institution more than 30 miles from home are opting to **utilize a community college in the same area as their initial four-year institution**.

Outcomes at the Community Colleges

In terms of certificate and degree attainment for reverse transfer students, the results have been somewhat consistent across recent studies. Somewhere between one-fifth and one-quarter of reverse transfer students earn either an associate's degree or certificate during their stay at a community college (Smalley et al., 2010; Kalogrides & Grodsky, 2011). Current research has also established that approximately one-half of reverse transfer students return to a four-year institution (Goldrick-Rab & Pfeffer, 2009).

The results of the current study were similar to previous research as slightly less than one-fifth of reverse transfer students earned a degree during their stay at a community college. As illustrated in Figure 6, 16% of reverse transfer students earned an associate's degree, while 3% earned a certificate as their highest degree. In terms of returning to a four-year institution, nearly half of reverse transfer students eventually returned. There were differences in the likelihood of returning to a four-year institution based on the outcome attained at the community college (Figure 6), as two-thirds of those earning an associate's degree returned to a four-year institution, roughly one-half of those not earning a degree or certificate returned, while slightly more than one-third of certificate earners made it back to a four-year institution. Although only 16% of reverse transfer students earned an associate's degree during their stay at the community college, such individuals had a much greater likelihood of returning to a four-year institution than their counterparts who did not earn a degree and those who earned only a certificate.

Figure 6:
Outcomes at the Community Colleges



Regarding differences in community college outcome attainment rates and some of the student characteristics, there were stark differences based on the descriptive analysis. As shown in Table 3, among reverse transfer students, females were much more likely to earn an associate's degree or certificate as their highest degree relative to their male counterparts; however, the difference in the likelihood of returning to a four-year institution was minimal and slightly favored male students. White reverse transfer students were much more likely to earn an associate's degree than African-American and Hispanic reverse transfer students. Students in the mid-high parental income category had the highest associate's degree completion rate at 19.5%, followed by those in the mid-low and high parental income categories at 16.7% and 15.7% respectively, while those in the low parental income category had the lowest rate at 12.6%. However, there was a positive relationship between parental income and the likelihood of returning to a four-year institution.

High school GPA and class rank had a positive relationship with both the likelihood of earning an associate's degree and returning to a four-year institution. Students in the highest class rank and high school GPA categories had the highest likelihood of earning an associate's degree during their stay at a community college and making it back to a four-year institution, while the opposite was true for students in the lowest categories. In terms of participation in AP courses during high school, the difference in associate's completion rates between those who took a given AP course and those who did not were quite muted. The differences in terms of associate's degree completion were all less than 1.5 percentage points with the exception of AP Mathematics (three percentage points). It should be noted that reverse transfer students who participated in AP Social Studies had a slightly lower rate of associate's degree completion compared with those who did not. However, regarding the likelihood of returning to a four-year institution, the differences based on AP participation were somewhat larger and those completing AP Social Studies and AP Foreign Language had the highest rates of return.

In terms of the high school program type, college prep students were more likely to complete an associate's degree relative to students in CTE and general studies programs; they were also much more likely to return to a four-year institution. Regarding the highest expected

Table 3:
Community College Outcomes among Reverse Transfer Students

Variable	Categories	Highest Degree			Rate of 4-Yr Return
		Associate's Degree Completion	Certificate Completion	No 2-Yr Degree	
Gender	Male	14.7%	2.1%	83.2%	51.8%
	Female	18.1%	3.6%	78.4%	51.0%
Race	African-American	10.4%	3.4%	86.2%	45.6%
	Hispanic	13.2%	2.5%	84.3%	41.1%
	Asian	~	~	~	58.3%
	White	19.4%	3.1%	77.5%	53.3%
Parental Income	High	15.7%	2.0%	82.2%	59.0%
	Mid-High	19.5%	3.3%	77.3%	52.5%
	Mid-Low	16.7%	3.2%	80.1%	48.4%
	Low	12.6%	3.3%	84.1%	42.5%
Expecting to Work while Enrolled	Yes	16.3%	2.9%	80.7%	49.4%
	No	17.0%	2.9%	80.0%	56.8%
Expecting to Receive Financial Aid	Yes	16.4%	3.0%	80.6%	50.2%
	No	17.4%	2.5%	80.1%	56.6%
Completed the ACT Core Courses in HS	Yes	17.5%	2.6%	79.9%	54.7%
	No	15.3%	3.1%	81.6%	47.5%
High School Class Rank	Top Quarter	20.3%	2.9%	76.8%	58.1%
	Second Quarter	16.2%	3.3%	80.5%	49.7%
	Third Quarter	11.9%	2.5%	85.6%	45.2%
	Bottom Quarter	~	~	~	39.8%
High School GPA	3.5-4.0	21.8%	2.9%	75.3%	61.1%
	3.0-3.4	17.7%	3.0%	79.3%	52.9%
	2.5-2.9	13.7%	3.1%	83.2%	46.9%
	≤2.4	11.0%	2.8%	86.2%	41.1%
AP English	Yes	17.0%	3.0%	80.1%	55.0%
	No	16.4%	3.0%	80.6%	49.2%
AP Social Studies	Yes	16.4%	2.9%	80.8%	58.0%
	No	16.9%	3.1%	80.1%	48.6%
AP Mathematics	Yes	18.6%	2.6%	78.8%	54.7%
	No	15.6%	3.2%	81.2%	49.7%
AP Foreign Language	Yes	17.8%	3.1%	79.0%	57.3%
	No	16.4%	2.9%	80.7%	49.8%
AP Science	Yes	17.7%	3.2%	79.0%	54.7%
	No	16.2%	2.9%	81.0%	49.9%
High School Program Type	College Prep	17.9%	3.1%	79.0%	54.7%
	CTE	14.4%	2.7%	82.8%	47.2%
	General	15.0%	2.7%	82.2%	46.2%
Highest Expected Degree	Bachelor's +	15.9%	3.1%	81.0%	53.5%
	Bachelor's	17.9%	2.7%	79.3%	49.2%
	Less than Bachelor's	~	~	~	41.0%
Planning Help	Yes	17.2%	2.9%	79.9%	52.6%
	No	16.0%	3.0%	81.0%	50.3%
Writing Help	Yes	17.2%	2.9%	79.9%	48.3%
	No	16.3%	2.9%	80.8%	52.1%
Reading Help	Yes	16.7%	3.2%	80.1%	49.6%
	No	16.4%	2.8%	80.8%	51.9%
Studying Help	Yes	16.5%	2.9%	80.6%	48.9%
	No	16.5%	2.9%	80.6%	53.4%
Math Help	Yes	15.8%	3.3%	81.0%	47.4%
	No	16.9%	2.7%	80.4%	53.7%
Region	Chicago	10.5%	2.7%	86.8%	39.7%
	Northeast	14.7%	2.6%	82.6%	55.6%
	Northwest	~	~	~	50.3%
	West Central	22.2%	4.2%	73.7%	47.7%
	East Central	~	~	~	53.0%
	Southwest	21.8%	5.0%	73.2%	48.0%
	Southeast	~	~	~	48.8%
Distance Between High School and First College	≤30	15.4%	3.2%	81.4%	44.9%
	>30 but ≤100	21.4%	3.3%	75.4%	49.8%
	>100 but ≤175	17.5%	2.6%	80.0%	59.0%
	>175	11.8%	2.2%	86.0%	54.2%
Sector of First College	Public	17.2%	2.9%	77.9%	52.5%
	NFF Private	14.8%	2.6%	82.5%	49.0%
State of First College	In-State	17.0%	2.9%	80.1%	49.5%
	Out-of-State	14.5%	2.6%	82.9%	57.5%
Selectivity of First College	Most/Highly	13.2%	2.3%	84.5%	67.4%
	All other Institutions	16.7%	3.0%	80.3%	50.0%

