

**Enrollment Patterns and Completion Status:
Students in North Carolina Public Postsecondary Institutions**

By

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Enrollment Patterns and Completion Status: Students in North Carolina Public Postsecondary Institutions

Undergraduate students' enrollment patterns have changed over the past two decades; an increasing number of students attend multiple institutions before completing their undergraduate studies (Adelman, 1999; McCormick, 2003). According to the National Center of Education Statistics (NCES) (2005), 40 percent of students who started their postsecondary education in 1995-96 had attended more than one institution by 2001. Among the 1999-2000 first-time bachelor's degree recipients, a majority (59 percent) attended more than one institution during their undergraduate studies, and of those who initially enrolled in 4-year institutions, 47 percent attended more than one institution at some point with or without formally transferring. It is a common practice for students to attend more than one institution over the course of their undergraduate years (NCES, 2000). "Higher education is experiencing a significant change in how students attend college and who provides higher education" (Council for Higher Education Accreditation, 2000, p3).

The change can have profound effects on students and the time to complete their degrees/programs. Research has been conducted on students' enrollment paths. The majority of studies have focused on vertical transfers, while some have examined reverse transfers. Few studies have been conducted on the complex multiple enrollment patterns in relation to students' completion status at a state level. This study intends to use longitudinal data from North Carolina Community College System (NCCCS) and University of North Carolina (UNC) to reveal the enrollment patterns of NC undergraduates in relation to their degree completion status.

Literature Review

Researchers and scholars have studied the phenomenon of students attending multiple institutions during their undergraduate years. Many studies have focused on one segment of the multiple enrollment patterns. Studies on vertical transfers show that the reasons students choose 2-year public institutions to start their postsecondary education include: lower tuition than 4-year institutions, more convenient class locations and flexible time, smaller class sizes, and a chance to improve GPA (Kajstura & Keim, 1992; Winter & Harris, 2000). Research on reverse transfers revealed that financial, emotional, and remedial factors were the three broad categories of reasons why some students transferred to community colleges from 4-year institutions (Johnson, 2006). The lower cost to attend community colleges provides a more feasible educational alternative for many students. The open-door welcoming environment and smaller classroom sizes at community colleges are more inviting for some students than the larger classes and more rigorous environment at 4-year institutions. The difficulty of keeping up with the academic pace of a 4-year institution is another reason for some reverse transfers. This is similar to the findings from a study conducted by the Oregon University System on 1,100 dual enrolled students during the 1997-98 academic year. These students used courses at 2-year institutions to supplement credits or coursework at 4-year institutions, to enroll in developmental skill courses, to take prerequisite courses, or to complete a substantial proportion of major course requirements (Bach et al., 2000).

As researchers, we not only want to understand the changes in students' enrollment patterns, but also want to study the impact of these changes on our education system. How do the enrollment pattern changes affect students' time-to-degree? McCormick (2003) found that students who began at a community college and transferred to a 4-year or less-than-four-year institution achieve a bachelor's degree within 5 years at a higher rate (13.4%) than reverse transfer students (11.7%). One study argued that reverse transfer students took, on average, nine months off before enrolling in a second institution, which led to postponed degree completion (McCormick & Carroll, 1997). What the NC undergraduates' enrollment patterns are and how these patterns affect their completion status will be analyzed in this study.

Definition of Terms

The terms used in this study might not be exactly the same as those used in other studies. Therefore, the following definitions are only for the purpose of this study:

- First-time freshmen: students who graduated from a high school within the previous year before enrolling in NCCCS or UNC for the first time.
- Traditional students: students who attend only one institution for their entire collegiate career.
- Parallel transfer: students left their original institution and attended two or more institutions at the same level (i.e., remained in the same system in which they started).
- Vertical transfer: students who originally enrolled in NCCCS, left community colleges, and attended UNC institutions regardless of whether they obtained a degree from NCCCS or took only one course from NCCCS.
- Reverse transfer: students who originally enrolled in a UNC institution, left UNC institutions, and went to NCCCS during their undergraduate studies.
- Transfer: parallel, vertical, and reverse transfer all refer to attendance at more than one institution, not to a formal transfer of credits. The students we have labeled as transfer students may or may not have been recognized as such by the institutions they attended.
- Swirlers: students who went back and forth between community college and university systems and attended more than 3 institutions during their undergraduate studies period.
- Elapsed semester: the number of semesters from entry into a program to the awarding of the degree.
- Registered semester: the number of semesters in which students were registered.

