

TRANSFER STUDENTS' PERSISTENCE AND CONTRIBUTION  
TO COLLEGE GRADUATION RATE  
-A Case of Four-Year Public Institution

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## TO COLLEGE GRADUATION RATE

- A Case of Four-Year Public Institution

### Abstract

As the majority of the graduation class, transfer students are neither being counted into the college graduation rate nor giving entrant institutions positive effect on retention.

The study examines 906 students of 2002 transfer cohort in a public four-year institution.

The study found the majority of the transfer students were female and white, had a prior degree and with good academic standing from transferring institutions. Transfers from two-year colleges and four-year institutions were different on the number of transfers, institution type, and institution location, but similar on major program chosen, number of transferable credit hour, and GPA. The number of transferring credit hour, possess a prior associate degree, and 2<sup>nd</sup> semester GPA after transfer are positively impact the degree attainment within two years. Gender factor and 2<sup>nd</sup> semester GPA after transfer help retain the transfers' for continuously seeking bachelor degree. From the institution point of view, trend of transfers' graduation rate is an important performance indicator.

College graduation rate is a popular performance indicator and normally a first-time freshman cohort based institutional productivity measurement. Yet, this is not a complete picture of a college's graduation class. Each year only one-third of the graduates actually matriculated at the schools conferring their degrees (USDE, 1986). The college in the study grants an average of two thirds of the baccalaureate degrees to its transfer students and one-third to the freshman cohort members. In the mean time, the freshmen that transferred to other institutions are considered as attrition to the entering institution that undergoes a loss of the freshman cohort and subsequently a reduction of freshmen graduation rate. On the other hand, the transfer students, though they are the majority of the graduation class each year, are not being part of the graduation measurement to the transfer-in institutions. What has gone wrong with this special group of students who simply made their choice of moving from one college to the other(s)?

In recent decades, transferring between institutions during the process of obtaining postsecondary education has formed a noticeable trend. The proportion of undergraduate students attending more than one institution swelled from 40% to 54% (and among bachelor's degree recipients from 49% to 58%) during the 1970s and 1980s (Adelman, 1999). Early data from the 1990s suggest that this trend is likely to surpass a 60% multi-institutional attendance rate by the year 2000. Transfer among 4-year institutions is a relatively frequent behavior. An estimated 15% of all 4-year college students will transfer at least once during the first two years after initial matriculation (Tinto, 1987). According to NCES report 97-266 (1997), 35% of all 1994 beginning postsecondary students had transferred by 1998. Among those who began at a 4-year institution, 29% transferred: 16% to another 4-year institution, and 13% to a less than 4-

year institution. Among those who began at a 2-year institution, 42% transferred: 22% to 4-year institution, 15% to other 2-year institutions, and 5% to a less than 2-year institution. Drawing from the HS&B/So (High School and Beyond/Sophomore cohort) 1982-1993, about half of the transfer students whose first institution was a comprehensive 4-year college attended another undergraduate institution and 59% of them graduated with a bachelor's degree. For the students who transferred from 2-year to 4-year colleges, 63% of them attended at least two institutions and 66% earned Bachelor's degree in a 4-year institution.

So who is more likely to be a transfer? Facing possible administrative obstacles as securing acceptance or obtaining financial aid, students may begin their course work at a 2-year college with the hope of transferring to a 4-year college (Kane & Rouse, 1999; Kintzer & Wattenbarger, 1985). Reported in Lee & Frank's (1990) study of the effectiveness of student transfer in California, those transferred from 2-year institutions were more likely in academic curricular track than non-transfers in high schools. They reported having taken a year more of academic mathematics in high school and having done more homework. Among the beginners who transferred to a 4-year institution, 65% of them transferred without an associate degree. Nevertheless, more associate degree completers received a bachelor's degree within 5 years than those transfers without any credential after entry in another institution (43% vs. 17%), particularly the minority students (NCES, 1997). Also found by Lee & Frank (1990) that the beginners who transferred to 4-year colleges were of higher social class, less likely to be minority and less likely to be female. The 4-year college beginners who have GPA below 2.5 at the first institution were more likely to transfer than the others (NCES, 1990).