degree of reverse transfer students, those initially expecting to earn only a bachelor's degree were more likely to earn an associate's degree during their stay at a community college than those expecting to earn more than a bachelor's degree. On the other hand, those expecting to earn more than a bachelor's were more likely to return to a four-year institution.

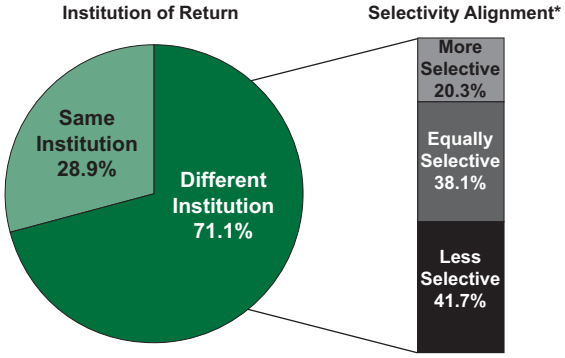
In terms of the regional differences, reverse transfer students from the Chicago region were significantly less likely to earn an associate's degree relative to students from the West Central or Southwest regions. Based on these descriptive results, reverse transfer students from the Northeast region also had a fairly low likelihood of completing an associate's degree (14.7%); despite this, they were much more likely to return to a four-year institution when compared to students from all other regions.

Students who initially enrolled at in-state; public; and less than highly competitive four-year institutions were more likely to earn an associate's degree; however, reverse transfer students who initially enrolled out-of-state and at a highly competitive institution were more likely to return to a four-year institution, based on these descriptive results.

Returning to a Four-Year Institution

Something that has not been measured in previous studies is the alignment between the initial four-year institution and the four-year institution of return. As depicted in Figure 7, only 28.9% of reverse transfer students who return to a four-year institution made it back to their original institution. When comparing the selectivity of the institutions if they are different, generally speaking, a reverse transfer student is much more likely to return to an institution that is equally competitive or less competitive, rather than more competitive (see Figure 8).

Figure 7:
Institution of Return and Selectivity



* 399 individuals enrolled at institutions lacking a Barron's competitiveness rating.

In terms of the factors related to an accelerated time to return, earning an associate's degree was among the statistically significant factors. In fact, the odds of returning for someone earning an associate's degree were 1.19 times greater than the odds of someone not earning a degree during their stay at a community college (Table 4). Although gender was significant in predicting the likelihood of reverse transferring, in terms of predicting one's return to a four-year institution it was not. Regarding race, Asian and African-American reverse transfer students were more likely to return to a four-year institution relative to their white peers, all else being equal. The size of one's family as measured by their number of siblings was related to a decreased likelihood of returning. That is, as the size of a reverse transfer student's family increased, their odds of returning decreased.

Nearly all of the variables related to student academic preparation were insignificant in predicting an accelerated time to return, with the exception of one of the comparisons within high school GPA and participation in AP Science and Social Studies. In terms of high school GPA, the only statistically significant difference was between students in the highest category (3.5 GPA or higher) to those in the bottom category (2.4 GPA or less). Having participated in AP Science was related to lower odds of returning, all else being equal, while the opposite was true for AP Social Studies. A student's high school context also played an important role in predicting an increased likelihood of returning to a four-year institution among reverse transfer students. Students from high schools with higher aggregate composite ACT scores were significantly more likely to return in a timeframe closer to the semester of reverse transfer.

Many of the characteristics of a reverse transfer student's initial four-year institution were statistically significant in terms of predicting the likelihood of returning. The selectivity of initial four-year institution played a significant role, as did the state of the institution, even after controlling for the distance between the high school and the initial four-year institution, which was also a significant factor. Reverse transfer students who initially enrolled at a highly competitive institution were much more likely to return as were students who enrolled out-of-state rather than in-state. The distance between the high school and the community college was insignificant, most likely due to it not providing much to the model above and beyond the distance between the high school and the initial four-year institution. Students initially enrolling at a four-year institution closer to home were less likely to return when compared with students enrolled 100 miles or more from home. The opposite pattern was evident in terms of predicting the likelihood of reverse transfer. Logically, the semester in which a student reverse transferred significantly factored into the likelihood of a timely return, as those reverse transferring earlier in the study had more time to make it back to a four-year institution.

