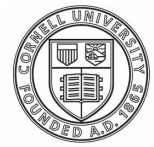

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Do Community College Students Benefit When Transferring with Other Transfers? A Cross-Section Peer Effects Analysis

Andrew W. Nutting
Colgate University

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Abstract

Using grouped data, Ehrenberg and Smith (2004) found that community college students who transfer to four-year colleges have higher graduation rates when attending four-year campuses with large shares of transfer students. I test this hypothesis with student-level data and control for heterogeneity among transfer students. "Traditional" transfers—transfers who spend two or more years at community college—are the majority of community college transfers, and graduate at higher rates when attending campuses with larger shares of traditional transfer students. However, this effect is not significant when I omit students who have not declared a major at a late point in their academic careers from the estimations, or when I omit one outlier campus with a large number of transfer students with undeclared majors from the estimations. I also find that traditional transfers have significantly lower graduation rates when they declare majors in departments with large shares of traditional transfers. This last finding is robust to multiple specifications.

Keywords

higher education, transfer students, academic performance

Do Community College Students Benefit When Transferring with Other Transfers?: A Cross-Section Peer Effects Analysis

Andrew W. Nutting
Visiting Assistant Professor of Economics
230 Persson Hall
Colgate University
13 Oak Drive
Hamilton, NY 13346
Phone: (315) 228-7526
Fax: (315) 228-7033

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ABSTRACT – Using grouped data, Ehrenberg and Smith (2004) found that community college students who transfer to four-year colleges have higher graduation rates when attending four-year campuses with large shares of transfer students. I test this hypothesis with student-level data and control for heterogeneity among transfer students. "Traditional" transfers—transfers who spend two or more years at community college—are the majority of community college transfers, and graduate at higher rates when attending campuses with larger shares of traditional transfer students. However, this effect is not significant when I omit students who have not declared a major at a late point in their academic careers from the estimations, or when I omit one outlier campus with a large number of transfer students with undeclared majors from the estimations. I also find that traditional transfers have significantly lower graduation rates when they declare majors in departments with large shares of traditional transfers. This last finding is robust to multiple specifications.

I. Introduction

A key role of two-year colleges, whose importance has increased in recent decades,[1] is the "transfer function"—preparing students for baccalaureate study at a four-year college.[2] Critical to determining the effectiveness of two-year colleges in this respect is analyzing the performance of community college transfers at four-year colleges.

Educational researchers and administrators published numerous studies in the 1970s concerning this issue.[3] Economists have more recently done the same with larger data sets and more rigorous econometric techniques. Some economic studies report that transfer students graduate at rates statistically similar to those of non-transfer students (e.g. Lee et al 1993, Rouse 1995). This paper analyzes whether transfer students improve their post-transfer performance by enrolling in four-year campuses or departments with large numbers of transfer students. Estimation methods common in peer-effects analyses are used to determine the statistical relationship between exposure to transfer students and probability of timely baccalaureate receipt. Peer effects analysis has been used by educational researchers for decades (e.g. Hanushek 1986), and is often used to measure whether academic outcome is impacted by classmates' abilities (e.g. Summers and Wolfe 1977) or racial classifications (e.g. Hoxby 2000, Hanushek, Kain, and Rivkin 2002). Peer effects analysis in the higher education literature is less extensive than that in primary or secondary education, presumably because of the less exogenous nature of peer groups. But economists have used peer effects analysis to

[1] Eide, Goldhaber, and Hilmer (2003) show that the share of American higher education students enrolled in community colleges increased from 35 percent in 1976 to 39 percent in 2000.
[2] The transfer function was the original purpose of community colleges. For a review of the economic literature concerning community colleges, including a brief history of their role in American higher education, see Kane and Rouse (1999).
[3] See, for example, Nolan and Hall (1978).

determine the impact of college roommates on academic performance (Winston and Zimmerman 2003, Sacerdote 2001).

Previous research using grouped data from the State University of New York (SUNY) system found evidence of a positive relationship between transfer students' exposure to other transfers and their probability of earning a baccalaureate degree. Ehrenberg and Smith (2004), controlling for institutional quality with institutional six-year baccalaureate rate, find a statistical similarity between the ranking of four-year colleges by 1) the graduation rate of a campus' transfers, and 2) the share of a campus' students that are transfers.[4] Cheslock (2003) finds that certain factors, such as attrition rate of direct attendees, tuition, and percent of students living off campus, are strongly correlated with share of an institution's students that are transfers.[5] Cheslock's results indicate that certain campuses may cater to transfer students; when considered alongside the finding of Ehrenberg and Smith (2004) that transfers perform better at schools where there are more transfers, his results may indicate that some four-year colleges, aware of their relative attraction to transfer students, may establish institutions (counselors, administrators, courses, etc.) specifically designed to boost the academic performance of transfers.

This paper furthers the analysis of whether exposure to transfers impacts the four-year college academic outcomes of community college transfers. Because it uses student-level data rather than institutional or grouped data, it contains valuable controls—such as demographics and GPA—that assist in predicting the probability of baccalaureate receipt. Since it also contains information on student field-of-study, it permits analysis of transfer peer effects at the approximate departmental level as well as the campus level. I am also able to provide some heterogeneity among transfer students, distinguishing between "traditional"

[4] Each observation is of a group of students, assorted by four-year college attended, two-year college attended, and type of two-year degree received, if any.
[5] He does not distinguish between transfers from community colleges and those from other four-year colleges, as I do.

transfers, who spend at least two years at the community college level before transferring, "early" transfers, who spend fewer than two years at the community college level before transferring, and "down-and-up" transfers, who begin their higher education careers at a four-year college, transfer to a community college, and then back to a four-year college.

Similar to Ehrenberg and Smith (2004), I find a significant positive relationship between percent campus composed of "traditional" transfers and a traditional transfer student's probability of baccalaureate receipt. However, the positive relationship disappears when I remove students not enrolled in a specific field-of-study by the beginning of their junior year, or when I drop from the sample one outlying campus. At the departmental level, exposure to transfer students significantly decreases the likelihood of a transfer student earning a six-year baccalaureate degree when I include dummies for campus and field-of-study in the model, a finding that is robust to multiple specifications.

The rest of this paper is organized as follows: Section II describes the data set; Section III defines terms; Section IV discusses the estimation strategy; Section V details results; and Section VI concludes.

II. Data

For each semester, the restricted-access SUNY Student Data File (SDF) records every SUNY student's campus of enrollment, two-digit field-of-study, enrollment status (full- or part-time), number of credits attempted, number of classes taken, credits accumulated in previous semesters, and grade point average (GPA) at the beginning of the semester. It also records demographic information, namely race, gender, and date of birth. SUNY consists of 64 different campuses, but this analysis is limited to its four "University Centers" (which award baccalaureates, Masters, and doctorates), twelve of thirteen "University Colleges" (which award baccalaureates and Masters), and twenty-nine of its thirty community colleges. Students who ever attended one of SUNY's health science centers, colleges of technology, or statutory colleges (which are located on private university campuses) are eliminated from the

analysis. One university college, Empire State, which caters almost exclusively to non-traditional students and is disproportionately composed of part-time students, is also removed from the analysis, as is one community college, Manhattan's Fashion Institute of Technology (FIT), which for institutional funding reasons is labeled a community college despite offering baccalaureate and advanced degrees. Students who ever attended either Empire State or FIT are removed from the dataset.