Why do students transfer? Literature indicates that persistence and thereby educational attainment are largely a function of the student's match with the college environment, including the quality and variety of academic programs, the quality of the student body, and tuition costs. Many theoretical models reached this common notion of pertaining the subject (for example, Bean, 1980, 1985; Cope & Hannah, 1975; Pascarella, 1980; Spady, 1970, 1971; Tinto, 1975, 1982, 1987). Student's motivation underlies transferring behavior reflects student's desire to find a better fit with the institutional environment though it may tend to have a negative influence on educational attainment (Tinto, 1987). Such influences are often seen as longer enrollment duration and its subsequent college cost increase. More recently, research was found that view transfer as pursuing for economic and academic program match. Studied 6,255 individuals from the 1979 National Longitudinal Survey of Youth, Light and Strayer (2004) pointed out that as long as students focus on investment-related college attributes in attempt to improve match quality, transfers would, in turn, enhance the probability of obtaining a degree and increase future wages. Transfers perform better economically, in terms of post-college wage, than those graduated from entering institution (Light & Strayer, 2004).

Is transferring a positive factor to the degree attainment? Using a national sample of students who initially enrolled in 4-year institutions, Kocher and Pascarella (1988) found that the number of institutions attends had a small but statistically significant negative influence on bachelor's degree attainment. For 2-year beginners, their relatively low levels of prestige in the postsecondary system may lead to a lack of student commitment to the 2-year institution (Tinto, 1975). A student's transfer from one college to another is an interruption of his/her education (Tinto, 1987), and educational

attainment is typically enhanced when one's attendance occurs in a continuous and uninterrupted sequence from beginning to completion (Pascarella & Terenzini, 1991). However, the decision of transferring from 2-year to 4-year college rationally reflects a positive progression in the educational attainment process (Dougherty, 1987; Peng, 1978). Pointed out by Kearney, Townsend, & Kearney, multiple transfers evidenced a higher level of intent to graduate and thus an increased potential for attaining the baccalaureate degree (1995). It is not certain that an increasing trend of college transfer evidences its effect on degree attainment in recent years.

In contrast to the attention campus has paid to the freshmen, the transfers are left in the situation of coming and going at their own wish and pace. Less than frequent, we ask the questions such as what is the percentage of transfer students who get a bachelor degree at the college had an associate degree prior to transfer. How long take an average transfer to graduate after matriculation? Are transfers from 2-year colleges more likely to complete a bachelor degree than their counterparts from 4-year institutions, or vice versa? What is the impact transfers make to the institution, particularly the contribution to the graduation rate? This study intends to examine a student cohort who transferred in a public 4-year institution and completed their baccalaurean degrees there as well. Unlike many accomplished researches that follow transfer students' postsecondary education chronically, this study tries to explore the transfer cohort from the graduating institution point of view. The study collects the 906 transfer students' data from fall 2002 in a public 4-year institution in North East region. The study has three focal points: (1) Who are the transfer students in our institution, their pre-college preparation, college performance, and their persistence; (2) What are the differences between transfers from

2-year colleges and 4-year institutions; (3) What factors impact transfer students' degree attainment? Isn't there a recognizable pattern? The pattern recognition is attempt from the three aspects: (a) pre-transfer status [from 2-year vs. 4- year institutions, earned associate degree, number of credit hour – transfer in credit hour vs. transferable credit hour, etc., admit selectivity], (b) degree pursuing activities [credit hour at the College to degree, meeting general education requirement, graduation GPA vs. the College GPA, major program vs. degree field]. The study wraps up by identifying the significant impacts that made the transfers successful in persistence and acknowledging the role the transfer played in the College's graduation rate.

#### Data and Methods

This study employs the term of transfer cohort that is defined as a cohort of students who has been studied in at least one other college or university prior to entering the College. The cohort included transfers who had had a bachelor degree and enrolled for the second bachelor degree. The sample also included a little more than 30 dual admit transfers who were promised to be admitted by the College when they were initially admitted into community colleges. This study sample has a fall 2002 transfer cohort of 906 and all of them were matriculated at the entering.