- Most reverse transfer students who made it back to a four-year institution **return to a different institution.**
- Most of the time, the **second institution**, if it is different than the first, is either **less selective or equally selective**.

Table 4:
Predicting Time to Return among Reverse Transfer Students

	B	Sig.	Odds Ratio
Gender: Male to Female	-.045	.353	.956
Race		.000	
Black to White	.176	.043	1.192
Hispanic to White	-.158	.117	.854
Asian to White	.321	.001	1.378
Parental Income		.351	
Mid-High to High	-.092	.113	.912
Mid-Low to High	-.080	.208	.923
Low to High	-.111	.153	.895
Expected to Work	-.057	.278	.945
Expected to Receive Aid	-.093	.142	.911
Number of Siblings	-.046	.015	.955
Completed ACT Core	.082	.083	1.086
ACT English	.000	.961	1.000
ACT Math	.003	.675	1.003
ACT Reading	.000	.995	1.000
ACT Science	-.006	.482	.994
Class Rank		.087	
Top to Bottom	.316	.144	1.371
Second to Bottom	.167	.420	1.182
Third to Bottom	.135	.513	1.144
HS GPA		.093	
2.5-2.9 to ≤2.4	.084	.319	1.087
3.0-3.4 to ≤2.4	.169	.058	1.184
≥3.5 to ≤2.4	.255	.016	1.290
AP English	.017	.780	1.017
AP Social Studies	.131	.025	1.140
AP Math	-.037	.533	.964
AP Language	.108	.053	1.114
AP Science	-.139	.019	.871
HS Program Type		.074	
CTE to College Prep	-.032	.665	.968
General to College Prep	-.127	.023	.881
Highest Expected Degree		.010	
Less than Bachelor's to Bachelor's +	-.378	.003	.685
Bachelor's to Bachelor's +	-.043	.377	.958
Need Help Making Educational Plans	.077	.091	1.080
Need Writing Help	-.062	.286	.940
Need Help Improving Studying Skills	-.040	.415	.961
Need Help with Comprehension	.023	.664	1.023
Need Help with Mathematics	-.035	.515	.966
Region		.069	
NE to Chicago	.174	.062	1.190
NW to Chicago	-.035	.782	.966
WC to Chicago	.046	.725	1.047
EC to Chicago	.034	.788	1.035
SW to Chicago	.120	.328	1.127
SE to Chicago	.297	.070	1.346
High School Mean ACT	.073	.000	1.076
Distance from HS to Initial Four-Yr		.028	
>30 – ≤100 to ≤30	.016	.813	1.016
>100 – ≤175 to ≤30	.177	.009	1.194
>175 to ≤30	.129	.089	1.138
Public to Private	.002	.974	1.002
In-state to Out-of-State	-.162	.007	.851
Other Institution to Highly/Most Competitive	.256	.001	1.292
Distance from HS to CC: ≤9 Miles to >9 miles	-.042	.348	.958
Highest Two-Year Degree		.000	
Certificate to No Degree	-.452	.002	.637
Associate's to No Degree	.174	.002	1.190
Semester of Reverse Transfer	-.023	.000	.978

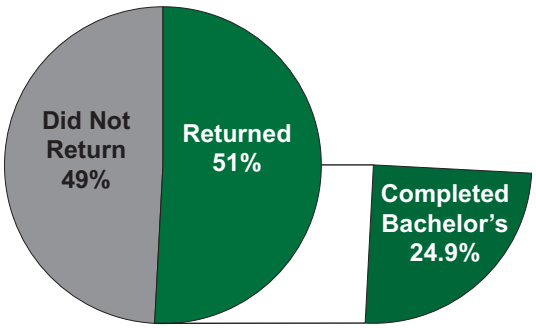
Odds of a Timely Return

- No significant **gender** difference was evident.
- **Black and Asian** reverse transfer students had greater odds of returning to a four-year institution relative to their white counterparts.
- Reverse transfer students **with more siblings** had lower odds of returning.
- Reverse transfer students from high schools with **higher mean ACT composite scores** were more likely to return.
- Reverse transfer students who **initially enrolled at a highly or most competitive institution** had significantly greater odds of returning relative to those who enrolled elsewhere.
- Reverse transfer students who **earned an associate's degree** at their community college had significantly greater odds of returning.

Bachelor's Completion

Previous research has established that approximately one-fifth of all reverse transfer students go on to earn a bachelor's degree (Goldrick-Rab & Pfeffer, 2009; Smalley et al., 2010; Kalogrides & Grodsky, 2011). As stated by Goldrick-Rab and Pfeffer (2009), this is not surprising as earning a bachelor's degree is conditional upon returning to a four-year institution; however, among those returning, approximately half earn a bachelor's degree and the results of the current study were fairly similar. The current study adds to this research base by establishing the factors related to bachelor's completion for reverse transfer students who return. As depicted in Figure 8, roughly one-quarter (24.9%) of all reverse transfer students eventually earn a bachelor's degree.

Figure 8:
Bachelor's Completion Among Reverse Transfer Students (n=7,696)



In terms of the factors related to an accelerated time to bachelor's completion, gender and race were both statistically significant. Once again, males were outperformed by their female peers as they were significantly less likely to complete a bachelor's degree. Although African-American students were significantly more likely to return to a four-year institution when compared with white students, they were significantly less likely to complete their respective bachelor's program. This was similar to other research focusing on bachelor's completion among four-year starters, as African-American students were significantly less likely to complete relative to their white counterparts (Smalley et al., 2010).

