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THE DYNAMICS OF SUMMER SCHOOL UTILIZATION: AN ANALYSIS OF
THE DETERMINANTS AND CONSEQUENCES OF ATTENDANCE AT THE
CITY UNIVERSITY OF NEW YORK

City University of New York

PH.D. 1986

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by

RICHARD A. SILBERSTEIN

A dissertation submitted to the Graduate Faculty in
Sociology in partial fulfillment of the requirements
for the degree of Doctor of Philosophy, The City
University of New York.

1986

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This manuscript has been read and accepted for the Graduate Faculty in Sociology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

THE DYNAMICS OF SUMMER SCHOOL UTILIZATION:
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by

RICHARD A. SILBERSTEIN

Adviser: Professor David Caplovitz

The aims of this study are to analyze the utilization and the effects of attending summer school upon students enrolled in the 1970 class of open admissions at the City University of New York (CUNY). Several educational issues are addressed in relation to the substantive research.

American higher education is generally regarded as meritocratic, where access to and the quality of educational services are proportional to students' academic achievement, and where low achievers are excluded. Educational reformers argue, however, that underachieving students need more education, not less, in order to compete with more able peers. Higher education is seen as contributing to the maintenance of inequality, and a demand

for "equality of outcome" is made to replace the inequitable meritocratic policies of the last several decades.

In 1970, CUNY implemented a new policy aimed primarily at minority students, which guaranteed admission to all high school graduates. It differed from other open admissions models which were characterized as "revolving doors" -- CUNY was committed to helping students succeed.

Summer school afforded open admissions students an opportunity to increase the amount of education they could receive. This research investigated the effects of attending upon those who participated. We found that summer school, like ameliorative programs in general, was utilized by students of high ability who thereby were able to increase their "accumulated advantage." The analyses examined what benefits of summer programs accrued to students in a three dimensional typology: high achievers, low achievers and open admissions students.

Attending summer school was a significant factor in the academic success of many students. For those open admissions students who opted to participate, the rewards of summer school included an increased probability of success. As for the evaluation of summer school's affect upon the open admissions policy itself, however, since open admissions students were much less likely to attend, the relative disadvantage between them and regular students was actually increased.

Acknowledgements

On the road to achievement, one accumulates quite a few debts. The long and winding road of this dissertation has left me indigent. There's almost too much to repay to so many. But I hope to make a start in these few words of thanks.

Without reservation, I must express my deepest appreciation to David Caplovitz, who rallied to my cause when I really needed a push. His kindness, expertise and availability were beyond the call of duty. Without him this would not have been.

I am also deeply indebted to my colleagues, David Lavin and Bert Masia, who not only served on my committee, but who have supplied invaluable on-the-job training in many endeavors I have shared with both of them over the years. And special thanks to Bill Kornblum, who somehow seems to have an inexhaustible talent to handle the endless problems one inevitably encounters in this business.

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CHAPTER I - Purposes and Focus of the Research

The main purpose of this study is to analyze both the utilization of summer semesters (who actually attends) and the effects of attending summer school upon students who were enrolled in the first freshman class of open admissions at the City University of New York (1970). Several theoretical problems will be addressed in addition to the substantive research that will be performed. In terms of the data analyses, there are four major objectives of the study.

- To determine which students opted to attend summer school and which student characteristics and other factors are related to this decision.
- To assess what advantages directly accrued to students who attended summer school, compared to students who did not attend.
- To examine the indirect consequences of attending, over and above the direct effects for students, in terms of academic performance and outcome.
- To assess the effects of summer utilization upon the university, in terms of its goals and policies.

The findings will be discussed within a framework of two theoretical questions, an educational one and a general sociological one. The first is, what role, if any, does the amount of education play in determining student academic outcomes?¹ One possible way to test the effects of summer school attendance is to compare the col-

lege careers of students who participated in summer school versus those who did not attend. In this manner, summer school becomes a research site for assessing the effects of an increased amount of education.

American higher education is generally considered to be meritocratic. That is, access to and the quality of higher education are determined, for the most part, by a student's previous record of ability, up through and including high school. Less able students are most often relegated to less demanding collegiate programs, or are denied access completely. This selection procedure ensures a lower performance level in college for these proven "low achievers." It is justifiably argued, however, that this very process is a self-fulfilling prophecy. Educational reformers argue that underachieving students need more education, not less, in order to compete with their more able peers.² Summer school thus offers an opportunity to investigate the effects of varying amounts of education.

The overall approach to the analysis of these effects on student performance will parallel that of Barbara Heyns (1978). Heyns showed that within her elementary school population, summer school offered the only means by which students could opt to receive an increased amount of education. Her results showed that there was a significant increase in cognitive development for those

pupils who attended summer school compared to those students who pursued other, non-developmental summer activities.³ Although an actual replication of Heyns' research is neither feasible nor desirable for a heterogeneous, adult college population, the concept of amount of education as a factor in academic success is a worthwhile hypothesis to pursue.

The second theoretical question is, when do the benefits of ameliorative social programs accrue to groups for which they were intended, and to what extent and through which social mechanisms do they accrue to groups other than those for which they are targeted? We can cite the open admissions policy itself as an example of this latter phenomenon. A major goal of open admissions at CUNY was to provide access to the university for the ethnic minorities of the city who had previously been denied entry to the university under the old, meritocratic admissions model. Although minority participation did increase significantly, the primary beneficiaries of the policy were "white ethnics",⁴ many of whom would have had to enroll in tuition bearing, less prestigious colleges, were it not for open admissions (Lavin et al. 1979:85-8).⁵ Thus, although the target groups did in fact benefit, the policy greatly affected the university by the unintended influx of other, non-minority students. In addition, and indeed significant in terms of this study, these non-

target group members generally outperformed minority students (Lavin et al. 1981:136-41). Therefore, the inequality which the policy sought to correct was not significantly reduced; in fact, it was somewhat extended by the new policy.

These unanticipated results of open admissions at CUNY were summarized by Lavin et al. (1983:284) as follows:

Our analysis of open admissions thus highlights the policy's paradoxical character, one that it probably shares with many other ameliorative reforms. While benefits do flow to those targeted to receive them, they also flow unintentionally to others, and often the latter, possessing more resources than the former, are better able to take advantage of the new opportunities.

The results of the present study will show that summer school is a similar phenomenon. Although summer sessions were designed to give underachieving students the opportunity to "catch up," they were of course, offered to all students. As we will show, some of those for whom summer school was targeted did attend and benefit. However, the majority of students who attended were those who were actually performing above average. Thus, CUNY's summer school programs experienced significant unanticipated consequences as well.⁶

A. Background of the Study

In the fall of 1970 the City University of New York, in response to vigorous outcries by numerous minority leaders for equal opportunity within New York City's only

public institution of higher learning, implemented a new admissions policy. It guaranteed a place in the university for every New York City high school graduate seeking admission.⁷ This action obviated a similar, although less liberal policy whose implementation had already been scheduled for 1975 (Board of Higher Education 1968). The open admissions policy that emerged in 1970 specifically sought to achieve the following goals:

1. To admit to some CUNY program any high school graduate of New York City.
2. To provide remedial and support services for all students requiring them.
3. To provide mobility for students between various programs and units of CUNY.
4. To maintain "standards of academic excellence" of the colleges of CUNY.
5. To effectuate ethnic integration of the colleges.
6. To maintain opportunities for those who would have been admitted under the old, restrictive policy.

These goals represented a severe challenge to the university. In order to achieve them, it was necessary to greatly expand the university.⁸ New resources and the funding for them were needed to accommodate the large increase in the university's population and the expansion of its support services, while at the same time maintain standards. In addition, with its goals so clearly stated (Lavin et al. 1981:15), the university stood open to ready criticism for failing to achieve any of them. Thus the

university embarked upon a new era, during which time there was to be much debate over the success of the program.

Several other public universities had liberalized their admissions criteria prior to the implementation of open admissions at CUNY. They opted to allow all high school graduates within their jurisdictions to enter their higher education systems. Among these were the state universities of California and Wisconsin; the Midwestern land-grant universities had incorporated this policy in their charters (Johnson 1981). However, the policy as it evolved at CUNY was an innovative departure from the models which had preceded it. These earlier forms provided admission and little else. Students were left to their own devices as to whether or not they succeeded. Quite expectedly, most weaker students either dropped out voluntarily or were not allowed to continue. This approach to open admissions -- to admit every applicant and have underprepared students fail in a "survival of the fittest" environment, was the dominant model. Supporters of these policies argued that they indeed offered equality of opportunity: "After all, the universities admitted all high school graduates!"

By the late 1960s, it was apparent that equality of opportunity, as it was being implemented in higher education, was not working to alleviate inequality.⁹ In

response, an appeal for equality of outcome was advanced (Featherman and Hauser 1978; Jencks et al. 1979). A simple statement of the argument could take the form, "If the ethnic mix of students graduating from a university with an open admissions policy was similar to the mix prior to open admissions, then the policy was meaningless." CUNY's policy makers agreed. Their primary goal, therefore, was to avoid what had become known as the "revolving door" approach to open admissions.

If equality of outcome was to be achieved, and CUNY's policy was surely going to be evaluated by this yardstick, then a new approach to open admissions was necessary. In fact, the major innovation which differentiated CUNY's version from other open admissions policies was the university's commitment to ensure that students who were admitted under the new policy had a fair chance of succeeding, that is, graduating. This commitment took the form of various support apparatuses which were incorporated into the policy. These included extensive remedial programs for those students found to be deficient in one or more areas of preparation, an expansion of academic counseling services to help students adjust to college, and offering increased assistance in selecting curricula, courses and schedules. Certain minimum requirements necessary to maintain matriculation were relaxed so that the academically weaker freshmen would not

be subjected to immediate pressure to perform on a par with "regular" students, i.e. those who would have been admitted under the previous, more restrictive admissions policy.¹⁰ Transferring to senior colleges which offer baccalaureate degrees, from community colleges which offer only 2-year degrees, was made easier (as was transferring within college levels).

The advent of the policy sparked much debate among various constituencies within an already politically and ethnically polarized city. Issues such as whether open admissions would make any real difference in equalizing opportunity, whether it would ruin the prestige of the university by "lowering standards", and whether it should be retained in light of the fiscal problems faced by the university and the city in the mid-1970s were addressed.¹¹ The debate over whether to retain the policy, which raged during its first few years, was made moot when the number of freshman enrollments declined to a critically low threshold,¹² caused by both demographic factors¹³ and the imposition of tuition.¹⁴ However, the debate over the success or failure of the policy continued. Detractors noted the low graduation rates of open admissions students. Supporters cited numerous instances of outstanding students who attended college only because of open admissions. Because of the demand for an objective evaluation of the policy, the university agreed to furnish

the data and the necessary support, and a guarantee to abide by the findings for a scholarly analysis of open admissions. Professor David Lavin of CUNY's Lehman College, and two associates, Richard Alba and Richard Silberstein traced the progress of the first three open admissions classes (Lavin et al. 1981). The publication of their study was generally accepted as conclusive, although the interpretation of some of the findings was necessarily subjective. Thus although the data were rigorously analyzed, critics can deem any finding, such as a particular graduation rate, as a failure of the policy; supporters can cite the same finding as evidence of the success of open admissions. However, Lavin et al. (1981:265-88) were able to evaluate how well the university did in achieving its stated goals:

1. The university was made available to all New York City high school graduates and they did enter in large numbers. However, the unintended consequence of the policy was that many Jewish and "white ethnic" students took advantage of the program, which was originally intended to target black and Hispanic students.
2. Remedial and counseling services were provided at every CUNY campus. Although they were widely attended, the findings do not show that they were very effective in allowing students to overcome serious deficiencies. The authors conclude that these services should be provided nonetheless since they did help some students and that the services may well be improved in time.
3. Transferring to upper level colleges was quite common. Open admissions students who graduated from community colleges were as likely to transfer as were regular students. Many students were even able to transfer without receiving community college degrees.

4. From all evidence that the researchers were able to gather, "standards" were not lowered. No one was graduated without having earned the required number of credits nor without maintaining an acceptable grade point average. Grades given to students under open admissions did not vary substantially from those given prior to the new policy.¹⁵

5. The desired levels of ethnic integration of the colleges did not occur. There were changes in the ethnic distributions of most colleges -- the number of minority students increased dramatically in some instances. However, because of the influx of white open admissions students into the senior colleges and the predominance of black and Hispanic students in the community colleges, much of which was attributable to student's selecting where they wished to attend, the individual colleges were not as integrated as had been planned.

6. "Regular" students, i.e. those who would have been admitted under the old admissions policy, were able to take advantage of many of the new services offered under open admissions. Thus, not only was the university's goal of maintaining these students' opportunities fulfilled, regular students were able to actually increase their advantage as a result of open admissions. This was a truly ironic finding of the study.

In their concluding chapter, Lavin et al. (1981:284) make the following generalization regarding the success of open admissions at CUNY from two perspectives:

In line with...expanding opportunity, open admissions brought substantial benefits to all major ethnic groups in the city. Many minority students entered the University as a result of the program and subsequently graduated. But, in line with...[the view that] sees education as tending to preserve privilege, more white students took advantage of the program than did minorities.

B. Strategy of the Research

The data that were used in the Lavin study were col-

lected through the first five years of open admissions, enabling the analysis of performance of the freshman classes of 1970, 1971 and 1972 for five, four and three year periods, respectively. Since more performance data were collected for the 1970 cohort because of CUNY's participation in administering an extensive, national student information questionnaire that year,¹⁶ the findings for the 1970 freshman class were more detailed and complete than for the other cohorts (the 1970 questionnaire is presented in appendix A). By the fifth year, over 87% of the 1970 freshman class had either graduated or dropped out. For these reasons, the present study will use the 1970 cohort for its analyses. The questionnaire was completed by 13,665 freshman, which represents approximately 40% of the total population. In order to determine the reliability of the sample, several analyses were performed concurrently on both the sample and the population data. The findings of the two analyses were compared and assessed. In all instances the results were never substantially different. In order to illustrate some of the small distributional differences between the sample and the population, table 1.1 compares the two groups for several key variables. The small biases that the sample does contain are documented here.

Table 1.1

Comparisons of Sample and Population for Selected Variables*

	High School Average			Rate of			Mean GPA		
	<70	70-74.9	75-79.9	80+	Graduation	Drop-out	Trans-fer	Drop-out	% Min-ority
Percentages									
Senior pop	4	11	24	60	39	47			11
Senior sample	4	9	23	64	44	42			13
QA Senior pop	11	28	62	0	26	58	1.54	2.44	
QA Senior sample	10	26	64	0	30	53	1.57	2.43	
Reg Senior pop	0	0	0	100	48	40	2.34	2.94	
Reg Senior sample	0	0	0	100	52	37	2.43	2.95	
Community pop	33	34	23	11	28	64			27
Comm sample	26	34	27	13	33	59			25
QA Comm pop	49	51	0	0	23	67	24	1.49	2.31
QA Comm sample	44	56	0	0	26	65	26	1.40	2.32
Reg Comm pop	0	0	68	32	39	54	29	1.89	2.72
Reg Comm sample	0	0	67	33	43	50	30	1.81	2.74

*Adapted from Lavin et al. (1981:314-15).

Table 1.1 shows that the population and the sample are very similar. The major difference which the table reveals is that the sample is composed of somewhat "better" students. For example, the dropout rates are al-

ways slightly higher for the population when compared to the sample. This difference can also be seen in the distribution of high school average. However, there is no reason to believe that this slight sample bias will influence any of the findings.

Although the sample data will be used in all the analytical chapters, chapter 2 will utilize any population data which were available for the 1970 cohort. This will allow us to establish the actual distributions of many significant variables. It will also be the only chapter using individual campus data. Our preliminary analyses have shown that the differences found among CUNY colleges are explained by the demographic characteristics of their populations. The population and individual campus data are presented in chapter 2 for two reasons. First, since they represent all of the available data regarding summer attendance, they lay the groundwork for the analyses which follow. Second, the presentation will allow others interested in summer school behavior to consider future research.

Chapter 3 is the first of six analytical chapters which will be presented. Together with chapters 4 and 5, it will be concerned with examining the determinants of summer school attendance. This will be accomplished by analyzing the zero-order relationships of all significant independent variables to summer attendance using tabular

analysis. Chapter 6 will make use of regression analyses in which each variable can be analyzed while controlling for all of the others. These initial chapters will establish which variables are related to attending summer school. Chapter 7 will be concerned with the effects of summer attendance upon the performance of those students who participated in summer school compared to those who never attended. Chapter 8 will assess the effects of summer attendance upon student academic outcomes -- whether summer school contributed to staying in college (persisting), graduating and for community college students, transferring. Chapter 9 will present the conclusions that can be drawn from the research. It will attempt to summarize what we have learned about the determinants of summer attendance and the effects of attending summer school on students, upon the open admissions policy and its special students, and upon the university per se.

Specifically, the strategy of the research is as follows: (1) Chapter 3 will focus on the effects of social status variables on attendance patterns. The differences in summer attendance between senior and community colleges (chapter 2) will be partially explained by the ascribed characteristics of the students participating in the summer programs at each level. (2) Chapter 4 will analyze the effects of student behavioral variables on summer attendance. Achieved characteristics (such as academic

ability and student degree aspiration) will prove to be important determinants of college behavior (and subsequently, performance). (3) Chapter 5 will examine the effects on summer attendance of other significant variables such as parental influences and student personality traits. Through chapter 5, our examination of summer attendance will be limited to tabular analyses. (4) Chapter 6 will utilize multivariate analyses to explain and amend the findings of the previous chapters. (5) Chapter 7 will extend the use of the multiple regression analyses in order to identify (and quantify) the effects of summer school attendance upon student academic performance. (6) Chapter 8 will examine the effects of summer school upon student academic outcomes. (7) Chapter 9 summarizes the findings and examines the effects of summer attendance upon the university.

Diagrammatically, the general model of the study is as follows:

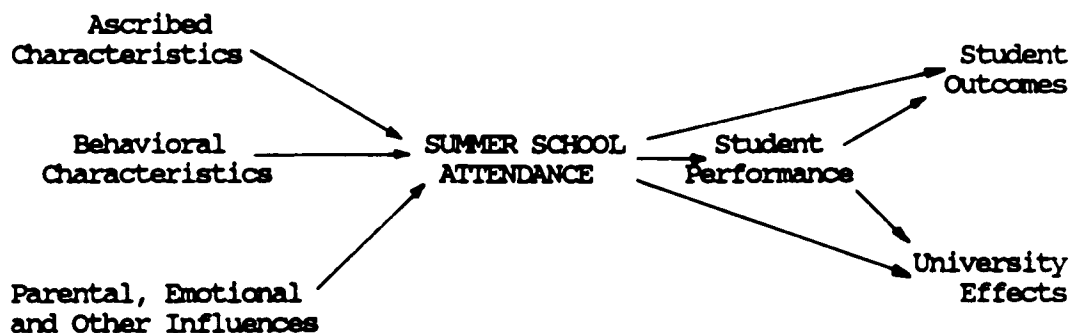


Figure 1.1. Model of the determinants and the effects of summer attendance

As illustrated in figure 1.1, summer school attendance is both a dependent and an independent variable in this study. To a lesser degree, it is also an intervening variable in that some of the effects of student characteristics which affect academic performance and outcome have an indirect "path" through summer attendance.

NOTES

1. The increment to the amount of education which summer school represents for those students who attend is an amount garnered within a fixed period of time compared to other students within the same time frame.
2. Jencks (1972), Karabel (1972a,1972b), and Bowles and Gintis (1976) among others have shown that meritocratic educational policies actually have increased inequality by tending to recruit and foster advantaged students to the exclusion of the disadvantaged.
3. Heyns (1978) showed that elementary school pupils benefited by increased cognitive development from the extra education that summer school offered them compared to pupils who spent their summertime in "culturally deprived" environments. Pupils who were able to attend summer camp or who spent their summers in otherwise "enriched" activities such as traveling were also able to increase their cognitive development. Thus, lower class children were able to utilize summer school to their educational advantage. Those who had attended summer school returned to regular semesters better equipped to compete in the academic marketplace.
4. This term was used in Lavin et al. (1981) to define students of Italian and Irish (thus mainly Catholic) extraction. These white ethnic constituencies represent important and powerful interest groups with New York City. Although Jewish students could be included within the designation "white ethnic", for the purposes of this study, and in part because of the political realities governing New York, they are being considered as a separate category.
5. There was actually concern voiced by some of the private colleges in the New York area regarding the impact of open admissions. A study conducted by the New York State Regents (1972) concluded that open admissions "did not have a significant impact upon the total enrollment in the private colleges and universities in New York City." However, the Regents did note a decrease of 1,433 students enrolling in the private institutions while at CUNY there was a 15,000 student increase. In addition, they did not address the quality of the private college entering class. It would be reasonable to assume that the mean academic ability of their 1970 cohort was lowered by the advent of open admissions at CUNY.

6. The effects of summer school attendance upon open admissions students and upon the policy itself will be examined particularly as both programs experienced similar unintended consequences.
7. For a full description of CUNY's open admissions policy and an analysis of its first three years, see Lavin et al. (1981). The present research is an extension of that work and utilizes much of the same data. Many of their findings will be referred to throughout this study.
8. According to the 1972 CUNY Master Plan (Board of Higher Education 1972), the 1970 freshman cohort consisted of 35,511 students, an increase of 76% over the previous, 1969 freshman class of 20,208.
9. Equality of opportunity would seem to be an equitable policy were it not for the evidence that its adoption has made little difference in changing the status quo (Karabel 1972a; Jencks and Reisman 1968).
10. The terms "regular" and "open admissions" were unofficial CUNY designations used by administrators and faculty to distinguish between the two types of students. Often however, the label "open admissions" was mistakenly applied to all minority students regardless of their admissions status.
11. Heller (1973), Mayer (1973), Wagner (1976) and Gross (1978) exemplify extreme anti-open admissions positions. Characteristic of this literature is an atavistic attitude towards the "golden days" of City College. As a consequence of this atavism, many of these works tend to be implicitly racist.
12. Enrollment for the 1976 freshman cohort was reduced by almost one-quarter, to 29,283. The previous class, which entered in 1975, had 38,114 students enrolled (Lavin et al. 1981:305).
13. Census data show that the college age population of New York City diminished by over 6% from 1970 to 1980, while during the same period there was a decline in the mean socioeconomic level and an increase in the percentage of minorities in the general population. These changes tended to reduce the pool from which the university traditionally recruited its students. (Bureau of the Census 1973, 1983).
14. As a result of the fiscal crisis that New York City experienced in 1975, tuition was imposed for the first

time in the more than 125 year history of the university. CUNY's administrators insisted that the traditional role of the university as a "proletarian Harvard" would remain intact. They argued that lower income students (by definition, most open admissions students) would not be affected by tuition -- New York State's Tuition Assistance Program (TAP) would cover these students' expenses. However, the imposition of tuition was generally regarded as the emasculation of open admissions. Many potential students were either unaware of TAP or did not qualify. The number of high school graduates seeking admission declined drastically. See Van Dyne (1976a, 1976b) for background information on the imposition of tuition at CUNY.

15. "Grade inflation" was a problem perceived by educators in the early 1970s. The debate centered around whether there actually was such a phenomenon and if so, what were its causes and ramifications. See Birnbaum (1977) for a discussion of some of these issues. Grade inflation was particularly salient for CUNY under open admissions since any indication of a lowering of standards was of primary concern. The potential problem was investigated by CUNY's Office of Program and Policy Research and found to be negligible (Kramer et al. 1974).

16. The American Council on Education (A.C.E.) conducts an annual national college freshman survey. Colleges which fund A.C.E. as well as other, ad hoc participating institutions, have access to the data collected for their freshman classes. CUNY was a participant in the 1970 wave.