Descriptive analysis leads the way to examine the characteristics of transfer student. Following the comparison of the transfers from 2-year and 4-year institutions and Chi-Square is reported to indicate the significance of the difference by institution types. After collecting the factors which described who they were as transfers, how they performed, what degree they pursued or obtained and how soon if graduated, a Pearson correlation analysis was performed for identifying variables which may cause co-linearity

in the model test. Two logistic regression models were then set up with individual dichotomous dependent variables as *degree awarded* and *degree seeking*. The model test was carried out to identify the factors that significantly related with the degree attainment and persistence seeking.

## Results and Findings

### Descriptive Analysis

There were more female students (59%) than males in the matriculated transfer cohort of 906 entering in fall 2002. Majority of the transfers (78.4%) was Caucasian and 8.4% were minorities including Black, Hispanic, Asian, and American Indian. Close to one percent transfers were international students and 12% withheld their racial/ethnicity background. While the regular admitted transfers were mainstream (92% of those from 2-year colleges and 87% from 4-year), a small proportion of the transfers were special admit students, such as EOP (1.7%), transfers for second bachelor degree (3.6%), and/or dual admission (3.8%) by both transferring and transferred institutions at initial entering.

What about the transferring institutions? As reported in Table 1, 906 transfers came from 132 transferring institutions. Over three quarters of them (77.4%) were from fifty-five 2-year institutions and the remaining from seventy-eight 4-year institutions. Almost all (98.5%) of the 2-year institutions were public, community colleges, and two thirds of them were SUNY institutions. Helped with CEEB codes, we discovered that 48% of the 4-year transferring institutions were private, 52% were public institutions. The student distribution by the institution type is found significantly different between 2-year and 4-year institutions. By student headcount, 106 (12%) of the 906 were from 52 private institutions. Obviously, fewer students transferred from the individual private

institution. Using IPEDS database, we identified the urbanization of the institutions where the students transferred from. Like the College in the study located in urban fringe of a mid-size city, half of the 2-year transferring institutions were in urban fringe of mid-size or large cities. Those institutions sent more than three quarters of the 906 transfers. About half of the 4-year transferring institutions were in large or mid-size cities, such as New York City, Buffalo, and/or Rochester. There is a significant difference between the 2-year and 4-year institutions by institution's urbanization. The College in the study is the first transferring institution for 63% of the 2-year transfers and 38% of the 4-year students. More than 43% of the 4-year transfers have had at least one prior transfer before came to the College. Smaller percents of students had two (8.5%) or three prior transfers (3.9%), regardless the institution type. The difference by the number of transfers between the transfer students from 2-year and 4-year institutions was found significant.

How did the transfers perform in the previous transferring institution? More than 64% of the transfers have obtained an associate or higher degree when entered the College. While over 90% of the prior degrees from 2-year institutions were associate degrees, close to half of the 4-year transfer attained prior associate degree there earlier. Associate degree accounted for 88.7% of the prior degrees and two thirds were AS, Associate of Science, instead of AA, Associate of Art. For those with prior degree from 4-year institutions, more than half have had a bachelor degree in their wallet. The difference of students with a prior degree between 2-year and 4-year is significant. The average credit hour that contributable to the College's degree program was 62 for a 2-year transfer transporting a mean GPA of 3.04. Their counterparts from the 4-year

colleges had mean transferable credit hours of 59 and GPA of 3.05. On average, a transfer student carried over 20 credit hours on general education courses, 22 hours for the 2-year transfers and 14 for the 4-year ones. An additional nine hours of general education courses were required for the 2-year transfers and 13 hours for the 4-year transfers. The numerical variables of credit hours and GPA were recoded into categorical ones for cross-tabulate analysis with chi-square indicators. As reported on Table 1, there are significant differences between the transfers from 2-year and 4-year on both transferable credit hours and GPA at admission.