My analysis is of students who were first-time fulltime college students in a fall semester between 1990 and 1996. This paper's subset of the SDF contains these students' full SUNY enrollment records through Spring 2002. Students are matched with undergraduate degrees earned from SUNY between 1990 and 2002 using SUNY's Degree Historical File (DHF). For each degree, the DHF records program of study, GPA, degree type (BA, BS, AOS, etc) and date of award. Unfortunately, the SDF does not follow students outside of the SUNY system. As a result, students who transfer to private or out-of-state colleges are counted as having attrited, for example. Wellman (2002) estimates that 30 percent of students who transfer from a New York State public institution do so to either an out-of-state public school or an in-state private school.[6]

III. Defining First-Term Juniors, Baccalaureate Recipients, and Transfers

When community college students transfer to a four-year campus, they are limited to having earned no more than approximately two years worth of four-year college credits. Even if a transfer student spends five years at community college, upon transferring to four-year college he has completed the equivalent of no more than two years of four-year college education, and is at latest a first-semester junior. A transfer's peer group, then, is first-semester juniors, both those who have transferred from community college and those who

[6] Wellman (2002) does not distinguish between SUNY and the City University of New York (CUNY) System, which are completely different entities.

have only attended four-year campuses. Therefore, this paper's estimations are conducted on the population of first-semester juniors, defined as

a) having accumulated between 58 and 75 credits toward a baccalaureate degree upon the beginning of the semester (this includes students who attended both four-year colleges and community colleges in the previous semester),[7] or
b) having earned an Associate of Arts (AA) or Associate of Science (AS) degree from a SUNY two-year college in their previous semester, which all but guarantees junior status at a SUNY four-year college.[8]

These categories are not mutually exclusive. Students fulfilling the definition of "first-semester junior" in two different semesters are only labeled as such in the chronologically first semester they meet that definition. Fully 37.4% of the first-time fulltime students who began at a SUNY two-year or four-year campus in a fall semester between 1990 and 1996 achieved first-term junior status: 73.3% of those who began at four-year campuses and 15.0% of those who began at two-year campuses.

The dependent variable is a dummy variable indicating whether a first-term junior earned a baccalaureate degree within six years of her initial SUNY enrollment. An institution's six-year graduation rate of incoming freshmen is currently used by *The College Entrance Examination Board's Annual Survey of College Standard Research Compilation* data file—i.e. the *College Board data*—as an indicator of institutional quality.[9] Students

[7] There is often a lag in time before some SUNY campuses record credits accumulated after a student transfers. Therefore, I create two variables. Variable A is the future semester's credits accumulated statistic minus the present semester's credits attempted statistic. Variable B is the credits accumulated from the present semester, as recorded in the Student Data File. Students at four-year college whose maximum value of Variable A or B, or their actual reported value, is between 58 and 75 are designated as rising juniors.

[8] Together, AA and AS degrees are commonly called "academic degrees," designed for students who intend to enroll at a four-year college after finishing a two-year college program. This is in comparison to the Associate of Applied Sciences (AAS) and Associate of Occupational Sciences (AOS) degrees, which are frequently called "occupational" degrees and are intended for immediate labor market entrants.

[9] See, for example, Ehrenberg and Zhang (2005). The six-year baccalaureate rate in the *College Board data* is share of first-time fulltime students who graduate *from the institution* within six years. Transfers away from the institution are not counted as graduates, even if they earn a degree from another school, nor are transfers earning a degree from the institution. This paper's use of six-year baccalaureate rate as a dependent variable does not

earning baccalaureates within six calendar years of having first enrolled in SUNY are assigned a dependent variable value of 1.[10] Fall 1990's new students, for example, are registered as having earned a six-year baccalaureate if they earn a baccalaureate in the Spring 1996 semester or earlier, but are registered as having earned no degree if they do so Fall 1996 or later, or if they earn no degree.[11] To ensure a first-term junior has a reasonable chance of earning a six-year baccalaureate, I remove from the dataset students who take over five calendar years to attain first-term junior status. This eliminates about 3.1% of all first-term juniors in the dataset—8.6% of those who began at two-year colleges and 0.7% of those who began at four-year colleges.

Transfer students are defined as those who enroll in a SUNY two-year college and later transfer "up" to a SUNY four-year college. Students who transfer "laterally" from one SUNY four-year college to another are not classified as transfers. A "native" is a first-term junior who is not a transfer student. Transfer students are classified into three different groups: "traditional" transfer students, who spend at least four terms—two years—at two-year college; "early" transfers, who spend one to three semesters at a community college before transferring; and "down-and-up" transfers, who first enroll in higher education at a four-year college, transfer "down" to a community college, and then back "up" to a four-year college. All transfers are only included in this paper if they achieve first-semester junior status as previously defined.

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correspond exactly with that of the *College Board data*, which has come under fire for its limitations. See, for example, Adelman (2004) and Burd (2004).

[10] The DHF assigns degrees awarded to a particular *calendar date*, not a particular *semester*. Therefore I create artificial "semesters" of degrees awarded. Any degree awarded between May and November, inclusively, of year *x* is said to have been earned after the spring semester of year *x*. Alternatively, any degree awarded between December of year x and April of year *(x+1)* is said to have been earned in the fall semester of year *x*. Time-to-degree calculations, which are in half-year increments, are made using these definitions.

[11] Because of limitations in my definition of first-term juniors, some students who have a baccalaureate degree within six years do not have a first-term junior term. This amounts to 1.5% of the total sample: 1.3% of baccalaureate recipients who begin at four-year colleges and 2.6% of those who begin at two-year colleges. I remove these students from the analysis.

This study, as are most community college studies, is limited to first-time fulltime students: students whose first experience of higher education consists of registering fulltime at either a two-year or four-year college. [12] Each first-time fulltime student who reaches their first-semester junior year is assigned both a campus and a department. Campus is the campus attended first semester junior year. Department is defined as the intersection of campus and two-digit field-of-study. Table 1a shows that the vast majority of first-semester juniors in the dataset—nearly 75 percent—are non-transfers. One in five first-semester juniors—three in four transfers—is a traditional transfer, having spent at least two years at community college. Early transfers and down-and-up transfers each account for approximately 3 percent of all first-semester juniors. Table 1b shows between-campus differences in share transfer student. Three campuses' first-semester junior populations are at least 40 percent transfer, while two campuses' are under 15 percent transfer.