The predictive importance of the factors related to academic preparation faded away in terms of bachelor's completion and not a single factor specific to a student's preparation for college was statistically significant.

In terms of the variables related to the students' respective high school, only region demonstrated a statistically significant difference, holding everything else constant. Students from the Southwest region were significantly less likely to complete bachelor's degrees when compared with students from Chicago.

Earning an associate's degree was associated with an increased odds of bachelor's completion. The odds of bachelor's completion for an associate's degree completer were nearly 1.3 times greater than the odds of someone who did not earn a degree.

As was the case with predicting the likelihood of a timely return to a four-year institution, many of the characteristics related to the four-year institutions played a significant role in predicting bachelor's completion. Returning to the same four-year institution or an equally rather than less competitive institution was related to increased odds of completion. Returning to an institution within Illinois, rather than out-of-state, was also related to greater odds of bachelor's completion, all else being equal. The odds of bachelor's completion for someone returning to a highly competitive institution were roughly 1.35 times greater than that of someone returning to a less competitive institution.

- Roughly **one-quarter of all reverse transfer students eventually earned a bachelor's degree**. When looking at the bachelor's completion rate conditional upon one's return to a four-year institution, it was slightly less than 50%.

Table 5:
Predicting Time to Bachelor's Completion among Reverse Transfer Students who Returned

	B	Sig.	Odds Ratio
Gender: Male to Female	-.218	.002	.804
Race		.042	
Black to White	-.414	.006	.661
Hispanic to White	-.029	.832	.971
Asian to White	-.137	.309	.872
Parental Income		.355	
Mid-High to High	.026	.749	1.026
Mid-Low to High	-.094	.310	.911
Low to High	-.148	.218	.872
Expected to Work	.081	.281	1.084
Expected to Receive Aid	-.052	.552	.949
Number of Siblings	.016	.553	1.017
Completed ACT Core	.039	.565	1.040
ACT English	-.004	.625	.995
ACT Math	.012	.293	1.012
ACT Reading	-.004	.642	.996
ACT Science	-.006	.619	.994
Class Rank		.303	
Top to Bottom	.611	.128	1.842
Second to Bottom	.508	.193	1.662
Third to Bottom	.408	.298	1.504
HS GPA		.201	
2.5-2.9 to ≤2.4	-.014	.918	.986
3.0-3.4 to ≤2.4	.044	.750	1.045
≥3.5 to ≤2.4	.218	.169	1.243
AP English	.019	.822	1.019
AP Social Studies	-.057	.479	.945
AP Math	-.049	.551	.952
AP Language	.152	.050	1.165
AP Science	-.052	.524	.949
HS Program Type		.950	
CTE to College Prep	.035	.753	1.036
General to College Prep	.001	.987	1.001
Highest Expected Degree		.244	
Less than Bachelor's to Bachelor's +	-.163	.457	.850
Bachelor's to Bachelor's +	.095	.169	1.101
Region		.032	
NE to Chicago	-.133	.404	.875
NW to Chicago	-.383	.056	.682
WC to Chicago	-.128	.522	.880
EC to Chicago	-.119	.550	.888
SW to Chicago	-.601	.004	.559
SE to Chicago	-.304	.242	.738
High School Mean ACT	.037	.062	1.037
Distance between HS and CC: ≤9 Miles to >9 Miles	.055	.394	1.057
Highest Degree from CC		.000	
Certificate to No Degree	-.582	.041	.559
Associate's to No Degree	.255	.001	1.300
Returned to the Same 4yr	.232	.006	1.262
Selectivity Alignment		.042	
Equal to Less Competitite	.255	.018	1.291
More to Less Competitive	.162	.063	1.176
Returned to Public	.009	.909	1.009
Returned In-State	.245	.021	1.277
Returned to a Highly/Most Competitive	.290	.019	1.337
Distance Between HS and 4yr		.662	
>30 – ≤100 to ≤30	.032	.707	1.033
>100 – ≤175 to ≤30	.011	.915	1.011
>175 to ≤30	-.114	.345	.892
Semester of Return	-.027	.000	.973

Odds of a Timely Bachelor's Degree Completion

- **Male students** had significantly lower odds of completing a bachelor's degree when compared with their female peers.
- **African-American students** had significantly lower odds of bachelor's completion relative to white students.
- Students from the **Southwest region** were much less likely to earn a bachelor's degree relative to students from Chicago.
- **Earning an associate's degree** was related to significantly increased odds of earning a bachelor's degree.
- Returning to **a highly or most competitive institution** was related to greater odds of bachelor's completion.

Discussion

Overall Patterns

Students are not only reverse transferring as a way to persist in postsecondary education, but they are engaging in this form of student mobility to return to college after stopping out, sometimes after not being enrolled for several years. Kalogrides and Grodsky (2011) found that reverse transfer students are overly optimistic regarding their likelihood of bachelor's completion given their college readiness and remain committed to higher education. Despite their high level of commitment and perhaps because of their unrealistic expectations at the beginning of their academic careers, a significantly high proportion of reverse transfer students never return to a four-year institution (49%) and when they do they are significantly more likely to enroll at a different institution that is equally or less competitive.

Gaining a better understanding of this form of student mobility is important because reverse transfer students have an extremely low likelihood of completing a bachelor's degree when compared with other four-year starters. Only one out of every four reverse transfer students earns a bachelor's degree within seven years of initially enrolling at a four-year institution. In fact, if reverse transfer students are removed from the larger group of four-year starters, the overall bachelor's completion rate for four-year starters increases from 72% to 84% (Table 6). What was more striking was that among all four-year starters, roughly half of the dropouts (non-completers who were no longer enrolled at the end of the study) were reverse transfer students. This occurred even though reverse transfer students comprise only about one-fifth of the four-year starters. Therefore reverse transfer students make up a disproportionately low number of bachelor's completers and a disproportionately high number of dropouts.