All the transfers were matriculated when they started at the College in the study. An Overwhelm majority of the transfers, either from 2-year or 4-year institutions, pursued or still pursuing Bachelor of Science degree and smaller percentages enrolled in

Table 1 Descriptive Statistics of Variables

Variables	Two-Year Institution	Four-Year Institution	$\chi^2$
Transfer Student from	77.4%	22.6%	-
Number of Transferring Institutions	55	78	-
Gender			0.96
Female	59.8%	40.2%	
Male	55.9%	44.1%	
Ethnicity			2.3
White	78.9%	21.1%	
Non-white	79.7%	20.3%	
# of Transfers (including this one)			41.8***
Once	62.7%	38.1%	
Twice	26.2%	42.6%	
Three or more times	11.1%	19.3%	
Institution Type			314.2***
Public	98.5%	52.5%	
Private	1.5%	47.5%	
Institution Location			203.1***
City (Large or Mid-size)	14.2%	48.5%	
Urban Fringe of City	79.1%	29.2%	
Town	5.4%	17.3%	

Rural	1.2%	5.0%	
Prior Degree (n=585)			425.8***
Associate Degree	93.2%	46.4%	
Bachelor Degree	6.8%	53.6%	
Degree Program Enrolled at College			6.2*
Bachelor of Art	1.6%	4.5%	
Bachelor of Science	95.3%	91.6%	
Bachelor of Science in Nursing	3.1%	4.0%	
Degree Status after Two-Year			5.3
Degree Awarded (n=346)	80.9%	19.1%	
Applied for Graduation (n=106)	73.9%	26.1%	
Seeking Degree (n=375)	74.9%	25.1%	
Withdrew (n=54)	75.9%	24.1%	
# One-Year Graduates (n=14)	42.9%	57.1%	-
# Two-Year Graduates (n=332)	86.5%	17.5%	-
*** p < 0.001, ** p < 0.01, * p < 0.05			
Average Transfer Credit Hour	61.4	56.7	187.0***
Average Transfer GPA	3.04	3.05	48.3***
Prior mean GenEd Credit Hour	22.2	13.7	152.9***
GenEd Credit Hour at College	8.9	12.8	39.8***

BA or BSN programs. Minor difference was found between the students from 2-year and 4-year in choosing major programs of study. The top majors that the 2-year transfers chose to study were Business Administration, Psychology, Physical Education, Chemistry, and Criminal Justice while Communication, Psychology, English, Business Administration, and Physical Education were the top majors for the 4-year transfers. Close to 20% of the transfers also sought an undergraduate teaching certificate and the majority (84%) of the certificate-pursuing students were from 2-year institutions.

How did the transfers perform after transfer into the College? Although having an above 3.0 mean GPA from both 2-year and 4-year transferring institutions, many transfers were challenged academically at the College. They took an average of 12 credit hours and made a mean GPA of 2.88 in the first semester and 13 credit hours and average

GPA of 3.0 for the second semester. Approximately half of the students made better GPA in the second semester than the first one. Comparing the GPAs of those between the 2-year and the 4-year and before and after entering the college, we found that more students from 2-year institutions made a lower semester GPA at the College than their transferring GPA.

After two years the transfer cohort entered the College, 346 (38.2%) graduated from a bachelor degree program with a minimum of 120 credit hours. Close to 90% of them transferred at least 60 credit hours to their degree programs. Among the graduated, 16 (4%) completed their degree in merely two semesters at the College. Their average transferring credit hours were 74. For all 346 graduated, their average GPA at graduation was 3.13 on a 0-4 scale, with a standard deviation of 0.45. The average number of credit hours for the bachelor degrees was 130, which may included some additional credit hours required by the after transfer degree program. Incidentally, we noticed that more than 6% (n=21) of the 364 graduates changed the major during the two years of degree pursuing. Still, they managed well on the time to degree. By the time of this study, 106 have applied for graduation in May 2005, after six semesters at the College. Another 375 transfer cohort members are still seeking their bachelor degrees. Fifty-four (6%) of the cohort left the College or did not enroll in the degree program temporarily. Drop-out's mean transferring credit hour was 57.6 and average credit hour in their degree program was 83.2. By verified the subsequent enrollment and degree completion with the National Student Clearinghouse database, few were found pursuing bachelor degree or received it in another institution.

#### Model Test

The model test started with Pearson Correlation analysis. All the variables involved in the descriptive analysis were incorporated, including the re-coded character variables such as *prior degree* (Yes/No), *Ethnicity* (White/non-White). The variables with Pearson correlation coefficients greater or equal 0.25 were removed. Two dummies were re-created from variable *2-year graduation status* as *degree awarded* (vs. no degree awarded) and *still seeking degree* (vs. no longer seeking). The dummy *still seeking degree* excluded transfers already being awarded a degree and included 106 students who had applied for graduation. Each of the dichotomous variables served as the dependent variable of two separate logistic regression models. The two models have the exact same set of independent variables. The model test seeks the factors that significantly impact the degree award or persistently seeking degree.