There is also substantial variation in share transfers across fields of study (Table 2). Fewer than 44 percent of first-term juniors majoring in public services are natives, while over 80 percent in architecture and the physical and biological sciences are. Panel B shows minimum and maximum department shares transfer by field-of-study.[13] Biology departments at the 16 SUNY four-year campuses range from under 6 percent transfer to almost 50 percent transfer. For physical sciences, the range is from 5.6 percent transfer to 62.3 percent transfer. The only field-of-study with a noticeably high share of transfers in all its departments is public services. Public services departments are present at nine campuses and none is less than 44 percent transfer.

[12] First-time fulltime students are those who classify themselves as first-time students, and had never before set foot on a SUNY campus, and enroll fulltime when they do so. I use SUNY's Term Historic File (THF) to determine whether students in my dataset were enrolled in SUNY previous to 1990. Those that were are removed from the dataset. For a critique of the use of first-time fulltime students, see Dellow and Romano (2002).

[13] Students enrolled in departments of fewer that 10 students are not included in Panel B. This totals under 90 of over 109,000 observations.

Two categories of first-semester juniors have no major chosen: those fully enrolled at a four-year campus (described in Table 2 as "Undeclared" students) and nonmatriculated students. Inter-campus differences in share of Undeclared juniors that are transfers vary substantially, from only 1.7% to 65.5%. Nonmatriculated students, the majority of whom are transfers, account for a very small percentage of first-semester juniors.

IV. Estimation Strategy

Each student is assigned variables for exposure to transfers of each type (four terms, one-to-three terms, and down-and-up) at both the campus level and the departmental level. Where *i* is a first-semester junior, *c* is campus, T_{imC} is 1 if student *i* is a transfer student of type *m* and zero otherwise, N_{imC} is 1 if student *i* is not a transfer student of type *m* and zero otherwise, and *–iC* signifies students at campus *C* other than student *i*,

$$\overline{C}_{imC} = \sum_{i,c=C} \frac{T_{-imC}}{N_{-imC} + T_{-imC}}.^{14} \qquad (1)$$

Analogous definitions hold for *department transfer percentages* ($\overline{D}_{imD}$). Students in the same department are possibly are the closest peer group and could have the largest peer effect.[15]

Linear probability models are estimated on populations of transfer students of the same type—traditional, early, or down-and-up. Where the dummy variable *DEG* indicates six-year baccalaureate receipt, *i* represents individual, *c* represents four-year campus, *d* represents four-year department, *m* type of transfer student, and *j* year of initial SUNY enrollment, the following equation is estimated:

[14] Due to a coding error, first-time students at one SUNY community college were not downloaded for from 1990-1994 and for another from 1990-1991. Sample weights were used to account for the missing observations, and all campus and departmental share transfers were corrected to account for these missing observations.
[15] Five students that are alone in a particular department are assigned a "zero" for all percents transfer.

$$DEG_{iMjc} = \mu_1 ACAD_{iMjc} + \beta_1 X_{Mijc} + \psi_1 \overline{C}_{i(m=1)c} + \psi_2 \overline{C}_{i\{m=2)c} + \psi_3 \overline{C}_{i(m=3)c} + \gamma_{1Mj} + \varepsilon_{1iMjc} \quad (2)$$

and

$$DEG_{iMjd} = \mu_1 ACAD_{iMjd} + \beta_1 X_{Mijd} + \psi_4 \overline{D}_{i(m=1)d} + \psi_5 \overline{D}_{i\{m=2)d} + \psi_6 \overline{D}_{i(m=3)d} + \gamma_{1Mj} + \varepsilon_{1iMjd}. \quad (3)$$

$ACAD_i$ is a vector of academic factors including years to first-term junior semester, GPA at beginning of first-term junior term, a dummy for fulltime status, and credits at beginning of first-term junior semester.[16] Students who have a missing GPA value are assigned a GPA value of zero and a "missing GPA" dummy variable equal to 1.[17] If and only if a student is classified as a transfer, $ACAD_i$ it includes controls for type of associate's degree earned, if any,[18] a dummy representing two-year campus attended,[19] a quadratic term of the distance between a student's community college and four-year college, and a dummy variable indicating whether a student attended the closest four-year college to her two-year college.[20]

[16] The credit value is included only if a student's assigned credits variable is at least 50 (see Footnote 7). Students who have credit variables below 50 are assigned a "missing credits" dummy variable value of 1 and a credits value of 0.

[17] Five of the sixteen four-year campuses do not record student GPA at individual semesters. Additionally, the SUNY system as a whole often does not record GPA the first semester after a student's transfer. Therefore, defining GPA at first-term junior term is somewhat difficult. I use the following definitions: if a student earns an associate's degree in his last term before his first-term junior term, I use his degree GPA, which is supplied in the Degree Historical File. In all other cases, I use the GPA at the first-term junior term, taken from the SDF, if available. If GPA is not available, I assign a GPA value of 0 and create a missing GPA dummy variable. Among transfers, 22.2% are missing a GPA value, while among natives 41.2% are.

[18] I record academic two-year degrees, AA and AS, separately. The two occupational degrees, AAS and AOS, are combined into one dummy variable. AAS degree recipients outnumber AOS degrees by a ratio of almost 20-to-1.

[19] Student attending more than one two-year campus are assigned the two-year campus that he attended for the greater number of semesters. If two campuses tie in that regard, the student is assigned the campus he attended closest to his first semester junior year.

[20] This dummy variable is 1 if the distance of two-year campus to four-year campus is no more than ten miles more than the distance to the two-year campus' nearest four-year campus. Some SUNY four-year campuses—for example the University at Buffalo and Buffalo State College—are fairly close together and can reasonably attract transfers from the same two-year campus.

Share of campus first-time fulltime students who earn six-year baccalaureate degrees from SUNY proxies for four-year college quality in certain specifications.[21] X is a vector of demographic characteristics (gender, race, year of birth), γ a vector of dummies representing year of first SUNY enrollment, and ε an individual error term. The ψ coefficients represent effects of exposure to each type of transfer student probability of six-year baccalaureate.

I also decompose the error terms in Equations 2-3 to include campus and field-of-study effects. Where u represents an error term,

$$\varepsilon_{1iMjc} = \alpha_{1Mf} + u_{1iMjc} \tag{4}$$

and

$$\varepsilon_{2iMjd} = \alpha_{2Mf} + \lambda_{2Mc} + u_{2iMjd}\,. \tag{5}$$

When exclusively testing the impact of transfer types at the campus level, field-of-study controls are included (Equation 4). When testing exclusively for the impact of department percent transfer types, both field-of-study and campus controls are included (Equation 5).[22]

Table 3 shows summary statistics of the four groups of students: natives, traditional transfers, early transfers, and down-and-up transfers. Natives earn baccalaureates at a much higher rate than transfers, and early transfers who survive to become juniors earn them at higher rates than traditional or down-and-up transfers who become juniors. Native students are younger, more likely to be female, and are more likely to be black, Hispanic, or Asian than transfers. They also achieve first-semester junior status much more quickly than transfer students. This difference in time to junior year precludes a panel analysis of the impact of

[21] This is the same control as used by Ehrenberg and Smith (2004).