CHAPTER II - Student Census: Characteristics of the CUNY 1970 Freshman Cohort

This chapter presents a detailed census of students in the 1970 freshman class. It includes summer attendance figures as well as distributional data for key independent variables which will be used in the analyses.

The 1970 cohort consisted of 34,931 entering freshmen.¹ In chapter 1 we noted that in addition to official CUNY records, supplemental data were obtained for approximately 40% of the class, and this sample data will be used extensively in subsequent chapters. The survey items contain background information, attitudinal measures, parental data and other information that was unavailable in the university's records (appendix A contains a copy of the questionnaire). Official CUNY student performance records contain data for each semester, including summers, for five years starting with the fall semester of 1970. They include attendance information, that is, where (if at all) a student registered that particular semester, the number of credits for which a student registered, the number of credits actually earned and the grade point average received that semester. Cumulative data were also recorded for each of these items. In addition, there were some high school performance and student background data available in the official records.

These data were obtained from the centralized CUNY admissions office from both student applications and high school records. Thus, an extensive amount of data was available for analysis. Of course, only the 40% sample contained all of the available items.

Since this chapter is concerned with reporting as much of the data on summer attendance as could be accumulated from all available sources, we will alternate between the population and the sample. The population data will be used wherever possible, since it represents the official documentation. Sample data will be used wherever it is appropriate to do so, that is, whenever the data is unavailable for the population. The tables identify whether the population or the sample is being used. In chapter 1 we compared the sample and the population; it may be helpful to refer to table 1.1 to assess the interchangeability of the population data and the sample and to identify any sample biases.

A. The Two Levels of College at CUNY

In 1970, the undergraduate divisions of CUNY contained fifteen units -- eight senior colleges and seven community (junior) colleges.² Forming the core of the university were four prestigious institutions -- City College, Brooklyn College, Queens and Hunter -- which had been virtually autonomous until 1962. CUNY's present structure evolved from the confederation that was created in the early 1960s

to merge the senior and community colleges into one nominal institution.

Within the CUNY reorganization, individual campuses retained some independence, but most administrative functions were centralized. One of the most important of these, in terms of the open admissions policy, was the formation of the University Applications Processing Center (UAPC). Applications were submitted directly to this centralized office and students were, whenever possible, admitted to the campus of their choice. While both senior and community college allocations were executed by UAPC, attempts were made to place all students into the level of college to which they had applied. Actually, almost all of the students not so placed were those who had applied for senior college admissions but lacked the minimum requirements for entry at that level.³ Placement into a specific college was determined by an algorithm based on a combination of the student's choice, the availability of a place at the campus of choice, and then, the student's high school academic performance. The university tried to place all students at their first choice college and it was quite successful in doing so. Only 13% of the 1970 freshmen had to enroll at other than their first or second choice college. The success of placing most students into the college of their choice has the following methodological ramification: most of the academic con-

sequences that may be attributable to the characteristics of a specific college or level of college can be ascribed to the decision of the individual student.

In fact, as we shall demonstrate, the most important choice an applicant made was whether to attend a senior or a community college. In part because they offer four-year and two-year programs respectively, the type of curriculum, the degree that is granted to graduates, and the amount of education received varies greatly between the two levels. These differences result in other factors varying by level. For example, the quality of the faculty is higher at senior colleges,⁴ the libraries are generally larger, other facilities are usually better equipped, and not least, the academic ability of the incoming student body is higher. Therefore, it is improper to consider the CUNY student population as homogeneous across college levels. As a result, all of the analyses in this study will examine senior and community colleges separately.

B. Summer Attendance Data

The first set of tables describes several distributions of summer attendance for the entire 1970 freshman population. Table 2.1 shows the amount of summer attendance for both senior and community colleges.

Table 2.1

Summer Attendance by College Level

Summers Attended	Senior Colleges	Community Colleges
0	44%	62%
1	22	22
2 or more	34	16
	100%	100%
N	(20350)	(14581)

(Source: Population)

Two important findings emerge from table 2.1. The first is the extent to which summer school is utilized university-wide. The percentage of students attending is quite high, especially given the popular assumption that summer school is a relatively unattractive summer option for most students. Fifty-six percent of all senior college students attended one or more semesters of summer school, while 38% of all community college students did so. These percentages represent large numbers of students, which is even more impressive considering that there is a significant amount of attrition during the first academic year. Since almost one-quarter of the 1970 cohort did not return for the second year, these early dropouts had virtually no opportunity to attend summer school.⁵ Therefore, of the students who remained to register for subsequent semesters at CUNY, the probability of attending summer school was very high, indeed.

The second significant finding in table 2.1 is the

difference between the two levels of college in terms of both general enrollment and summer school attendance. First, in terms of the actual distribution of students by level, almost 60% of entering freshmen enrolled in one of the senior colleges. Secondly, we observe significant differences in summer attendance between the two levels: a student who enrolls at a senior college is much more likely to attend summer school (as well as attend more than one session). This uneven distribution of summer attendance, caused to a great extent by the differing lengths of the programs at senior and community colleges, again illustrates the necessity of presenting separate analyses for each level. In addition, the senior and community colleges exhibit significant demographic differences in their respective student populations. This is documented in the remainder of this chapter.

In order to illustrate further variations in summer attendance patterns, table 2.2 presents attendance data for each CUNY campus.

Table 2.2

Summer Attendance by College

Summers Attended	(Senior Colleges)							
	Qns	B'klyn	York	Hunter	Lehman	City	Baruch	JohnJay*
0	30%	34%	45%	46%	48%	50%	50%	72%
1	22	20	26	24	23	24	21	16
2 or more	48	46	29	30	29	26	29	12
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
N	(3458)	(4362)	(848)	(3091)	(2370)	(3093)	(1537)	(1002)

	(Community Colleges)						
	Manhattan	Kingsboro	S.I.	Qnsboro	NYOCC	Bronx	Hostos
0	52%	59%	60%	63%	65%	66%	76%
1	26	22	25	21	22	19	17
2 or more	22	19	15	16	13	15	7
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
N	(1560)	(2727)	(2166)	(3304)	(2450)	(1911)	(463)

(Source: Population)

*Offered both 2-year and 4-year programs.

At the senior college level, there is a considerable range among colleges. At Queens College, 70% of all entering freshman took at least one summer course, while at City College and Baruch only 50% attended summer school. (John Jay offered both 2- and 4-year programs and is, therefore, not a representative senior college.) It is important to note that the two senior colleges with the highest summer attendance rates are the two most prestigious colleges in the university (Lavin et al. 1981:63). They were the most sought after campuses (our data show that more than 30% of all applicants chose one of these institutions as their first choice college) and

collectively, their students had the highest high school averages.⁶ In the chapters where the determinants of attending summer school are analyzed, we will show that the distribution of student attributes between the senior and community colleges accounts for most of the difference in summer attendance, i.e., that which remains after controlling for the length of their respective programs. In a similar fashion, the observed differences among colleges are hypothesized to be mainly attributable to characteristics of their respective student bodies.

C. Distributions of Selected Student Attributes

In order to establish the groundwork for the analysis of the effects of student attributes upon summer school participation, it is necessary to present distributional data. These distributions of key independent variables will be referred to throughout our analytical discussions. Since we have already shown that senior and community college summer attendance rates are quite different from each other, the distributions of student attributes are presented by level of college.

1. Academic Ability

Table 2.3 shows the percentage of open admissions and regular students at senior and community colleges.

Table 2.3

Open Admissions Enrollment by College Level

Admissions Status	Senior Colleges	Community Colleges
Regular	54%	33%
Open Admissions	46	67
	<hr/>	<hr/>
N*	100% (18940)	100% (12817)

(Source: Population)

* The number of students is based upon the total population. Students missing high school data or who were not registered in the first semester are omitted. There were a total of 589 in the latter category, who thereby could not be placed into a senior or community college category. (These students did enroll in a subsequent semester.)

It is apparent in table 2.3 that open admissions students predominated in community colleges. Two-thirds of community college students were admitted under the open admissions guidelines. On the other hand, regular students outnumbered open admissions students at senior colleges, although not by very much. However, there were sizable increases in student population at both levels caused by the new policy.⁷ In terms of absolute numbers, open admissions students were equally represented at both senior and community colleges. The popular notion that open admissions was a senior college phenomenon (and that senior college standards would therefore be lowered) is

not borne out by these data.

2. Status Variables

a. Gender

Gender differences have been shown to account for some of the variation generally found in academic performance (Rossman, et al. 1975; Astin 1977; Astin 1972).

Therefore, we will be using sex as an important independent variable. Table 2.4 shows the distribution of students within the 1970 cohort by sex.

Table 2.4

Enrollment by Sex and College Level⁸

Sex	Senior Colleges	Community Colleges
Male	55%	51%
Female	45	49
	<hr/>	<hr/>
	100%	100%
N	(20350)	(14581)

(Source: Population)

There are somewhat more male students entering both senior and community colleges. However, the difference between the two levels is small (4%). Therefore, any significant differences we may find in summer attendance rates between men and women will not be caused by the distribution of gender within the two levels. This is mentioned here to differentiate between variables such as sex, which do not significantly vary by level, and variables such as open admissions status, which do vary sub-

stantially between senior and community colleges. The findings, to some extent, will depend upon whether the distributions are similar or not. As an example, the differences in summer attendance that we find between open admissions students and regular students may, in part, be caused by the predominance of open admissions students in the community colleges. Sex differences, on the other hand, cannot be attributed to distributional factors.

b. Age

Table 2.5 presents the age distribution of incoming freshmen by college level. The majority of freshmen are 18 years old upon admission. The age variable, therefore, was broken down into students who were eighteen, those below eighteen, and students who were nineteen or older.

Table 2.5

Enrollment by Age and College Level

Age	Senior Colleges	Community Colleges
Young	23%	6%
18's	68	69
Older	9	25
	100%	100%
N	(9169)	(4431)

(Source: Sample)

It is apparent from table 2.5 that the age distribution is quite different between college levels. Whereas 23% of the senior college freshmen are under 18 years old,

only 6% of community college students are below the modal category. At the other end of the scale, one-fourth of the community college sample is over 18 years of age as compared to 9% over that age in the senior college sample. Thus, the senior colleges tend to have younger student bodies compared to community colleges. The effects of these substantial age differences will be examined in chapter 3.

c. Race

As was noted in chapter 1, ethnicity was an important consideration in the design and implementation, as well as in the eventual evaluation, of open admissions. The ethnic distribution of the 1970 cohort is therefore a significant indicator, in its own right, of the immediate success of open admissions in ameliorating ethnic imbalance within the university. In addition, we will be investigating the role of ethnicity as it relates to both summer attendance and the consequences of summer participation upon student performance and outcomes. The concept of ethnicity, as it refers to constituencies within New York City, is an amalgam of race, religion, and to a lesser extent, national origin. The salience of a particular ethnic status may be based on any of these group affiliations. For example, among New York's ethnic groups are Jews (religion), blacks (race), and Italian-Americans (national origin). Thus, in order to assess the

effects of ethnicity, we must first examine the distributional differences among various racial and religious groups.⁹

Table 2.6 shows the racial distribution for the 1970 freshmen. Since ethnic data were not obtainable from official CUNY records, all of the analyses which address ethnicity are based on the sample data.

Table 2.6

Enrollment by Race and College Level

Race	Senior Colleges	Community Colleges
White	87%	76%
Black	7	16
Hispanic	3	7
Other	3	2
	100%	101%
N	(9169)	(4431)

(Source: Sample)

The most significant finding in table 2.6 is the extent to which white students predominate both levels of the university. This is especially important since this was the first class admitted under the new policy. The general belief, at that time, was that racial minorities "flooded" the university as soon as open admissions was implemented. The racial distribution of the 1970 cohort refutes that notion. However, as was documented by Lavin et al. (1981:61-70), the actual numbers of minority students did increase dramatically. Table 2.6 also shows

that the community colleges were more racially integrated than the senior colleges. Almost 25% of the community college population was non-white compared to 13% of senior college students.

d. Religion

As we stated, the salient ethnic groups within New York City are also defined by religious affiliation. Table 2.7 presents the distribution of the 1970 cohort by religion.

Table 2.7

Enrollment by Religion and College Level

Religion	Senior Colleges	Community Colleges
Jewish	45%	20%
Catholic	44	61
Protestant	12	19
	<hr/>	<hr/>
	101%	100%
N	(8648)	(4225)

(Source: Sample)

The distribution of religious affiliation varies significantly between college levels: 45% of senior college students are Jewish, as compared to 20% of the community college students. Catholics, on the other hand, comprise over 60% of the community college population compared to 44% at senior colleges. Thus, the effects of religious affiliation upon summer attendance and performance must also be examined separately for both levels.

e. Ethnicity

Table 2.8 presents the distribution of ethnicity, which is the combined measure of race and religion. This is the variable by which students identify themselves and are, more importantly, identified by others.

Table 2.8

Enrollment by Ethnicity and College Level

Ethnicity	Senior Colleges	Community Colleges
Jewish	41%	18%
Catholic	32	43
Black	7	15
Hispanic	7	11
Other	13	13
	<hr/>	<hr/>
	101%	100%
N	(9088)	(4407)

(Source: Sample)

The ethnic distribution shown in table 2.8 constitutes the basis for the "dummy" variables that will be used in later regression analyses.¹⁰ These variables will allow us to compare the attendance patterns and the consequences of attending for each ethnic group. The categories represent the major interest groups within New York City and the comparative academic success of these groups is one of the barometers by which open admissions (and the university as a whole) is judged.

3. Behavioral Variables

Student goals and attitudes are reflected in academic

behavior. Similarly, we can expect to find that patterns of summer attendance are also affected by these same goals and attitudes. Therefore, the distribution of these variables is important in interpreting their effects.

a. Student Degree Aspirations

Table 2.9 details the distribution of a significant motivational variable: student degree aspiration (the level of degree students wish to attain).

Table 2.9

Student Degree Aspiration by College Level

Degree	Senior Colleges	Community Colleges
AA	1%	27%
BA	34	34
MA	40	29
PhD	25	10
	100%	100%
N	(8773)	(3927)

(Source: Sample)

The senior and community college distributions are much different. This is expected since no senior college (with the exception of John Jay) grants associate or 2-year degrees. Almost two-thirds of the senior college sample aspires to advanced degrees (MAs and PhDs), while only 39% of community college students are in those categories. However, considering that the community colleges do not grant degrees above the associate level, it is important to note that 73% of community college stu-

dents hope to obtain degrees requiring, at minimum, transfer to a senior college, and 39% aspire to degrees beyond the undergraduate level. Thus, at whichever college level we address degree aspiration, the majority of students indicate that they hope to attain degrees beyond their present level of college. Since there is considerable attrition within this cohort, and since we can assume that the majority of community college students will not transfer nor will a majority of senior college students enter postgraduate programs, it follows that most students' goals will not be attained. The particular effects of degree aspiration (and other motivational measures) upon summer attendance and subsequent student performance will be examined in the analytical chapters.

b. Importance of Personal Intellectual Growth

Table 2.10 presents the distribution of the importance of "personal growth" as a reason for attending college (as reported by students themselves). That is, what level of importance do students place upon going to college as a means of increasing their cognitive and social development.¹¹

Table 2.10

Personal Growth Factor by College Level

Importance of Factor	Senior Colleges	Community Colleges
Low Importance	24%	27%
Somewhat	21	22
Moderate	26	24
Important	29	26
	100%	100%
N	(8879)	(4035)

(Source: Sample)

As can be seen in table 2.10, the two distributions are nearly identical. Both senior and community college students are equally interested in obtaining a well-rounded education and learning more about themselves and others. Thus, the personal growth factor does not exhibit the distributional differences we found for most of the other variables that were examined.

c. Working

It is reasonable to hypothesize that having a regular or part-time job, especially during the summer, would preclude or lessen the chances of a student taking summer courses. This hypothesis will be tested in chapter 4. The questionnaire did not directly ask students whether they were working or intended to work. Rather, students were given several items asking what was the probability that they would have to work to support themselves in college. These items allow us to create an index to

measure the likelihood of working. The distribution of this index is shown in table 2.11.

Table 2.11

Working Index by College Level

Likelihood of Working	Senior Colleges	Community Colleges
Very Low	14%	15%
Low	20	13
Some	27	26
High	21	20
Very High	19	26
	100%	100%
N	(9152)	(4400)

(Source: Sample)

The distributions for both senior and community colleges are similar. However, there is a somewhat higher likelihood that students work or will work while enrolled in the community colleges. The greater likelihood of working in the community college sample may account for some of the difference in summer attendance between the community and senior colleges. In addition, it may be also an indicator, in part, of the somewhat higher age distribution in the community colleges. Older students are less likely to be supported by parents, as well as being more likely to have financial responsibilities of their own. The relationship between independent variables, such as age and working, as well as possible interaction effects, will be addressed in the multiple

regression analyses in chapter 6.

d. Career Plans

Another motivational variable that will be used in our analyses is whether students had definite career plans or were unsure of what they wanted to do after college. We hypothesized that students with definite plans would be more motivated and this motivation would lead to increased summer attendance. The distribution of this variable is shown in table 2.12.

Table 2.12

Job Plans by College Level

	Senior Colleges	Community Colleges
No Plans	17%	13%
Plans	83	87
	<hr/>	<hr/>
N	100% (8523)	100% (3729)

(Source: Sample)

Most students do, in fact, have career plans. However, community college students are somewhat more likely to have definite plans. Conceivably, this could be related to the numerous technical training curriculums offered at the community colleges. Students enrolled in these programs would, most likely, have decided upon their career paths. Since many careers are dependent upon degree acquisition, regression analysis will enable us to determine if having career plans relates to summer atten-

dance after controlling for degree aspiration.

4. Other Independent Variables

The data already presented have in some instances, shown differing distributions between senior and community colleges. These patterns, at least to some extent, will account for differences we find in summer school attendance between levels of college. In other instances, we have seen little or no differences in distributions. Whenever these latter variables relate to variations in summer attendance among students, we can assert that the observed differences are not caused by distributional factors.

In addition to the measures already presented, there are other student background variables that will be used in our analyses. These include parental influences, student personality and character traits, and various student attitudes. As we will show, the relationships between these variables and summer school attendance are not particularly strong, although some of them do persist throughout the multivariate analyses. However, the differences in the distributions of these variables between senior and community colleges are not significant. Therefore, there was no need to present them in this chapter.

NOTES

1. The 1972 CUNY Master Plan (Board of Higher Education 1972) lists 35,511 students as the size of the 1970 cohort. This small discrepancy is due to the inclusion of evening session students in that figure, and the inclusion of 589 "no-shows" in our data. The latter were students who did not register for the fall 1970 semester, but were subsequently enrolled.

2. In addition, the university consisted of Richmond College in Staten Island (an upper division only institution), a graduate school, and a medical school. In 1970, two new colleges were established which began accepting students in fall 1971 (Medgar Evers and LaGuardia).

3. The initial prerequisite for senior college admission was either a high school average of at least 80 or graduating within the top one-half of one's high school class. Class rank was adopted as an alternative measure of ability to allow minority students the chance to compete with advantaged students who had higher academic averages.

4. Quality is traditionally measured by the number of PhDs on the faculty, the quantity and the prestige of faculty publications, and the years of faculty experience. See Cole and Cole (1973:96-9) for a discussion of academic prestige.

5. Throughout this study we will be referring to two types of non-returning students: dropouts and stopouts. Dropouts are students who have permanently left the university, that is, they have failed to register within the five years for which we have data. On the other hand, stopouts are students who leave but eventually return. "Stopping out" is a term introduced by Alexander W. Astin in his profile of college dropouts (Astin 1972). He noted an increased tendency among college students to interrupt their education for one or more semesters. Until they return, such students are defined as dropouts. However, upon returning, the designation of "stopout" becomes an appropriate term to differentiate students who have this particular attendance pattern. Astin half-jokingly suggests that the only true dropout is one who had died, since all living dropouts are potentially returning students. The increase in stopping out, however, has made the joke almost a reality.

6. An applicant's first choice college, the college of allocation, and the rank order of the allocation (in terms of their choices) was carried as part of the official student record. Thus we were able to calculate the percentages that are presented regarding choices and allocations.

7. The university listed the total number of day session matriculants at 120,452 for fall 1971 compared to 74,869 for fall 1969. These figures show an increase of 60.8% (Board of Higher Education 1972).

8. Sex was one of the variables which was available for all students since the university maintained gender data. The data for this table was obtained from CUNY enrollment reports as reported in Lavin et al. (1981:63).

9. New York's major national origin groups are subsumed in the race and religion categories. Thus, Irish and Italian students are almost entirely Catholic and are categorized as such in the analyses. However, Puerto Rican students, although they too are mainly Catholic, are subsumed under the Hispanic category. We also refer to Irish and Italian students as white ethnics.

10. Dummy variables enable the researcher to use nominal variables in scalar analyses, such as multiple regression. Each nominal category is assigned either a 0 (denoting the absence of the category) or a 1. See Lavin et al. (1981), appendix B for a concise explanation of how dummy variables are used.

11. This variable was created using the results of a factor analysis which identified several discrete factors from all of the students' reasons for attending college. (See appendix B for a description of all created indexes, variables and factors.)

CHAPTER III - Social Status Variables and Summer Attendance

In the previous chapter, the extent of university-wide summer school attendance was reported. These data showed that almost half of the students in our population (48% of all those enrolled as freshmen in 1970) attended some summer session classes. This and the next two chapters will examine key independent variables and their relationship to the dependent variable: summer school attendance. We are interested both in whether students ever attended summer school, as well as in the amount of attendance. Therefore, the dependent variable is divided into three categories: 0 (never attended), 1 summer, and finally, 2 or more summers of attendance. The independent variables discussed in this chapter are student social status variables, generally referred to as ascribed characteristics. Chapter 4 will present the data for behavioral variables, some of which are categorized as achieved statuses. Chapter 5 will examine the relationship of summer attendance and parental influences, student personality traits, and other student characteristics.

Since we have shown a number of critical differences between senior and community colleges, separate analyses will be done for each level. For the purposes of this

study, senior and community colleges should be thought of as separate systems within the overall university structure.

As was demonstrated in chapter 2, the type of college is crucial in investigating summer attendance. The major difference between senior and community colleges affecting attendance patterns is the differing length of the degree programs at each level. In the senior colleges, the program is designed for the typical student to complete all degree requirements within a four year period. Of course, many students take longer to amass the required credits for graduation, while others accelerate and graduate in less than four years. The availability of summer sessions enables many students to finish in a shorter period of time. Community colleges, on the other hand, offer two year programs and grant associate degrees to students completing approximately half the number of credits required in the senior colleges.¹ Because of the length of their programs, senior colleges offer more summer sessions than the community colleges offer to their respective students. A typical community college student, who graduates within the prescribed time period, has the opportunity of attending only one summer semester between their first and second year, compared to three summer sessions that were available to the "on-time" senior college student.

For each of the variables in this and the next two chapters, its university-wide relationship to summer attendance is presented. This is followed by an analysis of any senior college and community college differences. This strategy is employed in order to determine which variables are still related to summer attendance after controlling for level of college.

A. Gender and Summer Attendance

Table 3.1 shows the differences in summer attendance patterns for men and women for the university as a whole.

Table 3.1

Summer Attendance by Sex

Summers Attended	Female	Male
0	36%	50%
1	24	23
2 or more	41	27
	100%	100%
N	(6303)	(7362)

(Source: Sample)

Significant differences in attendance between men and women were found. In total, 57% of the students in the sample attended one or more summers. However, 65% of women attended as compared to 50% of the men.² When we look at the number of summers attended, the same pattern holds. Women are more likely to participate in more summer sessions than are men. Forty-one percent of the women

attended multiple summer sessions, as compared to 27% for men. The differential in summer attendance for women over men is therefore quite substantial.

Given the large differences in summer attendance between senior and community colleges shown in chapter 2, table 3.2 examines sex differences controlling for type of college.