Methodology and Research Design

This research is primarily descriptive. The researchers are using longitudinal data from both NCCCS and UNC to examine NC undergraduate enrollment patterns in relation to the graduation rates and time-to-degree. The analysis includes two parts:

- 1) Enrollment pattern analysis that encompasses 10 years of cohorts from 1997-98 to 2006-07. The first-time freshmen who graduated from high

school in previous year and enrolled in fall 1997 and spring 1998 form the 1997-98 cohort. The other nine cohorts are 1998-99 through 2006-07.

- 2) The analysis of graduation rates and time-to-degree includes 4 years of cohorts—1997-98, 1998-99, 1999-00, and 2000-01. The Comprehensive Articulation Agreement, the transfer policy between UNC and NCCCS, became effective in fall 1997 and programs became standardized. Ending with the 2000-01 cohort for graduation analysis would give students six years to complete their degrees and would also give a reasonable period of time to track their enrollment patterns in relation to their completion status.

Researchers intend to explore the following questions:

- What proportion of students stayed in their original institutions?
- What proportion of students transferred within their original system?
- What proportion of NCCCS students transferred to UNC?
- What proportion of UNC students transferred to NCCCS?
- What proportion of students went back and forth between the two systems?
- How long did it take for these students to obtain a degree?

In addition, we will investigate the enrollment patterns and completion status of those who were accepted by UNC but decided to start their postsecondary education at NCCCS, and those who were rejected by UNC initially and went to NCCCS.

Findings

Composition of the Students

UNC cohorts: the traditional first-time freshmen enrollment increased 34.9 percent from 22,591 in 1997-98 to 30,465 in 2006-07. The ratio of female to male enrollment has been relatively flat at about 56 percent to 44 percent across this time period. Among these traditional first-time freshmen, American Indian students' enrollment has been steady at 1 percent for the last ten years, with Asian students making up about 3 percent of the enrolled population. Blacks and Hispanics each showed a 2 percent increase across the study period, from 24 percent to 26 percent and 1 percent to 3 percent, respectively, with the "other" category increasing from 0 percent to 4 percent. These increases in the percentage of minority students have been reflected in a 7 percent decrease of white students, from 71 percent to 64 percent, in the last ten years (Table 1).

NCCCS cohorts: the traditional first-time freshmen enrollment in NCCCS increased 81.2 percent from 12,891 in 1997-98 to 23,364 in 2006-07. For the past ten years, the proportion of females enrolled in NCCCS has been steady at 54 percent, with male enrollment at about 46 percent. American Indian enrollment, between 1 and 1.5 percent, was slightly higher than that in UNC system. Asian students increased about 2.5 percent, from 1.6 in 1997-98 to 4.1 in 2006-07. Blacks gained about 1 percent increase over the ten years. Hispanics enrollment kept about the same, 2 percent, over the years. The "other" category increased about 3 percent. Similarly, white students' enrollment decreased 7 percent, from 75 percent to 68 percent in the past ten years (Table 2).

Total NC public postsecondary sector: From 1997-98 to 2006-07, the percentage of first-time freshmen enrolled in North Carolina public postsecondary institutions increased 50.9 percent. Females constituted 56 percent of the first-time freshmen population and males comprised 44 percent. The racial makeup of both public sectors shows a great deal of similarity and the changes in that makeup track very closely across both system. The majority of first-time students are white, and while the numbers are increasing, the percentage drops about seven points across the ten years, with blacks, Hispanics, and “Other” showing the greatest percentage gains (Table 3).

Enrollment Patterns

In order to understand fully students’ enrollment patterns/paths in North Carolina public postsecondary sectors, the UNC and NCCCS cohorts were combined in analyses. A small group of 1,019 students who dually enrolled in both UNC and NCCCS in their freshmen year were included in the UNC count. Their detailed enrollment patterns and graduation status are not included for the time being, but will be analyzed in the near future.

