1-1-1983

An evaluation of the performance of marketing and management transfer students at the University of Massachusetts.

Nelson Everett Pion

University of Massachusetts Amherst

Follow this and additional works at: https://scholarworks.umass.edu/dissertations_1

Recommended Citation

AN EVALUATION OF THE PERFORMANCE OF MARKETING AND MANAGEMENT TRANSFER STUDENTS AT THE UNIVERSITY OF MASSACHUSETTS

A Dissertation Presented

By

NELSON EVERETT PION

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

May 1983

School of Education
AN EVALUATION OF THE PERFORMANCE OF MARKETING AND MANAGEMENT TRANSFER STUDENTS AT THE UNIVERSITY OF MASSACHUSETTS

A Dissertation Presented

By

NELSON EVERETT PION

Approved as to style and content by:

Dr. William C. Wolf, Jr., Chairperson

Dr. William R. Dillon, Member

Dr. William G. Kornegay, Member

Dr. Mario Fantini, Dean
School of Education
ACKNOWLEDGEMENT

The writer is deeply indebted to many for the patience, encouragement and understanding during the course of this research.

Special consideration is warranted for the members of the committee for the unique contribution each made toward the success of this project. Heartfelt thanks is extended to Dr. William C. Wolf, chairperson, whose diligence in providing quick, thoughtful and helpful response to the drafts of the dissertation was greatly appreciated. Dr. William C. Kornegay was a faithful ally and helpful friend in assisting the writer with administrative matters and in dealings with the Graduate School. A special debt of gratitude is owed to Dr. William Dillon whose friendly, gentle prodding and invaluable technical assistance made the fruition of this project possible.

The writer is also deeply appreciative of the tolerance, patience and understanding of his wife and family during the term of this project.

Finally, the author extends an expression of gratitude to Mrs. Judith Purcell who typed the original drafts of the dissertation, and to Ms. Denise Lessard and the staff of the SOM Word Processing Center for their patience and skill in preparing the finished product.
ABSTRACT

AN EVALUATION OF THE PERFORMANCE OF
MARKETING AND MANAGEMENT TRANSFER STUDENTS
AT THE UNIVERSITY OF MASSACHUSETTS

Nelson E. Pion, Ed.D.

University of Massachusetts, 1983

The purpose of this study was to assess the degree of handicap experienced by management and marketing transfer students in the School of Business Administration at the University of Massachusetts who had completed the introductory course in their major at the public community college from which they had transferred.

The School, accredited by the AACSB (American Assembly of Schools of Business Administration), follows policies which stipulate that no credit be given for certain business courses taken prior to the junior year unless member schools could demonstrate that transfer students were not disadvantaged by having done so.

All transfer students entering SBA between 1969 and 1976, and who majored in management or marketing were included in the study. They were sorted into two groups depending upon the locus of enrollment in the introductory course in their major.

Using SPSS, the records of the two groups were compared to see if significant differences could be found either in terms of overall grade-point average, or grade-point average in the major.
There were two other phases to the study. One was to analyze the predictive validity of courses in certain skills areas on subsequent academic performance. Another was to compare the academic performance of all transfer students in the study with a random sample of native students.

The study concluded that students from public sector community colleges in Massachusetts were not handicapped by having completed these introductory courses at the junior colleges. The grade-point averages of transfer students who had done so were not significantly different than those of transfer students who completed the introductory courses at the University.

The study also concluded that grades in economics and mathematics courses completed at the community college were valid predictors of academic success at the University, but that this relationship did not exist with English courses.

Native students outperformed transfer students in overall grade-point average, but averages in the major were virtually identical for both groups.
# TABLE OF CONTENTS

**ACKNOWLEDGEMENT** ................................................................. iii

**Chapter**

I. INTRODUCTION ................................................................. 1

* Statement of the Problem ................................................. 1
* Purpose of the Study ....................................................... 5
* Hypotheses to be Tested .................................................. 7
* Definition of Terms .......................................................... 8
* Significance and Limitations of the Study ............................. 9

II. REVIEW OF THE LITERATURE ............................................. 13

* Review of General Studies and Related Literature ............... 13
* Review of the Literature Related to Business Administration .... 22
* Summary of the Literature Related to Business Transfer Students .... 28

III. METHODOLOGY .............................................................. 29

* Introduction ................................................................. 29
* Sources of the Data .......................................................... 29
* The Population ............................................................... 30
* Procedures for Data Collection ......................................... 31
* Treatment and Analysis of Data ......................................... 32
* Test Procedures ............................................................... 37
  * t-Statistic .................................................................. 38
  * Dummy Variable Regression .............................................. 39
  * One Dummy Variable and a Quantitative Factor ................. 41
  * Comparing Two Regressions ............................................. 44

IV. STATISTICAL ANALYSIS & INTERPRETATION .......................... 48

* Research Results ............................................................. 48

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS ................. 65

* Summary ................................................................. 65
* Conclusions ................................................................. 69
  * Recommendations ............................................................. 71

**BIBLIOGRAPHY** .................................................................. 73

vi
LIST OF TABLES

1. Undergraduate GPA's Attained by Transfer Students Completing the Introductory Course in Their Major at Their Respective Sending Institution and by Those Transfer Students Completing the Introductory Course in Their Major at the University .......................... 49

2. Undergraduate GPA's in Courses Within a Student's Major Attained by Students Completing the Introductory Course in Their Major at Their Respective Sending Institution and Those Completing the Introductory Course in Their Major at the University .......................... 51

3. Analysis of Variance for the Regression of CUM 2 on the Selected Variables .................................. 54

4. Parameter Estimates for the Regression of CUM 2 on the Selected Variables .................................. 55

5. Analysis of Variance for the Regression of MAJOR on the Selected Variables .................................. 59

6. Parameter Estimates for the Regression of MAJOR on the Selected Variables .................................. 61

7. Undergraduate GPA for Transfer Students Majoring in Marketing and Management at the University of Massachusetts as Contrasted With the GPA for the Last Two Years of Native UMass Marketing and Management Majors .................................. 62

8. Undergraduate GPA in Major Courses for Transfer Students Majoring in Marketing and Management as Contrasted with the GPA's in the Major for Native Management and Marketing Majors .................................. 63
LIST OF FIGURES

1. ......................................................... 43
2. ......................................................... 45
CHAPTER I
INTRODUCTION

Statement of the Problem

During the 1960's and early 1970's, the Commonwealth of Massachusetts experienced a significant growth and development of its publicly supported community college system. By the mid 1970's the system, which began primarily with isolated, small units in abandoned school buildings, had developed into a system of fifteen geographically scattered community colleges in modern, well equipped campuses.

Although there were some individual differences in their structure and objectives, virtually all these schools now had a sizeable number of students whose goal was to transfer to a four year institution. The University of Massachusetts at Amherst, being the largest unit in the university system of the Commonwealth, and having a relatively modest tuition and fee structure, was looked upon by a majority of transfer students as the institution at which they hoped to complete their educational objectives.

The School of Business Administration at the University of Massachusetts at Amherst was a popular choice for many of the students transferring from the state's community college system. The School of Business Administration (hereinafter referred to as SBA) is accredited by the American Assembly of Collegiate Schools of Business (herein-
after referred to as AACSB). The AACSB is the only national association of business schools in the United States, and accreditation is awarded to only a small percentage of educational institutions offering degree programs in Business Administration. Curriculum requirements of the AACSB for member schools are rigid and strictly enforced. One specific regulation deals with the timing of course enrollments. According to this AACSB guideline, business students are not allowed to enroll in any professional courses (with the exception of introductory accounting and law) until they have achieved "junior" status. AACSB policies further state that no credit be given for professional courses, with the exception of those courses in introductory accounting and law, if those courses were completed earlier than the junior year.

In the early 1970's a group of educators representing the various segments of public higher education in Massachusetts was formed to improve the curriculum articulation between the two and four year public higher educational institutions in the Commonwealth. This group developed an agreement called the Commonwealth Transfer Compact which was formally signed by representatives of the public sector in May of 1974.

The Compact established policies regarding students matriculating at four year public colleges and universities who were transferring from the two year public institutions in Massachusetts. In effect, the agreement stated that transfer students who had completed a specified 33 credit hour core of courses in general education, and who had
completed an associate's degree would, if accepted by the four year school, be granted transfer credit for all courses satisfactorily completed.

The transfer policies of the AACSB and the Commonwealth Transfer Compact were in conflict. The Compact specified that courses must be accepted for credit, and the AACSB guidelines prohibited the acceptance of some of the courses.

Since this researcher was responsible for evaluating transcripts of transfer students enrolling in SBA, and responsible to both the AACSB and to the Commonwealth for administering policies which were in conflict, he found himself with a virtually unsolvable dilemma. It would, of course, have been possible to adhere to the "letter of the law" and satisfy the requirements of both the AACSB and the Compact by accepting transfer courses in business as electives only, and requiring, in effect, that students repeat introductory professional courses at the University. This approach was rejected. While it would technically satisfy the requirements of the conflicting documents, it was clearly a violation of the spirit of the Compact.

The problem was compounded by the fact that virtually all transfer programs at the community colleges included the forbidden introductory professional courses. Thus, a significant percentage of transfer students were affected by the conflicting policies.

This problem is not unique to Massachusetts. Other states have similar articulation agreements which have created problems for their
accredited business programs. In response to this common problem, the Committee on Junior and Community Colleges of the AACSB recommended certain changes which were adopted by that group. This change gives some hope of resolving this dilemma of transferability of course work in the basic business disciplines.

