

Out of state, out of place?

An examination of non-resident persistence and retention

Paper Presented at the 2009 AIR Forum

Atlanta, Georgia

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ABSTRACT

This study examines whether non-resident students have different enrollment, persistence, and graduation patterns at a public research university. The sample for this study is 4 freshman IPEDS defined cohorts. Descriptive Analysis shows differences between resident and non-resident students in 2nd-year retention, 4-year graduation and 5-year graduation, but no difference in 6-year graduation rates. Logistic Regression Analysis shows that there are differences between resident and non-resident student retention and graduation. Specifically, the differences for 2nd-year retention for non-resident students are cumulative GPA, living in on-campus housing and involvement in a Greek organization having positive impacts while being white, female, and receiving a Pell grant negative impacts. For non-resident students, only involvement in a Greek organization showed having an impact (positive) for 2nd-year retention.

Introduction

A common report by many institutional research offices is conducting student retention and persistence analyses. Persistence is the conscious act by students to maintain their status within higher education and continue their enrollment in an institution (Mortenson, 2005). Retention, by definition is the “sustained enrollment of a student through graduation” most often related to one institution (as opposed to a student’s transferring between two or more colleges to maintain enrollment in higher education; Berger and Lyon, 2005, p.3). While previous studies have examined and provided evidence explaining student retention and persistence, one area that has not been examined in depth is the retention and persistence of non-resident students at public universities. This study examines whether non-resident students have different enrollment, persistence, and graduation patterns than resident students and if there are differences, what are the reasons for the differences.

Literature Review

Research on student persistence and retention is voluminous and despite all the research, no definitive model has been developed to provide guidelines for institutional officials to enhance student persistence through graduation (Seidman, 2005). Past research has provided differing theories as to why some students leave and why some persist. The most influential reasons include students’ ability to pay (Advisory Committee on Student Financial Aid, 2001) as well as the students’ level of academic preparation, commitment to studies, and their intensity of involvement within the institution (Seidman, 2005).

Many factors, academic and nonacademic, affect retention and persistence (Tinto, 1993; Tinto 1997; Adelman, 1999; and Ishitani and DesJardins 2002). Research has shown a relationship between a student's first-year GPA and retention; the higher a student's GPA the better the chances of them persisting (Ishitani and DesJardins, 2002). Other studies have examined academic preparation before entering college and show that students who are better prepared are retained at higher levels (Tinto, 1993; Cabrera, Nora, and Castaneda, 1993; Tinto 1997; Adelman, 1999). Another set of research investigating nonacademic factors found that the commitment to the degree, the level of engagement within the university community, the level of personal confidence, and a student's life skills (time management, self-esteem, and personal habits) are influencing factors on whether a student persists or drops-out (Pascarella and Terenzini, 1980; Tinto, 1997; Braxton, 2000; Braxton and McClendon, 2002).

Adleman (1999) found students with the strongest academic profiles persist and graduate regardless of their socioeconomic status (SES). Low SES students with the proper high school curriculum, test scores, and class rank graduate at a higher rate than the majority of students in the upper SES quartiles (Adelman, 1999). Students are more likely to persist in an environment with high expectations, clear advising and involved on campus (both socially and academically; Tinto, 1997). Adleman (1999) also found students that took advance placement graduated quicker with a bachelor degree while students who did not complete an average fulltime load by the end of their first year reduced their chances for earning a bachelor degree.

The ability to pay for higher education has been shown to impact a student's ability to persist and graduate. A report by the Advisory Committee on Student Financial Aid,

Access Denied (2001), presents evidence that the proportion of low SES family's income spent on college tuition has risen and will continue to rise significantly, greater than other income groups. This report contends that this has happened while middle SES students and merit financial aid programs have become the primary policy focus for state and federal higher education policymakers. This shift in policy focus coupled with the rising costs of higher education has created substantial increases in the amount of unmet need-based aid for low SES students.