An overwhelming majority of public postsecondary students in our first cohort stayed in their original system (81.3 percent), and a nearly-as-impressive majority (71.9 percent) never transferred from their original institution. Only 9.3 percent of the students studied were parallel transfers, attending two or more institutions at the same level, while 11.7 percent transferred across levels and remained in place. Returners, those who transferred to a different level and then back to their original type of institution, accounted for just fewer than 5 percent of our first cohort. Students on these paths -- the traditional students who attended only one institution, the parallel, vertical, and reverse transfers, and the returners -- make up 98.14 percent of the 1997-98 cohort. The remaining students, 1.86 percent (0.69 percent of NCCCS students and 1.17 percent of UNC students) were “swirlers” who changed levels more than two times.

The 1998-99 through 2000-01 cohorts are almost mirrors of this first cohort. While the years 2001-02 through 2006-07 show more variation in the percentages falling into each of these pathways, we doubt that students’ educational behavior is changing radically. Students in the later years of a longitudinal study have less time to move between institutions and sectors than those who have been followed for more years. As the timeline moves forward, we expect the percentages for the 2006-07 cohort to become relatively indistinguishable from those of earlier years (Table 4).

While studying the enrollment patterns and trends over the years, we find that students who started at a North Carolina Community College

- were twice as likely as UNC students to attend 2 or more institutions within the same system;
- transfer to UNC institutions at the same rate they move around within the NC Community College System;
- were 50 percent more likely to transfer to a UNC institution than UNC students were to attend a community college; and
- having transferred to a UNC institution, are much less likely to return to their original level than UNC students who make the change to a community college.

On the other hand, we find that students who started at four-year North Carolina public universities

- were more likely to remain at their original institution than their community college counterparts;
- when they did transfer within UNC schools, were substantially less likely than NCCCS students to move to a third institution within their system;
- were two to three times as likely as NCCCS students to return to their original level after changing levels; and
- were just as likely as NCCCS students, but no more so, to be swirlers back and forth across the levels multiple times.

Given the different missions and distributions of the two types of institutions, many of these findings are not surprising. Students would be more likely to have two or more of the 58 community colleges within driving distance than the 16 UNC universities, making parallel transfers more popular at that level. UNC students aiming for a baccalaureate degree would have less incentive as time passed to transfer to another institution and risk losing credits for classes already taken. With the rise of online courses, we expect to see more students at both levels making use of the internet to expand their course catalogs; this will likely result in a higher percentage of students being dually enrolled or transferring within or between systems.

The community college system's function as a safety net for baccalaureate-bound students may help explain the difference in percentages for traditional transfers, reverse transfers, and returners. For some students, the ability to take some of their first two years of courses at a community college with lower tuition rates while living at home might be a very important factor. While such students might well regard their community college career as a path to a baccalaureate degree via vertical transfer, it is doubtful that many students would begin at a UNC institution with the intention of becoming a reverse transfer to a community college. It is not surprising, therefore, to find a higher rate of vertical transfers than reverse transfers, nor is it surprising to find a higher return rate for students on the U-C-U path than those on the C-U-C path; in each case, students might want to use the community college system as a conduit to, or back to, the four-year institution level.

One finding that is somewhat surprising is that community college students transferred to UNC institutions at virtually the same rate as they transferred among the various NC community colleges, with about 14 percent of the NCCCS student population falling into each of these two categories.

This study, however, may be understating the transfer rate of community college students to UNC institutions since the population being studied includes students in all community college programs, the majority of which would not lead students to transfer. It is likely that the rate of transfer to UNC institutions would be higher if only those students in programs designed for transfer and supported by the statewide transfer articulation agreement were considered. In addition, the study is not able to identify those community college students who are enrolled in collaborative programs between two colleges. For these students, transfer from one community college to another is required for degree completion.

Graduation Rates

As indicated earlier, the analysis of graduation rates and time-to-degree includes 4 years of cohorts—1997-98, 1998-99, 1999-00, and 2000-01. Students in these cohorts have at least 6 years to complete their undergraduate study by the end of our current data. The total number of the traditional first-time freshmen in the 4 years of cohorts combined is 144,546; 49,643 and 94,903 started their postsecondary education at NCCCS and UNC respectively (Table 5).