The model test results of impact on degree awarded were reported in Table 2. The number of credit hours that transfer students carried over to the College has significant and positive impact on the timely graduation within two years. The higher the number of transferable credit hour, the fewer the credit hour a student has to complete, the more likely s/he fulfilled the degree requirement in two years. When one more transferable credit hour was brought into his/her degree program at the College, the odds ratio [odds ratio =  $\exp(b_i)$ ] for a transfer student to complete a bachelor's degree in two years increases by 6%. Holding a prior degree significantly increased a transfer's chance to graduate than those without. The odds ratio indicates that a prior degree, either an associate or a bachelor degree, enhances the graduation by 67%. The GPA from the second semester after the transfer is another significant factor to the degree completion by the end of the second year. As an indicator of adaptability at the College, the higher

the second semester's GPA, the better the chance a transfer is on the right track for degree completion. The odds ratio shows that the likelihood of being awarded a bachelor degree is more than twice better when one's second semester's GPA is one grade higher.

Table 2 Factors Impact Obtaining Two-Year Bachelor Degree after Transfer (n=906)

Variables	Parameter Estimate	Wald $\chi^2$	Odds Ratio
Intercept	-7.8872	74.62	
Number of transfers	-0.0560	0.25	1.058
Credit hour transferred into dgr prog.	0.0614	58.29***	1.063
Transferring in GPA	0.2937	1.99	1.341
General Ed credit hours at College	0.0274	2.24	1.028
Prior degree (Yes/No)	0.5149	6.04*	1.673
Ethnicity (White/non-White)	0.0601	0.08	1.062
Second Semester's GPA at College	0.8156	31.86***	2.261
Model $\chi^2 = 175.029$ ***			

\*\*\* p<0.001; \*\* p<0.01; \*p<0.05

The model test results of impact on still seeking degree were reported in Table 3. *Still seeking degree* is the dependent variable with two categories: seeking degree in their third year, including those who had applied for graduation, vs. no longer seeking bachelor degree at the College. The test results show that transfer's ethnicity has a positive and

Table 3 Factors Impact Seeking Bachelor Degree Two Years after Transfer (n=540)

Variables	Parameter Estimate	Wald $\chi^2$	Odds Ratio
Intercept	-5.2817	2.80	
Number of transfers	0.1695	0.11	1.185
Credit hour transferred into dgr prog.	0.0017	0.00	1.002
Transferring in GPA	-0.3461	0.17	1.414
General Ed credit hours at College	0.1028	2.30	1.108
Prior degree (Yes/No)	0.0671	0.01	1.069
Ethnicity (White/non-White)	1.4237	4.18*	4.152
Second Semester's GPA at College	3.3282	35.27***	27.888
Model $\chi^2 = 107.927$ ***			

\*\*\* p<0.001; \*\* p<0.01; \*p<0.05

significant impact on the persistence of degree seeking. White students were more likely still seeking degree after two years of study. Being a white transfer has more than four times better chance to be retained in degree program. The second semester's GPA at the College also significantly enhanced the degree seeking. The higher the second semester's GPA, the more likely s/he is retained to seek degree. The magnitude of such possibility, as indicated by the odds ratio, is more than twenty plus times when the second semester's GPA is one grade higher.

### Discussion

The study found a majority of the transfers were Caucasians (78.4%) and females (60%) and close to half of the transfers (43%) had transferred at least one time before they enrolled at the College. More than three quarters of the transfer students came from a 2-year institution and about half of them are located at the urban fringe of mid- size or large cities. Approximately half (47.5%) of the four-year transferring institutions are private for about 10% of the transfer cohort members. There is no significant difference of the average transferable credit hour and transfer GPA between students from 2-year and four-year institutions. Transfers who had prior degree completed more credit hours of General Education and left themselves fewer to go for meeting the requirement. The transferable credit hour is found a positive factor in the study that more credit hours help transfers to get a bachelor degree sooner. A prior degree brought in solid credit hours to the degree program and also motivated the transfer students to stay on track for bachelor degree. The effect of a prior degree was particularly true to the transfer students from the 2-year institutions where they had developed academic groundwork for a bachelor degree. For the transfers from 4-year institutions, many who had prior degree had either changed

the field of study or enrolled in the second bachelor program, which many take longer than two years to complete.