Table 3.2

Summer Attendance by Sex and College Level

Summers Attended	Senior Colleges		Community Colleges	
	Female	Male	Female	Male
0	27%	43%	51%	66%
1	22	24	26	20
2 or more	50	33	23	15
	<hr/>	<hr/>	<hr/>	<hr/>
	100%	100%	100%	100%
N	(4132)	(5064)	(2169)	(2291)

(Source: Sample)

We note that approximately the same differences exist between men and women for both senior and community colleges. There is a difference of 16 percentage points between women and men in the senior colleges for students never attending summers; the difference found in the community colleges is similar. Women are more likely to take summer courses irrespective of type of college. For students attending two or more sessions, only 33% of the senior college men attended as compared to 50% of the

women. In the community colleges, sex differences were somewhat less substantial. Women were 6 percentage points higher in attending one summer session, and they were more likely to attend multiple summers as well (8% higher).

The general finding, therefore, is that women attend summer sessions to a much greater extent than male students. Whether we look at the data for ever having attended summer school or for the number of summers attended, regardless of level of college, sex differences are significant.

B. Age and Summer Attendance

Freshmen enter CUNY at an average age of eighteen. Some students enter at a younger age, while still others, for various reasons, delay their admission to the university until they are older. Table 3.3 shows summer attendance for age categories of entering freshman.

Table 3.3

Summer Attendance by Age

Summers Attended	Young	18's	Older
0	34%	44%	52%
1	25	23	21
2 or more	41	33	27
	<hr/>	<hr/>	<hr/>
	100%	100%	100%
N	(2346)	(9296)	(1967)

(Source: Sample)

There are significant differences noted among the age categories. Among the younger students, 66% attended some summer session courses, while the 18-year old group was 10 percentage points lower. Older students were even less likely to attend, with only 48% ever attending.

The relationship between age and summer attendance persists when we look at the number of sessions attended. While a small percentage more of the younger students attend only one summer session, they attend multiple sessions at a much higher rate than their older peers. Forty-one percent of the younger students attend two or more sessions, as compared to 33% of the 18-year olds. Older students again were even less likely to attend multiple summers (27%). Age, therefore, seems to play a role in whether a student ever attends summer school, as well as the number of summers attended.

Table 3.4 introduces the type of college as a third variable.

Table 3.4

Summer Attendance by Age and College Level

Summers Attended	Senior Colleges			Community Colleges		
	Young	18's	Older	Young	18's	Older
0	32%	36%	43%	54%	59%	58%
1	25	23	21	27	23	21
2 or more	43	41	36	20	17	20
	100%	100%	100%	100%	100%	100%
N	(2093)	(6212)	(864)	(252)	(3077)	(1102)

(Source: Sample)

The most significant finding in table 3.4 is the difference between college levels. Controlling for level of college specifies the relationship of age to summer attendance. Whereas age continues to have an effect upon summer attendance in the senior colleges, the differences between age categories are much diminished in the community colleges, although younger students are still more likely to attend. The discrepancy between the two levels can be partially explained by looking at the N's in table 3.4. There are only 252 students less than 18 years old in the community college sample. As noted in chapter 2, young students represented only 6% of the community college population, compared to 23% of the senior college population. Age, therefore, is not as strong an indicator of summer attendance as table 3.3 suggested. It is actually more of an indicator of level of college.

Table 3.4 also illustrates the diminishing effect of

age on the amount of attendance. There is almost no difference among the age categories in attending more than one summer in the community colleges; in the senior colleges older students attend multiple summers at a somewhat lower rate than both of the two younger groups.

In the previous chapter we found that summer attendance at senior colleges was much higher when compared to community college attendance (fifty-six percent compared to 38%). As we have stated, summer attendance at senior colleges is higher than at community colleges because there are more summer sessions available to persisting students. Thus, the skewed distribution of the age variable (chapter 2, table 2.6), which shows that a large proportion of younger students are located in the senior colleges, accounts for some of the initial age differences we observed in attending summer school.

However, there is another aspect of the observed age variation within the two levels of the university. The disproportionate number of young students at the senior college level may, in itself, be an indicator of their higher scholastic ability. The New York City public school system, from which most of CUNY's student population comes, encourages high achieving students to accelerate, allowing them to skip grades (another aspect of the meritocratic educational system). This occurs in both junior and senior high schools. Therefore, the

predominance of younger freshmen in the senior colleges would be consistent with the assumption that the younger students were, on the average, better students. Senior college admission, even after the open admissions policy was inaugurated, was dependent upon higher academic achievement in comparison to community college admission, where there was no high school minimum average requirement. CUNY's "open door" offered a place in the university to all high school graduates, but not necessarily at the senior college level. In chapter 6, high school performance (academic ability) will be introduced into the analyses to determine the direct effects remaining (if any) of the status variables investigated in this chapter.

C. Race and Summer Attendance

The university had made a major policy change starting with the freshman cohort of 1970. By opening the university to all New York City high school graduates, CUNY had responded to community demands for equal access to higher education. Since this policy was directed towards encouraging racial minorities to attend the university, race becomes an important variable in any analysis of student behavior and performance.

Derived from table 2.6, the 1970 population was composed of approximately 83% white students, 10% black, and 4% Hispanic; only 3% of the students categorized them-

selves as "other race." The data in table 3.5 indicate that there are race differences in summer attendance. White students attend summer sessions at a somewhat higher rate than black and Hispanic students. The difference between blacks and Hispanics is negligible.

Table 3.5

Summer Attendance by Race

Summers Attended	White	Black	Hispanic
0	43%	48%	50%
1	23	23	23
2 or more	34	30	27
	100%	100%	100%
N	(11244)	(1330)	(554)

(Source: Sample)

White students are also more likely to attend multiple sessions than black and Hispanic students. However, since we know that minority students are more likely to attend community colleges, we must add level of college to the analysis.

Table 3.6

Summer Attendance by Race and College Level

Summers Attended	Senior Colleges			Community Colleges		
	White	Black	Hisp	White	Black	Hisp
0	36%	40%	43%	60%	55%	55%
1	23	21	25	23	24	22
2 or more	41	39	32	17	21	23
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
N	100%	100%	100%	100%	100%	100%
	(7914)	(649)	(260)	(3322)	(680)	(294)

(Source: Sample)

While 64% of the senior college white students attended some summer courses, 60% of black students and 57% of Hispanic students did so as well. In the community colleges, the small differences that are shown reveal a reversal of direction -- white students were somewhat less likely to attend than the minority students. This reversal offers an interesting anomaly, which must await examination in the multivariate analysis which will be presented in chapter 6.

There are also small differences noted in the number of sessions attended. In the senior colleges, white and black students are similarly likely to attend more than one summer semester (41% and 39% respectively); Hispanic students, on the other hand, are less likely to attend multiple sessions.

When we look at community college data, the relationship of race and attendance is quite different. White

students are less likely to attend more than one summer than are minority students, while black and Hispanic attendance patterns are nearly identical. Since white students are also less likely to ever attend, race is operating somewhat differently in the two levels. The multivariate analyses will attempt to determine what effects, if any, remain for this and other status variables, after controlling for significant performance and other behavioral measures.

D. Religion and Summer Attendance

Almost all students identified themselves as either Catholic (46%), Jewish (35%), or Protestant (13%). The remainder who responded either had no religious affiliation or were a member of some other religious denomination. Table 3.7 presents the distributions of summer attendance for the religious subgroups in the sample.

Table 3.7

Summer Attendance by Religion

Summers Attended	Jewish	Catholic	Protestant
0	34%	50%	46%
1	25	22	22
2 or more	41	28	32
	<hr/>	<hr/>	<hr/>
	100%	100%	100%
N	(4723)	(6335)	(1824)

(Source: Sample)

There is basically one significant religion difference in summer attendance. Jewish students attend summer sessions at a rate much higher than both Catholic and Protestant students. The difference in attendance between Catholics and Protestants is very small.

Jewish student summer attendance is remarkably high. Almost two-thirds of all Jewish students entering the university in 1970 attended some summer session during their college stay. Jewish students are also more likely to attend multiple sessions than non-Jewish students. Forty-one percent of the Jewish students attend more than one semester, in comparison to 28% for Catholic students and 32% for Protestant students.

The distribution in table 3.7 is a strong indicator that summer school at CUNY is the domain of better students; it is clearly not dominated by students with academic deficiencies, as may have been hypothesized.³ Lavin et al. (1981:142-53) show that Jewish students were higher achievers than their non-Jewish fellow students. In addition, Jewish students were surprisingly among the primary beneficiaries of the open admissions policy when it was introduced in 1970 (Lavin et al. 1979). Many Jewish students who had previously been denied admission because of stringent entrance requirements, entered CUNY when open admissions was instituted. Lavin et al. (1981)

also show that this group of students performed extremely well, academically. Therefore, religious designation is an indicator of the successful student, as well as being an indicator of summer attendance.

Since Jewish students are more likely to attend senior colleges, type of college will help to further interpret these tables. Table 3.8 shows amount of summer attendance by religion for each level of college.

Table 3.8

Summer Attendance by Religion and College Level

Summers Attended	Senior Colleges			Community Colleges		
	Jewish	Cath	Prot	Jewish	Cath	Prot
0	30%	42%	39%	56%	61%	56%
1	25	22	21	22	23	24
2 or more	45	36	41	22	15	20
	100%	100%	100%	100%	100%	100%
N	(3881)	(3767)	(1000)	(837)	(2565)	(823)

(Source: Sample)

When we compare religious attendance patterns for senior and community colleges, only senior colleges show significant differences. Thus, the findings of table 3.7 are partially explained by adding level of college. Seventy percent of the Jewish students at the senior level attended summer classes, compared to 58% for Catholic students and 62% for Protestant students. In community colleges, only 44% of the Jewish and Protestant students at-

tended some summer courses; Catholic attendance was 5 percentage points lower.

In the senior colleges, there are also some differences in the number of sessions attended. All students are equally likely to attend only one summer semester; Jewish and Protestant students, however, are more likely to attend more than one summer than are Catholic students. When we look at the community college data, the relationship of religion and attendance is basically similar. However, Catholic students are more likely to attend only one summer compared to their Jewish or Protestant classmates.

In all of the analyses thus far, we have been observing these status variables independently of each other in order to focus on their particular relationship to summer attendance. Of course, they do not exist in an environment separate from each other. We must therefore examine the relationships between the status variables themselves and other variables in order to explain or interpret their relationship to summer attendance. While this is done in chapter 6, here we will examine two independent variables which must be considered concurrently: race and religion.

In New York City, the salience of ethnic identification is very strong. In order to further specify attendance patterns within the university, ethnic differences must be examined. The ethnicity variable combines race

and religion to create the primary identifying status of students.

E. Ethnicity and Summer Attendance

Ethnicity, defined as the affiliation to a group of people classified according to common traits and customs, is a complex concept. New York City and by extension, CUNY, are dominated by four ethnic groups: Jews, Catholics, blacks and Hispanics. These four designations account for almost 87% of the sample. The remainder are divided among white Protestants, other- or no-religion whites, Asians, and others. The Catholics in the sample are composed mostly of Irish and Italian ethnics (see chapter 1, note 4), which reflects the distribution of Catholics within New York City. Summer attendance for each of the four ethnic groups is shown in table 3.9.

Table 3.9

Summer Attendance by Ethnicity

Summers Attended	Jewish	Catholic	Black	Hispanic
0	34%	50%	48%	50%
1	24	22	23	24
2 or more	42	29	30	26
	100%	100%	100%	100%
N	(4475)	(4857)	(1276)	(1115)

(Source: Sample)

Table 3.9 exhibits a very interesting pattern. Two-thirds of the Jewish students attended some summer school,

while each of the other ethnic groups had about half of its members in attendance. The predominance of Jewish students in summer sessions is an indicator that the determinants of attending summer school, while certainly relating to ethnic affiliation, are behavioral characteristics. There is no reason to conclude that mere affiliation, i.e. status itself, determines student summer attendance. The next two chapters will be concerned with ability and other behavioral variables.

Jewish students are also more likely to attend two or more summer sessions than their peers. Forty-two percent of the Jewish students attended multiple sessions, while less than 30% of Catholics and blacks did so. Hispanic students were even less likely to attend more than one summer (26%). In the university as a whole, therefore, Jewish students were very much involved in summer school. Chapter 2 noted the preponderance of Jewish students in the senior colleges. Therefore, level of college is introduced to control for this distribution.

Table 3.10

Summer Attendance by Ethnicity and College Level

Summers Attended	Senior Colleges				Community Colleges			
	Jewish	Cath	Black	Hisp	Jewish	Cath	Black	Hisp
0	29%	42%	42%	45%	57%	63%	55%	57%
1	25	21	21	25	21	23	24	22
2 or more	45	37	38	31	22	15	21	20
N	100% (3688)	100% (2947)	100% (615)	100% (630)	100% (782)	100% (1907)	100% (660)	100% (485)

(Source: Sample)

Over 70% of the Jewish students attended some summer session courses in the senior colleges, as compared to somewhat less than 60% for the other ethnic groups. In addition, 45% of Jewish students attended more than one summer. Black and Catholic students were both approximately 7 percentage points behind Jewish students in attending multiple summers; Hispanics were even less likely to attend more than one session.

In the community colleges, the ethnic distribution for summer attendance was quite different. Only Catholic students showed any deviation from the mean in attending -- they were less likely to ever attend and also had the lowest percentage attending more than one summer. In addition, we note that Jewish students at community colleges were very different from those in the senior colleges. The majority of them never attended summer school.

There is a further aspect of the ethnic differences in summer attendance to be explored. In examining race and summer attendance above, we found a significant difference: white students were generally more likely to attend summer school. The predominance of Jewish students in summer school shown in the ethnic tables suggests that the racial differences we found were spurious. Since Jewish students make up a large part of the white population at CUNY, the race differences found are suspected of really being religious differences. Table 3.11 confirms that this is the case.

Table 3.11

Summer Attendance by Race with White Student Religion Categories

Summers Attended	White*		Black	Hispanic
	Jewish	Prot'nt Catholic		
0	34%	48%	48%	50%
1	25	24	23	24
2 or more	42	29	29	26
	100%	100%	100%	100%
N	(4475)	(548)	(4857)	(1115)

(Source: Sample)

* There were two other white subsets in the sample (other and no-religion whites), but they were excluded from these analyses as religious affiliation was not discernible for them.

Since there is little difference between any of the groups in table 3.11, except for Jewish students, the racial differences that were found are interpreted by the religion variable. Table 3.12 adds college level to this

analysis to assess whether the racial differences we found in senior and community colleges are also attributable to religion.

Table 3.12

Summer Attendance by Race with White Student Religion Categories and Level of College

Senior Colleges					
Summers Attended	Jewish	White Prot'nt	White Catholic	Black	Hispanic
0	29%	40%	42%	42%	45%
1	25	22	21	21	25
2 or more	46	39	37	37	31
	100%	100%	100%	100%	100%
N	(3688)	(329)	(2947)	(615)	(630)
Community Colleges					
Summers Attended	Jewish	White Prot'nt	White Catholic	Black	Hispanic
0	57%	60%	63%	55%	57%
1	21	27	23	24	22
2 or more	22	13	14	21	20
	100%	100%	100%	100%	100%
N	(782)	(219)	(1907)	(660)	(485)

(Source: Sample)

We are again led to the conclusion that enrolling in a senior college is a very important determinant of summer attendance. There are very small differences in summer attendance shown for the community colleges; in the senior colleges, religion does, in fact, interpret our previous findings regarding race. In sum, all of the senior col-

lege ethnic categories presented in these tables are similar to each other except for Jewish students.

F. Summary of Status Variable Findings

Status variables are, for the most part, significant indicators of summer attendance. In many cases, level of college somewhat interprets their relationship to the dependent variable. Ability, as measured by high school academic achievement, is a major determinant of attending senior colleges (Lavin et al. 1981:80). Therefore, a large proportion of the variation in summer attendance which we have found in this chapter may indirectly be attributable to academic performance (and possibly vice versa). In other words, high achieving students are more likely to attend senior colleges than low achievers and senior college students are much more likely to attend summer school than community college students. Thus, one of summer school's patent functions, to allow slower students to "catch up" with their peers, is being thwarted by the predominance of academically advantaged students.

Chapter 4 will examine the effects of behavioral variables on summer attendance and then chapter 5 will discuss the relationship of parental influence, student personality and attitudinal variables to summer attendance. Chapter 6 will be concerned with the effects of the variables that were presented in this chapter and those of the next two chapters concurrently. These effects will be

measured in multivariate analyses and will allow us to control for such critical variables as performance and ability.

NOTES

1. CUNY's policy makers have attempted to facilitate the transfer of community college graduates into the four year programs at senior colleges by guaranteeing admission to all community college graduates. In addition, special transfer programs are offered at the community colleges for students who plan to transfer. Chapter 7 examines the relationship of summer attendance and transferring.

2. Percentage data may vary slightly between tables due to the rounding of all percentages to the nearest integer.

3. Elementary and secondary school summer sessions are generally thought of as being attended by students who are attempting to overcome academic deficiencies. There are other reasons why students attend summer school (see Heyns 1978:126-30), yet this view is widely held and is correct to a great extent. Because of its prevalence, this belief extends to college student behavior.

CHAPTER IV - Behavioral Variables and Summer Attendance

Chapter 3 examined several important ascribed characteristics of students and their relationship to summer attendance. This chapter will deal with another type of variable: behavioral or achieved status. Five variables will be examined: academic ability, student degree aspirations, reasons for attending college, working while in college, and job plans after completing formal education. The academic ability measure was obtained from official CUNY admissions data, while the last four variables were derived from the student survey administered to the 40% sample of freshman students. The questionnaire items include measures of student motivation relevant to the discussion of summer school attendance which is, by tradition, voluntary.

A. Academic Ability and Summer Attendance

Since admission to the university was guaranteed to all New York City high school graduates, CUNY (in collaboration with the New York City Board of Education) maintained data on all public high school students. These data became part of the incoming student's official record at CUNY and make it possible to compare academic performance at CUNY for differing levels of demonstrated pre-college academic achievement.

Since the 1970 entering class was the initial cohort admitted under the new open admissions policy, the most important measure that will be examined in this chapter is whether students were admitted under the university's new admissions guidelines. That is, did they qualify as "open admissions" students in contrast to regular students. We will first examine the impact of this variable on summer attendance and later use it to explain the effects of other variables that may be related to summer attendance.

A modified high school average, recomputed by CUNY's admissions personnel in order to exclude non-academic courses, determined whether a student was considered an open admissions student. The university used no such official designation, although open admissions students were quite easily identified from their records. The working definition used in this study (as well as in Lavin et al. 1981) is based on whether a student would have been excluded under the old, stringent admissions policy.

For the most part, high school average determined which level of the university a student could enter as well as which specific senior or community college. Even so, in 1970, the first year of the new policy, most students were admitted to the college of their choice. Seventy-eight percent of the freshmen enrolled at their first choice college, with an additional 9% enrolling at their second choice. In an attempt to increase minority

enrollment at the senior colleges, class rank rather than average was used to qualify students for admission to the senior colleges. Using class rank meant that students attending high schools in which most students did poorly, still had a chance of getting into a senior college if they were in the top half of their class.¹ Thus, although admission to CUNY was guaranteed and the university responded to minority demands for fairer treatment by such means as allowing class rank to be used, placement into specific colleges and programs was still determined by demonstrated ability.

Previously, we demonstrated the preponderance of summer attendance in the senior colleges compared to community colleges. We also noted that open admissions students constituted 67% of the community college population, while only 46% of the senior college cohort was so designated. Since type of college is related to summer attendance, admissions criteria (those which affect placement into specific college levels) become important de facto determinants of attending summer school.

The CUNY census tables in chapter 2 showed that open admissions students at the community colleges are predominantly black and Hispanic, and to a lesser extent, white ethnic (mostly Irish and Italian). On the other hand, the senior college open admissions contingent is composed mostly of white students, a large percentage of

whom are Jewish. This ethnic distribution is significant in the analysis of the effects of admissions status on summer attendance, since open admissions students do not represent a homogeneous subgroup within the university. Lavin et al. (1981:63-70) point out that the various ethnicities within the university were predominantly segregated. This was caused by two main factors. First, black and Hispanic students were reluctant to apply to senior colleges and opted for community college placement, while white students preferred to apply for admission to senior colleges. Second, white students generally had better high school grades than black and Hispanic students. As a consequence, white students were more likely to be admitted to the higher level college out of the pool of applicants who chose to apply for senior college admission. Since ethnicity and ability have been shown to be related, we will use ethnicity as a filter (controlling) variable in assessing the relationship of ability to summer attendance (table 4.3).

The analysis of behavioral variables begins with table 4.1, which shows summer school attendance for open admissions and regular students.

Table 4.1

Summer Attendance by Admissions Status

Summers Attended	Regular	Open Admissions
0	35%	53%
1	25	22
2 or more	40	25
	<hr/>	<hr/>
	100%	100%
N	(7415)	(5772)

(Source: Sample)

It is clear from table 4.1 that summer school is not as frequent an activity of open admissions students as it is for regular students. Regular students are 18 percentage points higher in attending summer school. Almost two-thirds of the regular students have taken some summer session courses, as compared to only 47% of open admissions students. While 40% of the regular students attended multiple sessions, only 25% of the open admissions students attended more than once. Again, since level of college is an important determinant of attendance, table 4.2 controls for college type.

Table 4.2

Summer Attendance by Admissions Status and College Level

Summers Attended	Senior Colleges		Community Colleges	
	Regular	Open Admissions	Regular	Open Admissions
0	30%	46%	54%	62%
1	24	23	28	20
2 or more	46	31	18	18
	100%	100%	100%	100%
N	(5754)	(3275)	(1661)	(2497)

(Source: Sample)

The predominance of regular students in summer attendance persists when we look at each college level. Regular students in senior colleges are much more likely to attend summer school than open admissions students. Seventy percent of the regular students attended as compared to 54% of the open admissions students. Although there is generally lower summer attendance at the community college level, regular students are still somewhat more likely to attend. The table shows, however, that the relationship is much stronger in the senior than in the community colleges (a percentage difference of 16 points compared to 8). Forty-six percent of the regular students at the senior colleges attended two or more summer sessions; open admissions students were 15 percentage points behind them. But there was no difference in multiple attendance at the community colleges. This is most likely attributable to the higher graduation rate of

regular students at the community colleges compared to open admissions students. (Their "on-time" graduation allowed regular students no more than one opportunity to attend summer school before graduating.)

These findings regarding open admissions students are consistent with the assumption that summer attendance is, to a large extent, the domain of the better students. Whereas pre-college summer school attendance is generally categorized as ameliorative for slowly progressing students, the attendance patterns of the 1970 CUNY freshman cohort do not support that model as characteristic of summer attendance in college.

As has been stated, it is important to examine the effects of ethnicity on the relationship between open admissions and summer attendance. This will allow us to test whether the differences we found between open admissions and regular students are actually due to ethnic differences. Table 4.3 substitutes ethnicity for type of college as the filter variable.

Table 4.3

Summer Attendance by Admissions Status and Ethnicity

Summers Attended	Jewish		Catholic	
	Regular	Open Admissions	Regular	Open Admissions
0	28%	45%	41%	61%
1	26	23	23	20
2 or more	46	32	36	19
	100%	100%	100%	100%
N	(2874)	(1505)	(2725)	(2001)

Summers Attended	Black		Hispanic	
	Regular	Open Admissions	Regular	Open Admissions
0	45%	49%	45%	55%
1	23	22	26	23
2 or more	32	29	29	22
	100%	100%	100%	100%
N	(291)	(874)	(490)	(571)

(Source: Sample)

Table 4.3 clearly shows that open admissions students, regardless of ethnicity, are less likely to attend summer school. However, there are significant differences within the ethnic categories between regular students and open admissions students. Jewish and Catholic students show large differences between regular and open admissions status. Hispanic students show a smaller degree of difference between regular and open admissions students and black students show the smallest difference. Open admissions blacks are only 4 percentage points lower in summer attendance than regular black students; for Hispanic

students, the difference is 10%. Catholic students, on the other hand, show a 20 percentage point difference between regular students and open admissions students and Jewish students show a similarly high difference.