Conflicting policies of the AACSB and the Massachusetts Commonwealth Transfer Compact have a significant effect on the students who ultimately transfer to the School of Business Administration, on the two year institution from which they transfer, and the SBA itself.

Strict adherence to AACSB guidelines would require that students re-enroll in courses that were virtually identical to those already completed at the sending institution. Students enrolling in such courses at the two year schools usually do so in good faith and most often upon the advice of a faculty advisor. These courses are often required in the student's two year transfer curriculum. The writer contends that to require students to repeat these courses is a waste of the student's time and restricts the student's opportunity to replace the required course with electives of his or her choice.

From the perspective of the two year schools, strict adherence to AACSB policy leaves them with only two options: 1) offer a business transfer program with virtually no business courses, or 2) offer their presently constituted programs and notify students planning to attend four year accredited schools that a substantial portion of the program would have to be repeated.
In addition, the AACSB guidelines can be (and often) are interpreted as indication that the two year schools and their courses and faculty are not capable of offering work of acceptable quality.

The School of Business Administration at the University of Massachusetts, as is true of other business schools throughout the country, is faced with the doubly-damning problem of significant growth in demand for business courses coupled with a diminution of available resources. Requiring students, in the face of this problem, to repeat courses they have already completed would be a serious waste of scarce resources and would seem to be counter-productive to the goals of the School to serve as many students as possible within its limited resource base.

This dissertation attempts to resolve the differences in the AACSB guidelines and the requirements of the Commonwealth Transfer Compact by establishing validation procedures for the acceptance of introductory business courses completed at the public community and junior colleges of the Commonwealth.

**Purpose of the Study**

The Committee of Junior and Community Colleges of the AACSB recommended altering the requirement which prohibited the acceptance of professional courses (with the exception of introductory accounting and law) taken prior to the junior year. The recommended change is as follows:
Transfer credit should be granted for courses taken at another institution only when the course work involved and the level of achievement in it permit the student to take remaining upper division professional course work without significant handicap.

Aware of the ambiguity in the term "without significant handicap," the committee clarified its position with the following statement:

Whether or not an articulation agreement is present, the baccalaureate degree-granting institution will establish validation procedures in any instance where a course taken at the lower division level which the degree-granting institution offers at the upper division level is to be accepted for upper division credit in business, economics or administration. Such validation as CLEP tests, written examinations prepared by the degree-granting institution, successful completion of advanced courses in the given area, or other validation techniques may be used.

Early in 1979 the president of the AACS B forwarded a letter to all members of the AAJCC (American Association of Junior and Community Colleges) explaining the AACS B policy on transfer courses along with a statement of the rationale for the existence of the policy. Members of the AACJC were invited to comment prior to the time that the members of the Accreditation Council voted on the revisions.

In May 1979, the accreditation council of the AACS B formally voted to accept the revised policy which allowed for the transfer of credit based upon acceptable validation procedures.

The study reported here attempts to establish such a validation process for students entering the University of Massachusetts School of Business Administration from the Massachusetts public junior and community colleges. Specifically, the purpose of this study is to assess the effects, if any, of the completion of introductory business
courses at another institution on the subsequent performance in an elected undergraduate major within the School of Business Administration.

**Hypotheses to be Tested**

The main goal of this study is to determine whether transfer students are disadvantaged by taking introductory business courses at their respective sending community college. With this purpose in mind, the following describes the hypotheses to be tested.

\[ H_1: \] There is no statistically significant difference in cumulative grade-point average earned at the University (CUM 2) between transfer students completing the introductory course in their major at their respective sending institution and transfer students completing the introductory course in the major at the University of Massachusetts School of Business Administration.

\[ H_2: \] There is no statistically significant difference in grade-point average in courses completed the major field at the University (MAJOR) between transfer students completing the introductory course in their major at their respective sending institutions and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.

\[ H_3: \] The relationship between cumulative grade-point average in the last two years of study at the University (CUM 2) and the set of predictors: cumulative grade-point average in the first two years (CUM 1), and grade-point averages in English skills courses (ENG), grade-point average in economics courses (ECO), and grade-point average in mathematics skill courses (MATH) will be the same for transfer students completing the introductory course in their major at their respective sending institutions and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.
$H_4$: The relationship between grade-point average in courses completed at the University in the major field of study (MAJOR) and the set of predictors: grade-point average in the introductory major course (INTRO), and the grade-point average in English skills courses (ENG), grade-point average in economics courses (ECO), and grade-point average in mathematics skills courses (MATH) will be the same for transfer students completing the introductory course in their major at their respective sending institution and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.

As a final step, transfer students are compared to a random sample of non-transfer students. Specifically it is posited that:

$H_5$: There is no statistically significant difference in cumulative grade-point average in the last two years (CUM 2) between all transfer students and "native" (i.e., non-transfer) students.

$H_6$: There is no statistically significant difference in grade-point average in the major field (MAJOR) between all transfer students and "native" (i.e., non-transfer) students.

**Definition of Terms**

1. **AACSB Requirements** refers to the accreditation standards (and the accompanying interpretation) of the American Assembly of Collegiate Schools of Business.

2. The **Compact** refers to the formal agreement between two year and four year public educational institutions in the Commonwealth of Massachusetts. The Compact required four year schools to accept all courses satisfactorily completed (grades of D or better) by
graduates of the two year schools who have also completed a
specified core of general education courses.

3. **Grade Point Average** refers to a student's average level of per-
formance in courses based upon a 4.0 scale, with a 4.0 represent-
ing a grade of A, a 3.0 representing a grade of B, a 2.0 repre-
senting a grade of C, a 1.0 representing a grade of D, and a 0.0
representing a failing grade.

4. **Professional Courses** refer to those courses specifically offered
under the aegis of the School of Business Administration.

5. **Major Course** refers to any course offered by the student's major
department which is subsequent to the introductory course in that
department.

6. **Introductory Course** refers to the first level course in each of
the functional areas of the School of Business Administration
which is required of all business majors.

**Significance and Limitations of the Study**

The study does have significance. Current AACSB policy is based
upon the subjective notion that the timing of the student's enrollment
in a required core course is of critical importance to the study of
business administration. The purpose of the dissertation is to test
that assumption with the use of objective criteria.

The study also has previously mentioned import for the students
affected by it. Current policy, if followed unchallenged, would
require that many transfer students re-enroll in courses already satisfactorily completed. This reduces the students' freedom to enroll in elective courses; it requires that they allocate their scarce resources, both in terms of time and money, to areas already mastered, and it tends to cause many of the students to question the academic quality of their alma mater. They assume that the transferability of the basic courses would not be questioned without adequate reason.

There is also some significance in the study for SBA. The demand for business courses, both on this campus and nationwide, has increased dramatically in the past several years. This increased demand has materialized at a time when public education in general and public higher education in particular has suffered a substantial diminution of resources with which to do the job.

Most business courses, and especially the basic core courses, are filled to capacity every semester offered. Requiring transfer students to re-enroll in the courses would result in another student not being served. This seems, at least in the eyes of this writer, to be a terrible misallocation of very scarce resources.

An additional, complicating factor is the fact that there is a very serious shortage of prospective faculty who meet AACSB qualifications. This further limits the availability of openings in business courses.

Several factors limit the use of this study. Factors alluded to earlier made it impossible to obtain an adequately sized group of
students majoring in Accounting or Finance. This resulted in the study being limited to those students enrolled as Marketing or Management majors, which accounts for only about one-half of the transfer population.

Since the study is the result of a conflict of policies of an accreditation agency (the AACSB) and the Commonwealth of Massachusetts (The Compact), it included only those students from two-year, publicly supported, educational institutions located in Massachusetts. Those students from private junior and community colleges, and those students transferring from private or public four-year institutions were excluded from the study.

A further limitation of the study is related to the criteria used to measure success. Obviously, a student is successful if he or she learns from a course what the course purports to teach. There is a large group of educators who challenge grades as an adequate measure of what is learned in a particular course. Unfortunately, the research on this topic has not generated practical alternatives to grades as indicators of performance. As a matter of fact, much of the anti-grade research argues that it is the function of educational institutions to teach, but not to evaluate. Those who share these beliefs argue that evaluation breeds competition and competition breeds a greater concern for grades than for learning.

The researcher concedes that those who argue against the use of grades as a measure of learning have made some valid points. Indeed, the search for a better measure of performance almost resulted in this
project being abandoned at an early date. After considering the pros and cons, however, the researcher concludes that educational institutions must evaluate performance by either express or implied means. The absence of express means (grades) does not eliminate evaluation. Students are still expected, at least in some areas, to have demonstrated a mastery of certain subject matter before being allowed to study more advanced material. Allowing a student to proceed from one level of study to a higher level implies adequate performance at the introductory level. Similarly, when an institution awards a degree to a student, it cannot avoid the implication that the graduate has indeed satisfied the criteria needed for graduation, and this, too, is an evaluative statement.

Grades, therefore, even when one concedes the difficulties associated with them are the best evaluative measure available. Furthermore, for purposes of this study, we have defined academic success as the ability to move from one level of study (introductory courses) to an advanced level of study (further work in the major) with no significant loss in measurable performance.
CHAPTER II
REVIEW OF THE LITERATURE

The development of the junior college concept in America's system of higher education is rich in its historical perspective. William R. Harper, often referred to as "the father of the junior college," had a significant effect on the development of junior colleges as a part of America's system of higher education. 1

Ever since the establishment of junior colleges on the American education scene, educators have pondered over the proper role of these institutions within the system of higher education. One of these roles, namely that of serving as a conduit for those who wish to complete a four-year baccalaureate degree is generally accepted as a proper mission of the two-year programs. The review of the literature will focus on general research dealing with the transferability of community and junior college students, and more specifically with the transferability of these students into programs in business administration and its sub-disciplines.