Based on the definition of reverse transfer used in this study, all of the non-completers (bachelor's) still enrolled at a two-year institution at the end of the study were reverse transfer students (Table 6). Moreover, reverse transfer students were also overrepresented among non-completers still enrolled at a four-year institution at the end of the study. The proportion of reverse transfer students still enrolled at the end of the study was nearly 10 times greater than that of other four-year starters. So while only 2.6% of other four-year starters were still enrolled at the end of the study, nearly one-quarter of reverse transfer students were either enrolled at a two-year or a four-year institution. The distribution of reverse transfer students among those two categories was roughly even; 12.4% of reverse transfer students were still enrolled at a community college and 12.1% were still enrolled at a four year institution.

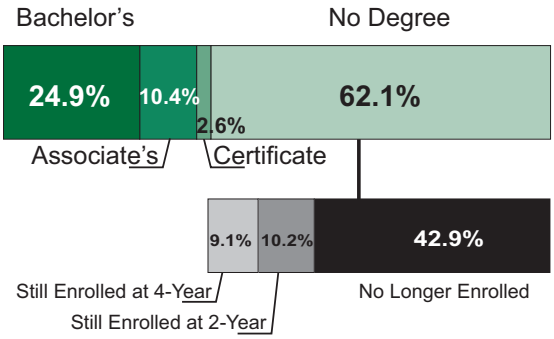
Table 6:
Reverse Transfer and End of Study Status

		End of Study Status				
			Non-Completers			
		Bachelor's Degree or Higher	Still Enrolled at 4-yr	Still Enrolled at 2-yr	No Longer Enrolled	Total
Reverse Transfer Students	Count	1,916	931	957	3,892	7,696
	Row %	24.9%	12.1%	12.4%	50.6%	100.0%
	Column %	7.2%	54.9%	100.0%	50.2%	20.7%
Other Four-Year Starters	Count	24,843	764	0	3,862	29,469
	Row %	84.3%	2.6%	0.0%	13.1%	100.0%
	Column %	92.8%	45.1%	0.0%	49.8%	79.3%
Total	Count	26,759	1,695	957	7,754	37,165
	Row %	72.0%	4.6%	2.6%	20.9%	100.0%
	Column %	100.0%	100.0%	100.0%	100.0%	100.0%

When outcomes at the community college are taken into consideration the overall postsecondary outcome picture slightly improves. As shown in Figure 9, an additional 10.4% of reverse transfer students earned an associate's as their highest degree and 2.6% of reverse transfer students earned a certificate during their stay at a community college. In total, 37.9% of reverse transfer students earned a postsecondary certificate or degree before the end of the study period and an additional 19.3% of reverse transfer students were still enrolled at a community college (10.2%) or four-year institution (9.1%) at the end of the study. Therefore, slightly more than two out of every five reverse transfer students had no degree and were no longer enrolled at the end of the study. If community colleges are providing reverse transfer students with a second chance at postsecondary

success, perhaps more must be done to facilitate the reverse articulation of credit from the initial four-year institution to the community college. This way reverse transfer students would have a higher likelihood of earning an associate's degree, which was demonstrated to have a significant impact on one's likelihood of returning to a four-year institution and completing a bachelor's degree. Furthermore, even if reverse transfer students fail to return to a four-year institution, at the very least they have a postsecondary credential.

Figure 9:
Highest Degree and End of Study Status for Reverse Transfer Students (N=7,696)



The Importance of College Readiness Fades as the Outcome Measures Progress

Most of the factors related to academic preparation during high school and college readiness were statistically significant in predicting reverse transferring; however, only a few of these factors remained significant as the outcome measures progressed to one's return and none of the factors were significant in terms of bachelor's completion. In fact, when predicting time to return to a four-year institution, the differences based on high school GPA were only statistically significant at the extremes (comparing students in the highest GPA category to those in the lowest), while this factor was among the most important in terms of predicting reverse transfer.

Regarding performance on the ACT, which is oftentimes used to develop measures of college readiness, only three out of four of the ACT subtests were significantly associated with reverse transferring. Notably, one of those subtests—ACT Science—had a positive relationship with the outcome measure, so as the ACT Science score increased, so did the odds of reverse transferring. It should be noted that scores on ACT English and ACT Mathematics were significantly related to a decreased likelihood of reverse transferring. Although the current study used a different outcome measure (reverse transferring), the results were somewhat similar to a recent study conducted by Bettinger, Evans, and Pope (2011). Bettinger et al. (2011) explored the relationship between the four ACT subtests and college achievement (GPA) and found that scores on English and Mathematics were significant and positively related to college achievement, while scores on Reading and Science were sometimes negatively associated with the same outcomes but most of the time lacked statistical significance. They posited that since the ACT composite score is oftentimes considered in the college admissions process, while the individual subtest scores are not, extremely high Science and Reading scores could potentially mask deficits in Mathematics and English, while extremely low Science and Reading scores could hide relative advantages in Mathematics and English. Since Mathematics and English are more strongly associated with positive college achievement outcomes, the Science and Reading scores serve to create noise specific to the ACT composite score, increasing the potential for a mismatch between the student's college readiness and the rigor/competitiveness of their institution. The findings related to the ACT scores deviated from previous research that found achievement test scores were unrelated to reverse transferring (Kalogrides & Grodsky, 2011).

Financial Aid

As depicted in Table 7, the association between parental income and accelerated time to reverse transfer was somewhat interesting in that students in the middle income categories were at greater risk relative to high income students and the difference at the extremes, or the high to low comparison, was not statistically significant. Assuming that parental income is related to one's ability to pay and that reverse transferring to a community college would serve as a viable postsecondary alternative for students having difficulty paying tuition at a four-year institution, a couple of explanations are possible. As low income students are more likely to secure larger financial aid packages relative to middle income students and high income students have a greater ability to pay regardless of financial aid, perhaps students in the middle income categories are more likely to engage in this form of student mobility.