Of the 49,643 students in our combined cohort who enrolled as freshmen in the NCCCS, 8,976 (18.08 percent) had graduated from a community college by spring 2007, and 5,145 (10.36 percent) had graduated from a UNC institution. Eighty-one percent stayed in the NCCCS for their postsecondary career and did not move to the UNC system, with 16 percent graduating with a certificate, diploma, or associate's degree. Traditional students, who attended only one community college, graduated at a rate of 15 percent, while students who transferred within the NC Community College System had a graduation rate of 21 percent. Of the 7,272 vertical transfers from NCCCS to UNC, 26 percent graduated from NCCCS, while 63.5 percent received a bachelor's degree from a UNC institution. Of the 1,137 students who followed the C-U-C path (community college to UNC and back to community college), just under 24 percent graduated from a community college; the 19 students on this path who received four-year degrees more properly belong on the vertical transfer path. Surprisingly, swirlers who began their career at a community college and bounced between sectors more than twice graduated from community colleges at a slightly higher rate than those who followed the C-U-C path (27.6 vs. 23.6 percent), and over half of them graduated from a UNC institution (Table 5).

On the four-year side, we started with a combined cohort of 94,903 freshmen; 2.26 percent of them graduated from a community college by the end of our study, while 66.28 percent earned their baccalaureate degrees. Eighty-two percent (77,755) of these students stayed within the UNC system, and 75 percent of those who did so went on to graduate from a UNC institution. Over 90 percent of those 77,755 remained at their original institution for their entire baccalaureate career.

For the 9,541 reverse transfers, who originally enrolled in UNC and then transferred to NCCCS, over 14 percent graduated from NCCCS; 118 graduated from UNC institutions, most likely students who were dually-enrolled as freshmen. Our study includes 5,940 students who originally enrolled in a UNC institution, transferred to a community college, and then came back to a UNC school. Nine percent of the students on this U-C-U path graduated from a community college before returning to UNC; while over 61 percent of them went on to receive a bachelor's degree. The 1,667 swirlers who began their career at a public 4-year institution had a 13 percent graduation rate from community colleges, while 26 percent of them obtained a degree from a UNC institution (Table 5).

Of the students in our cohort who began at a community college, 18 percent would eventually graduate at that level, with those who stayed at one community college for their entire career having the lowest graduation rate, and swirlers, bouncing from level to level, having a rate nearly 10 points higher. This is in stark contrast to the students who began at a UNC institution, where traditional students have the highest graduation rate and swirlers the lowest. Again, the explanation may be found in the

differing natures of the two systems. Community college students who are focused on getting a degree may be more inclined to shop around among multiple NCCCS institutions in their area, and having received a certificate, diploma, or associate's degree, go on to a UNC institution. Because a baccalaureate degree requires a greater investment of time and money, students who begin at a UNC institution have less incentive to move around and risk losing credits, thereby adding to the time and expense of their degree. With regards to the higher success rate of swirlers who begin at a community college rather than at a UNC institution, it may reveal that moving "back and forth" between the two systems is less negative for those who originated at a community college. Students who began at a UNC institution and swirl between the two systems may be doing so because of poor academic performance at the UNC institution and these students may subsequently become discouraged in pursuing a baccalaureate degree.

Time-to-Degree

Table 6 offers some support for this hypothesis. There was a steady and substantial increase in the number of both elapsed semesters and registered semesters as we analyzed the paths these graduated students took from staying in one institution to swirling between two systems. For NCCCS students who received a community college award, those enrolled in only one institution took 6.81 elapsed semesters and 5.38 registered semesters to graduate, while swirlers took twice as long, needing 13.76 elapsed and 11.21 registered semesters. For those paths that led to graduation from a UNC institution, swirlers needed a little more than one extra semester of both elapsed and registered time than their vertical transfer counterparts.

This table also helps illustrate the part-time nature of many community college students; even the students with the lowest time to degree still had a difference of nearly 1.5 more elapsed semesters than registered semesters, rising to a difference of 2.5 semesters for swirlers. It is also indicative of the nature of community college students in that, on average, 63% are employed while enrolled and 49% enter a community college "not college ready," meaning they are required to take one or more developmental courses in reading, English and/or mathematics. All three of these factors (part-time, employed and "not college ready") have been shown to negatively impact persistence and graduation rates and, for those who do continue on to graduation, increase the time to degree.

Looking at the UNC side of the table, we find similar trends, with those students who stayed at a single UNC institution receiving a baccalaureate degree in 8.77 elapsed and 8.63 registered semesters, while swirlers took nearly 12 elapsed and 11 registered semesters to graduate. Reverse transfers took 2.5 to 3 semesters less than returners or swirlers to receive a community college award. The differences between elapsed and registered semesters was no more than 1 semester for UNC graduates, but rises to between 2 and 3 semesters among those UNC students who received a community college award, indicating that those UNC students who moved to the community college level might do so on a more part-time basis than when they attended a four-year institution.