A follow-up study by the Advisory Committee on Student Financial Aid, *Empty Promises* (2002), found that the shortages in financial aid resulted in low SES families paying on average \$7,500 for tuition (net), which represents almost a third of a low SES family's income. This penalizes low SES students and decreases their enrollment rates within 4-year institutions. Paulsen and St. John (2002) in comparing the cost and benefits of future attendance based on experiences of past attendance found when low SES students attend college for just one year and subsequently drop out, low SES students will come back only when (if) they have obtained the financial ability to attend.

Adleman (1999) in examining students who received financial aid attending four-year institutions found students persisted at lower rates if they were in work study programs or employed for the purpose of paying their educational expenses. To meet the costs of attending (due in large part to decrease level of unmet financial aid), many low SES students are developing strategies of attending part-time, working long hours, and acquiring heavy loan debt. In general, these choices lower the likelihood of them persisting and completing a degree (Advisory Committee on Student Financial Aid, 2001; Gladieux and Perna, 2005).

Students who attend an out-of-state university typically do so based on a perception of a larger return on their investment. Research has found that when controlling for institutional quality and the surrounding economy, the cost of out-of-state tuition has no effect on student migration (going out-of-state vs. staying in-state; Baryla and Dotterweich, 2001). Additional research (Leslie and Brinkman, 1987; Heller 1999) found that tuition is inversely related to non-resident enrollment; increases in non-resident tuition usually lead to reductions in non-resident enrollment. This suggests that while non-resident students may enroll at an institution, they may only do so for a period of time and then leave due to financial reasons.

Sample

Mortenson (2005) suggests that the foundation of measurement for student persistence studies is through the use of cohorts (a clearly defined group), identification of demographic and enrollment characteristics, and tracking these characteristics over time. The data for this study includes students who enrolled as first-time, full-time freshman in the fall semesters between 1998 and 2001 (4 IPEDS defined freshman cohorts; N = 17,416 including 1,956 non-resident students). Student demographic and financial data are paired with academic and social activity for each semester through six years (a total of 18 semesters) from official university files.

Students were classified into two groups, non-resident and resident. Residency status for this analysis is based on the state of residency for a student at the time of their application for admission. A student is considered non-resident if a student's residency is not from the state of the university in the sample, even if the student is granted a non-resident tuition waiver.

The university in this study (TheU) is a large, research-extensive public university located in the Southeast. As the state's flagship and land-grant university, TheU offers over 150 degree programs in 16 colleges and schools. The undergraduate student body is comprised mostly of traditional age students (18-22 yrs) enrolling primarily from the local region (~88% of students are in-state). Approximately 25,000 undergraduates are currently enrolled at TheU.

Methods

Previous studies have examined and provided evidence for explaining student retention and persistence, but one area that has not been examined in depth is the retention and persistence of non-resident students at public universities. Do non-resident students persist and graduate differently than resident students at a public university? If so, why is this the case? Specifically this study examines whether non-resident students have different enrollment, persistence, and graduation patterns than resident students at a public research university. Research questions for this study include:

1. Is there a difference between non-resident and resident students in persistence and graduation?
2. If there is a difference between non-resident and resident students in persistence and graduation, what are the causalities of the differences? Ex: major, G.P.A., academic probation status, financial aid received, etc.

Some notable examples of student retention and persistence studies have shown that student demographics (Tinto, 1975; Pascarella and Terenzini, 1980; Tinto, 1997; St. John, Hu, Simmons, and Musoba, 2001; Paulsen and St. John, 2002; Perkhounkova, Noble, and McLaughlin, 2006; Titus, 2006), student ability including academic

preparation and performance (St. John, Hu, Simmons, and Musoba, 2001; Perkhounkova, Noble, and McLaughlin, 2006; Titus, 2006), student social involvement (Astin, 1977, 1984, 1993; Pascarella and Terenzini, 1980; Tinto, 1997; Titus, 2006), student academic integration (Pascarella and Terenzini, 1980; Tinto, 1997) and student financial aid socioeconomic status (St. John, Hu, Simmons, and Musoba, 2001; Paulsen and St. John, 2002; Perkhounkova, Noble, and McLaughlin, 2006; Titus, 2006) are factors that influence persistence and retention. The five groupings of independent variables included in this study are:

- Academic Preparation:
 - SAT score
 - High School GPA
 - Predicted GPA (derived from SAT and HS GPA)
- Student Demographics
 - Gender
 - Race/Ethnicity
 - Parents educational attainment
- Academic Performance:
 - Term & cumulative GPA (individual terms over 6 years)
 - Earned academic probation
- Collegiate & Social Involvement:
 - Lived in residence halls (first year only)
 - Joined a greek organization

- Financial Aid:
 - Receipt of merit-based scholarship
 - Receipt of non-need based aid (minus merit-based aid)
 - Receipt of need-based aid (all types, including Pell)
 - Receipt of Pell grant (only)

A variety of analyses were conducted to answer the research questions. A series of descriptive statistics and one-way ANOVAs were followed by a series of logistic regression models to examine the potential contributing factors of a student persisting and being successful (graduating). The basic descriptive statistics and correlation analyses provide an understanding of students who persisted, who were successful (graduated) and the general relationship among the factors (variables) that relate to persistence and retention. The series of logistic regression models were developed to determine the effects of the independent variables on students who successfully persisted to the second year or graduated.¹

Findings

Descriptive Statistics and One Way ANOVAs

Overall, the descriptive statistics and one-way ANOVAs show that there are significant differences between resident and non-resident students in academic preparation, academic performance, student demographics, financial aid received, and campus and social involvement except in standardized test scores and six-year graduation

¹ Three sets of logistic regressions were planned and developed (one for retention to the 2nd year, one for 4-year graduation, and one for 5-year graduation). An additional set of logistic regressions (for graduation 6-year) were planned, but not fully developed due to no significant differences were found between resident and non-resident students at 6-year graduation. Two logistic regression models, one for resident students and another for non-resident students were developed within each set. Stata 10 software was employed for the Logistic Regressions.

(which were not significant; $p > .1$). Table 1 shows that although high school GPA and predicted GPA are statistically different between resident and non-resident students, the differences are not large when considering the mean values (3.56 to 3.42 and 3.06 to 3.04 respectively). These results coupled with the non-significance of the differences in standardized test scores appear to indicate that from a student’s academic preparation perspective, there are little to no differences between resident and non-resident students. In addition, looking at both the standardized test scores and high school GPAs, it is important to note that in general, the students in the sample are highly academically prepared for college.

Table 1. Mean values for academic preparation

	All Students	Resident	Non-Resident
HS GPA	3.54	3.56	3.42
ACT *	25	25	25
SAT *	1193	1193	1190
Predicted GPA	3.05	3.06	3.04
Note: $p < .01$ except for * which were $p > .1$			

From Table 2, one sees that the non-resident student population is comprised of a lower percentage of white students (63% to 83%) and a higher percentage of female students (64% to 59%) compared to the resident student population. In addition, the non-resident students had a higher percentage of at least one of the parents having earned a college degree than resident students (87% compared to 73%).

Table 2. Mean values for student demographics

	All Students	Resident	Non-Resident
White	0.81	0.83	0.63
Female	0.59	0.59	0.64
Parental Education	0.74	0.73	0.87
Note: $p < .01$ except for * which were $p > .1$			

Table 3 shows differences between resident and non-resident students in regards to financial aid. A higher percentage of resident students at TheU received Pell grants in their first fall semester of college (8% to 5%) than non-resident students. A similar situation is observed when analyzing whether a student has ever received a Pell grant as resident students have a higher percentage, as compared to non-resident students, for receiving the Pell grant at any time during their undergraduate education at TheU (16% to 9%). However, when examining receipt of non-need aid² in the first fall semester, non-resident students have a higher percentage of receipt than resident students (41% to 34%).

Table 3. Mean values for financial aid

	All Students	Resident	Non-Resident
Pell 1st Fall	0.07	0.08	0.05
Pell Ever	0.15	0.16	0.09
Non-Need 1st Fall	0.35	0.34	0.41
Note: p<.01			

Table 4 reports the academic performance of resident and non-resident students. Overall, non-resident students show higher academic performance as compared to resident students. Term GPAs for the first fall and spring semesters and the last recorded cumulative GPA are higher for non-resident students. In addition, the percentage of students who earned probation during both the first fall semester or at any time during their undergraduate experience at TheU was lower for non-resident students.