In terms of attending multiple summer sessions, a similar pattern is found. Black and Hispanic students show less of a difference between open admissions and regular student status than do Jewish and Catholic students. Using multivariate techniques we will be able to combine the relationships found in this and the previous chapter to gain a clearer understanding of the determinants of attendance. However, it is clear from table 4.3, that the differences found between open admissions and regular students in attending summer school are not explained by the distribution of ethnicity between senior and community colleges.

2. Student Degree Aspiration and Summer Attendance

In the sample questionnaire, students were asked what was the highest academic degree they planned to attain. This measure of student aspiration has proven to be a significant indicator of success (Lavin et al. 1981:178-96). If summer attendance is related to student success, then there should be significant differences in summer attendance between lower degree and doctorate level degree aspiration.² Table 4.4 presents the data on summer attendance and degree aspiration.

Table 4.4

Summer Attendance by Student Degree Aspiration

Summers Attended	AA	BA	MA	PhD
0	65%	48%	37%	33%
1	22	23	24	24
2 or more	13	29	39	43
	100%	100%	100%	100%
N	(1134)	(4255)	(4653)	(2618)

(Source: Sample)

The university-wide data show a large disparity in summer attendance between those students who aspire to low level degrees and those with higher goals. There is a 32 percentage point difference between the highest and lowest categories in summer attendance. There is a significant difference in every category of increased aspiration. This is further evidence that summer school is utilized by better students, some of whom are seeking to accelerate the completion of the degree requirements. College level is a very important variable in this particular analysis since degree aspiration is highly related to college entry level (table 2.9). Virtually all senior college students aspire to at least a bachelor's degree, while 25% thought they would seek doctorate level degrees.

In the community colleges, only 10% of the students indicated doctoral aspirations, while 27% were planning to attain the minimal associate degree. Surprisingly, we

found that 73% of community college students aspired to a degree beyond the community college level, indicating a desire to transfer to a senior college, if not having graduate school aspirations. We would expect, therefore, that degree aspiration is a determinant of summer attendance in both levels of college. Table 4.5 presents the data for senior and community colleges.

Table 4.5

Summer Attendance by Student Degree Aspiration and College Level

Summers Attended	Senior Colleges			Community Colleges			
	BA	MA	PhD	AA	BA	MA	PhD
0	43%	32%	29%	66%	58%	52%	52%
1	22	24	24	22	23	25	24
2 or more	35	44	47	12	19	23	24
	100%	100%	100%	100%	100%	100%	100%
N	(2969)	(3515)	(2224)	(1069)	(1326)	(1138)	(394)

(Source: Sample)

Degree aspiration remains a significant indicator of summer attendance after controlling for college type. In the senior colleges, over 70% of students aspiring to a PhD attended summer school. Those aspiring to no higher than a BA were 14 percentage points lower in summer attendance.

The community colleges exhibit a similar pattern, although there is less of a difference. Students in the community colleges who aspire to a master's or doctorate

level degree still attend summer school at a rate higher than those aspiring to the bachelor level or lower. Therefore, community college students may be thought of as falling into two distinct groups: those who view their tenure in community colleges as terminal and students who aspire to transfer to an upper division college. Transfer and its relationship to summer attendance will be investigated in chapter 8, but the intention to transfer, evidenced in these data by community college students who aspire to senior college or higher degrees, seems to be related to increased summer attendance.

In both senior and community colleges, the number of summers attended also increases as aspirations increase. MA and PhD aspirants in the senior colleges average 10 percentage points higher than those seeking BAs in attending 2 or more summers. High degree aspirants in community colleges are significantly more likely to attend multiple summer sessions than terminal degree students.³

Degree aspiration is a motivational indicator. The tables suggest that as motivation increases, summer attendance increases as well. This indicates that many students view summer school as one means of attaining their academic goals. Certainly, there are many reasons students opt to attend (or not attend) summer school, but the desire for academic success seems to be a major determinant. This finding is again inconsistent with the

hypothesis that summer school is mainly used as a means for slow or failing students to attain parity with their more successful peers.

C. Reasons for College and Summer Attendance

Students were asked to rate the importance of the role of several reasons in deciding whether to attend college, including what they hoped to "get out of college." Factor analyses were conducted on the items and two factors emerged: (1) a personal growth factor, which included getting a good general education, to become more cultured, and to learn about interesting things, and (2) a vocational factor, consisting of the desire to increase one's ability to get a better job and ability to earn more money.⁴ These factors represent two more motivational indicators. Students who score high on either factor should be more motivated, and if the effects of these factors upon summer attendance are consistent with those of degree aspiration, they should be related to increased summer attendance.

The data show that student variation on the vocational factor was not related to summer attendance. Students who were low on the scale (not an important reason for attending college) were as likely to attend summer school as those who scored high on the scale. When we control for the type of college, the relationship is the same. This factor will again be examined in chapter 6,

where we will control for other variables before dismissing it as a determinant of summer attendance.

On the other hand, the personal growth reason for attending college is related to summer attendance patterns. Table 4.6 examines summer attendance by the index created from the importance of personal growth factor.

Table 4.6

Summer Attendance by Personal Growth Factor

Summers Attended	Importance			
	Low	Some	Mod	High
0	49%	45%	41%	38%
1	23	22	24	23
2 or more	28	33	35	39
	100%	100%	100%	100%
N	(3228)	(2799)	(3256)	(3631)

(Source: Sample)

Students who indicate that personal growth is an important reason for their attending college are eleven percentage points higher in attending summer school. They are also more than 10% higher in attending more than one summer school session than low scoring students. On the other hand, students who scored high on the vocational factor were no more likely to attend, although we would assume that getting a better job and earning more money is intrinsically motivational. Therefore, we may posit that the importance of personal growth is not only an indicator of motivation, but it also contains a secondary component

which is somehow related to academic commitment. As we shall see in the next chapter, one traditional measure of family socioeconomic status (SES), amount of parental education, operates in a similar fashion. It too appears to possess a "value-added" component, since it is positively related to summer attendance, while family income (generally a strong indicator of SES) is shown to be unrelated. In addition, family income itself is related to parents' educational level. This finding is therefore very indicative of an underlying dimension, namely, a positive attitude towards education.

Table 4.7 presents the relationship of the personal growth factor to summer school attendance when we control for level of college.

Table 4.7

Summer Attendance by Personal Growth Factor and College Level

Summers Attended	Senior Colleges				Community Colleges			
	Low	Importance Some	Mod	Imp	Low	Importance Some	Mod	Imp
0	42%	37%	35%	31%	63%	61%	55%	56%
1	23	23	24	24	23	21	24	21
2 or more	35	40	41	45	14	18	21	23
	100%	100%	100%	100%	100%	100%	100%	100%
N	(2146)	(1893)	(2278)	(2562)	(1082)	(906)	(978)	(1069)

(Source: Sample)

Even after controlling for college level, the relationship between the personal growth factor and summer

attendance is maintained. At both senior and community colleges, students indicating a high score on the factor attend more summer sessions than those for whom intellectual rewards were not as important a reason in their decision to attend college.

D. Working and Summer Attendance

Students were asked to what extent was part-time and summer employment a source for financing their college careers (see appendix A). They were also asked what was the likelihood that they would have to work at an outside job during the school year. These two items were combined into an index to measure what effects, if any, work would have upon summer attendance. It is hypothesized that work would decrease the amount of summer attendance since working students would have less time for attending summer classes and also for studying. In addition, working contributes to a reduction of any available summer leisure time. Students may well be reluctant to completely forgo their summer vacations. Table 4.8 shows summer school attendance by the likelihood of having to (or wanting to) work.

Table 4.8

Summer Attendance by Index of Working

Summers Attended	Likelihood of Working Index				
	Very Low	Low	Some	High	Very High
0	39%	38%	44%	44%	50%
1	23	24	23	23	23
2 or more	38	38	33	33	27
	100%	100%	100%	100%	100%
N	(1907)	(2380)	(3620)	(2765)	(2880)

(Source: Sample)

Working is related to lower summer school attendance. Students who are likely to work are 11 percentage points lower in attending summer school compared to those students for whom work was unlikely. Of those students who project no job or that they will work very little, 38% attend two or more summer sessions as compared to 27% of those who report that they are very likely work. Our original hypothesis, therefore, appears to be consistent with the university-wide findings. Students who work are less likely to have the time to attend summer school. However, working has many aspects. Some students must work to support themselves and in certain instances, their families. Others work because they wish to gain some experience in the workplace or earn some extra spending money. For others, working is an integral part of their college careers.⁵ Since we lack data regarding work per se, we must await the multivariate analyses to determine

if working continues to affect summer attendance.

The availability of community college work study programs makes level of college an even more important filter variable. Table 4.9 examines the relationship of working to summer attendance while controlling for level of college.

Table 4.9

Summer Attendance by Working Index and College Level

Summer Attended	Senior Colleges					Community Colleges				
	Likelihood of Working									
	Very Low	Low	Some	High	Very High	Very Low	Low	Some	High	Very High
0	31%	31%	36%	38%	42%	54%	56%	61%	59%	60%
1	24	24	24	23	23	23	24	22	24	22
2 or more	45	45	40	39	35	23	20	17	17	18
N	100% (1261)	100% (1789)	100% (2479)	100% (1907)	100% (1716)	100% (646)	100% (591)	100% (1141)	100% (858)	100% (1164)

(Source: Sample)

The negative relationship between working and attending summer school is diminished to a 6% difference for community college students. This finding is consistent with the hypothesis that community college students who work may do so as part of their curriculum, where working would be less of an obtrusion. In addition, since we noted earlier that more community college students tended to work throughout the year as compared to senior college students, summertime working is probably not as great a

disruption for them as it would be for senior college students.

In the senior colleges, the differences which we found for the university-wide sample continued to show similar magnitudes. Students who expect to work are less likely to ever attend summer school (an 11% difference), while there is a 10% difference in attending two or more summers.

Thus, working appears to be, as could be predicted, a deterrent to attending summer school. Either by choice or need, students who work during the school year or in the summer are less likely to attend summer school. The multivariate analyses will include the working index to determine if any effects remain after controlling for family income level, academic ability, and other related variables.

E. Career Plans and Summer Attendance

In the survey questionnaire (appendix A), students were asked if they had already chosen the career they would pursue upon completion of their studies. It is hypothesized that students who had career goals would be more motivated to succeed in college than those without any definite plans. Although the differences in summer attendance are too small between these two groups to be significant, the direction of the findings is at least consistent with this hypothesis. The university-wide data

are presented in table 4.10.

Table 4.10

Summer Attendance by Career Plans

Summers Attended	No Plans	Plans
0	45%	42%
1	23	23
2 or more	32	35
	<hr/>	<hr/>
	100%	100%
N	(1906)	(10346)

(Source: Sample)

The findings are only slightly more significant when we control for the level of college.

Table 4.11

Summer Attendance by Career Plans and College Level

Summers Attended	Senior Colleges		Community Colleges	
	No Plans	Plans	No Plans	Plans
0	39%	35%	63%	58%
1	24	23	21	24
2 or more	37	42	17	18
	<hr/>	<hr/>	<hr/>	<hr/>
	100%	100%	100%	100%
N	(1407)	(7116)	(499)	(3230)

(Source: Sample)

In table 4.11, there is a 5 percentage point difference in summer attendance in the community colleges between those students with job plans and those without plans. In the senior colleges the difference is 4 percentage points. There are similar differences for stu-

dents attending multiple sessions; those with job plans are again somewhat more likely to attend more. In order to assess the degree to which this variable actually measures motivation, we will reexamine its relationship to summer attendance while controlling our other motivational measures (chapter 6). This will enable us to determine if having job plans independently contributes to summer attendance and subsequently, to overall success in college.

F. Summary of Behavioral Variable Findings

In this chapter, we found that academic ability is an important determinant of summer school attendance, as is the level of degree to which students aspire. This demonstrates that summer attendance is more the choice of better students than of their academically weaker peers. This is bolstered by another finding of this chapter, namely, that there is a "value-added" component associated with several independent variables which are related to summer attendance. These variables appear to be indicators of positive student attitudes towards education. We hypothesized that having these attitudes results in increased summer attendance. For example, the importance of personal intellectual growth as a reason for attending college is related to attending summer school, while other motivational variables, which apparently lack this added dimension, are mostly unrelated to summer attendance. This leads us to a secondary hypothesis that positive at-

attitudes regarding education are also related to success in college, both directly and, more importantly for our purposes, indirectly. That is, attending summer school becomes a significant intervening variable (see figure 1.1) in the relationship between attitudes and academic success. Chapter 7 will examine the role of summer school as a determinant of academic performance; chapter 8 will use summer attendance as an independent variable in order to assess its impact upon student outcomes.

NOTES

1. Because of the formulas used by the University Applications processing Center (UAPC) to determine student placement, many students were admitted to senior colleges who lacked the minimum requirements. Others, who nonetheless had qualified under the rough admissions guidelines, were placed into community colleges. These anomalies resulted from the choice of colleges that student made on their applications. See Lavin et al. (1981:76-83) for a discussion of placement criteria.

2. Doctoral level degrees include any advanced, post master's degree, such as law, medicine and divinity degrees. (See degree aspiration item in questionnaire in appendix A.)

3. CUNY uses the term "terminal degree" to signify a degree obtained within a curriculum which does not normally promote transferring to an upper division college. However, students in such programs may still transfer if they wish to do so, although they may need additional credits to advance to the junior year.

4. See appendix B for a description of the indexes that were created from the factors that were derived for this study. In addition, appendix B documents the calculations that were used to create all derived variables that are utilized in the analyses.

5. Many of the programs at community colleges include a work component, allowing or mandating employment as part of their curriculum. The popularity of these "work/study" programs has increased as the post-industrial economy moves towards becoming more service oriented. See the 1972 Master Plan (Board of Higher Education 1972:26-45) for an outline of some innovative curricula that CUNY offers, including many which combine work experience and study.

CHAPTER V - Other Determinants of Summer Attendance

This chapter examines other possible influences on student summer attendance patterns. The first set of variables is concerned with parental characteristics, namely, family income, parents' education, and finally, parental aspirations for their children's higher education. A second set of variables concerns characteristics of students themselves that are not necessarily directly related to academic behavior, but may influence student attendance and performance. These include measures of personality such as character traits, attitudes, habits, and social interaction. Another set of variables concerns students' academic work patterns and study habits, and we will be concerned with how they relate to summer attendance. And finally, we will examine students' political attitudes.

A. Parental Influences and Summer Attendance

Family income, parents' educational attainment, and parental aspirations were obtained from the survey data. A secondary socio-economic status (SES) measure was derived from the data. Several interesting findings emerge when we look at the relationship of parental attributes to summer attendance. First, there is almost no relationship

between SES and summer attendance. In table 5.1 we note only a slight percentage difference for low income students' summer attendance: they are 4 percentage points lower than more affluent students in ever attending summer school.

Table 5.1

Summer Attendance by Family Income

Summers Attended	Low	Middle	High
0	46%	42%	42%
1	22	24	23
2 or more	32	34	35
	100%	100%	100%
N	(3697)	(4416)	(3763)

(Source: Sample)

A stronger relationship of family income and summer attendance which was anticipated did not occur. This was unexpected since many of the measures we examined in the previous chapters which did show a relationship to attending summer school are usually related to income measures. For example, such variables as race, religion, academic ability and having to work are often indicators of family SES. Categories of the derived SES measure were also compared for differences in summer attendance.¹ Table 5.2 shows the relationship of neighborhood and high school SES to summer attendance and the results replicate the findings of table 5.1: a lack of relationship between SES and

summer attendance.

Table 5.2

Summer Attendance by
Neighborhood and High School SES (Index)

Summers Attended	Low	Middle	Upper
0	46%	43%	42%
1	22	23	23
2 or more	32	34	35
	100%	100%	100%
N	(2092)	(7910)	(3341)

(Source: Sample)

Parents' education level is yet another SES measurement. In table 5.3, we do observe a small positive relationship between parental education and summer attendance.

Table 5.3

Summer Attendance by Parents' Education

Summers Attended	Grammar School	Some High School	High School	Some College	College
0	45%	46%	43%	37%	39%
1	22	23	23	24	25
2 or more	33	31	34	39	36
	100%	100%	100%	100%	100%
N	(1888)	(3944)	(5398)	(1647)	(632)

(Source: Sample)

Summer attendance is somewhat higher for students with better educated parents. Students with college educated parents are 6 percentage points higher in attending summer

courses compared to students whose parents did not attend or graduate from high school. Since this variable is correlated with family income, and since our income measure was less of an indicator of summer attendance, we pose the hypothesis that the effects of increased parental education may include a component affecting attitudes towards education. This "value-added" aspect of parental education could lead to an increase in the quantity of education that students may pursue, indicated in this study by increased summer school participation. Several other variables appear to be operating in a similar fashion. Therefore, we will investigate the appropriateness of this hypothesis in subsequent chapters. This aspect of parental education may also explain the strong relationship we find between parental aspirations for their children and summer attendance.

Students were asked to choose the highest academic degree that their father and mother (separately) hoped they attained. An index of parental aspiration was created from their responses. The aspirations of their parents coincided with the student's own aspiration in approximately 70% of the cases, but there is enough variation to examine the relationship of parental aspiration to student behavior on its own. Table 5.4 presents the data on this relationship.

Table 5.4

Summer Attendance by Parents' Hope
for Children's Highest Degree

Summers Attended	Parental Degree Hope			
	AA	BA	MA	PhD
0	60%	44%	37%	35%
1	24	23	24	24
2 or more	16	33	39	40
	100%	100%	100%	100%
N	(845)	(4043)	(3613)	(2179)

(Source: Sample)

The findings in table 5.4 are similar to those found in the previous chapter for student's aspirations. In both instances, the higher the level of aspiration, the greater the amount of summer school attendance. Students whose parents hope they attain a Phd degree are 25 percentage points higher in attending summer sessions than students who report their parents hope they attain an associate's degree. As was the case for student aspirations, parental aspirations are also related to level of college. Table 5.5 controls for type of college.

Table 5.5

Summer Attendance by Parents' Hope for Children's Highest Degree and College Level

Summers Attended	Senior Colleges				Community Colleges			
	AA	BA	MA	PhD	AA	BA	MA	PhD
0	46%	39%	32%	31%	63%	57%	53%	54%
1	27	22	24	24	24	25	24	24
2 or more	27	39	44	45	13	18	22	22
	100%	100%	100%	100%	100%	100%	100%	100%
N	(138)	(2898)	(2750)	(1837)	(707)	(1145)	(863)	(342)

(Source: Sample)

Parental aspirations continue to relate to attendance at summer sessions. Senior college students whose parents hope that they obtain a doctorate degree are 15 percentage points higher in attending summer classes when compared to parents with low aspirations (AA degree). In the community colleges, the difference is smaller (9%). When we look at differences among students attending more than one summer, parental aspiration levels are again related to attendance. Forty-five percent of the senior college students whose parents had high aspirations attended two or more summer sessions as compared to 27% of those students with low parental aspirations; community college students show the same pattern, although the difference is reduced to 9% (22% compared to 13%).

A note of caution is indicated regarding these parental measures. Since students themselves reported the data

on parents, there may be a degree of spuriousness. It is likely that students may be perceiving parental attitudes as they would like them to be or as they themselves feel. Thus, we must delay our final appraisal of parental influences until we examine the remaining effects of parental variables after controlling for student attitudes. This will be done in the multivariate analysis of the determinants of attending summer school (chapter 6).

The findings thus far suggest that attitudes towards education are related to summer attendance: as these attitudes (or more precisely, indicators of attitudes) become more positive, summer attendance tends to increase. One underlying trend emerges: indicators which are to some extent measures of attitudes, are related to attending summer school. Other indicators, normally expected to correlate with attendance but which lack this attitudinal component, are not related to summer attendance. The implications of this statement reach beyond summer school participation. Student outcomes have been shown to be related to some of these same variables (Lavin et al. 1981:159-200). The effects of our attitudinal measures (as well as summer attendance) on student academic success will be examined in chapter 7.

If the salience of parental influence is centered in its affecting student attitudes towards education, we should examine the relationship of other student atti-

tudes to attendance in summer school.

B. Student Personality Characteristics and Summer Attendance

1. Educational Self-Confidence

The measures of educational self-confidence (those implied by scholastic achievements and those that were obtained directly from the data) which were derived from the student questionnaire are shown to have a relationship to summer attendance. Several indexes were constructed based on items which measure either pre-college academic achievement (which we a priori assert increases student self-confidence) or are measures of students' self-confidence derived from their expectations of success in college.

Table 5.6 shows the relationship of honors achieved in high school to summer attendance. These honors include holding office in student government, winning merit awards, etc. The hypothesis being employed here is that academic recognition enhances a student's attitude towards education, and as a result, the likelihood of attending summer school increases.

Table 5.6

Summer Attendance by Number of Honors
Achieved in High School

Summers Attended	None	One	Two or More
0	47%	41%	38%
1	23	24	23
2 or more	30	35	39
	100%	100%	100%
N	(7028)	(4061)	(2567)

(Source: Sample)

Students who reported achieving two or more honors in high school were 9 percentage points higher in attending summer classes than students with no high school honors. The same difference is present when we compare student attendance in two or more summer sessions: 39% of high honor students attended multiple summers as compared to 30% of the non-achievers.

When we control for level of college, the findings are somewhat interpreted, since there are more "honor" students in the senior colleges (as well as a higher proportion of students attending summer school). Table 5.7 shows the relationship of honors to summer attendance for both senior and community colleges.

Table 5.7

Summer Attendance by Honors Achieved
in High School and College Level

Summers Attended	Senior Colleges			Community Colleges		
	High School Honors			High School Honors		
	None	One	Two or more	None	One	Two or more
0	39%	34%	33%	60%	57%	57%
1	23	24	23	22	25	23
2 or more	38	42	44	18	18	20
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
N	(4373)	(2863)	(1960)	(2655)	(1198)	(607)

(Source: Sample)

The relationship is reduced when we control for level of college. In the senior colleges, students with two or more honors are 6% higher in ever attending summer school, while the difference in the community colleges is reduced to 3 percentage points. Although type of college is a significant interpreting variable, the positive relationship of honors achievement to summer attendance which remains is consistent with the hypothesis that relates positive educational attitudes to increased summer participation.

A related, less abstract measure of self-confidence was obtained in the survey. Students were asked to estimate what was the likelihood of their achieving honors in college and also, how well they expected to perform in college. Two indexes were constructed from these self-confidence items: an expected honors index and an expected

achievement index (see appendix B). Both of these indexes are related to increased summer attendance.

In table 5.8, students with a high expectation of receiving honors are 13 percentage points higher in attending summer school when compared to students with low expectations.

Table 5.8

Summer Attendance by Expected
Probability of Honors in College

Summers Attended	Probability		
	Low	Med	High
0	50%	43%	37%
1	22	24	24
2 or more	28	33	39
	<hr/>	<hr/>	<hr/>
N	100% (3068)	100% (7274)	100% (2748)

(Source: Sample)

Comparing high and low expecting students in terms of attending multiple summer sessions, 39% of high expectation students attend two or more summers compared to 28% for those students with low expectations. Table 5.9 shows that level of college again partially interprets the findings.