While comparing the original NCCCS students who transferred to UNC and came back to NCCCS (C-U-C) with the original UNC students who transferred to NCCCS and came to UNC (U-C-U), we find that C-U-C students seemed to take less time than U-C-U students to graduate from NCCCS. The C-U-C students' average elapsed and registered

semesters to finish from NCCCS were 12.44 and 9.45 respectively, compared with U-C-U students' 13.73 and 10.59 elapsed and registered semesters respectively. However, it seemed to take C-U-C students longer to obtain their bachelor's degree than U-C-U students. The average elapsed and registered semesters for C-U-C students were 11.42 and 10.47 and for U-C-U students were 10.99 and 10.13.

Students take different enrollment paths during their undergraduate study and their enrollment patterns will affect their graduation and time-to-degree. A NCES (2005) study concluded that "repeated multiple institution attendance can delay degree completion" (p.39). Not surprisingly, evidences from this study confirm the conclusion.

There are two groups in our NCCCS cohorts we would like to investigate more. One group (ACC) is the students who were accepted by UNC institutions but decided to start their postsecondary education in NCCCS. Another group (REJ) is the students who were rejected by UNC and enrolled in NCCCS. From 1997-98 to 2006-07, ACC enrollment increased from 711 to 1,123 and REJ increased from 1,085 to 1,823. ACC and REJ students constituted about 2 percent and 3 percent of each cohort student population except for the 2002-01 cohort.

Of the 2,455 ACC students in the cohorts 1997-98 through 2000-01, about one-quarter graduated from NCCCS, 46 percent transferred to UNC, and 63 percent of these vertical transfers obtained their bachelor's degree. The graduation rate of the ACC students from community colleges mirrors that of the C-U vertical transfers in Table 5, but their overall graduation rate from UNC was only 29 percent, less than that of the swirlers. Both their elapsed and registered times-to-degree for community college awards – 9.61 and 7.55 semesters respectively – were about 2 semesters less than what C-U transfers needed, while their UNC times-to-degree of 10.70 and 9.86 semesters were indistinguishable from other vertical transfers. These students seemed quite motivated to return to the 4-year level where they were accepted as soon as possible, but their eventual success at that level seemed to be more like that of the swirlers who started at a UNC institution.

Among the 3,876 REJ students in the same four years cohorts, about 15 percent graduated from NCCCS, 36 percent (1,404) transferred to UNC institutions, and 55 percent of these vertical transfers received their bachelor's degree. Their overall graduation rate was close to 20 percent. REJ were less successful than their ACC counterparts, which was expected, and took about one semester longer to reach their goals from both systems.

Limitation of the Study

The longitudinal data from both NCCCS and UNC systems made it possible for us to investigate and understand the enrollment patterns of students in North Carolina public postsecondary institutions. The data also enabled us to obtain some basic information on students' graduation and time-to-degree. However, limitation of the study is unavoidable for the following reasons:

- The research is limited by data availability. For instance, it is impossible to examine the academic preparedness in relation to students' enrollment patterns or time-to-degree because high school GPA and SAT scores are not required for students entering NCCCS. Similarly it was not possible to determine "hours attempted" and "hours earned" on a semester to semester basis which may explain

- some of the time-to-degree issues. Distinguishing part-time from full-time is one avenue of research, but within that dichotomy, students who only take one course per semester are going to have a very different time-to-degree experience from those part-time students who are taking 3-4 courses per semester.
- The research is limited by data reliability. For instance, the “field of study” variable only becomes reliable when students enter their junior class. Both NCCCS and UNC students change their major frequently. It is difficult to investigate the effects of “field of study” on students’ enrollment patterns or time-to-degree.
 - This descriptive analysis only provides some general information on students’ enrollment patterns and time-to-degree. Without further investigation using qualitative research methods, it is difficult to obtain in-depth information on why students chose certain enrollment paths and what made them stop out for a certain period of time during their undergraduate study. It is also not possible to determine student intent. Students with longer elapsed semesters and registered semesters may simply be “testing the waters” of higher education to determine if they want to or are capable of obtaining a degree.
 - The research did not include 4-year private institutions due to the lack of a central student database from which to extract the needed information. The percent of community college students transferring to a 4-year institution is most likely understated in this study since only transfers to a public 4-year institution were examined. Had data from private 4-year institutions been included, the percent of community college students transferring would have been much higher. It is likely that this additional data would have had a greater impact on the community college cohort than on the UNC cohort.