[22] For transfer students, campus effects include both a four-year effect (capturing the effects of the student's four-year campus attended during her first-term junior term) and a two-year campus vector. Two-year campuses are limited to only transfer students, and are defined as the campus at which the student spent the majority of his semesters at the two-year college level. Like the previous footnote states, the changing definitions of transfer student may cause native students to possess some characteristics exclusive to two-year attendees.

share transfer on graduation rates. Thus all students at a campus or enrolled in a department have identical peer compositions, even if they were first-term juniors in different years.[23]

V. Results

Table 4 displays coefficients from linear probability model OLS regressions on the population of traditional transfers, i.e. those who spent at least four semesters at community college before attending a four-year campus. Column 1 shows that, when not controlling for campus quality or individual field-of-study, a 10-percentage-point increase in share of campus[24] composed of four-term transfers significantly increases probability of six-year baccalaureate by approximately 1.7 percentage points. There is no significant relationship between campus share early transfer and baccalaureate receipt, and there is a large and significantly negative relationship between presence of down-and-up transfers and baccalaureate receipt. Controlling for field-of-study (Column 2) only slightly reduces the coefficient on share of the student body composed of traditional transfers. The coefficients on field-of-study dummies indicate that traditional transfers experience significantly lower graduation rates when, as rising juniors, they declare majors in in biological sciences, physical sciences, fine arts and architecture. They experience significantly higher graduation rates when they enroll in public services—the one field for which a majority of first-term juniors are transfer students.

Controlling for campus quality (Columns 3-4) increases the coefficient on four-term transfer share substantially, so that a 10 percentage point increase in campus share four-term transfer is associated with a 2.8 percentage point increase in graduation probability. The coefficient declines by over 20% when controlling for field-of-study, but remains significant

[23] The dataset is based on students who began in a fall semester between 1990 and 1996. Since native students have shorter times-to-junior than transfers, transfers who began in 1990 and achieve junior status will have erroneously small exposure to other transfer students, while students who began in 1996 will have unusually large exposure to transfer students. Estimations using a panel analysis prove extremely unstable.

[24] "Share of campus" and "share of department" hereafter refer to "share of first-term juniors at a campus" and "share of first-term juniors in a department."

at the 1% level. The coefficient on share early transfer is positive and almost significant at the 10% level when controlling only for campus quality, but not remotely significant when adding field-of-study dummies. Coefficients on share down-and-up transfer remain negative and very large when controlling for campus quality and field-of-study.

Columns 5-8 of Table 4 omit undeclared majors and nonmatriculated students from the estimation sample, though campus share variables used in the estimation still include undeclared and nonmatriculated students in their construction. Three of the four coefficients on share four-term transfer are now insignificant, including both coefficients when controlling for field-of-study, suggesting that traditional transfers' benefits of attending a transfer-heavy campus are felt most strongly by those who have not enrolled in a specific department when they transfer. The negative coefficients on share down-and-up transfer are reduced in intensity, but remain large and significant. Again no coefficients on share early transfer are significant at the 10% level.

Table 5 shows coefficients from estimations where share department, not share campus, is controlled for. Baccalaureate rates are significantly higher for traditional transfers who enroll in departments with other traditional transfers when not controlling for field-of-study or campus. But when including dummies for four-year campus and field-of-study, a strictly negative and significant coefficient on share four-term transfer emerges, suggesting that a 10% increase in department share traditional transfer decreases baccalaureate rates among traditional transfers by 1.4%. Virtually the same coefficient emerges when omitting undeclared and nonmatriculated students from the sample (Column 6), and a significantly negative coefficient on share early transfer appears as well.

Table 6 details results of estimations including campus shares when dropping two outlying campuses from the sample. At fourteen of sixteen SUNY four-year campuses, between one percent and twenty percent of traditional transfers are not enrolled in a specific field-of-study. At two others—Campuses 1 and 2—over 30 percent of traditional

four-term transfers are not enrolled in a specific field-of-study. Columns 1-4 of Panel A contain the original all-student coefficients from Table 4, which show that the positive impact of exposure to four-term transfers at the campus level appears to be concentrated among four-term transfers who are either nonmatriculated or have not declared a major. Panels B and C of Table 6, respectively, omit Campuses 1 and 2 from the estimations. The positive correlation between campus share four-term transfer and baccalaureate receipt intensifies when omitting Campus 1 observations, but becomes insignificant and negative when omitting Campus 2 observations. Indeed, when omitting Campus 2 and controlling for campus quality, the significantly negative coefficient on down-and-up share becomes insignificantly positive, and the coefficient on share early transfer becomes significantly positive. Thus, the positive relationship found in Table 4 appears to be extremely sensitive to the inclusion of one particular campus.

Columns 5-8 of Table 6 show coefficients from estimations omitting undeclared and nonmatriculated students. Omitting Campus 1 results in a significantly positive coefficient on share traditional transfer when controlling for field-of-study and campus quality. Omitting Campus 2 results insignificant share traditional transfer coefficients and large and significantly positive coefficients on share early transfer.

Columns 9-16 reproduce columns 1-8 while omitting controls for credits accumulated. Without fail, the coefficients on share traditional transfer increase. The coefficient on the full population when omitting undeclared and nonmatriculated students are now positive (Panel A Column 16), but no share traditional transfer coefficients are significant when omitting Campus 2.

Table 7 shows parallel results of robustness checks on the departmental share transfer coefficients. Eleven of 12 estimations that include campus and field-of-study dummies result in significantly negative coefficients on exposure to traditional transfers at the departmental level, and the twelfth is close to significance at the 10% level. The coefficient is never larger

in absolute value than -0.184, and never smaller than -0.118, and most of the results suggest that a 10% increase in traditional transfers at the departmental level lowers the graduation probabilities of traditional transfers by approximately 1.2-1.4%. Exposure to early transfers is correlated with lower graduation rates for traditional transfers in all estimations omitting undeclared and nonmatriculated students and including campus and field-of-study dummies.

Table 8 shows results of estimations on the population of early transfers, students who spend 1-3 terms at community college before transferring up.[25] No campus share transfer coefficient differs significantly from zero, and only one has a t-statistic greater than 1. Looking at department, there appears to be a significantly negative relationship between exposure to down-and-up transfers and probability of an early transfer graduating among undeclared and nonmatriculated students. Together, these students account for approximately 15.9% of first-time fulltime early transfers in their first semester junior year. Results on down-and-up transfers (Table 9) show no significant relationship on exposure to transfers and baccalaureate probability when controlling for field-of-study.[26]

In addition to the robustness checks shown in Tables 6 and 7, robustness was also checked by omitting the GPA variable, which is correlated to campus and may be endogenous, especially in the campus share transfer estimations. This led to no serious changes in any coefficients. Equations were also estimated on the combined populations of first-time part-time and first-time fulltime students instead of only first-time fulltime students,

[25] A linear control for terms at community college is included to the estimations. Of early transfers, 13.6 percent transfer after one semester at community college, 61.1 percent after two semesters, and 25.3 percent after three semesters. The inclusion of this control does not substantially affect the coefficients on exposure to transfer students.