Table 5.9

Summer Attendance by Expected
Probability of Honors and College Level

Summers Attended	Senior Colleges			Community Colleges		
	Probability			Probability		
	Low	Med	High	Low	Med	High
0	41%	36%	33%	60%	59%	53%
1	22	24	24	22	23	26
2 or more	37	40	44	18	18	21
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
N	(1639)	(5055)	(2198)	(1429)	(2219)	(550)

(Source: Sample)

Although the relationship between expected honors and summer attendance persists when we control for level of college, it is reduced in strength. Senior college students scoring high on the index are 8 percentage points higher in attending summer school than low scoring students. The difference in community colleges is 7 percentage points. In terms of attending multiple sessions, controlling for college level also diminishes the relationship. However, the findings are again consistent with the hypothesis that self-confidence increases the probability of attending summer semesters.

Early in their freshman year, students were asked several questions on how well they expected to do in college.² An index of expected achievement was created from these items. Table 5.10 examines the relationship of the index (collapsed into two categories) to summer

attendance.

Table 5.10

Summer Attendance by
Expected College Achievement

Summers Attended	Expected Achievement	
	Low	High
0	49%	39%
1	22	24
2 or more	29	37
	<hr/>	<hr/>
N	100% (5482)	100% (7796)

(Source: Sample)

Students who expect to do well in college are 10 percentage points higher in attending summer school compared to students who expect to do less well. They are also 8 percentage points higher in attending more than one summer session. (Thirty-seven percent for high expectation students as compared to 29% for students on the low end of the index.) Table 5.11 examines the same index, controlling for level of college. We find that the differences are reduced significantly for students in community colleges, but the differences are only slightly diminished in the senior colleges.

Table 5.11

Summer Attendance by Expected
Achievement and Level of College

Summers Attended	Senior Colleges		Community Colleges	
	Expected Achievement			
	Low	High	Low	High
0	41%	33%	61%	57%
1	23	24	21	25
2 or more	36	43	18	18
	100%	100%	100%	100%
N	(3239)	(5751)	(2243)	(2045)

(Source: Sample)

Senior college students with high expectations of achievement are 8 percentage points higher in summer school attendance and 6 percentage points higher in attending two or more summer sessions when compared to low expectation students. On the other hand, community college students with high expectations are only somewhat more likely to attend summer school (4% difference) than students scoring low on the index; there is no difference in attending more than one summer.

Thus far, there appears to be a cumulative effect at work. Students in senior colleges generally are more able. They also possess more confidence, bolstered by high school success and evidenced by higher expectations for college success. This leads to the hypothesis that there is an interaction effect which leads to purposive behavior, in this instance, increased attendance in summer

school. The combined effects of these variables will be examined in the next chapter.

2. Personal Characteristics

Measures relating to several aspects of student's personality were examined. These included a measure of social interaction (number of friends), an index of behavioral maladjustment (occurrences of emotional displays), and an index of motivation (importance of achieving various academic honors).

There was little or no relationship between any of these measures and summer attendance. They were distributed similarly for all categories of attendance and for both senior and community colleges. Only the achievement index yielded any difference between attending summer sessions: students with a higher level of declared personal motivation were 4 percentage points higher in attending summer school than those with less motivation to achieve. When we controlled for level of college, the differences were even less.

Thus, personality differences, at least to the extent we have measured them, do not seem to be a factor in attending summer school.

3. Work and Study Habits

Students were asked to report the frequency of various academically related activities, such as library visits, checking out library books, and doing extra reading for a

course (good study habits), and also the frequency of missing classes, failing to hand in assignments on time, and coming late to classes (bad working habits). Two indexes were constructed based upon these items. Both of these indexes were found to be related to attendance at summer school. Students who reported good habits on both indices were more likely to attend. However, the bad working habits index was a better predictor of summer attendance than was the development of good study habits. Table 5.12 examines the relationship of the bad work habits index to summer attendance.

Table 5.12

Summer Attendance by Index of
Bad Working Habits

Summers Attended	Bad Habits	
	No	Yes
0	43%	52%
1	23	22
2 or more	34	26
	100%	100%
N	(12426)	(1230)

(Source: Sample)

Students who reported bad working habits were 9 percentage points lower in attending summer school than those students who reported no such behavior problems. In addition, students with better working habits were also 8 percentage points higher in attending 2 or more summer

sessions. In table 5.13, level of college is added.

Table 5.13

Summer Attendance by Index of Bad Working Habits and Level of College

Summers Attended	Senior Colleges		Community Colleges	
	Bad Habits No	Bad Habits Yes	Bad Habits No	Bad Habits Yes
0	35%	44%	58%	64%
1	23	25	23	19
2 or more	42	31	18	18
	<hr/>	<hr/>	<hr/>	<hr/>
N	100% (8446)	100% (750)	100% (3980)	100% (480)

(Source: Sample)

When we control for college level, there still remains a significant percentage difference in summer attendance between students indicating bad working habits and those with none reported. In the senior colleges, there is a 9 percentage point difference in ever attending summer school and an 11 point difference in attending 2 or more sessions. In the community colleges, there is a 6 percentage point difference in overall attendance. No difference is found in attending 2 or more summer sessions. It is likely that of any possible findings are attenuated by the on-time graduation of better students (and therefore, the availability of only one summer session for them).

When we examine the index of good study habits we find similar, although less significant, results. Table 5.14

shows the relationship of good study habits to summer attendance.

Table 5.14

Summer Attendance by
Index of Good Study Habits

Summers Attended	Good Study Habits	
	No	Yes
0	46%	41%
1	23	23
2 or more	31	36
	100%	100%
N	(7532)	(6124)

(Source: Sample)

Students who reported good study habits were 5 percentage points higher in attending summer school than those students who reported nothing to indicate they had good study habits. Students who exhibited good habits were also 5% higher in attending 2 or more summer sessions. However, these are relatively unimportant differences. We add level of college to assess the effects of good study habits on attendance at either level.

Table 5.15

Summer Attendance by Index of Good Study Habits and Level of College

Summers Attended	Senior Colleges		Community Colleges	
	Good Study Habits No	Good Study Habits Yes	Good Study Habits No	Good Study Habits Yes
0	38%	33%	60%	57%
1	23	23	22	24
2 or more	41	43	18	19
	100%	100%	100%	100%
N	(4945)	(4251)	(2587)	(1873)

(Source: Sample)

Senior college students with good study habits remain 5 percentage points higher in attending summer session than those students who reported none. However, the differences are negligible in the community colleges.

The small increment to summer school attendance by students exhibiting good work and study habits is yet more evidence that summer school is attended in greater numbers by more motivated and academically better equipped students. All of our tabular analysis thus far has supported this contention.

4. Political Attitudes and Values

Earlier in this chapter, we saw how students' attitudes, values and perceptions are related to summer attendance, and by implication, success in college. Several political attitude items were among the questions in the student survey. We will explore the relationship,

if any, between political views and summer school participation.

Students were asked how they considered themselves politically: conservative, liberal or middle-of-the-road. They were also asked to indicate to what extent they thought the federal government should be involved in a list of national issues which were relevant to students in 1970. From these latter items, two indices more were developed: a social welfare index and a government intervention index. The social welfare index measures concern for the well-being of others, at least to the extent that the government should contribute direct aid to the disadvantaged. The second index measures attitudes towards government intervention into generic societal problems.

Of the three political measures used, only attitudes towards government intervention showed any relationship to summer attendance. Political conservatives and liberals attended summer school in equal proportions. Varying attitudes towards aid to the disadvantaged failed to show any differences in summer attendance. Table 5.16 shows the relationship between attitude towards government intervention and summer attendance.

Table 5.16

Summer Attendance by Attitude Towards
Government Involvement in Problems

Summers Attended	Amount of Involvement		
	None	Some	Much
0	50%	42%	40%
1	21	23	24
2 or more	29	35	36
	100%	100%	100%
N	(3434)	(5447)	(4775)

(Source: Sample)

Students who approve of government involvement in solving national problems attend summer sessions at a rate 10% higher than those students who favor a "hands-off" policy. Similar to the relationship we found between parents' education and summer attendance, contrary to other SES measures, there is likely to be some underlying component in the government involvement index. The multi-variate analysis will assess the independent contribution of the attitude variables discussed in this chapter. The introduction of type of college in table 5.17 reduces the relationship for both levels of college, thus partially explaining the findings of table 5.16.

Table 5.17

Summer Attendance by Attitude Towards
Government Involvement in Problems and College Level

Summers Attended	Senior Colleges			Community Colleges		
	None	Some	Much	None	Some	Much
0	41%	35%	34%	62%	58%	56%
1	21	23	24	21	24	24
2 or more	38	42	41	17	18	20
	100%	100%	100%	100%	100%	100%
N	(1910)	(3768)	(3518)	(1524)	(1679)	(1257)

(Source: Sample)

The students for whom government involvement is desirable are still more likely to attend summer sessions, regardless of level of college. In the senior colleges, there is a 7 percentage point difference in attending summer school between students who believe that the federal government should take an active role in problem solving compared to those students against such action. In the community colleges, the comparable difference is 6 percentage points.

In the next chapter, we will attempt to complete the discussion of the determinants of attendance at summer school. We will endeavor to explain the findings of this and the previous two chapters with the goal of developing a causal model of summer school participation. In chapter 7 we will investigate the consequences of summer attendance for student academic success.

NOTES

1. This index combines students' estimates of their neighborhood and high school SES. These data were reported by students on the questionnaire. See appendix B for a description of the index as well as a presentation of all derived variables and factors.

2. The questionnaire (see appendix A) was administered to the 1970 cohort in their freshman English classes during the first few weeks of the fall 1970 semester.

CHAPTER VI - Multivariate Analysis of the Determinants of Summer Attendance

In the previous chapters we examined the relationships between key independent variables and summer attendance. The tabular format allowed us to control for one other significant variable and the analyses we performed established the rudimentary relationships between the independent and dependent variables. When we controlled for level of college, we were often successful in explaining the observed relationships. In several instances, the initial relationship proved to be spurious, caused entirely by differences between the senior and community college populations. Other relationships were partially explained by controlling for type of college; the percentage differences were increased or decreased for either senior or community college samples, or the relationship was diminished in both levels.

Of course, in addition to type of college, there are other important variables which, when controlled for in multivariate analyses, will enable us to clarify the initial observed relationships. Whereas the relationships we examined in the previous chapters were reported as percentage differences, we must now address the quantity of relationship in correlational terms. The three major measures we will use are (1) "r", the zero-order correlation, which is the relationship of the independent

and dependent variable without controlling for any other variable, (2) the partial correlation, or the relationship remaining after one other variable is used as a control or "filter" variable, and (3) the "B" and "b" (beta) coefficients, which are the unstandardized and standardized measures, respectively, of the relationship which remains after controlling for all other variables included in a regression analysis.¹

This chapter is concerned with assigning B values and standardized beta weights to independent variables based upon their relationship to attending summer school.² Regression analysis allows us to assess the direct effects of independent variables. The derived coefficients represent the net effects of the specific independent variable when other variables are "held constant."

The strategy in this chapter will be to examine the results obtained when we regress groups of independent variables with the dependent variable. These groups will consist of the variables that were used in the earlier chapters. Subsequently, one overall regression equation will be presented. It will include all of the variables which continue to have a relationship to summer attendance after controlling for all other significant variables.

Academic ability will be used as a control variable in all analyses. We have shown that ability is strongly related to attending summer sessions. Most of the variables

that are related to attending summer school are also related to academic ability. Thus, it is important to include the ability measure in all of the regressions.

The regression analyses were performed using correlation matrixes which were derived from the sample population. The individual correlations represent the relationship between all non-missing responses for each pair of variables. This "pairwise" method assumes that there is no bias in the non-responses, and consequently, that the correlations would not vary significantly had we removed every case with missing data.³ We will first examine the correlation data derived from the matrixes.

Table 6.1 presents the zero-order and partial correlations of all variables we will use in this chapter.

Table 6.1

Correlations of Independent Variables and Summer Attendance

Group No.	Variable	CUNY Sample simple r	Senior Colleges partial r	Community Colleges partial r
	Academic Ability	.26	.20	.06
	Sex	-.16	-.19	-.15
	Age	-.06	-.04	.06
I.	**Black	-.03	-.03	.04
	**Catholic	-.10	-.07	-.09
	**Hispanic	-.05	-.06	.02
	**Jewish	.14	.11	.03
	**Other	.05	.04	.07
	**Other White	-.01	-.02	.00*
	Open Admissions	-.17	-.17	-.04
	Degree Aspiration	.20	.13	.14
	Personal Growth			
II.	Reason for College	.10	.09	.09
	Vocational Reason	.02*	.01*	-.02*
	Working	-.07	-.07	-.04
	Job Plans	.03	.04	.03*
	Income	.03	.02*	-.01*
	Neighborhood SES	.02	.03	-.01*
III.	Parents' Education	.05	.04	.01*
	Parents' Hope for Student's Degree	.14	.08	.08
	High School Honors	.09	.05	.04
IV.	Expected College Honors	.09	.06	.05
	Expected College Achievement	.10	.08	.04
	Social Life	-.05	-.06	-.06
	Behavioral Maladjustment	-.02	-.02*	.00*
V.	Achievement Orientation (Motivation)	.01*	-.02*	.02*
	Bad Work Habits	-.06	-.06	-.02*
	Good Study Habits	.05	.05	.02*
	Political Liberalism	-.01*	-.04	-.02*
VI.	Social Welfare Concern	.00*	-.03	.01*
	Attitudes towards Gov't Involvement	.07	.04	.04

(Source: Sample)

* Not Significant ("*" adjacent to value will be used in subsequent tables to indicate no statistical significance.)

**Dummy variables from ethnic distribution

The groupings correspond to the regression analyses which follow. Since the subsequent beta values represent the net correlation after controlling for all other variables in the particular regression analysis, the simple correlations presented in table 6.1 should be used as a basis for comparison.

Table 6.1 also contains the partial correlations for the independent variables and summer attendance, controlling for type of college. The entire table represents the correlational analogue to the percentage difference tables we examined in the previous three chapters. The first column presented, simple r , is the correlation of the independent variables and summer attendance for the university as a whole, represented by the CUNY sample; the two columns of partial correlations are equivalent to the tables we presented for senior and community colleges.

We observe in table 6.1 that most variables show a decrease in the magnitude of their relationship to summer attendance (for both senior and community colleges) when we control for level. This decrease indicates that type of college is interpreting the correlation found in column 1. However, there are some significant departures from this pattern involving variables which have been shown to be important in determining summer attendance. In addition, these variables relate to overall success in

college (Lavin et al. 1981:119-158). Among these are gender and personal growth incentive as a reason for college. The data in table 6.1 reflect the tabular analyses by quantifying the findings into correlational values.

Academic ability (as measured by the CUNY computed high school average) has the highest correlation to summer attendance ($r=.26$) for the CUNY sample of all the variables in table 6.1. However, when we control for college level, we note that while the relationship remains quite substantial for the senior college sample ($r=.20$), it is greatly reduced in the community colleges ($r=.06$). The original correlation in column 1 is caused by both the strong relationship between these variables in the senior colleges and the distribution of the sample, two-thirds of whom are senior college students. Thus, to a great extent, level of college interprets the finding that academic ability is strongly related to summer attendance. Ability is an important indicator, if not a causal factor, of attending summer school in the senior colleges. In community colleges, the relationship of ability and summer school persists, but to much less of a degree. In addition, when we observe the list of partial correlations for community colleges, there are several variables which become more important indicators of summer attendance than ability, i.e. have higher partial correlations.

The multivariate analyses will allow us to observe the changes in the relationship between other independent variables and summer attendance. Any causal analysis must await the inclusion of other important control variables. Thus, subsequent regression analyses will allow us to further interpret the relationship between summer attendance and all of the independent variables.

The grouping of variables into six subgroups of independent variables parallels the tabular analyses. The remainder of this chapter will examine these subgroups independently, and will conclude with an overall regression analysis.

A. Ascribed Characteristics (Group I)

Group I, social status indicators, includes sex, age, and a set of dummy variables (see chapter 2, note 10) consisting of all the ethnic categories that were created from the original data. These dummy variables will be used to (1) determine the relative strength of each ethnicity's participation in summer school, and (2) establish an aggregate ethnic beta coefficient (known as the sheaf coefficient) which will allow us to contrast the importance of ethnicity, per se, with other relevant variables.⁴ The individual correlation coefficients shown in table 6.1 are repeated for the group I variables in table 6.2, which lists the zero-order correlation of sex, age and each ethnic group with summer attendance, as well

as the partial correlations controlling for level.

Table 6.2

Correlations for Group I Variables and Summer Attendance

		CUNY Sample	Senior Colleges	Community Colleges
Variable		simple r	partial r	partial r
	Sex	-.16	-.19	-.15
G	Age	-.06	-.04	.06
R	Black	-.03	-.03	.04
O I.	Catholic	-.10	-.07	-.09
U	Hispanic	-.05	-.06	.02
P	Jewish	.14	.11	.03
	Other	.05	.04	.07
	Other White	-.01	-.02	.00

(Source: Sample)

The correlation of sex (-.16)⁵ to summer attendance for the university as a whole is not appreciably altered in the partial correlations. In both the senior and community college populations, gender remains an important indicator, if not determinant, of attending summer sessions. Female students attended summer school more often than men regardless of level.

Age shows a small relationship to summer attendance for the university (r=-.06). Younger students attend at a rate higher than older students. When we control for level of college, younger students are still more likely to attend summer sessions in the senior colleges; community college student behavior reverses this trend. There, older students attend more often. As was noted in

chapter 3, where we observed a diminished relationship between age and summer attendance for the community colleges (not the reversal the correlation shows), the distribution of age groups accounted for the findings. There were too few younger students in the community colleges for their tendency to attend summer school to matter (table 3.4). Only 6% of community college students were under 18 years old. The correlations are also affected by these same distributional factors.

We also have seen that that older community college students had a slightly higher percentage attending 2 or more summer sessions compared to 18-year old students (table 3.4). Since there was a larger proportion of older students in the community college sample, there is a positive relationship ($r=.06$) between age and summer attendance at that level.

As was also observed in chapter 3, and now in table 6.2, Jewish students in the CUNY sample were predominant in attending summer school ($r=.14$). At the other extreme, Catholic students were the least likely to attend of all the ethnic categories ($r=-.10$). The remainder of the ethnic groups had somewhat similar correlations to summer attendance.

When we control for type of college, the rank ordering of ethnicities for the CUNY sample is repeated for senior colleges, although the magnitude of the correlations is

somewhat reduced. In the community colleges, the "other" ethnicity category (which is composed mainly of Asian students) and black students have a higher correlation to summer attendance than do Jewish students. Catholic students, however, remain the least attending ethnic group.

The regression analysis will allow us to control all of the independent variables simultaneously and to standardize the measures. This enables us to compare the strengths of their relationships to the dependent variable. Table 6.3 presents the B and beta coefficients that were derived by regressing summer attendance with group I variables and academic ability.

Table 6.3

Regression Coefficients for Group I Variables,
Academic Ability and Summer Attendance

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.24	.02	.18	.01	.05
Sex	-.22	-.13	-.29	-.16	-.20	-.13
Age	.04	.04	.05	.04	.05	.06
Black	.04	S	.06	S	.00	S
Catholic	-.07	H	-.03	H	-.09	H
Hispanic	-.08	E=.12	-.09	E=.10	-.04	E=.09
Jewish	.15	A	.15	A	.05	A
Other	.21	F	.20	F	.21	F
Other White*	.00		.00		.00	
Intercept (Constant)	-1.38	-	-.96	-	.12	-

(Source: Sample)

* Dummy variable sets in regression analyses have one category designated as a base reference; it is excluded from the actual regression equation (Lavin et al. 1981:321-24).

The regression coefficients by themselves reveal no significant changes in the rank ordering of variables. Academic ability remains the strongest variable relating to summer attendance, and it is stronger in the senior colleges than in the community college population. Gender is equally important in all three samples -- women attend more often than men. Once we control for academic ability, sex, and ethnicity, the age variable shows that older students are more likely to attend than younger students. Thus we are able to isolate age from its correlates. When we control for these related variables,

our initial findings regarding age must be altered. The data now suggest that it is the older student who is more likely to attend summer school.

We must investigate the effects of ethnicity differently. Since it was necessary to create dummy variables in order to use ethnicity in the regression analysis, certain methodological problems must be addressed. In order for the regression's mathematics to be performed, one of the dummy variables must be excluded. It does not matter which one since the excluded category merely establishes the base from which all other categories of the dummy set are compared. In table 6.3, "other white" was the excluded category. Its B, determined by its exclusion, is by definition .00. Jewish students were more likely to attend summer sessions than "other white" students ($B=.15$); Catholic students were less likely to attend ($B=-.07$). These unstandardized B's actually represent the mean difference in units of summer attendance that the specific ethnicity attends. Thus the average Jewish student attends 0.15 summer sessions more than the average "other white" student, and 0.22 more than the average Catholic student.

The interpretation of the unstandardized results is straightforward. However, as was discussed previously, the unstandardized B's do not allow us to compare variables. We also cannot calculate beta values for the

dummy variables because the omitted category is decisive. As contrasted to deriving the B's, the values change depending upon which category is excluded. We therefore are unable to assess ethnicity compared to other independent variables in the usual manner. However, there are two ways for us to establish the relative impact of ethnicity.

One solution is to test the significance of adding the ethnicity dummy set to the regression analysis. This is accomplished by obtaining an f-score.⁶ This statistic determines how significant is the increase in the variance explained (of the dependent variable) caused by the addition of the dummy variables. In other words, in this instance, does ethnicity matter?

Once we establish that the dummy set is significant, we can derive the sheaf coefficient which is, in a sense, an aggregated beta coefficient. This measure is not affected by which category is omitted, and it allows us to estimate the overall ethnic influence relative to the other variables.

Significance tests were performed for the ethnic dummy set presented in table 6.3. For the university as a whole, and for the senior colleges, the addition of the ethnic variables did increase the variance explained and at the $p < .01$ significance level. The significance was less, $p < .05$, for the community colleges. Although, the

R-square increases were found to be within the acceptable range of significance, it was by virtue of the relatively large N of the sample. The equation used to derive the f-score is weighted so that with a large N, even a small increase in the R-square will be significant (see formula in note 6). Thus, in order to assess the relative weight of ethnicity, we must use the sheaf coefficients derived for each sample.

For the CUNY-wide sample, the sheaf is .12. This means that ethnicity is just about as important as gender in explaining differences in summer attendance patterns. Ethnicity does seem to independently contribute to explaining summer attendance. However, the importance of the ethnicity dummies is that they allow us to note the differences among the various ethnic constituencies in CUNY. We will have to await the overall regression analysis to see whether ethnic effects are still significant after controlling for all other independent variables.

In the senior colleges, the sheaf coefficient for ethnicity is .10, while in the community colleges it is .09. Thus ethnicity seems to have the same impact upon summer attendance at both types of colleges. Yet we observed that the rank ordering of ethnicities is different at each level. Again, we will await the overall analysis to discuss the implications of ethnicity for each level.

B. Behavioral Characteristics (Group II)

The correlations for group II variables are presented in table 6.4.

Table 6.4

Correlations for Group II
Variables and Summer Attendance

		CUNY Sample	Senior Colleges	Community Colleges
Variable		simple r	partial r	partial r
	Open Admissions	-.17	-.17	-.04
G	Degree Aspiration	.20	.13	.14
R	Personal Growth			
O II.	Reason for College	.10	.09	.09
U	Vocational Reason for College	.02*	.01*	-.02*
P	Working	-.07	-.07	-.04
	Job Plans	.03	.04	.03*

(Source: Sample)

For all three samples, open admissions students attend summer school at a lower rate than regular students. The relationship is equal for the CUNY-wide sample and the senior colleges, but is greatly reduced in the community college sample. Open admissions status is not as important a determinant of summer attendance in community colleges. Since open admissions status is largely determined by high school academic average, we should observe a change in these relationships when we control for academic ability.