Discussion

While the NCES study of the 1995-96 freshman cohort found that 40 percent attended more than one institution within 6 years, only 28 percent of the North Carolina freshmen we tracked left their initial institution to enroll at another public sector college or university. It may be that NC students who attend private or out-of-state institutions, neither of which are tracked by our data, show an increased tendency to move from school to school, but we doubt that this is the case.

Despite the limitations in the study, the following issues appear to be logical and warrant further investigation:

- **The larger percent of students who stayed within the system in which they began and enrolled at only one UNC institution as opposed to students enrolled at only one community college may reflect a higher degree of “loyalty” to the institution.** There are a multitude of reasons why students select to attend one institution over another. For community college students the issue of “convenience” plays a greater role in the selection process than for university students. As a general rule, students attend a community college that is within commuting distance from where they work or live. Students at 4-year institutions may have a greater affinity for the institution at which they began and thus the tendency to remain at

that institution is greater. This may have implications for institutions trying to build a loyal alumni base for future fundraising.

- **The larger percent of parallel transfers within the community college system may reflect fewer barriers to student movement.** In 1997-98 the community college system adopted a common course library and course numbering system. Any course taken at a community college and completed at the “C” level or higher automatically transfers to any other community college. As such, a student who needs a particular course to graduate and cannot find that course offered at the college they are attending when they need to take it, can simply enroll in the course at another community college and the credit will automatically transfer. This policy gives greater flexibility to students in their course scheduling. There is neither a financial penalty nor a “credit loss” penalty for attending multiple community colleges. Reducing student barriers to transfer may increase student transfer across all sectors.
- **Community colleges appear to be playing a “safety net” role for UNC students.** Approximately 8 percent of those students who originated at a UNC institution left to attend a community college and then returned to a UNC institution, with 62% of those students eventually earning a baccalaureate degree. For whatever reason they left the UNC institution, the community colleges provided an opportunity for those students to continue their education and earn the baccalaureate degree.
- **The statewide articulation agreement between the UNC and NCCCS may be resulting in more students beginning their education at a community college.** Since 1997-98 there has been a steady increase in the number of students initially accepted or rejected by a UNC institution first enrolling at a community college. This pattern may reflect changing attitudes among students with regards to beginning their education at a community college as the statewide articulation agreement has become firmly established across the two systems.
- **Community college students experience more interruptions in their educational path than do UNC students.** For those students who remain within the system in which they started, community college students “stop-out” significantly more than UNC students. On average, community college students “stop-out” approximately 2 semesters during their educational career as compared to less than 0.5 semesters for UNC students. Since research has shown that continuous enrollment is a predictor of graduation, this “stop-out” finding needs to be examined in more detail.

References

- Adelman, C. (1999). *Answers in the toolbox: Academic intensity, attendance patterns, and Bachelor's Degree attainment*. Washington, DC: U. S. Department of Education, Office of Educational Research and Improvement.
- Bach, S.K., Banks, M.T., Kinnick, M.K., Ricks, M.F., Stoering, J.M., & Walleri, R.D. (2000). Student attendance patterns and performance in an urban postsecondary environment. *Research in Higher Education, 41*(3), 315-330.
- Council for Higher Education Accreditation (2000). *A statement to the community: Transfer and the public interest*. Washington, DC: Council for Higher Education Accreditation.
- Kajstura, A., & Keim, M.C. (1992). *Reverse transfer students in Illinois community colleges*. *Community College Review, 20*(2), 39-44.
- Johnson, T. (2006). *Traveling successfully on the community college pathway*. The research and findings of the *Transfer and Retention of Urban Community College Students (TRUCCS)* project. Los Angeles, CA: Rossier School of Education, University of Southern California. (ERIC Document Reproduction No. ED 493 676).
- McCormick, A.C. (2003). Swirling and double-dipping: New patterns of student attendance and their implications for higher education. In J.E. King, E.L. Anderson, & M.E. Corrigan (Eds.), *Changing student attendance patterns: Challenges for policy and practice* (pp. 13-24). *New Directions for Higher Education*, no. 121. San Francisco: Jossey-Bass.
- McCormick, A.C. & Carroll, C.D. (1997). *Transfer behavior among beginning postsecondary students: 1989-1994* (NCES Report No. NCES97-266). Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- National Center for Education Statistics (2005). *The road less traveled? Students who enroll in multiple institutions*. (NCES Report No. NCES 2005-157). Washington, DC: U.S. Department of Education, Institution of Education Sciences.
- Townsend, B.K. (2001). *Four-year college students' use of the community college: A middle-class takeover?* Paper presented at the 26th annual conferences of the Association for the Study of Higher Education, Richmond, VA.
- Winter, P.A., & Harris, M.R. (2000). *Community college reverse transfer students: A field survey of a nontraditional student group*. *Community College Review, 27*(1), 13-28.