[26] Estimations on the population of down-and-up transfers that include campus quality controls include controls for both four-year campus attended during first semester junior year and for first campus attended overall. Similarly, including campus dummies means controlling both for junior year campus and first campus attended. Forty-six percent of down-and-up transfer juniors attend their original campus. There is no significant relationship between original campus quality and probability of returning to original campus—a simple regression of an indicator variable on original campus graduation rate results in t-statistic of 0.21 and an R-squared of 0.000. A regression of junior year campus quality on original campus quality, omitting students who return to their original campus, results in a t-statistic of -1.04 and an R-squared of 0.0006. Controlling for original campus as well as current campus has little effect on the results detailed in Table 9.

using the shares calculated from all first-time students who achieved first-semester junior status. Results were robust to these specifications, with one exception: estimations on the populations of early transfers had significantly negative coefficients on share department early transfer. This result is probably related to the large share of early transfer first-term juniors who register part-time in their first semester of higher education. Including first-time part time students only increased the population of traditional transfers by 11.0 percent and the population of down-and-up transfers by 6.7 percent, but the population of early transfers by 94.2 percent. All of these results are available from the author.

VI. Conclusion

The findings in this paper dispute the finding that community college transfer students benefit from transferring with other transfer students. Though traditional transfer students, i.e. those who spends two or more years at a community college, appear to have higher graduation rates when transferring to campuses with many other traditional transfers—especially when not controlling for transferred credits—that relationship decreases sharply when dropping students who, at a fairly late point in their academic careers, have not chosen a major. It also drops when one outlier campus is removed from the sample.

Indeed, the most robust finding in this paper is a significantly negative impact, for traditional transfer students, of exposure to other traditional transfers in the same department. When controlling for field-of-study and campus, a 10% increase in department share transfer repeatedly is correlated with a 1.2-1.4% decrease in a probability of a transfer student earning a six-year baccalaureate.

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Data Appendix

The data in this paper is proprietary and belongs to the State University of New York (SUNY). It was downloaded from their Student Data File (SDF), Degree Historical File (DHF), and Term Historical File (THF). SDF data and contains for each student in each semester campus(es) of enrollment, fulltime or part-time status, classes and credits attempted, credits accumulated, major field-of-study, higher education history, and cumulative GPA. More recently it has begun recording data on high school attended, high school academic record, and goals of attendance, the latter for community college students only. DHF data contains, for each degree awarded in SUNY, date of conferral, GPA at conferral, campus of conferral, and type of award conferred (Associate of Arts, Bachelor of Science, etc.). The Term Historical file contains data on campus attended for each student in SUNY for each term; it is used to ensure that first-time fulltime students, as defined in this paper, did not attend SUNY prior to Fall 1990.

Table 1a: Distribution of First-Semester Juniors, by Transfer Status

		Share	
		Population	Transfers
Natives	80,791	0.736	
Transfers	28,989	0.264	
Four-Term	22,277	0.203	0.768
Early	3,483	0.032	0.120
Down-and-Up	3,229	0.029	0.111
Total	109,780		

Table 1b: Share of First-Semester Juniors that are Community College Transfers, by SUNY Campus

University Centers	
Albany	0.213
Binghamton	0.119
Buffalo	0.177
Stony Brook	0.217
University Colleges	
Brockport	0.470
Buffalo (College)	0.411
Cortland	0.320
Fredonia	0.266
Geneseo	0.126
New Paltz	0.469
Old Westbury	0.443
Oneonta	0.304
Oswego	0.300
Plattsbugh	0.339
Potsdam	0.210
Purchase	0.209

Table 2: Share Transfer Types of First-Semester Juniors, by Field-of-Study

Panel A: Overall Field-of-Study Shares

	Natives	Transfers			Observations
		4-Term	1-3 Terms	Down-and-Up	
Agriculture & Forestry	0.703	0.243	0.054	0.000	37
Applied Arts	0.722	0.219	0.035	0.029	824
Architecture	0.811	0.156	0.017	0.018	1,027
Arts	0.781	0.165	0.037	0.020	4,532
Biological Science	0.831	0.129	0.021	0.022	6,017
Business	0.730	0.220	0.026	0.028	12,022
Education	0.653	0.282	0.041	0.030	16,167
Engineering	0.767	0.196	0.015	0.025	1,738
Health Science	0.763	0.171	0.036	0.033	1,947
Home Economics	0.683	0.235	0.057	0.030	804
Humanities	0.772	0.167	0.031	0.032	12,047
Liberal Arts	0.681	0.247	0.034	0.039	1,273
Math	0.789	0.160	0.025	0.028	3,901
Physical Sciences	0.832	0.128	0.020	0.021	2,311
Public Services	0.432	0.497	0.040	0.036	3,297
Social Sciences	0.765	0.177	0.033	0.029	24,892
Undeclared	0.753	0.183	0.033	0.032	16,430
Nonmatriculated	0.228	0.634	0.041	0.099	514

Panel B: Department Shares Transfer: Minimum 10 Observations Per Department

	Overall	Maximum	Minimum	Departments
Agriculture & Forestry	0.297	0.207	0.207	1
Applied Arts	0.278	0.337	0.176	5
Architecture	0.189	0.516	0.049	6
Arts	0.219	0.359	0.095	16
Biological Science	0.169	0.479	0.058	16
Business	0.271	0.625	0.127	14
Education	0.347	0.576	0.098	13
Engineering	0.233	0.519	0.063	6
Health Science	0.237	0.343	0.000	8
Home Econmics	0.317	0.390	0.291	3
Humanities	0.228	0.430	0.075	16
Liberal Arts	0.319	0.490	0.124	7
Math	0.211	0.444	0.089	16
Physical Sciences	0.168	0.623	0.056	14
Public Services	0.568	0.707	0.444	9
Social Sciences	0.236	0.485	0.102	16
Undeclared	0.247	0.655	0.017	16
Nonmatriculated	0.772	0.917	0.395	11

Table 3: Summary Statistics for First-Semester Juniors, Separated by Transfer Status