² Non-need aid does not include state merit aid scholarship.

Table 4. Mean values for academic performance

	All Students	Resident	Non-Resident
1st Fall Term GPA	2.97	2.96	3.04
1st Spring Term GPA	3.01	3.00	3.10
Last Cum GPA	3.08	3.06	3.17
Probation 1st Fall	0.08	0.08	0.06
Probation Ever	0.14	0.14	0.10
Note: $p < .01$ except for * which were $p > .1$			

Table 5 presents retention and graduation rates of resident and non-resident students. As seen in this table, non-resident students are retained at a lower percentage during the second and third years of college but graduate at higher rates than resident students. Non-resident students have a higher rate at the four-year and five-year graduation as compared to resident students. Of interest though, there is no significant difference between resident and non-resident students at the six-year graduation.

Table 5. Mean values for retention and graduation

	All Students	Resident	Non-Resident
Retention 2nd Year	0.91	0.92	0.87
Retention 3rd Year	0.85	0.85	0.81
Graduation 4 Year	0.45	0.43	0.54
Graduation 5 Year #	0.71	0.71	0.73
Graduation 6 Year *	0.76	0.76	0.77
Note: $p < .01$ except for # which were $p < .02$ and * $p > .1$			

Logistic Regression Analyses

For the logistic regression analyses, three different models were analyzed including models for retention to the second year, four-year graduation, and five-year graduation. No model was analyzed for six-year graduation because there were no differences found between resident and non-resident students. Each logistic regression model was developed separately for resident and non-resident students.

The variables for the models were selected based on the literature review and the models were tested for specification error and goodness of fit. In addition, we employed the Box-Tidwell transformation (Box and Tidwell, 1962) for the retention to the second year model in order to obtain a correctly fitting model. No transformations were employed for the other two models.

The beta coefficient in a logistic regression model represents the change in the latent dependent variable (y^*) given an independent variable (x); for example, the willingness to graduate (y^*) rather than whether the student graduated or not (y). We decided to examine the marginal effects (y) instead of the beta coefficients (y^*) since marginal effects represent the change in the dependent variable (y) given x , that is, the probability of a student graduating given an independent variable (x). The use of marginal effects coefficients can be interpreted in terms of either increasing or decreasing the probability of when $y = 1$ (student is retained or graduated). The marginal effects of the logistic regression models are reported in Tables 6, 7, and 8.

Table 6 shows the coefficients for the logistic regression models for retention to the second year³. From this table cumulative GPA, living in on-campus housing and involvement in a Greek organization are shown to positively impact resident student retention. Moreover, being white, female, and receiving a Pell grant negatively impacts resident student retention. For non-resident students, involvement in a Greek organization

³ Table 6 shows the results using the Box-Tidwell transformation. Logistic regression models for retention to the second year were also conducted without the transformation. When the latter was performed for resident students, the same variables shown in Table 6 were found to be significant with the same direction (sign) and similar magnitude. However, predicted GPA was also found to be significant under the model with no transformation for resident students with a coefficient of -.019. When a non transformation model was performed for non-resident students, predicted GPA (-.068), cumulative GPA (.071), and earning probation (-.124) were found to be significant in addition to involvement in a Greek organization (.106). However, we decided to examine and report the results of the regressions with the transformation because they represent best fitting models according to the Hosmer and Lemeshow's goodness-of-fit test.

is the only significant variable impacting retention. Hence, involvement in a fraternity or sorority increases the probability that non-resident students are retained to the second year by 11.3%. None of the continuous variables are significant for non-resident students, whereas, cumulative GPA is significant for resident students. For every unit increase in cumulative GPA (unit = 1.0) the probability that resident students are retained increases by 10.7%.