**Table 4. Enrollment Patterns of First-time Freshmen in North Carolina Public Postsecondary Institutions
1997-98 through 2006-07**

	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
<u>Students started at NCCCS:</u>										
Enrolled & Stayed in NCCCS	81.67	81.56	81.29	79.66	82.30	84.27	85.79	90.00	95.27	99.00
<i>Enrolled in Only One CC</i>	67.51	66.80	67.40	66.27	69.27	71.20	74.21	80.02	88.87	97.44
<i>Enrolled in Only Two CC</i>	12.31	12.90	12.06	11.76	11.65	11.72	10.62	9.41	6.17	1.54
<i>Enrolled in 3+ CC</i>	1.85	1.86	1.83	1.63	1.38	1.35	0.96	0.57	0.23	0.02
Parallel Transfers (2 or More CC)	14.16	14.76	13.89	13.39	13.03	13.07	11.58	9.98	6.40	1.56
C-U Transfers	14.24	13.84	14.48	16.21	13.89	13.04	12.26	8.89	4.34	1.01
C-U-C	2.16	2.40	2.35	2.25	2.26	1.68	1.40	0.88	0.36	-
NCCCS Swirlers	1.92	2.19	1.88	1.88	1.55	1.00	0.57	0.23	0.03	-
<u>Students started at UNC:</u>										
Enrolled & Stayed in UNC*	81.04	79.91	81.69	83.35	83.69	85.15	86.91	88.83	92.07	97.80
<i>Enrolled in Only One UNC</i>	74.42	73.32	75.29	76.81	77.49	78.93	80.91	83.31	88.35	97.00
<i>Enrolled in Only Two UNC</i>	6.29	6.28	6.05	6.22	5.91	6.05	5.88	5.39	3.66	0.80
<i>Enrolled in 3+ UNC</i>	0.33	0.31	0.35	0.32	0.29	0.17	0.12	0.13	0.06	0.00
Parallel Transfers (2 or More UNC Inst.)	6.62	6.59	6.40	6.54	6.20	6.22	6.00	5.52	3.72	0.80
U-C Transfers	10.25	10.78	9.71	9.52	9.54	9.45	8.96	8.55	6.81	2.09
U-C-U	6.27	6.78	6.43	5.60	5.41	4.38	3.45	2.23	0.98	-
UNC Swirlers	1.83	2.01	1.78	1.44	1.30	0.94	0.58	0.32	0.08	-
<u>NCCCS and UNC Cohort Combined:</u>										
Enrolled and Stayed In Original System	81.26	80.50	81.55	83.26	83.05	84.71	86.43	89.34	93.39	98.32
<i>Enrolled in Only One Institution</i>	71.92	71.02	72.54	73.52	73.72	75.76	78.05	81.88	88.57	97.19
<i>Enrolled in Only Two Institutions</i>	8.46	8.62	8.14	9.01	8.54	8.38	7.90	7.13	4.70	1.12
<i>Enrolled in 3+ Institutions</i>	0.88	0.86	0.87	0.73	0.79	0.57	0.48	0.33	0.12	0.01
Parallel Transfers (2 or More Inst)	9.34	9.48	9.01	9.74	9.33	8.95	8.38	7.46	4.82	1.13
Vertical and Reverse Transfers (C-U & U-C)	11.69	11.86	11.37	11.61	11.53	10.92	10.37	8.70	4.79	1.63
Returners (C-U-C & U-C-U)	4.79	5.24	5.01	4.55	3.97	3.27	1.58	1.64	0.72	-
Swirlers	1.86	2.07	1.81	1.58	0.78	0.96	0.57	0.19	0.06	-

* The percentage of sub-groups does not add up to the total group due to the exclusion of a dual enrolled group in the analysis.