	Natives		Four-Term Transfers		1-to-3 Term Transfers		Transfers, Began at 4yr	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Observations	80,791		22,277		3,483		3,229	
Baccalaureate	0.869	0.338	0.593	0.491	0.730	0.444	0.569	0.495
Years to Rising Junior Term	2.139	0.466	2.821	0.838	2.560	0.792	3.227	0.836
Dummy, Fulltime Student	0.992	0.091	0.940	0.237	0.977	0.151	0.955	0.206
Dummy, Fall Term	0.592	0.491	0.703	0.457	0.505	0.500	0.566	0.496
Age	20.3	1.4	21.8	3.6	21.2	2.5	21.4	1.1
Female	0.561	0.496	0.513	0.500	0.519	0.500	0.466	0.499
Black	0.070	0.255	0.035	0.183	0.032	0.177	0.038	0.191
Hispanic	0.053	0.224	0.029	0.168	0.031	0.173	0.041	0.199
Asian	0.086	0.281	0.019	0.138	0.028	0.166	0.039	0.195
Native American	0.003	0.052	0.004	0.061	0.003	0.058	0.005	0.067
Nonresident Alien	0.004	0.063	0.002	0.042	0.003	0.058	0.000	0.018
Dummy, Missing Race	0.037	0.188	0.049	0.216	0.050	0.218	0.051	0.220
Earned AA Degree	-	-	0.342	0.474	0.055	0.228	0.187	0.390
Earned AS Degree	-	-	0.281	0.449	0.038	0.192	0.144	0.351
Earned AAS/AOS Degree	-	-	0.154	0.360	0.008	0.091	0.036	0.185
Miles from Community College	-	-	88.6	101.1	123.7	112.2	103.1	115.0
Dummy, Attended Closest 4yr to Community College	-	-	0.500	0.500	0.329	0.470	0.448	0.497
Number of Lateral Transfers	0.065	0.265	0.006	0.08	0.036	0.191	0.033	0.187
Credits	64.02	4.91	63.87	6.11	63.98	5.64	65.98	7.89
Dummy, Credits Missing	0.016	0.127	0.300	0.458	0.075	0.264	0.199	0.400
GPA	2.80	0.47	2.89	0.58	2.66	0.57	2.70	0.65
Dummy, Missing GPA	0.412	0.492	0.199	0.399	0.313	0.464	0.286	0.452
Shares Transfer								
Campus, Traditional	0.191	0.088	0.248	0.099	0.229	0.091	0.235	0.093
Campus, Early	0.031	0.012	0.036	0.011	0.036	0.011	0.035	0.010
Campus, Down-and-Up	0.028	0.011	0.034	0.010	0.032	0.010	0.033	0.010
Department, Traditional	0.182	0.108	0.279	0.145	0.234	0.125	0.244	0.131
Department, Early	0.030	0.015	0.036	0.015	0.038	0.016	0.036	0.015
Department, Down-and-Up	0.027	0.015	0.035	0.018	0.033	0.016	0.036	0.022

Table 4: Coefficients from Linear Probability Model Regressions on Population of Traditional Transfers

* = significant at 10% level; ** = significant at 5% level; ***= significant at 1% level

Absolute value of t-statistics included

	All Observations				No Undeclared/Nonmatriculated			
	1	2	3	4	5	6	7	8
Campus Shares								
Traditional Transfer	0.1720	0.1576	0.2867	0.2207	0.0760	0.0161	0.1399	0.0783
	2.81***	2.56**	4.33***	3.31***	1.07	0.22	1.87*	1.03
Early Transfer	0.2154	-0.2910	0.7573	0.0425	-0.4370	-0.4057	0.0180	0.0304
	0.48	0.63	1.62	0.09	0.92	0.84	0.04	0.06
Down-and-Up Transfer	-2.0757	-2.2237	-2.0169	-2.1743	-1.6847	-1.5104	-1.5923	-1.4141
	3.34***	3.56***	3.24***	3.47***	2.51**	2.24**	2.37**	2.09**
Campus Graduation Rate			0.2050	0.1140			0.1361	0.1296
			4.40***	2.38**			2.50**	2.36**
Agriculture & Forestry		0.0306		0.0275		0.0252		0.0212
		0.25		0.22		0.20		0.17
Applied Arts		-0.0249		-0.0227		-0.0250		-0.0224
		0.74		0.67		0.74		0.66
Architecture		-0.0740		-0.0715		-0.0783		-0.0757
		1.94*		1.88*		2.05**		1.98**
Arts		-0.0616		-0.0599		-0.0631		-0.0611
		3.35***		3.26***		3.43***		3.31***
Biological Sciences		-0.1153		-0.1156		-0.1186		-0.1188
		6.17***		6.18***		6.35***		6.36***
Business		0.0150		0.0141		0.0140		0.0134
		1.32		1.24		1.22		1.16
Education		-0.0153		-0.0164		-0.0141		-0.0156
		1.60		1.71*		1.47		1.62
Engineering		0.0362		0.0403		0.0247		0.0296
		1.48		1.65*		1.00		1.19
Health Sciences		0.0119		0.0080		0.0125		0.0082
		0.48		0.32		0.50		0.33
Home Economics		0.0165		0.0181		0.0174		0.0185
		0.48		0.52		0.50		0.53
Humanities		-0.0038		-0.0045		-0.0020		-0.0027
		0.32		0.37		0.17		0.22
Liberal Arts/ General Study		0.0232		0.0256		0.0216		0.0244
		0.89		0.99		0.83		0.94
Mathematics		-0.0287		-0.0296		-0.0333		-0.0342
		1.55		1.60		1.79*		1.84*
Physical Sciences		-0.1162		-0.1169		-0.1175		-0.1182
		4.32***		4.34***		4.35***		4.37***
Public Services		0.0397		0.0386		0.0376		0.0365
		3.00***		2.91***		2.82***		2.73***
Undeclared		-0.1045		-0.0999				
		9.27***		8.73***				
Nonmatriculated		-0.0614		-0.0642				
		2.70***		2.83***				
Observations	22,277	22,277	22,277	22,277	18,957	18,957	18,957	18,957
R-squared	0.2394	0.2470	0.2402	0.2472	0.2318	0.2366	0.2321	0.2368

Table 5: Coefficients from Linear Probability Model Regressions on Population of Traditional Transfers

* = significant at 10% level; ** = significant at 5% level; ***= significant at 1% level