Expecting to receive financial aid was another significant factor in terms of reverse transferring as was maintaining the expectation to work while enrolled. This could be indicative of not receiving a large enough financial aid package or perhaps those expecting to work are more likely to work which interferes with one's studies. This, in turn, negatively impacts academic performance during college. An alternative explanation is that perhaps such students expect to work because they are more likely to pay for a portion of their college tuition or use the earnings to offset other expenses. Arguably, such students are more cost conscious and opt to utilize the community college system because of the lower tuition rates. However, without information specific to academic performance during college and better measures of financial aid, the previous statement would be difficult to prove either way.

The factors related to financial aid were more robust in terms of predicting one's likelihood of reverse transferring than they were for the other outcome measures. As was the case with the factors associated with academic preparation, many of the financial aid factors lost their significance as the outcome advanced from predicting reverse transferring to returning to a four-year institution, and none of the factors were statistically significant in terms of predicting bachelor's completion.

Associate's Degree Completion

Associate's degree completion was among the relatively few college achievement-related factors that were available for this cohort. Earning such a degree during one's stay at a community college was strongly associated with both a timely return among reverse transfer students and the timely completion of a bachelor's degree among those who return. This particular finding is interesting in that until recently articulation agreements were generally defined in one direction. That is, the general direction of the articulation agreement is one that moves forward from the community college to the four-year institution to ensure that students who initially enrolled at a community college could transfer their credit to a four-year institution. However, the current findings suggest the importance of being able to use credits earned at a four-year institution towards an associate's degree after reverse transferring.

Table 7:
Summary of Findings: Impact of Factors on Time to Reverse Transfer, Return to a Four-Year, and Bachelor's Completion

Factors		Reverse Transferring	Returning to a Four-Year	Bachelor's Completion
Demographics	Gender (Male)	Increased odds	No significant effects	Decreased odds
	Race (White)	No significant effects	Decreased odds*	Increased odds*
Financial Aid	Parental Income (Middle)	Increased odds*	No significant effects	No significant effects
	Expected to Work	Increased odds	No significant effects	No significant effects
	Received Financial Aid	Increased odds	No significant effects	No significant effects
	Siblings	Increased odds	Decreased odds	No significant effects
Academic Preparation/ College Readiness	ACT Core	No significant effects	No significant effects	No significant effects
	ACT English	Decreased odds	No significant effects	No significant effects
	ACT Math	Decreased odds	No significant effects	No significant effects
	ACT Reading	No significant effects	No significant effects	No significant effects
	ACT Science	Increased odds	No significant effects	No significant effects
	Class Rank (Bottom)	Increased odds*	No significant effects	No significant effects
	GPA (≤2.4)	Increased odds*	Decreased odds*	No significant effects
	AP English	No significant effects	No significant effects	No significant effects
	AP Social Studies	Decreased odds	Increased odds	No significant effects
	AP Math	No significant effects	No significant effects	No significant effects
	AP Science	Increased odds	Decreased odds	No significant effects
	AP Foreign Language	Decreased odds	No significant effects	No significant effects
	HS Program (College Prep)	No significant effects	Increased odds*	No significant effects
	Expected Degree (BA+)	Increased odds*	Increased odds*	No significant effects
	Help Ed Plans	Decreased odds	No significant effects	
	Help Writing	No significant effects	No significant effects	
	Help Studying	Increased odds	No significant effects	
	Help Reading	Decreased odds	No significant effects	
	Help Math	Decreased odds	No significant effects	
High School	Region (Chicago)	Decreased odds*	No significant effects	Increased odds*
	Mean ACT	Decreased odds	Increased odds	No significant effects
First Four-Year	Distance from HS (≤30 miles)	Increased odds*	Decreased odds*	
	Sector (Public)	Increased odds	No significant effects	
	State (Illinois)	Increased odds	Decreased odds	
	Selectivity (Highly/Most)	Decreased odds	Increased odds	
Community College	Distance from HS		No significant effects	No significant effects
	Associate's		Increased odds*	Increased odds*
Four-Year of Return	Same 4-Yr			Increased odds
	Equally Competitive to Less			Increased odds*
	Sector (Public)			No significant effects
	State (Illinois)			Increased odds
	Selectivity (Highly/Most)			Increased odds
	Distance (≤30)			No significant effects

* At least one dummy variable comparision indicated a statistically significant difference.

Recommendations for Further Investigation

The 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.

1. Establishing the differences in postsecondary outcomes between reverse transfer students who gravitate to a community college closer to home and those who were initially enrolled a greater distance from home and opted to enroll at a community college in close proximity to their initial four-year institution. In other words, are those who enroll at a community college closer to their initial four-year institution more likely to return and earn a bachelor's degree conditional upon their return relative to other reverse transfer students?
2. Developing a predictive model to determine the factors related to a timely completion of an associate's degree after reverse transferring. Although the current study descriptively explored the relationship between select student demographic and academic preparation characteristics and associate's degree completion, it stopped short of determining the predictive importance of each factor holding everything else constant. Since earning an associate's degree was highly predictive of returning to a four-year institution and bachelor's completion upon return, this appears important.
3. Obtaining a richer dataset that includes information specific to student academic achievement during college and financial aid. The current study relied too heavily on proxy measures, such as high school achievement, self-reported information gleaned from the Student Interest Profiler of the ACT, and characteristics of the four-year institutions. Since college performance and financial aid data are not universally available for this cohort perhaps establishing a data-sharing agreement with a community college and its parent or feeder four-year institution could supplement the current cohort analysis. That way reverse transferring and other forms of student mobility could be explored in greater depth, even if it is with a smaller proportion of the cohort.
4. Integrating employment information during postsecondary enrollment into the model predicting the likelihood of reverse transfer. One of the statistically significant factors in terms of predicting an accelerated time to reverse transfer was expecting to work while enrolled; therefore, it would be beneficial to see how the expectation to work related to actual employment and in turn how being concurrently enrolled and employed was associated with reverse transferring. We could also explore if working for one's postsecondary institution—for example, through a work study program—was related to a decreased likelihood of reverse transferring.
5. Writing a series of short research briefs that focus on the other ways students who initially enroll at a four-year institution utilize Illinois community colleges. The research briefs would include the factors and subsequent outcomes related to: enrolling at a community college over summer; concurrent enrollment at both a four-year institution and community college; post-bachelor's enrollment at a community college; and enrolling at the end of an undergraduate program to finish a bachelor's degree requirement.