Review of General Studies and Related Literature

In 1967, the American College Testing Program conducted a study

involving an analysis of junior college students. The sample consisted of just over 4,000 second-year students at 29 junior and community colleges across the United States. The report concluded that the typical community college student was a working student who lived and studied at home. These students most commonly were vocationally oriented in their approach to education. They tended to view the junior college they attended as a feeder institution, leading to a four-year, job oriented degree program.

The junior college student was also described as less talented, academically, than his counterpart in four-year schools, and tended to be attracted to practical careers such as business and agriculture.

While the study concluded that the typical junior college student was less talented academically and intellectually, the report also noted a considerable degree of overlap between students at two and four-year schools. The study, which compared the ACT scores of students in two and four-year schools, revealed a much wider range of scores for the two-year students than was found among the four-year college students. Hence, a wider "spread" in achievement was noted at the two-year schools as compared to the four-year institutions. The study also noted, however, grading patterns at the two-year schools were roughly the equivalent of those at the four-year colleges. This


3 Ibid., p. 80
led the researchers to conclude that the two-year college students would have earned lower grades had they attended the four-year schools during their freshman and sophomore years.4

The results of the American College Testing Program's study corroborated conclusions made by Medsker in a study completed in 1960.5 Medsker's study involved seventeen four-year colleges geographically dispersed across the country. He analyzed the feeder institutions, the students at those institutions, and the performance of those who transferred to the colleges included in his study.

Medsker, in reference to his study, said:

The available facts indicate that the average academic aptitude level of students entering two-year colleges is somewhat below that of those who enter four-year colleges. However, there is a wide range of abilities among two-year college students, and many of them are superior in ability to many students in four-year institutions.6

The general levels of academic performance of transfer students has been a favorite target of researchers since the establishment of two-year colleges.

One of the earliest studies was conducted by Leonard V. Koos in 1924.7 Koos examined the records of 95 junior colleges' transfers at

4Ibid., p. 104
6Ibid., p. 30.
7Leonard V. Koos, "The Junior College Movement," (Ginn & Company: Boston, 1925).
several different colleges and universities, and compared their academic performance to that of 75 native students at the University of Minnesota. Koos found no significant difference in the performance of the two groups, and concluded junior colleges transfers were as adequately prepared for upper division work as were native students.

Koos' conclusions were supported by D.A. Grossman in 1934. Grossman's study compared the performance of transfer students at the University of Illinois with Illinois "native students." Grossman's study compared the performance of native third and fourth year students at the University of Illinois with that of the junior colleges' transfer students to the University. Grossman found no significant difference in performance between the two groups, although he did note that there were significant differences that could be found when comparing the performance of students from the various community colleges against one another.

This variation in quality of performance of students from different community colleges was confirmed in a study by Richard Hensen at Michigan State University in 1970. Hensen compared the performance of native MSU students with that of their counterparts who had transferred from the "feeder" community colleges. He also compared the performance of the students from each of the junior colleges against

---


one another. Although Hensen noted only minor differences when comparing the performance of native students with that of junior college transfers, the differences in performance were greater when comparisons were made between the students from the various two-year colleges against one another.

M.L. Eckard\(^1\) conducted an extensive study in the North Carolina higher education system. He examined the records of a representative sample of community college transfers from each region of the state that had transferred to Appalachian State University. Eckard compared the performance of these students with that of a randomly selected group of native students. He concluded that the transfer students, as a group, and by sex, were able to recover from transfer shock and maintain an adequate grade point average. As a group, the grade point averages never fell below a 2.42 for any quarter. This led Eckard to conclude that "North Carolina community college transfers are prepared to meet the academic requirements of Appalachian State University."

Most studies related to transfers make some reference to "transfer shock." Transfer shock is defined as a decline in grade point average after the student, usually a community college transfer student, transfers to a senior institution. Hills\(^1\) conducted a signifi-


cant review of the literature related to this phenomenon. He reviewed more than 20 studies conducted between the late 1920's through 1963 dealing with the performance of the junior college transfers. Hills' review showed that out of 46 sets of data relevant to the question of transfer shock, 44 concluded that transfer shock did exist; two found no evidence of it. Out of 38 sets of data in which recovery could be observed, 34 showed some recovery and four showed none.

Hills also addressed the issue of performance between natives and transfers. He found 33 sets of data comparing the grades of the two groups; 22 of the data sets concluded that native students performed better, four indicated that transfers out-performed natives, and seven identified no significant difference between the groups.\(^{12}\)

Hills also reviewed literature relating to the time required to complete degree requirements. He found 21 sets of data which considered the length of time to graduate and the relative proportion of each group that actually complete their degree programs. Nineteen of these studies revealed the natives graduated sooner and in greater proportions, and two concluded that a larger percentage of the transfer group graduated and completed the requirements in less time.\(^{13}\)

Hills concluded that a junior college transfer can expect a drop in grade point average upon transfer to a four-year college, but that there is a strong probability that the grade point average will

\(^{12}\)Ibid.

\(^{13}\)Ibid.
improve to some extent. He also concluded that transfer students would need more time to complete degree requirements, and that their overall grade point average would remain below that of native students. 14

Williams Orville Riley, Jr. extensively reviewed the literature related to the performance of transfer students in his 1976 doctoral dissertation at Memphis State University. 15 He was also interested in the phenomenon of transfer shock, but his review of the literature did not substantiate any firm conclusions.

Riley stated:

There appears to be some transfer shock revealed by most of these studies; however, there is varying opinion as to whether it is present in any significant degree. There is general agreement that some recovery takes place in each subsequent semester. Again, the extent of the recovery varies in different studies. 16

Riley found the same lack of conclusiveness in reviewing the literature dealing with overall performance of transfer students as opposed to natives. He made reference to seven studies which reported a higher level of achievement for transfer students, vis a vis natives, ten studies which found no significant difference in performance between the two groups, 11 studies which showed a moderately higher

14 Ibid.

15 Williams Orville Riley, Jr., "A Comparative Study of the Academic Characteristics and Success Patterns of the Transfer Students from Two-Year Colleges, Transfer Students from Four-Year Colleges and Universities, and Native Students at Four-Year Colleges and Universities in the Mid-South." (Unpublished Doctoral Dissertation; Memphis State University, 1976).

16 Ibid., p. 17.
level of achievement for native students, and four which hypothesized that native students significantly out-performed transfers.\(^{17}\)

There appears to be no overriding consistency in the conclusions drawn by the various studies reported in the literature. The weight of the evidence indicates that some degree of transfer shock does exist for most transfer students, even those transferring from other four-year institutions. It is, perhaps, safe to assume that most students take some time in adjusting to a new environment and that this adjustment has a somewhat deleterious affect on their academic performance.

One can assume from studying the literature that the adjusting to a new environment does eventually take place and that the majority of transfer students do perform at adequate levels.

The ACT study of 1967\(^{18}\) and the Knoll and Medsker study\(^{19}\) were but two of the several studies which concluded that the range of abilities of those entering community colleges was much wider than for

\(^{17}\)Ibid., p. 17-34.

\(^{18}\)Op. Cit.

\(^{19}\)Op. Cit.
those students entering four-year institutions. Studies by Nickens,20 Mince,21 and Beals,22 among many others, demonstrated, however, that those students who perform adequately at the community colleges do succeed at the four-year colleges to which they transfer.

Indeed, Birnbaum,23 in his "filter hypothesis" article, states that the community college, with its open door policy, produces a high attrition rate and this in turn accounts for the higher degree of success of community college transfers in senior colleges. The community college transfer program acts as an agent for separating the potentially successful from the potentially unsuccessful four-year college students. Birnbaum concluded that the community college could be considered a lower extension of the senior college program.

---


Review of the Literature Related to Business Administration

The literature related to performance of transfer students in specific disciplines is more limited than that which relates to overall performance. Much of the literature that does exist relates to sub-disciplines (mostly accounting) within the general classification of business administration.

Lorren Beavers completed a study in 1974 which purported to evaluate the performance of accounting students enrolled in intermediate accounting courses at selected universities in Oklahoma. Beavers' purpose was to provide data to indicate whether or not a basic difference existed in basic elementary accounting knowledge attained by transfer students vis-à-vis native students. Since elementary accounting is a pre-requisite to intermediate accounting, Beavers studied the grading patterns of native students and transfers taking intermediate accounting as a way of evaluating the introductory course taken by the students. He concluded that native students had a better preparation for advanced study than did transfer students.

Similar studies by Calcote, Krull, Bryan, and Pearce corroborated Beavers' conclusion that native students out-performed transfer students in intermediate accounting.

These studies, and many others like them, clearly point to differences in performance between native students and transfer students in intermediate accounting. Several factors, however, make the writer wary of the conclusions reached. The review of the general literature provides ample evidence of "transfer shock," a phenomenon that seems to affect transfer students during their first semester or two after transfer. Since transfer students more often than not transfer to four-year colleges after having completed only two accounting courses, and since it is likely that those students would be enrolled in intermediate accounting during those first two terms, it seems reasonable to assume that performance in intermediate accounting could be affected by transfer shock as well as by the alleged inadequate preparation in accounting provided by the sending institutions.

25 Roger Dale Calcote, "Academic Success of Two-Year College Transfer Students Compared to Native Students in Accounting at the University of Mississippi." (Unpublished D.B.A. dissertation, Mississippi State University, 1971).


Studies relating to business administration (as opposed to its sub-disciplines) are more limited, but some literature which addresses the academic success of transfer students enrolled in business programs at four-year colleges and universities has appeared.