Absolute value of t-statistics included

	All Observations			No Undeclared/Nonmatriculated		
	1	2	3	4	5	6
Share Department						
Traditional Transfer	0.0646	0.0953	-0.1418	0.0400	0.0751	-0.1411
	2.68***	3.72***	2.97***	1.32	2.36**	2.20**
Early Transfer	-0.5480	-0.3657	-0.3843	-0.7037	-0.4477	-0.7511
	2.39**	1.55	1.26	2.75***	1.68*	2.08**
Down-and-Up Transfer	-0.5582	-0.4797	-0.2191	-0.5725	-0.3884	-0.3069
	2.88***	2.49**	0.96	2.36**	1.60	1.03
Campus Graduation Rate		0.12472			0.14906	
		3.33***			3.36***	
Agriculture & Forestry			0.0067			0.0037
			0.05			0.03
Applied Arts			-0.0351			-0.0377
			1.03			1.10
Architecture			-0.0884			-0.1017
			2.28**			2.58***
Arts			-0.0689			-0.0712
			3.64***			3.70***
Biological Sciences			-0.1225			-0.1292
			6.50***			6.80***
Business			0.0062			0.0028
			0.52			0.22
Education			-0.0169			-0.0130
			1.56			1.12
Engineering			0.0601			0.0383
			2.31**			1.41
Health Sciences			-0.0151			-0.0164
			0.59			0.64
Home Economics			0.0097			0.0117
			0.28			0.33
Humanities			-0.0088			-0.0085
			0.73			0.70
Liberal Arts/ General Study			0.0443			0.0402
			1.65*			1.48
Mathematics			-0.0398			-0.0482
			2.12**			2.55**
Physical Sciences			-0.1309			-0.1378
			4.82***			5.03***
Public Services			0.0635			0.0592
			3.65***			2.91***
Undeclared			-0.0907			
			7.59***			
Nonmatriculated			0.0192			
			0.56			
Campus Dummies	No	No	Yes	No	No	Yes
Observations	22,277	22,277	22,277	18,957	18,957	18,957
R-squared	0.2396	0.2400	0.2506	0.2317	0.2322	0.2405

Table 6: Campus Share Transfer Coefficients from OLS Regressions on Population of Traditional Transfers

* = significant at 10% level; ** = significant at 5% level; ***= significant at 1% level

Absolute value of t-statistics included

	Including Credit Controls								Omitting Credit Controls							
	All Observations				No Undeclared/Nonmatriculated				All Observations				No Undeclared/Nonmatriculated			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Panel A: All Observations																
Traditional	0.1720	0.1576	0.2867	0.2207	0.0760	0.0161	0.1399	0.0783	0.2541	0.2246	0.3886	0.3080	0.1580	0.0982	0.2407	0.1805
	2.81***	2.56**	4.33***	3.31***	1.07	0.22	1.87*	1.03	4.25***	3.73***	6.10***	4.80***	2.28**	1.4	3.34***	2.47**
Early	0.2154	-0.2910	0.7573	0.0425	-0.4370	-0.4057	0.0180	0.0304	1.0237	0.3194	1.5747	0.7241	0.2258	0.2417	0.8044	0.8111
	0.48	0.63	1.62	0.09	0.92	0.84	0.04	0.06	2.33**	0.7	3.50***	1.54	0.49	0.51	1.63	1.6
Down-and-Up	-2.0757	-2.2237	-2.0169	-2.1743	-1.6847	-1.5104	-1.5923	-1.4141	-2.5689	-2.6637	-2.3957	-2.5329	-2.1260	-1.9675	-1.9357	-1.7737
	3.34***	3.56***	3.24***	3.47***	2.51**	2.24**	2.37**	2.09**	4.16***	4.30***	3.88***	4.08***	3.20***	2.94***	2.89***	2.64***
Panel B: Omitting Campus 1																
Traditional	0.2732	0.2038	0.5026	0.3287	0.1486	0.0459	0.2849	0.1720	0.3418	0.2552	0.6025	0.4123	0.2150	0.1101	0.3825	0.2705
	3.98***	2.93***	6.34***	4.04***	1.80*	0.54	3.12***	1.83*	5.04***	3.71***	7.86***	5.22***	2.64***	1.32	4.30***	2.95***
Early	0.1504	-0.3800	0.9032	0.0763	-0.4564	-0.4004	0.1498	0.1384	0.9336	0.1790	1.6534	0.6966	0.1751	0.2073	0.8712	0.8514
	0.33	0.81	1.92*	0.15	0.96	0.82	0.29	0.26	2.12**	0.39	3.65***	1.46	0.37	0.43	1.76*	1.67*
Down-and-Up	-2.5437	-2.4127	-2.7619	-2.5147	-2.0350	-1.6186	-2.1195	-1.6930	-2.9713	-2.7726	-3.1335	-2.8539	-2.4006	-1.9899	-2.4556	-2.0417
	3.99***	3.76***	4.33***	3.92***	2.91***	2.30**	3.03***	2.40**	4.68***	4.35***	4.94***	4.48***	3.45***	2.84***	3.53***	2.92***
Panel C: Omitting Campus 2																
Traditional	-0.0032	-0.0419	-0.0375	-0.0696	-0.0891	-0.1318	-0.0821	-0.1242	0.1563	0.0933	0.0844	0.0416	0.0420	0.0018	0.0300	-0.0061
	0.04	0.55	0.49	0.91	1.1	1.62	1.01	1.52	2.14**	1.27	1.15	0.56	0.54	0.02	0.38	0.08
Early	0.6239	0.1521	2.8088	1.9871	-0.0103	-0.0099	1.7640	1.7720	1.3476	0.7010	3.6501	2.6728	0.5863	0.5485	2.5223	2.4996
	1.34	0.32	5.27***	3.54***	0.02	0.02	3.07***	2.98***	2.94***	1.48	7.03***	4.84***	1.22	1.12	4.49***	4.28***
Down-and-Up	-1.1048	-1.1330	0.8088	0.4123	-0.8054	-0.7392	0.3950	0.4701	-2.0309	-1.9605	0.3082	-0.1058	-1.5078	-1.4693	-0.0303	-0.0107
	1.65*	1.69*	1.15	0.58	1.15	1.05	0.54	0.64	3.08***	2.98***	0.44	0.15	2.19**	2.13**	0.04	0.01
Controls																
Campus Quality	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Field-of-Study	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Table 7: Department Share Transfer Coefficients from Linear Probability Model Regressions on Population of Traditional Transfers

* = significant at 10% level; ** = significant at 5% level; ***= significant at 1% level