Policy Implications

1. As mentioned in the discussion section, until recently articulation agreements have generally been one-way, facilitating the transfer of credit from a community college to a four-year institution for forward transfer students. However, within the last couple of years the reverse transferring of credit from a four-year institution to a community college has received more attention, particularly for the purpose of retroactively awarding associate's degrees. This typically occurs after a community college student earns a minimum number of credits at a community college (the threshold is usually between 30 and 45 credit hours) before transferring in good academic standing to a four-year institution (Garber, Kleemann, Marshall, Parke, & Wunderle, 2010; Mangan, 2011). According to Garber et al. (2010), once the former community college student completes the remaining coursework at their respective four-year university necessary to earn an associate's degree, the initial community college is notified, a degree audit is processed, transcripts are requested to verify the degree audit, and associate's degrees are formally awarded.

   It would be beneficial if the retroactive policy mentioned above could be expanded to facilitate the active transferring of credit from the initial four-year institution to the community college for reverse transfer students. This could better enable reverse transfer students to complete an associate's degree in a timely manner. As was the case with retroactively awarding associate's degrees for forward transfer students, reverse transfer students should be required to earn a minimum number of hours at the community college in order to be eligible for an associate's degree. Easing the active transfer of credit between four-year and two-year institutions provides potential benefits to both the student and the institution. If a reverse transfer student fails to return to a four-year institution, as only half are able to do, at the very least a student would have an easier time earning an intervening postsecondary credential, which may increase their employability and/or salary. More importantly, the current study demonstrated the importance of earning an associate's degree for reverse transfer students in terms of not only returning to a four-year institution, but completing a bachelor's degree in a time-frame closer to return. Regarding the institutional benefits, the community college would be able to award a larger number of associate's degrees which aligns with national and state goals of increasing the number of students with high-quality postsecondary degrees.

2. Even though the current study was limited in the fact that information specific to student academic performance during one's stay at a four-year institution was unavailable, it represents a vision of what could be accomplished as more states develop longitudinal data systems bringing together student-level information from K-12 schools, community colleges, and four-year institutions. Furthermore, the limitation, in addition to the policy recommendation mentioned above, both reinforce the need for cooperation and collaboration between educational entities from various levels and across sectors as longitudinal databases are developed and comprehensive research agendas are set. The study also demonstrates the benefits of having enrollment and degree completion information for students who enroll outside of their "home" state, which typically would not be included in a state-level longitudinal database. This is particularly important for states such as Illinois that tend to lose more high school graduates to out-of-state postsecondary institutions than the in-state institutions are able to attract from other states. Therefore as states develop longitudinal databases, policymakers should consider ways to track its high school students who enroll in college outside the state, such as the National Student Clearinghouse, to provide a more complete picture of postsecondary outcomes.

References

Adelman, C. (2005). *Moving into town—and moving on: The community college in the lives of traditional-age students*. Washington, DC: U.S. Department of Education.

Barron's. (2003). *Profiles of American colleges*. Woodbury, NY: W's Educational Series, Inc.

Bettinger, E. P., Evans, B., & Pope, D. G. (2011). *Improving college performance and retention the easy way: Unpacking the ACT exam*. Retrieved from http://faculty.chicagobooth.edu/devin.pope/research/pdf/Final%20AEJ%20Paper.pdf

Garber, P. R., Kleemann, S., Marshall, M. M., Parke, S. J., & Wunderle, T. (2010). Rising to the challenge from policymakers to produce more college graduates. Presentation at the 2010 Association for Institutional Research Forum, Chicago, IL. May 31.

Goldrick-Rab, S. & Pfeffer, F.T. (2009). Beyond access: Explaining socioeconomic difference in college transfer. *Sociology of Education,* 82(2), 101-125.

Hillman, N., Lum, T., & Hossler, D. (2008). Understanding Indiana's reverse transfer students: A case study in institutional research. *Community College Journal of Research and Practice, 32*, 113-134.

Kalogrides, D. & Grodsky, E. (2011). Something to fall back on: Community colleges as a safety net. *Social Forces, 89*(3), 853-877.

LeBard, C. (2009). *Reverse transfers in the community college*. ERIC Digests. (ERIC Document Reproduction Service No. ED433871).

Lichtenberger, E. (2011). *How students who initially enroll at a four-year institution utilize the community college system*. Presentation at the Ninth Focus on Illinois Education Research Symposium, Bloomington, IL, June 7-8, http://ierc.siue.edu/documents/ejl_symp_2011_4-year_starters.pdf

Managan, K. (2011). Texas takes steps to streamline the path to a college degree. The Chronicle of Higher Education, July 26. Retrieved from http://chronicle.com/article/Texas-Takes-Steps-to/128404/?sid=cc&utm_source=cc&utm_medium=en

National Student Clearinghouse. (2010). *Frequently asked questions*. Retrieved from http://www.studentclearinghouse.org/highschools/hs_faqs.htm

Phelan, D. J. (1999). Institutional and public policy implications of phenomenon of reverse transfer students. *New Directions for Community Colleges, 106(*Summer), 77-84.