Sheehan and Reti\textsuperscript{29} compared the academic averages of native students at the University of Calgary with that of transfer students from feeder institutions between 1968 and 1972. They compared course grade point averages of the two groups. While the study included all students, the analysis included breakdowns according to the students' areas of study. In general, the study concluded that transfer students did not achieve as high a degree of academic success as natives; it was noted that the disparity in performance among business students was lowest in all the disciplines studied. Sheenan and Reti also observed that the rate of withdrawal from courses for the business transfer students was less than the rate of withdrawal for native students.

R.L. Davison\textsuperscript{30} studied the performance of a group of 222 transfer students entering the University of North Dakota, and compared their performance to a group of randomly selected native students. His


\textsuperscript{30} Davison, R.L., "A Comparison of Scholastic Success of Two-Year College Transfer Students as Compared to Native Students at the University of North Dakota." (Unpublished EdD dissertation, the University of North Dakota, 1965).
research encompassed students in all fields of study, but he also drew comparisons based upon the students' majors.

In general, Davison concluded that native students performed better academically than did transfers. He did note, however, that the disparity in academic success rates was much lower for students in business administration than they were for students in other majors. He reported no statistically significant differences in performance for transfer students in business administration as opposed to native business students.

Gloria B. Taylor\(^{31}\) undertook a study of the academic performance of native and transfer students at the University of Southern Mississippi in 1970. She compared the aptitude of the students, the programs of study chosen, and the students' academic success in an attempt to identify the predictive validity of these factors as they relate to students majoring in business education at the University of Southern Mississippi.

Taylor's study concluded that native students performed at a higher level than did transfer students. She made some reference to the transfer shock phenomenon as part of her discussion as well. Taylor also reported that the transfer students' grade-point average in the lower division was the best predictor of success in the upper division.

A somewhat similar study was completed by Brady\textsuperscript{32} at the University of Georgia in 1971. His study, however, was limited to students in three professional schools at the University. Brady contrasted the performance of a group of junior college transfers in those academic units to that of a group of native students in those same units. His study encompassed an evaluation of the academic records of just under one thousand students.

He analyzed student performance on what he referred to as "predictor variables" and "success variables." His predictor variables included high school averages, scores on SAT tests and lower division GPA. Success variables were defined as graduation rate, attrition rate, GPA in the upper division and the pattern of grades throughout the upper division work.

Brady's conclusions did not differ markedly from those cited earlier. He also noted the superiority in academic performance of native students over transfers, although his research noted that transfer students' average improved every semester after their first; a further corroboration of the transfer shock syndrome.

Brady, as did the others, concluded that transfer students' grade point averages in lower division work was the best single predictor of success in the upper division.

\textsuperscript{32}Brady, W. J., "A Comparison of the Academic Performances of Native Students and Junior College Transfer Students in the Colleges of Agriculture, Business and Education at the University of Georgia." (Unpublished EdD dissertation, University of Georgia, 1971).
In another similar study, Hughes\(^{33}\) evaluates the performance of a sizable number of Mississippi State University graduates between the years of 1965 and 1967. His study focused on grade point averages earned during the final four semesters of study. In addition to finding that the grades of junior college transfers compared less favorably with those of native students, Hughes also noted that the academic success of transfers in business was much closer to native students in that major than was true for students in engineering or in arts and science.

In marked contrast to these other studies, Dragon\(^{34}\) concluded that transfer students entering Babson College's program in business administration did at least as well as their native student brethren. As a matter of fact, the transfers in his study compiled higher overall grade point averages than those of native students, and students in the marketing program surpassed native students in the grade point average in the major.

\(^{33}\)Hughes, W.A., "A Study Comparing the Academic Achievement of Junior College Transfer Students with That of Native Students at Mississippi State University." (Unpublished EdD dissertation, Mississippi State University, 1968).

Summary of the Literature Related to Business Transfer Students

In general the literature related to comparison in performance between native and transfer students who major in business administration conclude that transfer students perform at a level somewhat below native business students. The degree of variability in performance varies, but most studies do indicate that business transfers, when compared to students in other disciplines, come closest to matching the performance of native students.

The popularity of community colleges, their relatively low cost and their availability to a wide spectrum of students, virtually assure that the process of students moving from community colleges to four-year institutions to pursue educational goals will continue. In the face of this reality, those schools which are accredited by the AACSB must come to grips with the process of accepting transfer students and providing a sound, humane and rational basis for evaluating the transfer student's previous professional training. This is what the writer hopes to accomplish with this study.
CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to ascertain the degree to which transfer students in the School of Business Administration at the University of Massachusetts at Amherst were adversely affected, if at all, by having completed the introductory course in their major at a public, community college within Massachusetts.

This chapter describes the populations studied, the procedures used in collecting the data, and the statistical techniques used to evaluate each of the null hypotheses.

Sources of the Data

The data was gathered from the permanent record cards of the students involved in the study. Performance in specific courses during the first two years was determined by reviewing the official transcripts from the sending institutions, copies of which were included in each student's academic folder. Grades and averages during the last two years of study were taken from official University grade cards also included in those folders.
The Population

The students involved in this study fall into three groups: transfer students who completed the introductory course in their major at the sending institution; transfer students who completed the introductory course in their major at the University of Massachusetts at Amherst; and a group of native (non-transfer) business students at the University. The transfer groups included all transfer students entering the School of Business Administration from September of 1969 to September of 1976 who ultimately majored in either marketing or management. The native student group was a random sample of "native" management and marketing majors. Since the size of the non-transfer population was roughly four times as large as the transfer population, the native group was derived by selecting every fourth folder from the files of the departments of management and marketing. It should be noted here that this study included all students who had matriculated at the University, the successful (defined as those who graduated) and the non-successful. The writer notes that most studies involving transfer students include only those who have graduated. Ignoring the non-successful transfer students could easily have biased the results of these previously published studies.

Group I (those transfer students completed the introductory course in their major at the community college) included one hundred twenty-five students. Group II (those transfer students completing the introductory course in their major at the University) included one
hundred fourteen students. The randomly selected group of native students, Group III, included two hundred forty students.

Procedures for Data Collection

The academic performance (grades in courses) for the students in all three groups were analyzed in detail. Since the central issue in the study was the academic performance after completion of the introductory course in the student's major, the most significant variables were those which measured a student's performance subsequent to completion of that course. These variables, MAJOR (grade-point average in courses required in the major after completion of the introductory course) and CUM 2 (overall grade-point average during the student's last two years) were considered of primary importance in determining the degree of handicap, if any, suffered by the students in Group I.

Certain other variables, CUM 1, the student's grade-point average during their first two years of study, ECO, the grade-point average in introductory economics courses, ENG, the grade-point average in English skills courses, and MATH, the grade-point average in mathematics skills courses, were included to determine the degree, if any, that these variables may have used to predict a potential transfer student's ability to succeed in a business program.
Treatment and Analysis of Data

The analysis of the data consisted of a number of comparisons between the academic performance of students within the three groups. Tests of statistical significance were performed for the comparisons made in order to identify the differences which could be explained by chance. Results were treated at the .10 level of significance. The analysis of the data was based upon the Statistical Package for the Social Sciences, commonly referred to as SPSS (Nie, et al, 1975).

The following outlines the approach to analysis for each of the null hypotheses under study.

1. The first null hypothesis,

   \[ H_1: \text{There is no statistically significant difference in cumulative grade-point average earned at the University (CUM}_2\text{) between transfer students completing the introductory course in their major at their respective sending institution and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.} \]

   was tested by comparing the cumulative grade-point averages in the last two years (CUM_2) of students in Group I (transfer students who completed the introductory course in their major at the community college) with that of the students in Group II (transfer students who completed the introductory course in their major at the University). The significance of the difference in grade-point averages was evaluated by the use of the t-statistic.

2. The second null hypothesis,

   \[ H_2: \text{There is no statistically significant difference in grade-point average in courses completed in the major} \]
field at the University (MAJOR) between transfer students completing the introductory course in their major at their respective sending institutions and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.

was tested by comparing the grade-point averages in the major field (MAJOR) of students in Group I (students who completed the introductory course in their major at the community college) with that of the students in Group II (students who completed the introductory course in their major at the University). The significance of the difference in major grade-point average (MAJOR) was evaluated by the use of the t-statistic.

3. The third null hypothesis,

\[ H_3: \text{The relationship between cumulative grade-point average in the last two years of study at the University (CUM}_2) \text{ and the set of predictors: cumulative grade-point average in the first two years of study (CUM}_1), \text{grade-point average in English skills courses (ENG), grade-point average in economics courses (ECO), and grade-point average in mathematics skills courses (MATH) will be the same for transfer students completing the introductory course in their major at the respective sending institutions and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.} \]

was tested by regressing the cumulative grade-point averages in the last two years (CUM 2) on:

- **CUM 1**: Cumulative grade-point average, first two years,
- **ECO**: Grade-point average in economics courses,
- **ENG**: Grade-point average in English skills courses,
- **MATH**: Grade-point average in mathematics skill courses,
D: A dummy variable delineating transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their major at the respective sending institution,

\[ D_{\text{CUM} 1} = (D^{*}\text{CUM} 1): \text{Differential impact of the grade-point average for the first two years for transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their major at the respective sending institution,} \]

\[ D_{\text{ECO}} = (D^{*}\text{ECO}): \text{Differential impact of the grade-point average in economics courses for transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their major at the respective sending institutions,} \]

\[ D_{\text{ENG}} = (D^{*}\text{ENG}): \text{Differential impact of the grade-point average in English skills courses for transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution,} \]

\[ D_{\text{MATH}} = (D^{*}\text{MATH}): \text{Differential impact of the grade-point average in mathematics skills courses for transfer students} \]
completing the introductory course in their elected major at the University from those transfer students completing the introductory course in the elected major at the respective sending institution.