For the CUNY sample, degree aspiration is the

strongest correlate to summer attendance in group II ($r=.20$), and it remains significant for both senior and community colleges. Achieving personal growth as a reason for attending college is also related to attending summer school, and its strength is similar in all three samples. The relationship of having a vocational reason for attending college and summer attendance is not statistically significant. Working is negatively related to summer school attendance, again for all three samples. Having definite career plans is positively, but weakly related to summer attendance in the CUNY sample and the senior colleges; it is not significant in the community college sample.

Table 6.5 contains the regression coefficients for the group II variables.

Table 6.5

Regression Coefficients for Group II Variables,
Academic Ability and Summer Attendance

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.26	.02	.15	.01	.08
Open Admissions	.08	.05	-.07	-.04	.02	.01*
Degree Aspiration	.12	.13	.09	.09	.10	.13
Personal Growth Reason for College	.05	.07	.05	.07	.05	.08
Vocational Reason for College	-	-	-	-	-	-
Working	-.08	-.06	-.09	-.07	-.06	-.05
Job Plans	.08	.03	.10	.04	.08	.03
Intercept (Constant)	-2.27	-	-1.31	-	-.78	-

(Source: Sample)

Academic ability has the strongest relationship to summer attendance of the independent variables. As was expected, the relationship of open admissions status and summer school attendance is significantly changed when we control for ability, since these two independent variables are highly related to each other.

For the CUNY sample, the original correlational relationship of open admissions and summer attendance ($r = .17$) actually changes direction. That is, once we account for academic ability, open admissions students seem more likely to attend summer school than regular students. However, when we look at the senior and community college regressions, the relationship changes again -- it does not reflect the CUNY-wide finding. The introduction of level

of college alters the original finding.

In the senior colleges, open admissions students are less likely to attend summer sessions than regular students, while in the community colleges there is no difference between the two types of students. Open admissions students are in the minority in the senior colleges, while they represent the majority of the community college population. They tend to take fewer summer courses in the senior colleges, where the better (higher high school average) students attend more. In the senior colleges, the B value shows that for each 10 point increase in high school average, students there take .2 more courses. In community colleges, for each 10 point increase in measured ability, students take, on average, .1 more courses. Thus academic ability accounts for more summer attendance in senior colleges than in community colleges.

The second most important determinant of attendance for the CUNY population is student's degree aspiration, and it is similarly influential in both senior and community colleges. In the community colleges, it is the most important determinant of attending summer school ($b=.13$) in group II. Community college students with higher degree aspirations are those who are intending to transfer to a senior college. As such, we can assume their motivational level is higher when compared to terminal degree students. When we look at the results of in-

cluding all of our independent variables into one regression analysis (at the end of this chapter), degree aspiration remains important.

Similarly, seeking personal growth (both cognitive and behavioral) as a reason for attending college is related to increased summer attendance, again for all three samples. Its relationship is not diminished when we control for ability and open admissions status, and it remains equally important in the final, overall regression analysis.

Having post-college job plans can be considered another motivational variable, the assumption being that students with specific career goals should be more motivated than those without any plans. The data support this assumption, at least to the extent that having job plans increases summer attendance, and the relationship persists when we control for college level, academic ability and open admissions status, as well as in the overall regression analysis.

The relationship of these motivational variables to attending summer school is not explained by academic ability and open admissions status. This is consistent with the hypothesis that attending summer school is, to a large extent, the behavior of students who are using summer school as a springboard to success in college. In terms of the larger issues that were addressed in

chapter 1, these findings are consistent with the view that summer school is another example of an ameliorative program designed for a "needy" target group, being utilized by students who have the capacity and the motivation to accelerate their success. Chapter 7 will examine the effects of summer attendance on student performance in order to determine the role of summer school in the successful completion of a CUNY education.

Table 6.5 shows that working is negatively associated with summer attendance, as we had seen in the tabular analysis. The regression analysis shows that it is not diminished when we control for other significant variables. It also continues to have a relationship to attendance in the overall regression. We hypothesized that working, either by choice or by need, would tend to reduce summer attendance. Not only would the time available to pursue summer studies be lessened, but the motivation to attend a primarily voluntary program would be mitigated by working. The data support this hypothesis.

C. Parental Influences (Group III)

The first three group III variables are concerned with socio-economic status variables (SES). The very low correlations observed in table 6.6 for the available SES measures mirror the tabular findings.

Table 6.6

Correlations for Group III
Variables and Summer Attendance

		CUNY Sample	Senior Colleges	Community Colleges
Variable		simple r	partial r	partial r
G	Income	.03	.02*	-.01*
R	Neighborhood SES	.02	.03	-.01*
O III.	Parents' Education	.05	.04	.01*
U	Parents' Hope for			
P	Student's Degree	.14	.08	.08

(Source: Sample)

Of the observed correlations, only parents' hope for their children's degree is substantially related to attending summer school. Measures of class do not seem to account much for differences in summer attendance. The regression coefficients in table 6.7 bear this out. The SES measures are all not significant when we control for academic ability. The small relationship we had found in table 6.6 is entirely explained by the ability measure. Thus we can remove these class variables from consideration as determinants of summer attendance.

Table 6.7

Regression Coefficients for Group III Variables,
Academic Ability and Summer Attendance

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.25	.03	.20	.01	.07
Income	-	-	-	-	-	-
Neighborhood SES	-	-	-	-	-	-
Parents' Education	-	-	-	-	-	-
Parents' Hope for Student's Degree	.08	.09	.06	.06	.07	.08
Intercept (Constant)	-1.70	-	-1.34	-	-.28	-

(Source: Sample)

Parental aspirations for their children remains significant after controlling for ability. However, we noted that this variable is highly correlated to students' own degree aspirations. This finding, as well as the fact that students themselves reported their parents' hopes, explains the absence of a relationship in the overall regression analysis, where all the variables are entered. All of the group III variables are, therefore, excluded from the final regression analysis.

D. Achievement Variables (Group IV)

This section investigates the relationship of past (high school) and expected (college) achievement and summer attendance. Table 6.8 lists the correlation results for group IV.

Table 6.8

Correlations for Group IV Variables and Summer Attendance

		CUNY Sample	Senior Colleges	Community Colleges
Variable		simple r	partial r	partial r
G				
R	High School Honors	.09	.05	.04
O	IV. Expected College Honors	.09	.06	.05
U	Expected College Achievement	.10	.08	.04
P				

(Source: Sample)

All three variables are similarly related to summer attendance in the correlation table; they are all partially explained by level of college. Students who received honors in high school and those who expect to receive them in college are only somewhat more likely to attend summer school. When we look at the regression for Group IV, in table 6.9, we find the relationships are reduced even further.

Table 6.9

Regression Coefficients for Group IV Variables,
Academic Ability and Summer Attendance

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.25	.03	.19	.01	.06
High School Honors	-	-	-	-	-	-
Expected College Honors	.04	.03	.02	.01	.03	.03
Expected College Achievement	.05	.03	.05	.03	-	-
Intercept (Constant)	-1.60	-	-1.20	-	-.13	-

(Source: Sample)

When we control for high school average, the original correlation between high school honors achievement and summer school is completely interpreted. However, the two measures of expected achievement in group IV are still significant, although their beta values are quite small.

We hypothesized in the tabular analysis that these "expectation" variables were, to some extent, measures of motivation. When we introduce other motivation variables into the analysis (table 6.14) these two measures are not significant. Thus when we control for degree aspirations, interest in personal growth, and having job plans, expected achievement shows no independent relationship to summer attendance.

Group IV variables are absent from our final model of the determinants of summer attendance. Like the variables in group III, they displayed a relationship to attendance

in the tabular analysis, but we explained that relationship by introducing other variables.

E. Behavioral Characteristics (Group V)

Group V variables are concerned with the effects of students' behavior characteristics on summer school.

Table 6.10 lists the correlations for summer attendance and group V variables.

Table 6.10

Correlations for Group V Variables and Summer Attendance

		CUNY Sample	Senior Colleges	Community Colleges
Variable		simple r	partial r	partial r
G	Social Life	-.05	-.06	-.06
R	Behavioral Maladjustment	-.02	-.02*	.00*
O	V. Achievement Orientation	.01*	-.02*	.02*
U	Bad Work Habits	-.06	-.06	-.02*
P	Good Study Habits	.05	.05	.02*

(Source: Sample)

The zero-order and the partial correlations show that having an active social life, exhibiting behavioral maladjustment symptoms, and having bad work habits are somewhat negatively associated with attending summer sessions. By contrast, students who have good study habits are more likely to attend. All of the correlation values are quite small, and as such, are only suggestive of the direction of the relationships.

The Group V regression analysis results are presented

in table 6.11.

Table 6.11

Regression Coefficients for Group V Variables,
Academic Ability and Summer Attendance

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.26	.03	.19	.01	.06
Social Life	-.09	-.05	-.03	-.05	-.10	-.06
Behavioral Maladjustment	-.04	-.02	-.04	-.02	-	-
Achievement Orientation (Motivation)	-	-	-	-	-	-
Bad Work Habits	-.11	-.04	-.14	-.05	-.06	-.02
Good Study Habits	.07	.04	.09	.05	-	-
Intercept (Constant)	-1.49	-	-1.03	-	.04	-

(Source: Sample)

Students who pursue a more active social life, measured here by number of friends, are less likely to attend summer school. This finding persists from the original correlation for the CUNY sample through both senior and community colleges. Although there is no a priori reason for this relationship, it is reasonable to assume that having an active social life may be a counter-vailing influence upon educational values, as contrasted with the positive influence of parental education, as was discussed in chapter 4. Peer influence is likely to be at least as important as parental effects for college freshmen. As compared to other parental attributes, we

hypothesized that increased parental education may promote a pro-education attitude in the student's environment. The persistence of the social variable in the overall regression is consistent with the converse of that hypothesis, namely that the increased influence of friends may promote an anti-educational climate.

Behavioral maladjustment, an index which measures occurrences of emotional activity, is negatively related to summer attendance. The relationship is small in table 6.10, yet it becomes somewhat stronger in the group V regression results; it is still not significant in the community colleges. The relationship becomes strongest in the overall regression. This suggests that when we take other important determinants of summer attendance into account, we will be able to specify the relationship of maladjustment and summer attendance.

Achievement orientation, an index constructed from items which can be considered measures of motivation, is not related to attending summer school. The correlations, as well as the regression results, suggest that attaining recognition in one's field and influencing one's peers are values which are shared by students at all levels of ability and at both types of colleges. As such, achievement orientation does not affect attending summer school.

The two indexes which measure student's self-reported academic behavior are both related to summer school

attendance. In the correlation table, having bad work habits is negatively associated with attending summer school, while having good study habits is positively related to attending. When we control for college level in table 6.10, the relationship is not significant in the community colleges. This suggests that the distribution of good and bad habits is not equal across college types, and we know that better students attend senior colleges more often than poorly prepared students. When we introduce academic ability into the group V regression analysis, having bad work habits shows a small negative relationship to attending summer school in the community colleges. In the overall regression run, we find that the effects of good study habits are explained by other independent variables. However, having bad study habits is still negatively related to attending summer school for both the CUNY-wide and senior college populations.

F. Political Attitudes (Group VI)

In table 6.12 we observe the correlations of students' political attitudes and summer attendance.

Table 6.12

Correlations for Group VI Variables
and Summer Attendance

		CUNY Sample	Senior Colleges	Community Colleges
Variable		simple r	partial r	partial r
G				
R	Political Liberalism	-.01*	-.04	-.02*
O	VI. Social Welfare Concern	.00*	-.03	.01*
U	Attitudes towards			
P	Gov't Involvement	.07	.04	.04

(Source: Sample)

The correlations show that there is very little relationship between political attitudes and summer attendance. Only the index for attitudes towards government involvement is consistently significant. In the senior colleges, the liberalism and social welfare scales are related as well; politically conservative students are somewhat more likely to attend summer school.

The regression results in table 6.13 allow us to look at group VI while controlling for ability and other political variables.

Table 6.13

Regression Coefficients for Group VI Variables,
Academic Ability and Summer Attendance

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.26	.03	.20	.01	.06
Political Liberalism	-.04	-.03	-.06	-.05	-	-
Social Welfare Concern	-.02	-.01	-.03	-.03	-	-
Attitudes Towards Gov't Involvement	.04	.04	.03	.03	.04	.04
Intercept (Constant)	-1.49	-	-1.03	-	-.53	-

(Source: Sample)

In the group VI regression analysis, all of the indexes are related to summer attendance for the CUNY sample and the senior colleges. In the community colleges, only the relationship between attitudes towards government involvement and summer attendance is significant.

The magnitude of these relationships is very small -- political attitudes do not contribute much in explaining who attends summer school. However, the persistence and the direction of these relationships is interesting. The direct measure of political orientation (student's self-reporting of their political position) and a derived index (concern for the welfare of others) are similarly related to summer attendance and show that conservative students are more likely to attend summer school. The variable which traditionally taps conservative sentiment, attitudes

towards government intervention into social problems, shows that attendance is greater for those students who approve of increased government involvement.

We can hypothesize that political attitudes, to some extent, reflect a class component. The findings for these group VI variables show that more conservative students and those less likely to support social welfare programs attend summer school at a somewhat greater rate when contrasted to liberal students. Attitudes favoring government involvement are obviously more complex in terms of left or right politics, especially at the very end of the 1960s.

So far, we have shown that the more career oriented, the more interested in personal growth, and the more academically able students attend summer session at a higher rate when compared to less motivated, less able students. It would be consistent with these findings to assume that these are students with more self-interest, stronger goal aspirations, and who are more politically conservative.

G. The Determinants of Summer Attendance

In the previous sections of this chapter, we have endeavored to clarify the initial findings regarding the determinants of summer attendance. By controlling for academic ability, an important determinant on its own, we were able to establish which variables were spuriously re-

lated to summer school attendance, which ones were explained or interpreted by our ability measure, and which ones were still related to attendance after controlling for both ability and other variables within their own group.

Table 6.14 contains the B and beta values for all independent variables regressed together on summer attendance. There are many instances where the independent variable is no longer significantly related to summer attendance. This is shown by a dash (-). It is important to note which variables were significant when they were used within their group's analysis, but are not significant in the overall regression results in table 6.14. For instance, parents' degree aspiration for their children was related to summer attendance in the group III regression analysis. When students' own degree aspirations are accounted for, the relationship of their parents' hopes to summer attendance is not significant; i.e., parents' degree aspirations make no independent contribution to explaining who attends summer school.

Table 6.14

Coefficients for Independent Variables and Summer Attendance

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.23	.02	.12	.01	.06
Sex	-.27	-.16	-.31	-.18	-.25	-.16
Age	.04	.04	.04	.03	.04	.06
Black	.03	-	.05	-	.01	-
Catholic	-.04	-	.00	-	-.07	-
Hispanic	-.08	-	-.10	-	-.03	-
Jewish	.14	-	.15	-	.05	-
Other	.19	-	.18	-	.23	-
Other White	.00	-	.00	-	.00	-
Open Admissions	.09	.05	-.06	-.03	-	-
Degree Aspiration	.14	.15	.12	.11	.12	.16
Personal Growth						
Reason for College	.02	.04	.02	.04	.02	.04
Vocational Reason for College	-	-	-	-	-	-
Working	-.05	-.04	-.05	-.04	-.03	-.03
Job Plans	.07	.03	.08	.04	-	-
Income	-	-	-	-	-	-
Neighborhood SES	-	-	-	-	-	-
Parents' Education	-	-	-	-	-	-
Parents' Degree Hope	-	-	-	-	-	-
High School Honors	-	-	-	-	-	-
Expected Honors	-	-	-	-	-	-
Exp'd Achievement	-	-	-	-	-	-
Social Life	-.06	-.03	-.07	-.04	-.06	-.03
Behavioral						
Maladjustment	-.08	-.04	-.09	-.05	-.05	-.03
Achievement						
Orientation	-	-	-	-	-	-
Bad Work Habits	-.07	-.02	-.09	-.03	-	-
Good Study Habits	-	-	-	-	-	-
Pol. Conservatism	-.05	-.04	-.06	-.05	-.03	-.03
Social Welfare	-.03	-.02	-.05	-.03	-	-
Attitudes towards Gov't Involvement	.03	.03	.03	.02	.04	.04
Intercept	1.76	-	-.60	-	-.51	-

(Source: Sample)

The entire set of parental variables relating to SES and parents' hopes for their children is not significant; similarly the achievement of honors in high school and the anticipation of receiving honors in college, as well as expecting to do well in college, make no independent contribution to explaining summer attendance. In the absence of other variables, many of these non-significant variables would be useful indicators of attendance. However, the presence of intervening or explanatory variables allows us to clarify the relationships.

Table 6.14 contains all variables regardless of significance. Although there are many variables listed that are not significant, their presence in the analysis affects the coefficients of the significant variables. Therefore, the correct regression "solution" is one in which only the significant variables are allowed to enter. Table 6.15 lists the corrected B and beta values for all of the remaining variables.

Table 6.15

Determinants of Summer Attendance:
 Regression Results for All Independent
 Variables with Statistically Significant Coefficients

	CUNY Sample		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta
Academic Ability	.03	.23	.02	.12	.01	.06
Sex	-.27	-.16	-.31	-.18	-.25	-.16
Age	.04	.04	.04	.03	.04	.06
Black	.05	S	.05	S	.01	S
Catholic	-.03	H	.00	H	-.07	H
Hispanic	-.07	E=.10	-.10	E=.10	-.03	E=.08
Jewish	.14	A	.15	A	.05	A
Other	.20	F	.18	F	.23	F
Other White	.00		.00		.00	
Open Admissions	.09	.05	-.06	-.03	-	-
Degree Aspiration	.15	.16	.12	.11	.12	.16
Personal Growth						
Reason for College	.02	.04	.02	.04	.02	.04
Working	-.04	-.03	-.05	-.04	-.03	-.03
Job Plans	.07	.03	.08	.04	-	-
Social Life	-.06	-.03	-.07	-.04	-.06	-.03
Behavioral						
Maladjustment	-.08	-.04	-.09	-.05	-.05	-.03
Bad Work Habits	-.07	-.02	-.09	-.03	-	-
Political Liberalism	-.05	-.04	-.06	-.05	-.03	-.03
Social Welfare Concern	-.03	-.02	-.05	-.03	-	-
Attitudes towards						
Gov't Involvement	.03	.03	.03	.02	.04	.04
Intercept (Constant)	-1.84	-	-.67	-	-.52	-

(Source: Sample)

The adjusted overall regression coefficients do not yield any new findings. However, they do allow us to make a comparison of the senior and community colleges with respect to which variables are most important in determining summer attendance.

1. Gender Differences

For both levels of college, sex is one the most important determinants of attending summer school. Even when we control for all other variables, female students are far more likely to attend than men.

In the senior colleges, the unstandardized B shows that on average, men attend .31 less summers than women, holding all other variables constant. This represents a large difference since the average number of summers attended is 1.05 for the entire senior college population. The beta (net correlation) is $b = -.18$ for the senior colleges. The original correlation for sex, in table 6.2, was $r = -.19$. Thus sex differences, in terms of summer attendance, were not diminished when all other independent variables were controlled.

In community colleges, gender is equally important. There, male students average .25 less summers attended than female students. This is even more significant because, on average, students at community colleges attend only .60 summers. The beta for sex at the community college level is $b = -.16$, compared to the original $r = -.15$. The introduction of all other relevant variables has not affected the differences between male and female students.

2. Student Educational Aspiration

Degree aspiration is also an important variable in both college types. For both samples, for each unit in-

crease in degree sought, i.e. for each level from associate to doctorate degree, summer attendance increases by .12 summer. This means that, on average, a student aspiring to a PhD. will attend .48 more summers than a student aspiring to only an AA degree. This variable is, therefore, a major indicator of student motivation. The higher the degree that students seek, the more likely it is that they will attend summer school.

3. Effects of Ability

Academic ability remains an important determinant of summer attendance, but much more so in senior colleges. Both the B and the beta are twice as large in the senior colleges as compared to the community colleges. In senior colleges, for each 10 point increase of high school average (academic courses), there is an increase of .20 summers attended. For community colleges, determinant of summer attendance in community colleges.

4. Ethnicity

Ethnicity remains an important determinant of summer attendance even when we control for other significant variables. In terms of its total impact upon explaining differences in summer attending, the sheaf coefficients, in table 6.15, show that ethnicity counts approximately the same as ability. Lavin et al. (1981:135-42) trong, determinant of summer attendance in community colleges.

4. Ethnicity

Ethnicity remains an important determinant of summer attendance even when we control for other significant variables. In terms of its total impact upon explaining differences in summer attending, the sheaf coefficients, in table 6.15, show that ethnicity counts approximately the same as ability. Lavin et al. (1981:135-42) document the persistence of ethnicity in determining numerous academic outcomes for this population of students. Having established that ethnicity affects summer attendance as well, we must look at the differences among ethnic groups for both senior and community colleges.

In the senior colleges, there are substantial differences in the rates of attendance among ethnicities. Jewish and Other (composed mostly of Asian) students attend summer school more often than other ethnic groups, all of whom are all fairly similar to each other, with the exception of Hispanic students, who are much less likely attend. Jewish students attend more summers than the omitted category (Other Whites), while Other ethnic students attend .18 more. Black students attend only somewhat more often (.05) and Catholic students are the same as the omitted category. Hispanic students in senior colleges attend .10 less summers than the base category. Thus even when we control for all other independent variables, including factors which are themselves related

to ethnicity, summer attending still varies among ethnic groups.

For community colleges, the importance of ethnicity to variations in summer attendance rates is similar to what we found for the senior colleges. It is somewhat more of a determinant than ability and age. However, the differences among ethnic groups is somewhat attenuated, with the exception of Other (mainly Asian) students. In addition, the rank ordering is somewhat different. Other category students attend .23 more summers than the omitted category, Other White. Jewish students are likely to attend only slightly more than Other White students, while Catholic students attend least of all.

Although it may be subject to criticism as stereotyping, the data do support the hypothesis that there are differences in commitment to the value of education amongst ethnic groups. We have seen other instances where that commitment seems to be a factor affecting summer attendance rates. In chapter 4, we hypothesized that the observed relationship of parents' education and summer attendance was an indicator of a "value of education" component within the family which affected student behavior. The negative relationship observed between having an active social life and attending summer school (chapter 5) was again hypothesized as an instance where the lack of a commitment to the value of education was a possible factor

in the persistence of that particular variable.

Ethnicity is relevant in any analysis of CUNY students. It is especially important for this population, the 1970 CUNY freshman cohort. The open admissions program, which began with this class, was an attempt to bring more minority students into the university and also to lessen differences among ethnic groups within the university. We have shown that ethnic differences affect our area of concern, summer attendance. Even after controlling for all other relevant variables for which we have data, substantial differences remain. The traditional beneficiaries of public education in New York City, Jewish students and now, a growing number of Asian students, appear to continue to take more advantage of available programs than minority students. However, in the community colleges, ethnic differences are quite small. In addition, while Hispanic students are behind other groups in summer attending at the senior college level, black students attend at a rate somewhat higher than the average. However, analysis of the summer attendance data still leads to the conclusion that although the open admissions program enabled CUNY to open its doors and facilities to many more students, it was the already advantaged who were able to take full advantage of it (see Lavin et al. 1981:284).

5. Effects of Age

Age is significantly related to summer attendance for both levels, as well. However, its beta is twice as large in the community college population. When we control for all of the other independent variables, older students are more likely to attend summer school. This reverses our earlier finding that younger students attended more often than older students. The zero-order relationship is explained by the correlation of age and academic ability. Younger students are more academically able. Therefore, the observed relationship of age and summer attendance without controlling for ability was spurious.