Smalley, D. J., Lichtenberger, E. J., & Brown, K. S. (2010). *A longitudinal study of the Illinois high school class of 2002: A six-year analysis of postsecondary enrollment and completion* (IERC 2010-3). Edwardsville, IL: Illinois Education Research Council.

Townsend, B. K. & Dever, J. T. (1999). What do we know bout reverse transfer students? *New Directions for Community Colleges, 106*(Summer), 5-14.

Walters, S. J. (2001). *What is a Cox model?* United Kingdom: Hayward Medical Communications. Retrieved from http://www.medicine.ox.ac.uk/bandolier/painres/download/whatis/COX_MODEL.pdf

Appendix A:
Description of Variables

	Description
Outcomes	
Reverse Transfer	Dichotomous indicator of whether a 4-yr starter ever enrolled at a community college excluding summer enrollment, concurrent enrollment, and post-bachelor's enrollment.
Highest Two-Year Degree	Ordinal measure of a student's highest level of degree attainment while enrolled at a community college. It is ranked as follows: a) associate's degree; b) certificate; and c) no 2-yr degree.
4-yr Return	Dichotomous indicator of whether a reverse transfer student ever returned to a 4-yr institution after their community college enrollment. This includes summer and concurrent enrollment and is not limited to the initial four-year institution.
Bachelor's Completion	Dichotomous indicator of whether a returner earned a bachelor's degree by the end of the spring semester of 2010.
Student Characteristics	
Gender	Categorical measure of whether a student is male or female; reference female.
Race	Categorical measure that includes the following: a) African-American; b) Hispanic; c) Asian; and d) White; reference White
Financial Aid	
Parental Income	Ordinal measure that includes: a) High, >$80K; b) Mid-High, $50K to <$80K; c) Mid-Low, $40K to <$50K; and d) Low, <$30K; reference High.
Work	Dichotomous indicator of whether a student expected to work while enrolled.
Receive Aid	Dichotomous indicator of whether a student expected to receive financial aid.
Siblings	Continuous measure of each student's number of siblings under the age of 21.
Academic Preparation	
ACT Core	Dichotomous indicator of whether a student completed a core curriculum during high school as defined by ACT.
ACT Subscale Scores	Continuous indicators of performance in Mathematics, English, Science, and Reading.
HS Class Rank	Ordinal measure of high school class based on quartiles; reference bottom.
HS GPA	Ordinal measure of high school GPA that includes: a) ≤2.4; b)2.5-2.9; c) 3.0-3.4; and d) ≥3.5; reference ≤2.4.
AP Participation	A series of dichotomous indicators of whether a student participated in a given AP course during high school. The following subjects were included: English, Social Studies, Math, Foreign Language, and Science.
HS Program Type	Categorical measure that includes: a) college prep; b) career and technical; and c) general; reference college prep.
Highest Expected Degree	Ordinal measure including: a) more than bachelor's; b) bachelor's only; and c) less than bachelor's; reference more than bachelor's.
Need for Help	A series of dichotomous indicators of whether a student stated a need for assistance in the following: a) making educational plans; b) writing; c) improving studying skills; d) reading comprehension; and e) mathematics.
High School	
Region	Continuous measure based on the regional offices of education in Illinois.
Mean ACT	Continuous measure of the mean high school composite ACT score for each high school's graduating class in 2003.
Distance HS to First 4-yr	Continuous measure of the distance between a student's high school and their first 4-year instituion; reference ≤30 miles.
Distance HS to Community College	Categorical measure of the distance between a reverse transfer student's high school and their community college; reference >9 miles.
Distance HS to 4-yr of Return	Categorical measure of the distance between a student's high school and their 4-yr institution of return; reference ≤30 miles.
First 4-Yr	
Sector	Dichotomous measure of whether the first 4-yr instituion was public or private; reference private.
State	Dichotomous measure of whether the first 4-yr institution was within Illinois; reference outside of Illinois.
Selectivity	Dichotomous measure of whether the first 4-yr institution was highly or most competitive according to Barron's; reference not highly nor most competitive.
4-Yr of Return	
Sector	Dichotomous measure of whether the 4-yr institution of return was public or private; reference private.
State	Dichotomous measure of whether the 4-yr institution of return was within Illinois; reference outside of Illinois.
Selectivity	Dichotomous measure of whether the 4-yr institution of return was highly or most competitive according to Barron's; reference not highly or most competitive.
Returned to Same	Dichotomous measure of whether the 4-yr institution of return was same as the first 4-yr institution.
Selectivity Alignment	Categorical measure of whether the 4-yr institution of return was more competitive, equally competitive, or less competitive than the first 4-yr institution; reference less competitive.
Other Variables	
Semester of Reverse Transfer	Continuous measure of the semester in which a 4-yr starter reverse transferred.
Semester of Return	Continuous measure of the semester in which a reverse transfer student returned to a 4-yr institution.
4-yr Starter	Member of the HS Class of 2003 who initially enrolled at a 4-yr institution during the fall semester of 2003. Included concurrent enrollment.

Contact the IERC toll-free at 1-866-799-IERC (4372)
or by email at ierc@siue.edu.

http://ierc.siue.edu

The Illinois Education Research Council, housed at Southern Illinois University Edwardsville, was established in 2000 to provide Illinois with education research to support P-20 education policy making and program development. The IERC undertakes independent research and policy analysis, often in collaboration with other researchers, that informs and strengthens Illinois' commitment to providing a seamless system of educational opportunities for its citizens. Through publications, presentations, participation on committees, and a research symposium, the IERC brings objective and reliable evidence to the work of state policy makers and practitioners.

Suggested citation:

Lichtenberger, Eric J. (2011). *Reverse transfer students and postsecondary outcomes: A potential opportunity* (IERC 2011-5). Edwardsville, IL: Illinois Education Research Council.