4. The fourth null hypothesis, 

\[ H_4: \text{The relationship between grade-point average in courses completed at the University in the major field of study (MAJOR) and the set of predictors: grade-point average in English skills courses (ENG), grade-point average in economics courses (ECO), and grade-point average in mathematics skills courses (MATH) will be the same for transfer students completing the introductory course in their major at the respective sending institutions and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.} \]

was tested by regressing grade-point averages in the major field (MAJOR) on:

- **INTRO**: Grade-point average in the introductory course in the student's elected,
- **ECO**: Grade-point average in economics courses,
- **ENG**: Grade-point average in English skills courses,
- **MATH**: Grade-point average in mathematics skills courses,
- **D**: Dummy variable delineating transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at their respective sending institution,
\[ D_{\text{INTRO}} = (D^{*}\text{INTRO}) : \text{ Differential impact of the grade-point average in the introductory course in the student's major for students completing this course at the University from those students completing the course at their respective sending institution,} \]

\[ D_{\text{ECO}} = (D^{*}\text{ECO}) : \text{ Differential impact of the grade-point average in economics courses for students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution,} \]

\[ D_{\text{ENG}} = (D^{*}\text{ENG}) : \text{ Differential impact of the grade-point average in English skills courses for those students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution,} \]

\[ D_{\text{MATH}} = (D^{*}\text{MATH}) : \text{ Differential impact of the mathematics skills courses for those students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution.} \]

5. The fifth null hypothesis,

\[ H_5 : \text{ There is no statistically significant difference in cumulative grade-point average in the last two years} \]
(CUM 2) between all transfer students and "native" (i.e., non-transfer) students,
was tested by comparing the cumulative grade-point averages in the last two years (CUM 2) of students in Groups I and II (all community college transfer students majoring in marketing or management) with that of the students in Group III (a randomly selected sample of "native" students in those majors). The significance of the difference in grade-point averages was evaluated by the use of the t-statistic.

6. The sixth null hypothesis,

\[ H_6: \text{There is no statistically significant difference in grade-point average in the major field (MAJOR) between all transfer students and "native" (i.e., non-transfer) students.} \]

was tested by comparing the grade-point averages in the major field (MAJOR) of students in Groups I and II (all transfer students majoring in marketing or management) with that of the students in Group III (a randomly selected sample of native students in those majors). The significance of the difference in grade-point average within the major (MAJOR) was evaluated by the use of the t-statistic.

Test Procedures

This section discusses procedures used to test the various null hypotheses. Null hypotheses \( H_1, H_2, H_5, H_6 \) involve the use of the t-statistic, whereas hypotheses \( H_3 \) and \( H_4 \) employ dummy variable multiple regression. It should be noted that all the null hypotheses involve testing for differences in means. Consequently, though a
distinction has been made between the use of the t-statistic and dummy variable multiple regression, both procedures reduce to comparing two means with a t-statistic. Each of the procedures is now discussed.

**t-Statistic.** Hypothesis $H_1$, $H_2$, $H_3$ and $H_4$ all involve the equality of mean scores on several different performance measures for two groups of students. Under the assumption that the two groups (i.e., populations) are $N_1 (\mu_1, \sigma^2)$ and $N_1 (\mu_2, \sigma^2)$ the test of

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 \neq \mu_2$$

is conducted by use of the t distribution. The "pooled" estimate of the common population variance $\sigma^2$, is

$$S_{**}^2 = \frac{\Sigma x_1^2 + \Sigma x_2^2}{n_1 + n_2 - 2} \quad (1)$$

where $x_1 = (X_1 - \bar{X}_1)$ and $x_2 = (X_2 - \bar{X}_2)$.

This pooled estimate is nothing more than an average of the two sample variances, so Equation (1) can be written as

$$S_{**}^2 = \frac{(n_1 - 1) S_{11}^2 + (n_2 - 1) S_{22}^2}{(n_1 - 1) + (n_2 - 1)} \quad (2)$$
where $S_{11}^2$ and $S_{22}^2$ are the sample variances. Next, if we assume independence, the variance of the difference between the two sample means is given by

$$S_{\bar{x}_1 - \bar{x}_2}^2 = \frac{S_{\bar{x}_1}^2}{n_1} + \frac{S_{\bar{x}_2}^2}{n_2} = \left( \frac{n_1 + n_2}{n_1 n_2} \right) S_{\bar{x}}^2 \quad (3)$$

The test statistic is

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S_{\bar{x}_1 - \bar{x}_2}} + \frac{(\bar{x}_1 - \bar{x}_2) \sqrt{n_1 n_2}}{S_{\bar{x}} \sqrt{n_1 + n_2}} \quad (4)$$

with $n_1 + n_2 - 2$ degrees of freedom where $S_{\bar{x}} = \sqrt{S_{\bar{x}_2}^2}$

Large values of $t$ lead to the rejection of the null hypothesis of equality of group members. The SPSS package gives the right tailed areas associated with the calculated $t$-statistic.

**Dummy variable regression.** Handling qualitative variables requires special attention given that the numerics assigned to the levels of the variables have no meaning in a measurement sense; for example, consider the variables

- age (in categories)
- race
- religion
- gender

All these variables indicate the presence or absence of some trait or characteristic.
To understand how such qualitative information can be analyzed, consider the following. Suppose we wish to examine the relationship between

\[ Y_i = \text{Cumulative grade-point average in the last two years (CUM 2)} \]

\[ X_1 = D_i = \begin{cases} 1 & \text{if Group I (those students who completed the introductory course in their major at the community college)} \\ 0 & \text{if Group II (those students who completed the introductory course in their major at the University)} \end{cases} \]

The regression model corresponding to this situation is

\[ Y_i = \alpha_0 + \alpha_1 D_i + e_i \]  \hspace{1cm} (5)

for \( i = 1, 2, \ldots, n \)

In equation (5) the \( \alpha_0 \) and \( \alpha_1 \) are parameters relating to the intercept (i.e. \( \alpha_0 \)) and the slope (i.e. \( \alpha_1 \)). The ordinary least squares estimates (OLS) of these parameters will be denoted as \( \hat{\alpha}_0 \) and \( \hat{\alpha}_1 \), respectively. The estimated mean cumulative grade-point average, denoted by \( \hat{Y}_i \), is obtained from

\[ \hat{Y}_i = \hat{\alpha}_0 + \hat{\alpha}_1 D_i \]  \hspace{1cm} (6)

The meaning of these parameter effects will be discussed shortly. The model shown in (5) can be used to determine whether the locus of the
introductory course has any significant affect on students' performance during their last two years of study at the University, assuming of course, all other things are held constant. To see this, consider the estimated mean grade-point average of students completing the introductory course in their major at the community college, denoted by \(E(Y_i | D_i)\). From (5) we find that

\[
E (Y_i | D_i = 1) = \hat{\alpha}_0 + \hat{\alpha}_1.
\]  

(7)

Similarly, the estimated mean grade-point average for students completing the introductory course in their major at the University is

\[
E (Y_i | D_i = 0) = \hat{\alpha}_0.
\]  

(8)

Thus, the test of whether or not the locus of the introductory course has a significant relationship to subsequent grade-point averages can be determined by testing

\[
H_0 : \alpha_1 = 0
\]

\[
H_1 : \alpha_1 \neq 0.
\]

since if the locus of the course matters, then \((\alpha_0 + \alpha_1) > (\alpha_0)\).

One dummy variable and a quantitative factor. Now, in addition to locus of the introductory course, we feel that the cumulative average in the first two years of study at the community college (CUM 1)
should impact on the overall grade-point average during the last two years of study (CUM 2). Letting

\[ Y_{i} = \text{Cumulative average during the last two years} \]

\[ D_{i} = 1 \text{ if Group 1 (those students completing the introductory course in their major at the community college)} \]

\[ = 0 \text{ if Group II (those students completing the introductory course in their major at the University)} \]

\[ X_{i} = \text{Cumulative grade-point average in the first two years (CUM 1)} \]

the appropriate regression mode is

\[ Y_{i} = \alpha_{0} + \alpha_{1} D_{i} + \beta X_{i} + e_{i} \quad (9) \]

for \( i = 1, 2, \ldots, n. \)

Replacing parameters with their OLS sample-based estimates in (9) yields the estimated mean grade-point average of students completing the introductory course in their major at the community college (Group I):

\[ E (Y_{i} | X_{i}, D_{i} = 1) = \hat{\alpha}_{0} + \hat{\alpha}_{1} + \hat{\beta} X_{i}. \quad (10) \]

Similarly the estimated mean grade-point average of the students completing the introductory course in their major at the University (Group II) is given by
E (Y, X, D = 0) = \hat{\alpha}_0 + \hat{\beta}X.

The situation under study is shown graphically in Figure 1:

![Graph showing regression lines for Group 1 and Group 2.]