The remainder of the significant variables affecting summer attendance in the senior colleges are all of similar importance to each other, in terms of their beta coefficients. Behavioral maladjustment and political liberalism are only somewhat more negatively related to summer attendance than are working part time, having an active social life, having bad work habits and showing concern for social welfare issues. Students who are higher on these scales attend less summer school. In addition, open admissions students in the senior colleges are also somewhat less likely to attend summer school after we control for all other variables.

On the other hand, senior college students for whom personal growth is a reason for college, have definite

ideas about their future jobs, and believe in government involvement in social problems are likely to attend summer school more often.

Community college students show a remarkable similarity to their senior college counterparts. Students there who work, are active socially, are politically more liberal, and report maladjustment behavior also attend less summer school. Students concerned with personal growth and who favor government involvement are likely to attend more often.

The only differences we note between the two levels, in terms of determining summer attendance, are (1) in the community colleges, having job plans, having bad work habits and being concerned about social welfare issues are not related to attendance once we control for other variables, and (2) academic ability is a more important factor in senior colleges.

The ultimate similarity of the two types of colleges is most interesting. In chapter 3, we began our discussion of the determinants of summer attendance by outlining numerous differences between senior and community colleges. The type and duration of their programs and variations in student demography were cited as major differences. Yet we find that student behavior regarding summer school participation is virtually the same. Once our analytical approach allows us to control for some of

these differences, we are able to isolate the effects of specific status and behavioral variables. Our analysis is enhanced by our ability to show that the determinants are, in fact, universal throughout the system.

We have established that summer school at CUNY was definitely not a remedial program, although it could have been so utilized. But lower ability students were less likely to attend, and open admissions students even more so. Students with high degree aspirations were predominant users of summer school. Therefore, educationally motivated students tended to take summer courses. Female students were also much more likely to attend summer school. There is substantial evidence which shows that female college students generally perform at a higher level than men, both at CUNY and elsewhere.⁷ Thus our gender variable is another indicator that better prepared, rather than failing students, utilize summer sessions in order to achieve higher goals and to do so in a shorter period of time. Our original hypothesis, that summer school enrollment was predominated by students eager to achieve parity because they either had received poor grades or had earned too few credits, has been shown to be false.

In the next two chapters, we will investigate the effects of attending summer school upon success in college. Having shown in this chapter that generally it is the bet-

ter student who takes summer school courses, we now want to establish what, if any, are the net benefits of attending for these high achievers, as well as for low achieving students generally and open admissions students in particular.

NOTES

1. We will adopt the convention of using the capital B to denote the unstandardized Beta coefficient and the lower-case b to denote the standardized beta coefficient.

2. Unstandardized B coefficients allow us to quantify the effects of a variable in terms of the original units of measurement used. For example, a B value may allow us to say that for each 10 point increase in a student's high school average, summer attendance increases, on average, by .3 course. The B enables us to assess the actual impact of an independent variable. On the other hand, the B does not allow us to compare independent variables if their units of measurement are different (which most often they are). The standardized b or beta allows us to compare the relative importance of variables. It is obtained by recoding the measurements so that each variable's distribution has a mean of zero and a standard deviation of one. The recoded variable is often referred to as the Z-score.

3. The SPSS programming manual (Nie 1975:353) suggests pairwise deletion of cases be used "when a researcher has many variables each with just a few missing values, and when listwise deletion [removal of a case if any value is missing] would reduce the number of cases farther than desired.

4. In order to assess the explanatory power of a dummy variable set, rather than its categories, we must compute a "composite" beta using a formula which includes the dummy category correlations and other correlations within the set of regression variables. This is the so-called sheaf coefficient. See Heise (1972) for a detailed explanation of this methodology.

5. The negative coefficient reported for this nominal variable is caused by the way (direction) the variable happens to be coded: 0=female, 1=male. In this instance sex is a dummy variable and as such, is actually measuring the presence or absence of being male. Thus the correlation tells us that the quality of "maleness" is negatively related to attending summer school.

6. The f-score tells us whether the addition of a variable (or set of variables) contributes significantly to explaining the variation in the dependent variable. In other words, given k-1 number of independent variables in a regression, we obtain the amount of variance explained

by those variables. We then regress the dependent variable using k variables, and obtain a new amount of variance explained. The f-score allows us to accept or reject the hypothesis that the additional variable(s) contributes nothing to the regression equation (Nie 1975:371-3). The score is obtained by:

$$F = \frac{(R^2 \text{ with new variable}) - (R^2 \text{ w/o new variable})}{(1 - R^2 \text{ with new variable}) / (N - k - 1)}$$

where R^2 =variance explained, N=number of cases, and k=total number of independent variables.

7. See H. Astin 1972, A. Astin 1977, and Sewell 1980 regarding gender and educational achievement.

CHAPTER VII - Summer Attendance and Academic Performance

This chapter is concerned with determining what are the effects of attending summer school upon student academic performance. The value of summer attendance will be identified, and more importantly quantified in order to assess the benefits which actually accrue to students who opt to participate in extra schooling. This will enable us to measure any advantages of an increased quantity of education. The relationship of summer school attendance to academic achievement will allow us to determine the extent to which the theoretical questions that were addressed in chapter 1 can be answered.

An increase in the quantity of education offers immediate, direct benefits. For example, we know tautologically that summer attendance increases the number of credits earned by a student. The more courses a student attends, the more credits s/he will accumulate. This by itself constitutes an advantage derived from attending summer school. But is there any effect on student grade point average? Does summer attendance affect student grades and credit accumulation in subsequent, regular semesters? In other words, does summer school affect college performance in other, less direct ways? We will attempt to show the effects of attending summer school in

the analyses that follow.

In the previous chapters, we have established that summer school is utilized to a greater extent by more able and more motivated students. We also know that many underachieving students¹ use summer school as a way of "catching up", i.e., to make up credits that were lost either by receiving failing grades or by voluntarily withdrawing from courses for which they had registered. In addition, students frequently decide to not overburden themselves with normal course loads and therefore register for fewer courses. This practice usually results in the student accumulating fewer credits than are required to qualify for advancement to the next class level. Others (mostly open admissions students) were often advised by counselors or were required to enroll in non-credit bearing remedial courses (Lavin 1976). Some program counselors placed open admissions students into programs that were designed to be less strenuous and consequently carried fewer credits. The purpose of these tactics was to ease open admissions students' initial exposure to college level work. Thus there are distinct types of students who attend summer school.

Our analyses of the effects of summer attending will address these major questions relating to the different

types of students who utilized summer school:

- (1) Does summer school attendance enable better students to graduate earlier than those not attending? Was the quality of their work superior as well?
- (2) Does summer school enable slower students to achieve parity with more successful peers?
- (3) Does summer school have an effect upon the performance of open admissions students? Did it allow those who attended summer school to outperform their non-attending peers? Did it allow them to approach parity with regular students?

The analysis will focus on two aspects of performance. First, what were the effects of summer school per se, i.e., what were the increments to credits and grades directly attributable to summer courses? Second, how did summer attendance affect regular semesters, i.e., did it have an effect upon academic performance over and above the cumulative effects caused by summer attendance itself?

Certain methodological problems are encountered in analyzing the effects of summer school. These are due mainly to the "contamination" of some of the outcome measures by the independent variable itself -- number of summers attended. We have already identified credit accumulation as one of the variables which is affected by summer performance. Summer credits are included in the total credit measure. The relationship of summer attendance and credit acquisition will therefore need to be analyzed controlling for the contamination.

An equally problematic dependent variable is grade

point average, which is an extremely important performance measure. Grade point average affects students' future educational and career plans and is an important criterion for admission into graduate and professional school programs. Since grade point average is an important measure of student success we will attempt to elaborate upon the relationship of summer school to student overall grade point average. In addition, we will examine grades students receive in non-summer semesters subsequent to attending summer school.

A. Summer Attendance and Grade Inflation

It would be reasonable to assume that academic grades and grade point average (GPA) are not affected by when a student takes a particular course, that is, in which semester. However, the performance data for the 1970 freshman cohort show that students taking courses in summer school received higher grade point averages during these summer semesters as compared to regular semesters.

This "grade inflation" phenomenon became apparent in regression analyses that used student final grade point average as a dependent variable. Summer attendance was used as one of the independent variables. It showed an unusually high loading which accounted for much of the explained variance. An analysis was conducted to determine whether these results were spurious, which was suspected. First, students who registered in summer semesters were

identified. The grade point averages they achieved in the semesters immediately preceding and following the summer in which they had enrolled were compared to the GPA earned for that summer. The means of the differences between the summer session and the contiguous semesters were calculated. In every comparison between semesters, the data showed that students received higher grades in the summer. T-tests established the significance of these differences. Table 7.1 presents the results of this analysis.

Table 7.1

Comparison of Grades Received in Summer School
With Semesters Immediately Preceding and Following

Semesters Compared**	N	Mean GPA Difference	T	Signif. Level
3 and 4	3697	0.06	3.89	0.0001
5 and 4	3608	0.08	5.12	0.0001
6 and 7	3713	0.09	5.98	0.0001
8 and 7	3469	0.08	5.06	0.0001
9 and 10	3609	0.03	1.79	n.s.*
11 and 10	3422	0.01	0.52	n.s.
12 and 13	1902	0.04	2.07	0.0384
14 and 13	1368	0.08	2.97	0.0031

(Source: Sample)²

* Not significant ("*" adjacent to value or n.s. indicates finding was not statistically significant. These symbols are used in subsequent tables.)

** The numbers refer to CUNY semester codes. For the five years of data on the 1970 cohort, "regular" semesters were numbered 2,3,5,6,8,9, 11,12,14 and 15, respectively from fall 1970. Summer semesters were numbered 4,7,10,13.

The t-test results show that in most instances the differences were not caused by chance effects, i.e., were not random. Even where the significance level was low, the differences found nevertheless show that grades given in summer school were higher.

The reasons for this finding are not apparent from any of the collected data. Traditionally, summer school has been taught by younger, less experienced faculty members. It may be speculated that they tend to give higher grades. There is also the notion that teachers tend to be less

demanding in the somewhat less formal, more convivial atmosphere of summer school. The fact that students take many fewer credits in summer school may be a contributing factor -- they may actually perform better. The data we have do not contain faculty or any other information which could explain the differences we found. However, whatever contributes to the observed grade inflation, the result is the same. Students who opt to take and subsequently pass credit bearing courses in the summer, increase their overall grade point average, as well as the number of earned credits. Thus, students who take summer courses reap an immediate advantage compared to non-participating students.

B. Summer Attendance and Performance Criteria

Credit accumulation and grade point average are the two performance criteria which are used by the university to evaluate students. Students graduate upon successful completion of the credits required by their college, 120 or more for senior colleges and 60 or more for community colleges.³ Colleges also require minimum grade point averages for graduation.

These measures are essential in evaluating student progress. For any given period of time, we can rank order student performance based upon these two criteria. The use of a finite period of time is essential in evaluating the effects of summer attendance upon credit accumulation.

The concept of summer school as representing an increased quantity of education makes sense only within the context of a given period of time. Thus the increase that summer attendance represents is the increment to a student's total credit accumulation up through a specific semester. The use of a time period is necessitated by the ceiling on the number of credits a student can earn, given that s/he would graduate after accumulating the required number. By demarcating checkpoints in evaluating students, we are able to assess the relationships of the independent variables to academic performance. We have done so by using credit and grade measures as dependent variables within our regression analyses.

Given the inherent problems of analyzing the cumulative versions of these variables since they contain summer performance data, it was necessary to perform analyses upon "uncontaminated" variables. This was accomplished in two ways. (1) Individual regular semester performance was assumed to be independent of the direct effects of summer attendance. A testable null hypothesis could thus be stated as follows: regular semester student performance shows no systematic difference between students who attended summer school as compared to non-attending students. In the regression analyses we were able to control for all other variables, thus enabling us to test this hypothesis. (2) New cumulative data had to be

created. This was accomplished by subtracting both the credits and grades obtained in summer sessions from their respective cumulative measures. Although this method did produce "summer-free" cumulative data, there still remained serious methodological problems. These will be addressed in the cumulative analyses below.

1. Semester Performance

The overall regression analysis which was presented at the end of the last chapter contained most of the independent variables that were shown to have a relationship to academic performance in Lavin et al. (1981).⁴ Therefore, by using our credit and GPA measures as dependent variables, we can determine the effects of these same independent variables upon student performance within our sample. We are then able to introduce summer attendance into the analysis as an independent variable and assess its direct effects upon performance while controlling for these other determinants. Summer attendance is thus used here as an independent variable to partially explain performance, rather than as a dependent variable to be explained.

a. Credit Acquisition

The two fall semesters following each of the first two summer sessions were examined for differences in credit attainment between summer attendees and students who did not attend. Possible determinants of student credit

earning performance were included in multiple regression analyses for each semester. Summer attendance was then added to the equation and the unstandardized B and the standardized beta coefficients were obtained. Table 7.2 shows that in both regular semesters, students who had taken courses in the summer preceding each fall term had a higher number of credits earned in that particular semester than those not attending summer school.

Table 7.2

Effects of Summer School Attendance
Upon Credits Earned per Semester

	Senior Colleges		Community Colleges	
	B	beta	B	beta
Fall '71	0.36	.04	1.77	.11
Fall '72	1.00	.10	1.64	.13

(Source: Sample)

When we control for all of the other variables that were related to summer attendance, we find that taking summer courses is related to achievement in the subsequent semester. In the fall semester of 1971 (the first semester attended after a summer session), students in the senior colleges who attended summer school averaged .36 more credits that semester, as compared to those students not in attendance that first summer. In community colleges, the difference was much larger. Students at-

tending summer school earned, on average, 1.77 more credits than those not attending.

The same regression analysis was done for the fall semester of 1972, with similar results. Students taking summer courses again earned more credits in the following regular semester. In the senior colleges, those students averaged one full credit more than non-attendees, while the community college results show an even larger increase in credits earned for summer school participants.

For both fall semesters, the beta coefficients are also shown to be substantial. The magnitude of the betas is large compared to those that were derived in our overall regression at the end of the last chapter. All but the beta for senior college students in the fall 1971 semester equaled or exceeded .10. This is significant since we have already controlled for other important determinants.

Although we have established that a substantial relationship exists between taking summer courses and earning more credits the following semester, we cannot assert causality. In previous regression analyses, we attempted to control for variables that were associated with summer attendance, such as academic ability, motivation, degree aspiration, and involvement in other activities such as working. However, we cannot assume that every factor which may be related to both attending summer

school and earning credits has been controlled. However, the differences found between attending and non-attending students appear too substantial to be attributed solely to unknown factors.

At the very least, the data show that attending summer school is an indicator of higher performance and consequently, a greater likelihood of graduating (earning the requisite credits). It can also be argued that increased exposure to education itself, which summer school offers, encourages positive attitudes towards education. This attitude then can become manifest in students taking increased credit loads in subsequent semesters. This hypothesis is consistent with the findings of Heyns (1978) who found that the environment, rather than the content, of summer school fostered increased cognitive development in her elementary school population. It is not unreasonable to assume that students who opt to attend summer school, who are then rewarded with higher than regular semester grades, and who then enter the following semesters with more credits and higher grade point averages than their peers who pursued other activities during the summer, would be inclined to attempt and earn more credits. The increased exposure to education of summer attendees, as contrasted to the summer experiences of non-attending students parallels the experience of the elementary school students studied by Heyns. It is

reasonable to posit that increased exposure to college does, in fact, make an independent contribution to the cognitive development of students in our sample.

b. Grade Point Average Attainment

The findings regarding grade point average for these same semesters are consistent with the findings for credit attainment although they are somewhat less emphatic. However, the regression analysis shows that grade point averages are determined to a much greater extent by academic ability than is credit accumulation. Thus there is less grade point average variance remaining to be explained by summer attendance. This may contribute to the smaller beta coefficients that were found for GPA. More importantly, grade point averages have a low upper limit (4.0) which creates a ceiling effect and makes improvement more difficult for students already achieving at a high level (Zeisel 1968:10-2). However, table 7.3 still shows that there is a relationship between summer attendance and grade point average in semesters immediately following summer school.

Table 7.3

Effects of Summer School Attendance
Upon Semester Grade Point Average

	Semester Grade Point Average			
	Senior Colleges		Community Colleges	
	B	beta	B	beta
Fall '71	n.s.*	n.s.	.19	.07
Fall '72	.06	.03	.15	.06

(Source: Sample)

Except for the fall semester of 1971, where there was no significant difference in grades in the senior colleges between students attending summer school and those not attending, we find that summer attendance does predict higher grades in contiguous, following semesters. The increases in grades shown for summer attendees as contrasted to those not attending are particularly strong in community colleges.

The grade point average findings are a reliable measure of the effects of summer attendance. Since there is a high correlation between grade point average and academic ability, and we have controlled for the academic ability measure within the regression model, we were able to reduce the possible effects of factors that were not controlled. That is, most zero-order relationships of the independent variables to performance are partially or to-

tally explained by the relationship of the independent variables themselves to ability (Lavin et al. 1981:159-97). Given the high correlation of GPA and ability, it is noteworthy that the effect of summer school attendance upon grade point average is still significant.

2. Cumulative Performance

In order to evaluate the effects of summer attendance upon accumulated performance data⁵ it was necessary to eliminate the contamination related to summer performance. The official cumulative performance data reflect all courses taken and are calculated through five years regardless of the student's final status.⁶ This introduces a serious problem when comparing cumulative data. In some instances we may be comparing cumulative attainment between a student achieving at an average or superior rate and a student who had dropped out after only one semester of attendance. Both students will show an accumulated credit measure after five years. However, the persisting student will have a credit accumulation measure many times that of the dropout. More importantly, the persister would have had the opportunity to attend several summer sessions while the dropout had little or no opportunity to attend. This commonly occurring circumstance points out the dangers of comparing cumulative measures.

Cumulative grade point averages are immune from the severe problems of accumulated credit measures by dint of

being a measure of means. Nevertheless, GPA attainment also is skewed in favor of persisting and graduating students. For example, we know that dropouts have lower GPAs when compared to other students.⁷ Thus, the positive relationship between summer attendance and cumulative GPA attainment would be spurious without adequately adjusting (weighting) the dependent variable.

Therefore, the only legitimate method of determining the effects of summer school upon accumulated data is to restrict the analysis to persisting students and to those who have graduated. However, it was still necessary to recalculate the cumulative measures to remove summer performance data. The new variables obtained were calculated as follows:

Credits - all credits earned in summer semesters were subtracted from the student's total earned credits to create a new cumulative measure. For students not attending summer school the two credit measures would, of course, be equal.

Grade point average - grades received in regular semesters only were recalculated to create a new cumulative grade point average devoid of grades received in any summer session. Again, for students who did not go to summer classes, the two GPA measurements are (approximately) the same.⁸

These new variables were used as dependent variables in regression analyses which included all of the relevant independent variables. Summer attendance was then added to determine what were the effects, if any, of attending summer school compared to not attending.

The analyses revealed yet another methodological problem associated with cumulative credit measures. In chapter 2 we found that most successful senior and community college students (graduates and to some extent, persisters) attended summer school at least once during their college careers. Many attended several summer semesters and earned a sizable proportion of their credits at summer school. This created the following paradox. In recalculating the accumulated credit and grade measures by removing summer work, the resulting indexes actually "penalized" students with extensive summer academic experience. Since they had significant numbers of their credits removed and many of their higher grades extracted, they became lower in rank order on the new cumulative measures compared to students with little or no summer school attendance. Thus, successful students show a somewhat negative or reduced positive relationship between summer attendance and the new cumulative measures when compared to other successful students. Therefore, the findings must be interpreted with cognizance of the methodological problems that have been outlined.

Table 7.4 shows the unstandardized B and the beta coefficients that were obtained for summer attendance for persisting and graduating students using the new cumulative measures as dependent variables.

Table 7.4

Effects of Summer School Attendance* Upon
Cumulative Credit and Grade Measures

Cumulative Measure	Persisters				Graduates			
	Senior Colleges		Community Colleges		Senior Colleges		Community Colleges	
	B	beta	B	beta	B	beta	B	beta
Credits	11.58	.18	17.72	.28	-6.95	-.21	7.35	.13
G.P.A.	.03	n.s.	.04	n.s.	-.09	-.06	-.05	-.04

(Source: Sample)

*A dummy variable was created to determine the occurrence of summer attendance. Students were scored 1 if they had ever attended or 0 if they had not. Thus the number of summers attended was ignored for this regression analysis.

a. Credit Accumulation

Persisting students who attended summer sessions accumulated more credits in regular semesters than non-attending students in both senior and community colleges. In the senior colleges, summer attendees earned an average of almost 12 credits more, while in the community colleges they earned on average almost 18 credits more. Thus summer attendees among persisting students were much closer to graduating than those not attending, i.e., they were achieving at a much higher rate. In order to ascertain the actual difference in credit accumulation between those students attending summer school and those not attending, we must add the credits earned in all summer semesters to these non-summer semester differences. Since

senior college persisters earned an average of almost 9 credits in their summer courses, the difference between the two groups is over 20 credits, more than a full semester's work. This clearly demonstrates the importance of summer attendance as an indicator of success, if not a major determinant of student outcomes.

In the community colleges, persisters who attended summer school averaged approximately 6 credits earned in their summer work. Thus, when we add these credits to the increased amount of regular semester credits that we found in table 7.4, summer attendees averaged 24 more credits than those not attending, which is nearly 40% of the credits needed for graduation. Therefore, we can assert that summer attendance in the community colleges, even more than in the senior colleges, is an extremely important factor in student outcomes.

For graduates, as opposed to persisters, the effect of summer attendance upon credit accumulation is obscured by the methodological problems outlined previously. Senior college graduates who took summer courses earned almost 7 less credits during regular semesters. However, this finding does not connote a negative relationship between summer attendance and graduating. It merely reflects that all graduates earn approximately the same number of credits in the senior colleges. Since the entire sample of graduates has an invariant dependent variable, students

who took part of their credit accumulation in summer school necessarily earn fewer credits in regular semesters. Thus the sample of senior college graduates is an inappropriate group in which to assess the effects of summer attendance upon credit earning.

On the other hand, community college graduates who take summer courses earn more credits than those not attending. Although many community college graduates do opt to earn more than the necessary number of credits in order to transfer to an upper division college, the relationship we found between summer attendance and credit achievement is suspect. A large percentage of community college students, 26% of all entering freshmen (Lavin et al. 1981:204), eventually transfer to senior colleges, and since some of these students attend summer courses at their new colleges and amass senior college credits, the findings are partially spurious. Thus the community college graduate population is also deemed inappropriate for cumulative credit analysis.

Thus, students who are still enrolled in college after five years (persisters) offer the best evidence regarding the effects of summer attendance upon credit accumulation. By enabling students to earn more credits in non-summer semesters (in addition to the credits earned in summer school) summer attendance is assumed to be positively related to successful outcomes for participating students.

b. Cumulative Grade Point Average

The data for grade point average are less impressive. There does not seem to be a significant difference in grades between summer attendees and those not attending after we recalculate GPA and control for all other relevant variables. The small differences that are shown in table 7.4 are consistent with our other findings: summer attendees do better, but the differences are really too small to matter. However, the difference in the official CUNY GPA (not our created value) between attending and non-attending students is quite substantial. Therefore although grade point averages obtained in non-summer semesters do not appear to be affected by summer attendance, when summer grades are included in the calculation of a student's GPA, attendees have significantly higher averages. Our regression analyses show that in the senior colleges, summer attendees (those students attending at least once) have an overall GPA that is nearly one-half of a letter grade higher or the difference between a "B" and a "B-" when compared to those students who never attended. The findings for the community colleges are similar. However, we are again comparing all students regardless of their final statuses.