Absolute value of t-statistics included

	With Credit Controls						No Credit Controls					
		All		No Undec/Nonmatric				All		No Undec/Nonmatric		
	1	2	3	4	5	6	7	8	9	10	11	12
						Panel A: All Observations						
Traditional Transfer	0.0646	0.0953	-0.1418	0.0922	0.1242	-0.1303	0.0729	0.1101	-0.1350	0.0400	0.0751	-0.1411
	2.68***	3.72***	2.97***	3.85***	4.87***	2.73***	2.46**	3.53***	2.10**	-1.32	2.36**	2.20**
Early Transfer	-0.5480	-0.3657	-0.3843	-0.1381	0.0492	-0.4321	-0.4318	-0.1609	-0.7922	-0.7037	-0.4477	-0.7511
	2.39**	-1.55	-1.26	-0.62	-0.21	-1.41	1.71*	-0.61	2.18**	2.75***	1.68*	2.08**
Down-and-Up Transfer	-0.5582	-0.4797	-0.2191	-0.6194	-0.5369	-0.2738	-0.5191	-0.3208	-0.3369	-0.5725	-0.3884	-0.3069
	2.88***	2.49**	-0.96	3.16***	2.77***	-1.19	2.16**	-1.33	-1.13	2.36**	-1.6	-1.03
						Panel B: Omitting Campus 1						
Traditional Transfer	0.0897	0.1285	-0.1346	0.1107	0.1503	-0.1241	0.1026	0.1521	-0.1175	0.0762	0.1238	-0.1250
	3.55***	4.75***	2.59***	4.40***	5.55***	2.39**	3.18***	4.44***	-1.61	2.33**	3.56***	1.72*
Early Transfer	-0.6340	-0.4184	-0.6867	-0.2204	-0.0019	-0.7308	-0.6214	-0.3305	-1.0128	-0.8965	-0.6154	-0.9688
	2.68***	1.72*	2.14**	-0.96	-0.01	2.27**	2.39**	-1.23	2.64***	3.39***	2.25**	2.54**
Down-and-Up Transfer	-0.5099	-0.4085	-0.0897	-0.5623	-0.4584	-0.1390	-0.4175	-0.1795	-0.1613	-0.4598	-0.2335	-0.1231
	2.57**	2.07**	-0.39	2.80***	2.31**	-0.59	1.73*	-0.74	-0.54	1.89*	-0.96	-0.41
						Panel C: Omitting Campus 2						
Traditional Transfer	0.0449	0.0790	-0.1840	0.0866	0.1199	-0.1679	0.0618	0.1128	-0.1275	0.0228	0.0736	-0.1319
	1.71*	2.96***	3.48***	3.33***	4.53***	3.17***	2.03**	3.58***	1.90*	-0.73	2.28**	1.98**
Early Transfer	-0.4534	0.0896	-0.3280	-0.0584	0.4652	-0.3861	-0.3356	0.2987	-0.8133	-0.5936	0.0378	-0.7717
	1.94*	-0.36	-1.07	-0.25	1.89*	-1.25	-1.32	-1.09	2.23**	2.30**	-0.14	2.12**
Down-and-Up Transfer	-0.4949	-0.2406	-0.1602	-0.5855	-0.3485	-0.2228	-0.4899	-0.0799	-0.3008	-0.5362	-0.1270	-0.2721
	2.55**	-1.26	-0.71	2.97***	1.80*	-0.97	2.04**	-0.33	-1.02	2.22**	-0.53	-0.92
Campus Graduation Rate	No	Yes	-	No	Yes	-	No	Yes	-	No	Yes	-
Campus Dummies	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Field-of-Study Controls	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Undeclared/Nonmatriculated	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Credit Controls	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes

Table 8: Coefficients from Linear Probability Model Regressions on Population of Early Transfers

* = significant at 10% level; ** = significant at 5% level; ***= significant at 1% level

Absolute value of t-statistics included

	All				No Undeclared/Nonmatriculated			
	1	2	3	4	5	6	7	8
Panel A: Campus Shares								
Traditional Transfer	-0.07811	-0.12943	-0.02833	-0.10149	-0.12418	-0.19619	-0.06917	-0.14907
	0.50	0.83	0.18	0.65	0.71	1.12	0.39	0.85
Early Transfer	-0.15688	-0.83603	0.55122	-0.42808	-0.38922	-0.78562	0.52431	-0.00912
	0.17	0.89	0.53	0.40	0.40	0.80	0.46	0.01
Down-and-Up Transfer	0.14579	0.26995	0.35729	0.39965	0.45375	0.70963	0.6884	0.93178
	0.11	0.20	0.26	0.29	0.31	0.49	0.47	0.63
Campus Quality	No	No	Yes	Yes	No	No	Yes	Yes
Field of Study Dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	3483	3483	3483	3483	2930	2930	2930	2930
R-squared	0.2236	0.2353	0.2243	0.2355	0.222	0.2339	0.2229	0.2345
Panel B: Department Shares								
Traditional Transfer		0.11495	0.14979	0.03982	0.03388	0.08388	-0.15644	
		1.75*	2.19**	0.33	0.43	1.04	1.06	
Early Transfer		0.04837	0.35843	0.63301	0.10179	0.55943	0.00939	
		0.09	0.64	0.80	0.17	0.89	0.01	
Down-and-Up Transfer		-1.47122	-1.34769	-1.45035	-0.47737	-0.17264	-0.24117	
		3.01***	2.70***	1.90*	0.74	0.26	0.25	
Campus Quality		No	Yes	-	No	Yes	-	
Campus Dummies		No	No	Yes	No	No	Yes	
Field of Study Dummies		No	No	Yes	No	No	Yes	
Observations		3483	3483	3483	2930	2930	2930	
R-squared		0.2236	0.2353	0.2243	0.2216	0.2234	0.2428	

Table 9: Coefficients from Linear Probability Model Regressions on Population of Down-and-Up Transfers

* = significant at 10% level; ** = significant at 5% level; ***= significant at 1% level

Absolute value of t-statistics included

	All				No Undeclared/Nonmatriculated			
	1	2	3	4	5	6	7	8
Panel A: Campus Shares								
Traditional Transfer	-0.04482	-0.07943	-0.04661	-0.11635	-0.16382	-0.18412	-0.16395	-0.17723
	0.28	0.5	0.28	0.7	0.87	0.98	0.84	0.91
Early Transfer	2.23341	1.643	2.23644	1.41983	1.47672	1.62866	1.45633	1.70111
	1.89*	1.36	1.83*	1.12	1.16	1.25	1.07	1.22
Down-and-Up Transfer	-2.41132	-2.14076	-2.40963	-2.22953	-1.80539	-1.56013	-1.80786	-1.53593
	1.54	1.36	1.54	1.41	1.04	0.89	1.03	0.87
Campus Quality	No	No	Yes	Yes	No	No	Yes	Yes
Field of Study Dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	3229	3229	3229	3229	2645	2645	2645	2645
R-squared	0.2838	0.2954	0.2838	0.2955	0.2768	0.2859	0.2768	0.2859
Panel B: Department Shares								
Traditional Transfer		-0.07345	-0.07444	-0.0056	-0.20172	-0.19274	0.11041	
		1.08	1.03	0.05	2.25**	2.06**	0.6	
Early Transfer		-0.02723	-0.03136	-0.57546	0.23269	0.28911	-1.09676	
		0.05	0.05	0.76	0.34	0.40	1.13	
Down-and-Up Transfer		0.13342	0.13287	0.31088	0.28033	0.29308	0.22787	
		0.30	0.30	0.59	0.52	0.54	0.34	
Campus Quality		No	Yes	-	No	Yes	-	
Campus Dummies		No	No	Yes	No	No	Yes	
Field of Study Dummies		No	No	Yes	No	No	Yes	
Observations		3229	3229	3229	2645	2645	2645	
R-squared		0.2829	0.2829	0.3036	0.2766	0.2766	0.2983	