Figure 1

Note that an implicit assumption is that the slope coefficients are equal; that is, the relationship between cumulative grade-point average in the last two years (CUM 2) and cumulative grade-point average in the first two years (CUM 1) is the same for the students in both groups. Once again, the test of whether the locus of the introductory course matters is assessed by testing the statistical significance of \( \alpha_1 \). The regression coefficient \( \alpha_1 \) is called the differential intercept.
Comparing two regressions. Up until this point, equal slope coefficients have been assumed. But now let us assume that the cumulative grade-point average during the last two years and the cumulative average during the first two years differ with differences in the locus of the introductory course. Following the previous definitions, let

\[
Y_i = \text{Cumulative average during the last two years (CUM 2)}
\]

\[
X_i = \text{Cumulative average during the first two years (CUM 1)}
\]

\[
D_i = 1 \text{ if Group I (those students completing the introductory course in their major at the community college)}
\]

\[
= 0 \text{ if Group II (those students completing the introductory course in their major at the University)}
\]

One approach to analyzing data on group differences would be to split the sample and run separate regressions; that is,

\[
\begin{align*}
\text{Group I} & \quad Y_i = \lambda_0 + \lambda_1 X_i + e_i & i=1,2,\ldots,n_1 \\
\text{Group II} & \quad Y_i = \gamma_0 + \gamma_1 X_i + e_i & i=1,2,\ldots,n_2
\end{align*}
\]

These separate regressions present the following possibilities:

1. \(\lambda_0 = \gamma_0\) and \(\lambda_1 = \gamma_1\); The two equations are identical.

2. \(\lambda_0 \neq \gamma_0\) but \(\lambda_1 = \gamma_1\); The two equations differ in intercepts.

3. \(\lambda_0 = \gamma_0\) but \(\lambda_1 \neq \gamma_1\); The two equations have the same intercept but different slopes.
The four possibilities are summarized graphically in Figure 2.

![Figure 2](image)

Figure 2

Alternatively, to test these propositions, we can pool the $n_1 + n_2$ observations and run the regression model corresponding to

$$ Y_i = \alpha_0 + \alpha_1 D_i + \beta X_i + \beta_2 (D_i X_i) e_i $$

for $i = 1, 2, \ldots, (n_1 + n_2)$. Note that
and

\[ E(\hat{Y}_i \mid D_i = 1, X_1) = (\hat{\alpha}_0 + \hat{\alpha}_1) + (\hat{\beta}_1 + \hat{\beta}_2) X_1 \]  \tag{16}

which are, respectively, the estimated mean grade-point averages for students in the two groups and are equivalent to assuming \( \lambda_0 = \alpha_0 \), \( \lambda_1 = \beta_1 \alpha_1 \) and \( \beta_2 \) are the differential intercept and differential slope coefficients where, for example, \( \beta_2 \) indicates how much the slope efficient of the cumulative grade-point average in the last two years for students who have completed the introductory course in their major at the community college differs from the slope coefficient of the cumulative grade-point average during the last two years for students who completed the introductory course in their major at the University.

The advantages of estimating the (14) over (12) and (13) individually are as follows:

1. We need to run only a single regression because the individual regression can be derived from it as shown in equation (14) and (15).

2. The single regression can be used to test

\[ H_0 : \alpha_1 = 0 \quad H_0 : \beta_2 = 0 \]
\[ H_1 : \alpha_1 \neq 0 \quad H_1 : \beta_2 \neq 0 \]
3. Pooling increases the degrees of freedom, and hence the precision of the estimates.

4. Estimating these equations simultaneously explicitly assumes homogeneity of residual variances which is a necessary condition for testing the equality of regression parameters.
CHAPTER IV

STATISTICAL ANALYSIS & INTERPRETATION

The purpose of this chapter is to present the major findings as they relate to the subjects and variables under study.

The chapter is organized around the research hypotheses stated in Chapter I. Each hypothesis is presented with the accompanying statistical data necessary to confirm or negate the stated hypothesis. This chapter will deal primarily with the results and significance of the research. Recommendations and suggestions for further research will be discussed in later chapters.

Research Results

\( H_1: \) There is no statistically significant different in cumulative grade-point average earned at the University (CUM 2) between transfer students completing the introductory course in their major at their respective sending institution and transfer students completing the introductory course in their major at the University of Massachusetts School of Business Administration.

Table 1 displays the mean cumulative grade-point average in the last two years of study (CUM 2) for transfer students who completed the introductory course in their elected major at the community college from which they transferred and their counterparts who completed
the introductory course in their major at the University of Massachusetts. A t-test was used to assess whether the two groups of students were significantly different with respect to their academic grade-point average (CUM 2) achieved during their last two years of study at the University.

TABLE 1.--Undergraduate GPA's attained by transfer students completing the introductory course in their major at their respective sending institution and by those transfer students completing the introductory course in their major at the University

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Cases</th>
<th>Mean GPA's</th>
<th>Standard Deviations</th>
<th>t Value</th>
<th>p</th>
<th>Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Course at C.C.</td>
<td>125</td>
<td>2.72</td>
<td>.450</td>
<td></td>
<td></td>
<td>.65</td>
</tr>
<tr>
<td>Intro Course at UMass</td>
<td>114</td>
<td>2.68</td>
<td>.448</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The difference between transfer students completing the introductory course in their major at their respective sending institution and transfer students completing the introductory course in their major at the University in the mean grade-point average attained is not statistically significant at the .10 level.

The data shown in Table 1 indicates that community college transfer students completing the introductory course in their major at the community college achieved a slightly higher cumulative grade-point average than did those students who completed the introductory course in their major at the University. The difference, however, is not statistically significant at the .10 level. Thus we cannot reject the first null hypothesis.
This analysis suggests that the locus of the introductory course in the student's major for transfer students majoring in management and marketing at the School of Business Administration at the University of Massachusetts at Amherst has no significant effect on the student's overall academic performance during their last two years at the University.

The writer also notes that significant variable being analyzed is the degree of "handicap" suffered by transfer students. A reasonable person may question the existence of a "handicap" in a student who is able to achieve a B minus average.

\[ H_2: \text{There is no statistically significant difference in grade-point average in courses completed in the major field at the University (MAJOR) between transfer students completing the introductory major course at their respective sending institutions and transfer students completing the introductory major course at the University of Massachusetts School of Business Administration.} \]

Table 2 displays the mean grade-point average in the major field of study (MAJOR) for transfer students completing the introductory course in their major at their respective sending institution and transfer students completing the introductory course in their major at the University. A t-test was used to assess whether the two groups differed with respect to their academic grade-point average in their major.
TABLE 2.--Undergraduate GPA's in courses within a student's major attained by students completing the introductory course in their major at their respective sending institutions and those students completing the introductory course in their major at the University

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Cases</th>
<th>Mean GPA's in Major</th>
<th>Standard Deviations</th>
<th>t Value</th>
<th>p</th>
<th>Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Course at C.C.</td>
<td>125</td>
<td>2.96</td>
<td>.414</td>
<td>1.02</td>
<td>.31 (ns)</td>
<td>237</td>
</tr>
<tr>
<td>Intro Course at UMass</td>
<td>114</td>
<td>2.90</td>
<td>.471</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The difference in academic performance in the major between students completing the introduction course in their major at their respective sending institutions and those completing the introductory course in their major at the University is not statistically significant at the .10 level.

The data shown in Table 2 indicates that students who completed the introductory course in their major at the community college from which they transferred achieved a slightly higher grade-point average in their major than did those transfer students completing the introductory course in their major at the University. The difference, however, is not statistically significant at the .10 level. Thus, we cannot reject the second null hypothesis.

Table 2 suggests that the locus of the introductory course in the major, for transfer students majoring in management and marketing in the School of Business Administration at the University of Massachusetts at Amherst, has no statistically significant effect on that student's subsequent performance in courses within the major.
The inability to reject null hypothesis \( H_2 \) also rejects, perhaps more clearly than anything else, the notion that transfer students are adversely affected by having completed the introductory course in their major at the community college from which they transferred.

Although it is not statistically significant at the .10 level, it is interesting that students in Group I actually achieved a grade-point average which was higher than that for students in Group II.

\( H_3: \) The relationship between cumulative grade-point average in the last two years of study at the University (CUM 2) and the set of predictors: cumulative grade-point average in the first two years (CUM 1), and grade-point averages in English skills courses (ENG), grade-point average in economics courses (ECO) and grade-point average in mathematics skill courses (MATH) will be the same for transfer students completing the introductory major course at their respective sending institutions and transfer students completing the introductory major course at the University of Massachusetts School of Business Administration.

Table 3 shows the analysis of variance table for the regression of CUM 2 on the explanatory variables:

- **CUM 1:** Cumulative grade-point average, first two years.
- **ECO:** Grade-point average in economics courses.
- **ENG:** Grade-point average in English skills courses.
- **MATH:** Grade-point average in mathematics skills courses.
- **D:** A dummy variable delineating transfer students completing the introductory course in their elected major at the University from those transfer students completing
the introductory course in their major at the respective sending institution.

\[ D_{\text{CUM}} = (D^*\text{CUM}) \]: Differential impact of the grade-point average for the first two years for transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their major at the respective sending institution.

\[ D_{\text{ECO}} = (D^*\text{ECO}) \]: Differential impact of the grade-point average in economics courses for transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institutions.

\[ D_{\text{ENG}} = (D^*\text{ENG}) \]: Differential impact of the grade-point average in English skills courses for transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution.

\[ D_{\text{MATH}} = (D^*\text{MATH}) \]: Differential impact of the grade-point average in mathematics skills courses for transfer students completing the introductory course in their elected major at the University from those transfer students
completing the introductory course in their elected major at the respective sending institution.

TABLE 3.--Analysis of variance for the regression of CUM 2 on the selected variables

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to Regression</td>
<td>55.558</td>
<td>9</td>
<td>5.951</td>
<td>36.64</td>
</tr>
<tr>
<td>Due to Residual</td>
<td>76.341</td>
<td>470</td>
<td>0.0162</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>479</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The overall regression was statistically significant, F = 36.64, p < .10. Approximately 41% of the variation in CUM 2, the dependent measure, was accounted for by the nine explanatory variables.