The GPA gap between transferring GPA and the first or second semester GPA is a noticeable issue in transfer articulation. It can be traced back to how the transferring GPA was composed and which GPAs should be used when one has multiple transferring records, e.g. the most recent one or the one for the most credit hours. If a student's first and second semester GPAs were consistently lower than the transferring GPA, conversation between the transferring and accepting institutions should be taken place. A proposal under discussion for minimizing the gap is the curriculum collaboration with the academic departments in the transferring institutions, especially the 2-year ones where the majority of our transfers came from.

The study found the gender gap among the transfers (60% female) and the gap among the transfers who graduated within two years (63% female) and who were persisting (59% female). Distributed gender by ethnicity, female white accounted for 88% of the female group, 90% of the degree awarded group, and 85% of the still persisting group. Proportionally by ethnicity, more while male transfers flunked off the boat before the degree completion. This finding put in the results by other studies that more female were in the transfer cohort and they preceded well for degree completion and seeking. The finding also confirm the results from early studies that there were fewer non-white students in the transfer cohort and even fewer to graduate or persist. One issue about gender that worth mention is there is an increasing percent of student withheld their race and ethnicity across the nation. The College in the study is no exception. The

scenario may distort the future study on race and ethnicity. An effort from the policy makers at the federal level can provide remedy.

Considering the number of transfers graduating each year, we have to endorse the contribution the transfers made to the institution's productivity measure of graduation rate. While acknowledging the limitation of data collection to coordinate the transfers' graduation rate into an institution's graduation rate at the moment, we cannot overlook the transfer's graduation rate. Chronicle comparison of transfer's graduation rate is a good measure of an institution's performance and progression. The College in the study has used transfer graduation rate as one of its key performance indicators for years. More efforts are on the way to better serve our transfer students and help them succeed, e.g. involving more faculty members to be part of this successful story. The support from the university system and the state can make the campus efforts more effective.

To a public institution, accommodating more qualified transfer students is a way to fulfill our responsibility of supporting local community and community colleges. Achieving a good transfers' graduation rate creates a win-win case that the graduates launch their career at a higher level by possessing a college degree while the institution is rewarded by gradually building up healthy academic reputation and benefited financially with better enrollment.

Media's college rankings mainly cover the freshmen-only graduation rate, which is an incomplete indicator of institutional effectiveness. The public is misled when they follow the rankings for college selection and financial endorsement. Many higher education institutions are fueled to chase the freshmen-only graduation rate mostly

involuntarily. We advocate that a comprehensive graduation rate generated from both freshmen and transfers cohort may ease the deceptiveness of this indicator.

#### Further Studies

Compare the cohort graduation rates at 100% degree time, we found more transfers graduated within two years than the freshmen graduated within four years. The intuitive impressions are that transfers' initial college study may have helped remediation of the college preparation if in need. The early college experience may also ignite their college goal setting process and subsequently the career aspiration. Certainly, there are personal reasons and not-so-positive prior experiences that end up with the transferring. More work on the trend of transfer cohorts is necessary for a complete transfer profile in addition to the academic performance and degree completion. More over, we plan to incorporate the alumni survey data into the study hoping to identify the placement of transfer graduates and/or compare them with the freshman graduates on aspects of graduate study, employment, how soon got the job after degree attainment, salaries if known. It will be interesting to see if economically enhanced career have been brought up to the transfers of the College.

More work is under going to prepare a better transfer cohort database. More details should be added onto the data list, such as the major of prior degree. The logistic models employed by the study were based on the assumption that the effects of interval-level predictors were all linear. The inclusion of ordinal/categorical measure for numerical variables such as transferring GPA or transferring credit hour could challenge the assumption. It would be interesting to know what may be found if this assumption is removed and nonlinear model test is performed. Converting these numerical variables

into the functions of logarithm or square would allow the remodel and further testing of a non-linear relationship between the degree completion and its independent variables.

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