**Table 5. Graduation Rates of Students in North Carolina Postsecondary Institutions
1997-98 through 2000-01 Cohorts Combined**

	# Started in the category	<u>NCCCS Graduates</u>		<u>UNC Graduates</u>	
		N	%	N	%
<u>Students started at NCCCS:</u>					
Enrolled & Stayed in NCCCS	40,255	6,522	16.20		
<i>Enrolled in Only One CC</i>	33,270	5,031	15.12		
<i>Enrolled in More Than One CC</i>	6,985	1,491	21.35		
C-U transfers	7,272	1,913	26.31	4,615	63.46
C-U-C	1,137	270	23.75	19	1.67
NCCCS swirlers	979	271	27.68	511	52.20
NCCCS Sub-total	49,643	8,976	18.08	5,145	10.36
<u>Students started at UNC:</u>					
Enrolled & Stayed in UNC	77,755	1	0.00	58,691	75.48
<i>Enrolled in Only One UNC</i>	71,169		0.00	53,798	75.59
<i>Enrolled in More Than One UNC</i>	6,586	1	0	4,893	74.29
U-C transfers	9,541	1,382	14.48	118	1.24
U-C-U	5,940	543	9.14	3,662	61.65
UNC swirlers	1,667	223	13.38	435	26.09
UNC Sub-total	94,903	2,149	2.26	62,906	66.28
Total	144,546	11,125	7.70	68,051	47.08

**Table 6. NCCCS and UNC Graduates' Average Elapsed Time-to-Degree
(ETD Semesters) and Registered Time-to-Degree (RTD Semesters)
Cohorts 1997-98 through 2000-01 Combined**

	CC Graduates		UNC Graduates	
	ETD	RTD	ETD	RTD
Enrolled & Stayed in NCCCS	7.74	5.86		
<i>Enrolled in Only One CC</i>	6.81	5.38		
<i>Enrolled in Only Two CC</i>	10.6	7.3		
<i>Enrolled in 3+ CC</i>	12.66	8.62		
C-U transfers	11.84	9.63	10.82	9.95
C-U-C	12.44	9.45	11.42	10.47
NCCCS swirlers	13.76	11.21	12.18	11.04
Enrolled & Stayed in UNC			8.86	8.69
<i>Enrolled in Only One UNC</i>			8.77	8.63
<i>Enrolled in Only Two UNC</i>			9.83	9.37
<i>Enrolled in 3+ UNC</i>			10.6	9.94
U-C transfers	10.82	8.14	10.32	9.67
U-C-U	13.73	10.59	10.99	10.13
UNC swirlers	13.74	10.9	11.97	10.98
Total	9.5	7.34	9.15	8.89

Table 7. ACC and REJ Students' Enrollment Patterns, Graduation, and Time-to-Degree

A. Enrollment in NCCCS:

Cohort	ACC		REJ	
	N	%	N	%
1997-98	711	1.99	1,085	3.04
1998-99	775	2.15	1,125	3.12
1999-00	766	2.08	1,312	3.57
2000-01	203	0.56	354	0.98
2001-02	985	2.08	1,609	3.40
2002-03	925	2.11	1,697	3.88
2003-04	1,029	2.15	1,721	3.59
2004-05	1,154	2.30	1,910	3.81
2005-06	1,155	2.30	1,688	3.36
2006-07	1,123	2.08	1,823	3.38
Total	8,826	2.02	14,324	3.27

B. Graduation: Cohorts 1997-98 through 2000-01 Combined

	Attended CC		Graduated from		Attended UNC		Graduated from UNC		
	N	%	N	%	N	%	N	%	% of over all
ACC	2,455	100.00	631	25.70	1,135	46.23	712	62.73	29.00
REJ	3,876	100.00	595	15.35	1,404	36.22	768	54.70	19.81

C. Time-to-Degree: Cohorts 1997-98 through 2000-01 Combined

	CC Graduates		UNC Graduates	
	ETD	RTD	ETD	RTD
ACC	9.61	7.55	10.70	9.86
REJ	10.74	8.45	11.27	10.54