The effect of each explanatory variable on the dependent measure CUM 2 is shown in Table 4. The table gives the magnitude of each parameter effect, its standard error, associated t-value, and corresponding significance level. Table 4 indicates that a statistically significant relationship exists between the academic performance in the student's first two years of study (CUM 1) and their overall academic performance during the last two years of study (CUM 2).

The writer also notes that the relationship between CUM 1 and CUM 2 is the same for the students in both groups.

The third hypothesis also posits a consistent relationship between performance in basic economics courses completed at the community college (ECO) and the students' overall grade-point average at the University. Table 4 confirms the existence of the relationship
TABLE 4.--Parameter estimates for the regression of CUM 2 on the selected variables

<table>
<thead>
<tr>
<th>Parameter Effects</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-Value</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUM 1</td>
<td>0.410</td>
<td>0.055</td>
<td>7.502911</td>
<td>.000</td>
</tr>
<tr>
<td>ECO</td>
<td>0.086</td>
<td>0.076</td>
<td>3.345644</td>
<td>.001</td>
</tr>
<tr>
<td>ENG</td>
<td>0.004</td>
<td>0.004</td>
<td>1.023006</td>
<td>.307</td>
</tr>
<tr>
<td>MATH</td>
<td>0.162</td>
<td>0.020</td>
<td>7.90777</td>
<td>.000</td>
</tr>
<tr>
<td>D</td>
<td>0.528</td>
<td>0.275</td>
<td>1.922298</td>
<td>.055</td>
</tr>
<tr>
<td>D CUM 1</td>
<td>0.018</td>
<td>0.138</td>
<td>.130652</td>
<td>.896</td>
</tr>
<tr>
<td>D ECO</td>
<td>-0.038</td>
<td>0.089</td>
<td>.4245</td>
<td>.671</td>
</tr>
<tr>
<td>D ENG</td>
<td>-0.141</td>
<td>0.067</td>
<td>2.100712</td>
<td>.036</td>
</tr>
<tr>
<td>D MATH</td>
<td>-0.065</td>
<td>0.037</td>
<td>1.749645</td>
<td>.081</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>1.005</td>
<td>0.126</td>
<td>7.971162</td>
<td>.000</td>
</tr>
</tbody>
</table>

NOTE: The regression of CUM 2 on CUM 1, ECO, ENG, D, D CUM 1, D ECO, D ENG, and D MATH was statistically significant at the .10 level.
and also notes that relationship between grade-point average in economics courses taken at the community college (ECO) and overall grade-point average at the University (CUM 2) is statistically significant for both groups.

The statistically significant relationship between grades in mathematics courses completed at the community college (MATH) and subsequent overall academic performance at the University (CUM 2) is also confirmed by the results reported in Table 4. The table reveals that grade-point averages in mathematics courses completed by transfer students in both groups positively correlate to the student's overall academic performance at the University.

The statistics reflected in Table 4 refute the assumption made in H₃ with regard to performance in English courses by the students in Groups I and II. Table 4 indicates that students who completed the introductory course to their major at the community college (Group I) has lower scores in English courses than their counterparts in Group II, and that this difference was statistically significant at the .10 level of confidence. The writer is, admittedly, somewhat confused over this phenomenon. A review of the statistics and the raw data gives no clue as to why this discrepancy exists. Since this differential has no effect on the central focus of the study, we have taken the liberty of noting the existence of the differential and suggesting that it would be an interesting subject to investigate in another research project.
One other aspect of English courses should be noted. The analysis of the data showed no significant overall relationship between English courses (ENG) completed at the community colleges and subsequent performance at the University (CUM2). English courses are not, therefore, good predictors of subsequent academic success for transfer students in business administration.

One further factor should be considered before we leave this subject. Table 1 pointed to a slight differential in overall academic performance for the students in the study. Students in Group I, those who had completed the introductory course in their major at the University, achieved a grade-point average which was slightly higher than the overall grade-point average for the students in Group II (2.72 as opposed to 2.68). The interesting and puzzling phenomenon revealed by Table 4 is that these same Group I students did more poorly in mathematics, economics and English courses than did the students in Group II. The writer also points to this enigma as an area for further research.

\[ H_4: \] The relationship between grade-point average in courses completed at the University in the major field of study (MAJOR) and the set of predictors: grade-point average in the introductory major course (INTRO), and the grade-point average in English skills courses (ENG), grade-point average in economics courses (ECO), and grade-point average in mathematics skills courses (MATH) will be the same for transfer students completing the introductory major course at their respective sending institution and transfer students completing the introductory major course at the University of Massachusetts School of Business Administration.
Table 5 shows the analysis of variance for the regression of MAJOR on the explanatory variables:

**INTRO:** Grade-point average in the introductory course in the student's elected major.

**ECO:** Grade-point average in economics courses.

**ENG:** Grade-point in English skills courses.

**MATH:** Grade-point average in mathematics skills courses.

**D:** Dummy variable delineating transfer students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at their respective sending institution.

\[ D_{INTRO} = (D\cdot INTRO) \]: Differential impact of the grade-point average in the introductory course in the student's major for students completing this course at the University from those students completing the course at their respective sending institution.

\[ D_{ECO} = (D\cdot ECO) \]: Differential impact of the grade-point average in economics courses for students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution.
\[ D_{ENG} = (D^*_ENG) \]: Differential impact of the grade-point average in English skills courses for those students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution.

\[ D_{MATH} = (D^*_MATH) \]: Differential impact of the mathematics skills courses for those students completing the introductory course in their elected major at the University from those transfer students completing the introductory course in their elected major at the respective sending institution.

TABLE 5. -- Analysis of variance for the regression of MAJOR on the selected variables

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to Regression</td>
<td>44.132</td>
<td>9</td>
<td>4.903</td>
<td>25.67</td>
</tr>
<tr>
<td>Due to Residual</td>
<td>89.790</td>
<td>470</td>
<td>0.191</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>479</td>
<td>479</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The overall regression was statistically significant, \( F = 25.67, p < .10 \). Approximately 33% of the variation in MAJOR, the dependent measure was accounted for by the nine explanatory variables.
The effects of each explanatory variable on the dependent measure, \textsc{major}, are shown in Table 6. This table gives the magnitude of each parameter effect, its standard error, associated t-value and corresponding significance level.

The conclusions generated by the data reported in Table 6 are consistent with those generated by Table 4, but without the intergroup differences. Table 6 found no significant differences between Groups I and II with regard to the relationship between their overall grade-point average in community college courses (\textsc{cum}_1), their grade-point averages in mathematics courses (\textsc{math}), economics courses (\textsc{econ}), their English courses (\textsc{eng}) and their grade-point average in the introductory course in their major (\textsc{intro}) and their subsequent academic performance in courses required in the student's elected major (\textsc{major}).

Table 6 does, however, reveal a statistically significant relationship between the grade-point average earned in the introductory course (\textsc{intro}), grades in economics courses (\textsc{eco}), and grades in mathematics courses (\textsc{math}) and subsequent performance in the student's major. Each of the variables listed exhibited a relationship with \textsc{major} which was statistically significant at the .10 level.

The relationship between English courses (\textsc{eng}) and the student's performance in their major (\textsc{major}) was not found to be significant at the .10 level.
TABLE 6.--Parameter estimates for the regression of MAJOR on the selected variables

<table>
<thead>
<tr>
<th>Parameter Effects</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-Value</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRO</td>
<td>0.283</td>
<td>0.032</td>
<td>8.866671</td>
<td>.000</td>
</tr>
<tr>
<td>ECO</td>
<td>0.109</td>
<td>0.026</td>
<td>4.234606</td>
<td>.000</td>
</tr>
<tr>
<td>ENG</td>
<td>0.005</td>
<td>0.004</td>
<td>1.099175</td>
<td>.272</td>
</tr>
<tr>
<td>MATH</td>
<td>0.124</td>
<td>0.021</td>
<td>5.840611</td>
<td>.000</td>
</tr>
<tr>
<td>D</td>
<td>0.746</td>
<td>0.280</td>
<td>2.665309</td>
<td>.008</td>
</tr>
<tr>
<td>D INTRO</td>
<td>-0.094</td>
<td>0.071</td>
<td>1.32565</td>
<td>.186</td>
</tr>
<tr>
<td>D ECO</td>
<td>-0.060</td>
<td>0.085</td>
<td>0.711134</td>
<td>.477</td>
</tr>
<tr>
<td>D ENG</td>
<td>-0.053</td>
<td>0.068</td>
<td>0.784676</td>
<td>.433</td>
</tr>
<tr>
<td>D MATH</td>
<td>-0.058</td>
<td>0.039</td>
<td>1.481678</td>
<td>.139</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>1.434</td>
<td>0.108</td>
<td>13.29867</td>
<td>.000</td>
</tr>
</tbody>
</table>

NOTE: The regression of MAJOR on CUM 1, ECO, ENG, MATH, D, D CUM, D ECO, D ENG, and D MATH was statistically significant at the .10 level.
H₅: There is no statistically significant difference in cumulative grade-point average in the last two years (CUM 2) between all transfer students and "native" (i.e., non-transfer students).

Table 7 displays the mean cumulative grade-point average in the last two years (CUM 2) for non-transfer, i.e., native students, and all transfer students admitted to the School of Business Administration at the University of Massachusetts who opted to major in marketing or management.