Table 6. Logistic regressions for retention to the second year

	Resident		Non-Resident	
Pred. GPA	-0.020	(0.135)	0.534	(0.764)
Pred. GPA Transformed	0.000	(0.063)	-0.057	(1.043)
Cum. GPA	0.107*	(0.016)	-0.677	(0.467)
Cum. GPA Transformed	0.000	(0.008)	0.012	(0.352)
White	-0.022*	(0.003)	0.017	(0.018)
Female	-0.013*	(0.003)	-0.001	(0.017)
Parental Ed.	0.007	(0.004)	0.008	(0.022)
Probation	-0.004	(0.006)	-0.083	(0.046)
Housing	0.026*	(0.005)	0.005	(0.031)
Greek	0.046*	(0.003)	0.113*	(0.020)
Pell	-0.014**	(0.007)	-0.012	(0.036)
Non-Need Aid	-0.002	(0.004)	0.015	(0.016)
Observations	15184		1879	
<i>note: standard errors are shown in parentheses</i>				
<i>* = p<.01, ** = p<.05</i>				

Table 7 reports the coefficients for the model of four-year graduation for resident and non-resident students. From Table 7, predicted GPA, being female, living on campus, earning probation, and Greek involvement are statistically significant influences on four-year graduation for both resident and non-resident students. Being white, parental education and receiving a Pell grant impact (statistically significant) four-year graduation for resident students only.

Table 7. Logistic regressions for graduation after fourth year

	Resident		Non-Resident	
Pred. GPA	0.369*	(0.015)	0.328*	(0.039)
White	-0.056*	(0.013)	0.008	(0.029)
Female	0.129*	(0.009)	0.078*	(0.028)
Parental Ed.	0.047*	(0.010)	0.039	(0.040)
Probation	-0.390*	(0.008)	-0.389*	(0.036)
Housing	0.104*	(0.011)	0.123*	(0.046)
Greek	0.053*	(0.010)	0.183*	(0.025)
Pell	-0.074*	(0.012)	-0.076	(0.047)
Non-Need Aid	0.006	(0.009)	0.036	(0.026)
Observations	15283		1897	
<i>note: standard errors are shown in parentheses</i>				
<i>* = p<.01, ** = p<.05</i>				

Table 8 presents the coefficients for the model of five-year graduation for resident and non-resident students. From Table 8, predicted GPA, parental education, earning probation, living on campus, and receiving non-need aid have a statistically significant influence on five-year graduation for both resident and non-resident students. Being female and receiving a Pell grant impacts (statistically significant) five-year graduation for resident students only. Being white impacted (statistically significant) five-year graduation for non-resident students only.

Table 8. Logistic regressions for graduation after fifth year

	Resident		Non-Resident	
Pred. GPA	0.156*	(0.013)	0.093*	(0.029)
White	-0.013	(0.010)	0.056**	(0.025)
Female	0.019**	(0.008)	0.039	(0.024)
Parental Ed.	0.093*	(0.009)	0.088**	(0.034)
Probation	-0.495*	(0.011)	-0.400*	(0.040)
Housing	0.106*	(0.010)	0.114*	(0.044)
Pell	-0.056*	(0.011)	-0.061	(0.040)
Non-Need Aid	0.036*	(0.008)	0.051**	(0.021)
Observations	15283		1897	
<i>note: standard errors are shown in parentheses</i>				
<i>* = p<.01, ** = p<.05</i>				

Conclusions

Having examined the various findings from the descriptive statistics and logistic regression models, we arrive at multiple conclusions. First, the academic preparation of resident and non-resident students is roughly equal prior to enrollment; however, non-resident students perform better academically at TheU. Non-resident students had higher mean GPAs (in both term of the 1st year as well as overall cumulative), lower rates of probation (in the 1st semester and over entire enrollment), and higher 4-year and 5-year graduation rates. It does need to be noted though that non-resident and resident students had the same 6-year graduation rates.