TABLE 7.--Undergraduate GPA for transfer students majoring in marketing and management at the University of Massachusetts as contrasted with the GPA for the last two years for native UMass marketing and management majors

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Cases</th>
<th>Mean GPA's</th>
<th>Standard Deviations</th>
<th>t Value</th>
<th>p</th>
<th>Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers</td>
<td>239</td>
<td>2.70</td>
<td>.449</td>
<td>-3.60</td>
<td>.0001</td>
<td>477</td>
</tr>
<tr>
<td>Natives</td>
<td>240</td>
<td>2.87</td>
<td>.573</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The difference between all transfer students, regardless of where they completed the introductory course in their major, and "native" students in mean CUM 2 achieved is statistically significant at the .10 level.

A t-test was used to assess whether the two groups of students were significantly different with respect to their CUM 2 achieved.

The data shown in Table 7 indicates that native students achieved a higher degree of academic success in the last two years of study, as measured by CUM 2, than transfer students in general. The fifth null hypothesis is, therefore, not supported by the data.
There is no statistically significant difference in grade-point average in the major field (MAJOR) between all transfer students and "native" (i.e., non-transfer) students.

Table 8 displays the mean grade-point average in the major area of study (MAJOR) for non-transfer, i.e., native students, and all transfer students admitted to the School of Business Administration at the University of Massachusetts who opted to major in marketing or management. A $t$-test was used to assess whether the two groups of students were significantly different with respect to their major achieved.

**TABLE 8.--Undergraduate GPA in major courses for transfer students majoring in marketing and management as contrasted with the GPA's in the major for "native" management and marketing majors**

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Cases</th>
<th>Mean GPA's</th>
<th>Standard Deviations</th>
<th>t Value</th>
<th>p</th>
<th>Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers</td>
<td>239</td>
<td>2.93</td>
<td>.442</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natives</td>
<td>240</td>
<td>2.94</td>
<td>.602</td>
<td>.18</td>
<td>.76 (ns)</td>
<td>477</td>
</tr>
</tbody>
</table>

NOTE: The difference between all transfer students, regardless of where they completed the introductory course in their major, and "native" Management and Marketing majors at the University in mean MAJOR achieved is not statistically different at the .10 level.

The data shown in Table 8 indicates that while "native" students earned a slightly higher mean grade-point average in courses in their
major than did transfer students, the difference was not significant at the .10 level.

Tables 7 and 8 generate data that appears contradictory. Table 7 indicates that native students outperform their transfer student brethren on the basis of overall academic grade-point average during the time that both groups are at the University. On the other hand, Table 8 indicates that there is no statistically significant difference between the two groups in terms of academic performance in courses required of them in their respective majors.

Much of the research related to the performance of native students as related to transfer students would corroborate the results reported in Table 7. The majority of the studies reported in the literature conclude that native students appear to be better qualified, academically, than transfer students. Table 8, however, notes no significant differences between native students and transfer students with regard to grade-point averages in courses required in the major. This conundrum will be discussed in the next chapter.
This study was designed to define the degree of handicap, if any, suffered by public, junior college transfer students who enrolled as marketing or management majors in the School of Business Administration at the University of Massachusetts at Amherst.

The study was initiated because transfer students to SBA were being affected by contradictory policies. The policies of the Massachusetts Commonwealth Transfer Compact, which requires four-year public institutions in Massachusetts to accept all course work satisfactorily completed by transfer students from public sector two-year schools who had met certain standards, were in conflict with the policies of the AACSB (American Assembly of Collegiate Schools of Business) which precluded the acceptance of certain courses completed prior to the student's junior year. AACSB did, however, provide one possibility for exception. They indicated that member schools could accept the courses in question if they could demonstrate that students suffered no handicap from having completed the courses prior to the start of their junior year. The writer hoped to establish, with this study, a system for determining whether or not transfer students were handicapped by completing certain courses at the two-year schools.
The real crux of the problem centered around a relatively few courses, mostly introductory courses in management and marketing. Introductory courses in accounting proved to be no problem because they were not included as junior level courses by the AACSB. Finance courses were not a significant problem because relatively few of the students transferring at the time of the study enrolled in finance at the junior college level.

Management and marketing courses, however, were another matter. Not only were junior college transfer students advised to enroll in these courses, they were often required as part of the curricular requirements.

Because of these limitations, the study was designed to determine the effect that completion of these courses at the community college had on a student's subsequent performance at the University.

The degree of handicap suffered by transfer students was measured by evaluating the student's subsequent academic performance at the University, both in terms of overall performance (grade-point average) and the performance of courses within the student's major. The performance indicators of the transfer students who completed the introductory course in their major at the University was then compared to that of a group of public sector transfer students who completed the introductory course in their major at the University. It was assumed that this procedure would isolate locus of the introductory course as a variable, allowing for a measurement of its effect on subsequent academic indices.
The study analyzed the academic records of all Massachusetts public community college transfer students who entered the School of Business Administration at the University of Massachusetts at Amherst and who ultimately majored in either marketing or management. All transfers in these majors who entered the University between 1969 and 1976 were included in the study.

These students were then separated into two groups: Group I included all transfer students who completed the introductory course in their elected major at the community college; Group II included those management or marketing majors who transferred from public sector community colleges in Massachusetts, but who completed the introductory course in their major at the University. This latter group, by definition, completed the course at the junior level, because at that time transfer students were not accepted into the University unless they were ready to enter the junior year.

Two specific hypotheses were generated to test the degree of handicap suffered by Group I students. The first posited the assumption that students in Group I would achieve overall grade-point averages at the University that were not significantly different than those earned by the students in Group II. The second hypothesis related to academic performance within the student's major and presumed a comparability of academic performance of students in both groups with respect to grade-point average in courses required in the student's major.
The writer's professional responsibilities include close contact with transfer students, including evaluation of courses, admission, etc. To test some assumptions about student performance and the relationship of academic areas to one another, two other hypotheses were formulated. One assumption was that a direct and positive relationship existed between grades in mathematics, economics and English courses taken at the community college and the student's subsequent overall grade-point average at the University. This same relationship was assumed between overall grade-point average in courses earned at the community college and overall grade-point average at the University.

Another assumption held was that the academic performance in courses in mathematics, economics, English, and the introductory course in the student's major had a direct and positive correlation with the student's grade-point average in courses within their major.

Finally, to determine the performance of transfer students vis a vis that of native students. A random sample of native students was selected, and their academic records were analyzed and compared to that of the transfer students. In this case, it was posited that no significant differences would be found between the two groups, either in terms of their overall academic performance or their academic performance in courses required of their major.
Conclusions

The research revealed no significant differences between Group I and Group II students with regard to their overall academic performance or with regard to their academic performance in courses required of their major. This was the central focus of the research. The analysis of these hypotheses answered, at least in the writer's mind, the question as to the degree of handicap suffered by transfer students who complete the introductory course in their major at the community college from which they transferred. The statistical analysis indicated that it was not possible to reject either Hypothesis 1 or 2 at the .10 level of confidence. These hypotheses assumed that the two groups were comparable in terms of the academic indices selected. The inability to reject the hypotheses leads the writer to conclude that transfer students who complete introductory management or marketing courses at public community colleges in Massachusetts are not academically handicapped by having done so.

The writer also concludes, on the basis of the statistical analysis related to the third and fourth hypotheses, that overall academic performance at the junior college, along with academic performance in courses in economics and mathematics are valid predictors of overall academic success at the University. From an admissions perspective, it makes sense to use these variables in evaluating a student's candidacy. This relationship does not hold for English courses, however,
and grade-point average in English courses should not be used to predict overall academic success for business transfer students.

Academic performance in the introductory course in the major, as well as courses in economics and mathematics, are valid predictors of academic success with the major. Academic performance in English skills courses completed at the community college does not relate to grade-point average within the major and should not be used to predict academic success.

One further result of this study may shed a little doubt on the generally held assumption that native students are better equipped, academically, than their counterparts from the community colleges. While it is true that native students outperformed transfer students on the index of overall grade-point average, and that this difference was statistically significant at the .10 level of confidence, it is interesting to note that when transfer students and native students were compared in terms of academic performance within the major, the difference was not statistically significant. Indeed, the grade-point averages were almost identical.

The evidence of transfer shock is well documented in the literature. The writer also knows, from personal experience that transfer students frequently must enroll in many non-business "catch up" courses during their first semester at the University.

The writer concludes that these two factors have a tendency to have a negative effect on the student's academic performance, but are likely to affect overall academic performance more so than performance
within the major. This causes the researcher to question conclusions reached in many of the studies which prove the superiority of native students. Was this differential a real one, or was it caused by the transfer shock phenomenon, which affected only one of the groups under study?

Recommendations

Based upon the conclusions found as a result of this research, the following recommendations are made:

1. It is recommended that introductory courses in management and marketing offered at public sector community colleges in the Commonwealth of Massachusetts be accepted for transfer at the School of Business Administration at the University of Massachusetts at Amherst.

2. That an ongoing evaluation system be designed to assess the degree of handicap, if any, suffered by all transfer students entering the School of Business Administration at the University of Massachusetts at Amherst. It is also recommended that this system be used to justify the decision as to the transferability or non-transferability of course work to the University.

3. It is recommended that the AACSB review policies on transferability or non-transferability of courses into AACSB accredited schools. The writer further recommends that AACSB
establish models for evaluating course work which are based upon objective rather than subjective criteria.

4. It is recommended that admissions officers assess the candidacy of prospective transfer students in terms of their overall grade-point average at the community college, their academic performance in economics, mathematics and introductory business courses for students entering schools of business administration. It is also recommended that academic performance in English courses not be used as a predictor of success for business students.
BIBLIOGRAPHY


Calcote, Roger D., "Academic Success of Two-Year College Transfer Students Compared to Native Students in Accounting at the University of Mississippi," Unpublished Doctoral Dissertation, Mississippi State University, 1971.