This suggests that non-resident students are more motivated to graduate sooner than resident students. Why would a non-resident student be motivated to perform better than a resident student? To begin with, non-resident students have a greater financial incentive to graduate than resident students due to university cost and travelling expenses. Non-

resident students are paying additional fees to attend a public university out of their home state and the cost of traveling to and from home during breaks add up quickly. Another reason is the mind-set of a non-resident student choosing to attend a particular college is likely different than a resident student. Non-resident students are choosing to attend a university away from home and one of (if not the) primary reasons for doing so is for the educational experience they expect to receive. In short, non-resident students are attending a particular school for academic reasons. For resident students on the other hand, academic reasons may be secondary as to why they choose a particular school. Resident students might choose to attend a certain school because it is close to home, they will be attending with friends, or the family has well established ties to the school (family members are alums, attached due to a sports team, etc.).

Second, the retention model suggests that non-resident students are influenced by campus involvement within Greek organizations. This is in-line with Astin's student involvement theory (1977, 1984, 1993); the more students are involved and feel connected to campus, the more likely they will stay and be successful. It is possible that getting involved in a Greek organization and connected to campus is the single biggest influence (variable) for non-resident students persisting to 2nd year while resident students, perhaps, have more influences (variables) as to why they persist to 2nd year. One limitation of this study is that the only student involvement data (variable) available for this study is Greek involvement. If additional data (variables) were available, we would be able to determine whether involvement in Greek life, specifically, or involvement in general is the real influencer for non-resident student retention.

Third, the retention model findings for resident students run counter to some previous studies. The model indicates that being female and white negatively impacts retention while joining a Greek organization is positively associated. Hu and St. John's (2001) study on student persistence showed that white students had higher rates of persistence and grades than black/African-American and Hispanic students. The American Council on Education's (ACE) report "Gender Equity in Higher Education" (2006) presents results that show nationally white women traditionally and currently have higher persistence and attainment rates than white men, Hispanic men, black/African-American men, Hispanic women, and black/African-American women. The results from these previous studies lead the authors to ponder what is different about TheU resident students than previous studies on retention and graduation? One possible explanation is perhaps TheU's non-white and male resident students are atypical compared to previous studies. However, there is no easy way to test this possible explanation.

Fourth, findings show that receiving non-need aid does not impact retention to second year nor four-year graduation. Hence, should TheU continue to provide non-need financial assistance to students? Since the non-need aid is not impacting retention or graduation (at 4-year), could the university spend the money elsewhere and positively influence student retention and 4-year graduation? Before considering this issue, it is important to take into account the impact of financial incentives on the initial enrollment of students. Non-need financial aid often serves as an inducement for students to enroll at TheU. If non-need aid is not offered, it is likely that a number of students would either choose to attend another university or not enroll in higher education (likely because they could not afford it).

Concluding Thoughts and Future Research

The findings from this study indicate that there are significant differences between resident and non-resident students at TheU. Evidence for these differences is found in the students' academic performance in college, retention rates, graduation rates at the four and five year mark, and the influence of students' characteristics on these rates. However, one of the most interesting findings of this study is that despite these significant differences resident and non-resident students had the same six-year graduation rate. This finding suggests that perhaps there is something in the environment at TheU impacting retention and graduation at the 4th and 5th year.

This study is a good starting point in understanding the differences between resident and non-resident students. One possible area to expand this study is related to the finding that receiving non-need aid does not impact retention to second year nor four-year graduation. This suggests that possibly a re-focus of the non-need aid variable is needed. Focusing on the dollar amount of non-need aid received and not necessarily the act of receiving (or not-receiving) non-need aid might be the appropriate approach. By focusing on the amount of non-need aid received, the analysis would be able to examine different levels of non-need aid received and their influence on student retention and graduation.

Another possible adjustment to the non-need aid variable is to make a differentiation between TheU provided non-need aid and non-TheU provided non-need aid. Additionally, consideration is needed to be given to the presence of the state's merit aid scholarship impact on retention and graduation. Is the presence of a large state merit aid scholarship program masking the effects of non-need aid on retention and graduation? The vast majority of resident students earn the state funded merit aid scholarships; do

resident students need as much non-need aid as students who are from out-of-state? This would be another good area to further investigate to help understand the differences between resident and non-resident student retention.

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