When we examine persisting and graduating students in both the senior and community colleges, the differences in cumulative GPAs between summer school attendees com-

pared to non-attendees are either negligible or not statistically significant. Thus we cannot determine the effects of summer attendance by assessing the cumulative grade point data. The advantageous results, if any, of attending summer sessions must therefore await the examination of student outcomes.

c. Cumulative Measures and Student Outcomes

For the senior college sample, table 7.5 demonstrates the differences in credit and grade accumulation for dropouts, persisters, and graduates, and compares summer attendees to those who did not attend.

Table 7.5

Credit and Grade Point Means by Summer Attendance and Final Status — Senior College Sample

	Dropouts		Persisters		Graduates	
	Attended Summer	Attended No Summer	Attended Summer	Attended No Summer	Attended Summer	Attended No Summer
<u>Total Credits</u>						
w/Summers	78.8	32.1*	97.8	78.1*	125.3	121.9*
w/o Summers	70.4		89.2		113.7	
<u>Final GPA</u>						
w/Summers	2.40	1.81*	2.33	2.30*	2.94	3.01*
w/o Summers	2.43		2.34		2.95	
N	(1382)	(2104)	(712)	(378)	(3087)	(590)

(Source: Sample)

*Unadjusted means for students not attending summer school.

The differences in credit accumulation between students who attended summer school and those not in atten-

dance are substantial. With the exception of graduates' total credits with summer credits removed, which was discussed earlier, summer attendees earned more credits than students who opted not to attend.

Grade point average presents a different picture. Whereas dropouts who attended summer school have a much higher GPA than those students who did not attend, the data for persisters show that summer school made little difference in grade point average and for graduates, summer attendees had slightly lower GPAs. The case of the graduates is interesting. In order to graduate within four or five years, most students took some summer courses. The 16% of senior college graduates who did not attend summer school had to perform at a better rate during regular semesters, and as evidenced in table 7.4, at a somewhat higher caliber as well. Thus, although summer school may have contributed to the success of some of these graduates, students who graduated and did not attend summer school formed their own "academic elite."

Table 7.6 presents the accumulated credit and grade data for community college students by final status.

Table 7.6

Credit and Grade Point Means by Summer Attendance and Final Status -- Community College Sample

	Dropouts		Persisters		Graduates	
	Attended Summer	Attended No Summer	Attended Summer	Attended No Summer	Attended Summer	Attended No Summer
Total Credits Earned	49.2		74.2		95.0	
Total Credits w/o Summers	44.6	19.1*	68.0	49.6*	86.9	77.5*
Final GPA	2.01		2.10		2.61	
Final GPA w/o Summers	2.02	1.42*	2.07	2.04*	2.62	2.68*
N	(596)	(2059)	(205)	(166)	(1036)	(387)

(Source: Sample)

*Unadjusted means for students not attending summer school.

The data for the community colleges exhibit the same pattern as the senior college data. One notable exception is shown for graduates' total credits with summer courses removed. Whereas senior college graduates showed less credits earned in regular semesters, community college graduates show an increase over those not in attendance. This apparent anomaly occurs because summer attendees are more likely to transfer to senior colleges (see below). Therefore, transferring students who attended summer school will have, on average, a higher number of credits earned after five years than graduates who do not continue

at an upper division college.

C. Summary of Performance Findings

The main finding of this chapter is that students who attend summer sessions generally outperform those who do not attend. However, as we have seen, the methodology of quantitatively assessing the effects of attending summer school is quite cumbersome. This is caused mainly by two inherent problems in the data. First, cumulative data are corrupted by the inclusion of summer semester performance. This affects both credit and grade point average figures. The removal of summer performance from accumulated measures introduces secondary problems, such as distorting the credit data of graduates who earned credits in summer courses. Secondly, the ceiling effects on both credit accumulation and grade measures make the assessment of summer school's impact on overall performance difficult. However, we were able to overcome these shortcomings by focusing our analyses on the effects of attending summer school on regular semester performance. In addition, we were able to use cumulative data for persisting students.

The findings showed that post-summer regular semester performance was positively related to summer school attendance. We hypothesized that the year-round exposure to education (during which the amount of education was greater for summer attendees) tended to increase the cognitive development of attending students above that of

non-attending students. It is also important to note that the credits and grades received in summer courses were quite substantial in their own right. For many successful students, summer work represented a large proportion of their credits and also accounted for higher GPAs.

Although we were able to show that performance was, indeed, enhanced by summer attendance, we must assess the further impact of summer school by examining its effects upon student outcomes.

NOTES

1. Underachieving students are identified as students who are earning less credits than they need to advance or graduate with their class on schedule, or who have insufficient grade point averages.
2. Although these data are available for the entire 1970 cohort, it is appropriate to use the sample data here and in the remainder of this chapter's tables since the subsequent regression analyses must use the sample data.
3. CUNY's colleges vary in terms of specific requirements for graduation, including number of total credits needed, number of credits to be taken in the student's fields of major and minor interest, the numbers of non-academic credits allowed, etc.
4. See chapters 6 and 7 of Lavin et al. (1981), especially tables 6.12, 6.13, 7.6 and 7.10.
5. Although CUNY's official records contain periodic cumulative data, that is, semester-to-date totals, the working definition of accumulated performance used here is the student's total number of credits and overall grade point average after five years.
6. Final status is one of three possible student outcomes after five years: graduated, dropped out, or persisting (still in attendance).
7. See Lavin et al. (1981), tables 6.4 (senior colleges) and 6.6 (community colleges).
8. The recalculated GPA should equal the old GPA for students who did not attend summer sessions; however, the two GPAs may vary slightly due to rounding errors in performing the recalculations.

CHAPTER VIII - Summer Attendance and
Student Outcomes

This chapter is concerned with determining what are the effects of attending summer school upon student academic outcomes. Whether students graduated, dropped out, or are still enrolled after five years, i.e. how students fared in their college careers, is probably the most important parameter in evaluating academic programs. The tabular relationship between summer attendance and student outcomes is shown in table 8.1. It shows the distribution of summer attendance by students' final status after five years for the entire CUNY population.

Table 8.1

Amount of Summer Attendance by Final Status (after Five Years)

Summers Attended	Senior Colleges			Community Colleges		
	Grad- uates	Persi- sters	Drop- outs	Grad- uates	Persi- sters	Drop- outs
0	16%	33%	65%	27%	44%	79%
1	26	28	18	36	30	15
2 or more	58	39	17	37	26	6
	100%	100%	100%	100%	100%	100%
N	(7006)	(2949)	(9608)	(3949)	(1308)	(9324)

(Source: Population)

There are some rather unexpected findings in table 8.1. Of all senior college graduates, 84% attended summer school at least once in their college careers. This was

also true for 73% of all community college graduates. Summer school was the norm, rather than the exception, for CUNY graduates; among successful students, we would find few who had not attended some summer session. This allows us to reject the hypothesis that summer school was an ameliorative program mainly for failing or slowly progressing students.

Not only was the number of students participating high. An overwhelming 58% of senior college graduates attended two or more summer sessions. In the community college population, 37% of the graduates attended two or more summers (some of the reported attendance was for senior college summer attendance after having transferred). These data represent a large and mostly unexpected amount of summer school attendance for successful students.

On the other hand, unsuccessful students were unlikely to attend summer school. Among students who dropped out of senior colleges, only 35% had taken any summer courses and only 17% ever attended two or more summer sessions. The percentage of dropouts attending summer school is even lower in the community colleges: only 21% ever attended summer school, and very few attended more than one summer session (6%). Thus, summer attendance for students who failed to either graduate or remain in school was not very likely.

The third category in table 8.1 represents persisting

students. These are students who were still enrolled after five years. While they do not participate in summer school to the extent that graduating students attend, they nonetheless attend at a rather high rate. In the senior colleges, 67% of all persisters attended at least one summer session, and 39% attended more than once. In the community college population of persisters, 56% attended summer school at least once, while some 26% attended two or more sessions. Thus, in terms of summer participation, persisters behave somewhat like their graduating peers. This similarity seems reasonable since students who have "survived" and are still enrolled after five years of college are likely to be close to graduation.

Table 8.1 has presented the frequency of summer attendance for the three outcome groups within the 1970 cohort. The relationship of summer attendance to these outcomes will be the concern of the remainder of this chapter.

As we have seen, students in the 1970 freshman cohort can be categorized into one of three distinct groups five years after their initial enrollment. The data allow us to determine whether they have graduated, dropped out, or are still enrolled at the university.¹ These three statuses were used as dependent variables in separate regression analyses in order to determine the effects of summer school attendance upon student outcome. The findings reveal that summer attending had varying effects

depending upon which group of students are examined:
graduates, dropouts, or persisters.

A. Summer Attendance and Graduation

Graduation is the essential goal of attending college. It can therefore be considered the most important criterion of success. Of course there are benefits gained by students who attend college without graduating as contrasted to those who have never attended college. However, many critics of CUNY, especially those who are not proponents of its open admissions policy, point to graduation results as the only acceptable evidence of success. Universities are often evaluated in terms of graduation rates.² Thus graduating is vitally important for students, and graduation rates are vital to the university as well.

Earlier we presented tables and discussions of summer attendance that showed a large majority of CUNY graduates had in fact attended one or more summer sessions. The essential question regarding the relationship of summer school and graduating is, "Did attending summer school contribute to students successfully completing their college education?" The null hypothesis we will seek to reject is: Attending summer school made no difference in determining which students graduated from the university.

This analysis must also address some methodological problems. We have shown that a major advantage of attend-

ing summer school is the attainment of credits. However, since graduation is for the most part the accumulation of enough credits, any variable which is also an indicator of increased credits will be correlated to graduation. Thus the correct question to ask may in fact be, "What contribution did attending summer semesters make to the accumulation of sufficient credits for graduating?" However phrased, the analyses show that attending summer school was an important determinant of graduating.

This major finding was true for both senior and community colleges. Students who attended at least one summer semester were 35% more likely to graduate than students with no summer school courses.³ That is, the probability of graduating, while holding all other related variables constant, was increased by 35% for summer attendees.

Since all graduating students have approximately the same number of earned credits, another difference between summer attendees and those not attending is the length of time it took to graduate. Summer attendance does lead to graduation in a shorter period of time. In senior colleges, students who attended summer school graduated on average after 4.13 years at CUNY, while graduates without summer school courses took 4.28 years to graduate.⁴ Many community college graduates who attended summer school also took less time to graduate than those who did not

attend. However, because so many successful community college students opted to transfer to a senior college before graduating, it is not meaningful to compare the lengths of time spent in achieving community college graduation for summer attendees compared to non-attendees. Even with this proviso, it is clear that summer attendance is a strong predictor, if not determinant, of both graduating per se and graduating earlier. Students who are able to pursue academic course work in summer school have a much better chance of graduating, spend less time doing it, and since they are also likely to have high grade point averages, are probably more likely to be accepted into a graduate or professional school program.

B. Summer Attendance and Dropping Out

Dropping out is failing to achieve the goal for which most students enter college: to graduate. Almost all students enter college seeking some level of degree. In the senior colleges less than 2% of entering freshman aspired to less than a bachelor's degree, while in the community colleges, less than 3% of students did not aspire to at least an associate's degree. Therefore, students who drop out fall short of their intended goals and for the most part are failures to themselves and their families. In addition, they represent a loss for the university in terms of reduced student body size, concomitant loss of support from financing authorities, and institutional

prestige. Dropout rates are recognized as important barometers of academic quality within the community of universities. In short, dropping out is a serious problem.

The question regarding the relationship between summer attendance and dropping out is whether or not attending summer school lessens a student's chances of dropping out. The simple correlation of the two measures is quite high -- dropouts do not attend summer school. However, the data are again confounded by the fact that early dropouts have little or no opportunity to attend summer school because they are no longer present in the university. Thus, the simple relationship of summer attendance to the dropout rate is spurious. Dropouts do attend summer school at a rate much lower than either graduates or persisting students. However, the data show that dropping out causes low summer attendance, not vice versa. This is not a finding at all, but a tautology.

In order to determine whether summer attendance has any effect upon keeping a student enrolled, it was necessary to restrict our analysis to the subset of students who remained in school long enough to have an opportunity to attend summer school. This was accomplished by selecting students who had amassed at least one-half of the credits required for graduation from their level of college. For senior college students, that amounted to

approximately 60 credits; for community college students, approximately 30 credits. Senior college students thus had enough credits to enter their junior year in the university, while community college students had successfully completed one full year of school work. More importantly, these students had the opportunity of attending at least two or one summer session respectively.

Regression analyses were run using these subgroups. We found that in both senior and community colleges, students who had attended at least one summer semester were significantly less likely to subsequently drop out. In the senior colleges, students who did not attend summer school were 21% more likely to drop out compared to those students who had attended at least once. In the community colleges, non-attendeess were 6% more likely not to finish the second half of their college careers.

These findings are significant since we are dealing with students who have already demonstrated considerable academic achievement by surviving through at least half of their college careers. Thus, summer attendance is a reliable predictor of persistence even for students who have already earned a considerable number of college credits. Summer attending is therefore also an indicator of an intention of continuing college studies. The findings are consistent with the hypothesis that the increase in exposure to an academic environment, which summer school

offers, contains a component which is related to a positive attitude towards education. It is reasonable to assume that this attitudinal aspect contributes to the findings that summer attendees are more likely to remain in college.

C. Summer Attendance and Persisting

A sizable proportion (14%) of our sample of senior college students were still enrolled after five years. They had neither graduated nor left the university, although many persisters had "stopped out", that is, they failed to register for one or more regular semesters but had subsequently returned (see chapter 2, note 5). In the community colleges, 8% of the freshman cohort was still present at CUNY, although some of these students had transferred to senior colleges.

Persisting students are an important aspect of success for the university since they are often close to graduating. When we regress persistence with summer attendance, we find that the probability of persisting is 6% greater for students attending summer school in senior colleges, while in community colleges the probability is 5% greater. Thus summer attendance does seem to contribute to keeping students in school even if they have not graduated after five years in the university. This is also consistent with the hypothesis that summer school imparts a commitment to education. In this instance, it

plays a part in encouraging students who may otherwise have been discouraged by the length of time they have been in school without graduating. It is an interesting paradox that summer school attendance has a positive effect on both students who graduate quickly and those who take a long time to do so.

D. Community College Summer Attendance and Transferring to Senior College

The university encouraged community college graduates to transfer to senior colleges to continue their education after completing the two-year program. As a result, community colleges offered a "transfer" curriculum which was geared to facilitate entering an upper level college. These curricula included courses which were accepted by senior colleges as equivalent to those taught to their own "native" freshmen and sophomores. As a consequence, many community college students were able to enter CUNY senior colleges as juniors on a par with members of the cohort who had started at the senior college level. For many students, especially open admissions students, transferring provided the only route to the four-year degree. As we have shown, despite the opening of the university to all high school graduates, admission to the senior colleges was still based on merit to a great extent.

The amount of transferring into senior colleges was also important to the CUNY administration as it repre-

sented an important aspect of success for the university's new programs. Previously, minority students, if they attended CUNY at all, were relegated to community college programs because of the meritocratic admissions policy. The new admission policy was supposed to ameliorate this segregation. Nonetheless, open admissions students comprised the majority (67%) of students at the community college level, while they comprised only 46% of the senior college population (chapter 2, table 2.3).

For the new policy to achieve recognition as a success (a goal to be achieved by offering the previously disenfranchised minority students a traditional liberal arts education), it would be necessary for a reasonable number of open admissions students to be awarded four-year degrees. Thus, by maintaining transfer programs and guaranteeing upper division admission to all community college graduates, transferring to senior colleges was encouraged in order to achieve one of the most important goals of the open admissions policy -- increased minority participation in senior colleges. At the same time, standards of admission to senior colleges could be maintained by having open admissions students first attend community colleges and then allowing those who were able to graduate to transfer. As a consequence of this strategy, many community college freshman were able to earn the four-year diploma, thus achieving their goal of

obtaining a senior college degree.

Whatever the intention of the university, the transfer policy accounted for a significant amount of the success within the 1970 cohort (Lavin et al. 1981:217-24). The data show that many community college students who transferred into the junior year at a senior college performed as well as "native" students in terms of graduating, maintaining matriculation, and attaining satisfactory grade point averages.

Since transferring is so important to the success of some students, it is necessary to assess the relationship, if any, of summer attendance to the rate of transfer. As part of this analysis, we are assuming that transferring is an indicator of a student's commitment to education. Therefore, given our previous findings relating summer school to an increase in commitment, summer attendance should be positively related to transferring. The regression analyses found that this was in fact the case.

For community college students who attended any summer school, we found that the probability of transferring was 35% greater than it was for those students with no summer session experience. Not only is this consistent with the assumption that summer school is an indicator of educational commitment, it suggests that this commitment is a determinant of increased rates of transfer.

It is also reasonable to assume that summer attendance

is causally related to transferring, since the differences we found were quite large even after controlling for other significant variables. A secondary confirmation of causality is the finding that more students who have been exposed to an increased quantity of education (in this instance, summer school) decide to continue their education beyond their original aspiration level as compared to students who did not attend summer school. They desire to achieve beyond the degree that they have already earned. It is important to note that we have controlled for degree aspiration, as well as academic ability, in the regression analysis. Transfer rates are indeed higher for those community college students who had expressed a desire for a higher than two-year degree. We still found a sizable difference in transfer rates between students attending summer school and those not attending, given equal degree aspirations. The difference was also too large to be explained by other unavailable variables. Thus summer school seems to make a significant contribution to transferring, and by extension, to the success of both individual students and the new policy.

In terms of the specific target group for whom the ease of transferring was intended, open admissions students, the same regression analysis was performed to determine the extent that summer school contributes to their transfer rates. Open admissions students who took

summer school courses were 26% more likely to transfer than those who did not attend.

These findings, however, are again partially explained by summer attendance also being an indicator of persisting. In order to better estimate the direct effects of summer attendance, the same regression analysis was performed for those community college students who had earned enough credits to enter their second year of community college.

When we examine the effects of summer attendance for these "on time" students, i.e. those who had completed a full year of study at a community college, we find that summer attendance is even more significant. Summer attendees are 31% more likely to transfer than those otherwise successful students who do not participate in a summer program. This analysis also showed that summer school attendance is equally important for open admissions students as it is for the general population at the community college level. Thus, it appears that summer attendance is indeed an indicator of motivation and commitment among many open admissions students. Those students at community colleges who took advantage of summer school were far more likely to enter four-year programs than those who did not attend. Thus, summer attendance plays an important part in determining a successful outcome for many open admissions students. Not only does summer school

contribute to their success in achieving the two-year degree, it also allows those students who wish to continue, a better chance of transferring. Those open admissions students who availed themselves of the opportunities offered by the university, such as summer school and transfer programs, were able to succeed at a much higher rate than most critics (and many supporters) of the new policy ever imagined.

NOTES

1. Persisters (still enrolled) are defined as those students who registered in the spring semester of the fifth year and had not yet earned the number of credits required for graduation.

2. See Lavin, et al. (1981:275-84) for a discussion of the problems involved in evaluating the success of educational programs.

3. Dummy dependent variables allow us to assess the role of independent variables in affecting the probability of the "event" represented by that dummy variable. In this instance, summer attendance offers participating students a 35% greater likelihood of graduating. See appendix B in Lavin et al. (1981) for a fuller explanation of dummy variable usage.

4. These figures were derived from official CUNY graduation records which list the semester of graduation for each student. The comparison was made possible by computing the mean number of semesters from fall 1970 to the semester of graduation for summer school attendees compared to the mean for those not attending.

CHAPTER IX - Conclusions of the Research

This chapter is concerned with summarizing the findings of the research that were presented in this monograph. In addition, the findings will be placed within the context of the larger issues and theoretical questions that were raised throughout the study.

Chapter 1 described the two major research goals that this study would pursue. We first wanted to establish the determinants of summer school attendance. We proceeded by identifying which characteristics differentiated summer school participants from those who opted not to attend. Subsequently, we examined whether or not these characteristics could be considered causal, and if so, to what degree did they influence students' summer attendance behavior. Our second research task was to assess and quantify the consequences of attending summer school (as well as not attending) specifically for students who entered the university in 1970, the first year of the new CUNY open admissions policy. We wished to determine if attending summer school affected the academic performance of those classified as open admission students, as well as the progress of regular students. In addition, we were interested in assessing the consequences of summer school

participation for the university and its programs.

Two theoretical problems were also posed. The first was to determine whether the amount of education (as represented by attending summer school) plays a role in academic achievement. This pursuit paralleled the work of Heyns (1978) who found that summer learning did make a difference in the academic performance of her sample of elementary school pupils. The concept of an increased amount of education for academically disadvantaged students contradicts a traditional meritocratic doctrine: to preclude or reduce the participation of underachieving students in the educational system. Thus, CUNY's decision to implement open admissions was spurred by a resolve to offer an opportunity to those students who were previously excluded by meritocratic admissions policies. Although open admissions was specifically aimed at attracting minority students, the university experienced a largely unexpected consequence: an influx of non-minority students who were able to take advantage of the new policy, yet who were not the targets of it. Therefore, our second theoretical problem was to determine how the benefits of ameliorative social programs accrue to groups other than those for which they are targeted, and what the consequences of this are for those who are targeted.

A. Summary of the Findings

Although assessing the determinants of summer school

attendance and examining the consequences of attending represent two distinct research problems, the results of our analyses have shown they are, indeed, interdependent. First, the determinants of summer attendance, for the most part, predict the differential outcomes of summer school: the composition of the summer school population (its demographics, values and attitudes) accounts for most of the performance differences we found between students who attended summer school and those who chose not to attend. That is, the selection process itself (the factors which led to the student's decision to attend) determined, to a significant degree, what the consequences would be. In addition, academic performance itself is related to summer school participation -- high achieving students are more apt to attend. Thus, the research was concerned not only with an analysis of the causes, and then the effects of summer attendance, but with the relationship between them as well.

1. The Determinants of Summer Attendance

The initial finding, that higher achieving students constituted a majority of CUNY's students who attended summer school, was somewhat unexpected. Although we had posited that ameliorative programs are often utilized by others than for whom they were intended, it was by no means apparent that summer school was representative of such a program. However, in the census of student summer

school participation that was presented in chapter 2, it was evident that more able students did, in fact, predominate. This finding contravenes the prevailing belief that summer school is mainly utilized by students performing below standard levels and who are desirous of improving their academic standing. Of course, many summer school attendees do fall into this category. However, the research has shown that there are many reasons which affect a student's decision to attend summer school.

a. Tabular Analyses

We identified many of the variables which are associated with summer school attendance. Consequently, we were able to develop a student typology.¹ Caplovitz (1983:245) points out that one function of a typology is to allow us to "interpret a null relationship when a positive relationship was expected." The dearth of under-achieving students in summer school parallels this null relationship. A three dimensional typology of summer attendees resulted: high achievers seeking advanced standing, low achievers attempting to "catch up," and open admissions students hoping to achieve parity with regular students. Each displayed a varying rate of summer school attendance which we found was partially explained by academic ability. In addition, each type showed distributional differences on other variables which were also related to attending. For example, summer school was not

only predominated by high achieving students, but attendees also scored higher on other educational dimensions as well, such as exhibiting good study habits and believing that personal intellectual growth was an important reason for their attending college.

In addition, within each of these subgroups, the members who were most likely to attend summer school were achieving at rates higher than those who chose not to attend. Thus, both among and within types of students, academic ability was one of the most important factors in determining which students participated in summer school. Many other indicators of attendance emerged in the analyses, yet a significant proportion of their relationship to summer attendance was due to their relationship to ability, as well. In some instances, ability completely explained the observed relationship, thus rendering the original finding spurious.

In addition to ability as a determinant of who attends summer school, we found that many student characteristics did show a relationship to summer attendance. However, since many of these variables had dissimilar distributions in senior and community colleges, we found that level of college accounted for much of the variation in summer attendance which we observed. Since summer attendance was much more prevalent in senior colleges, many of the zero-order relationships were found to be spurious. On the

other hand, several other variables were still related to summer attendance even after controlling for college type, although there also were distributional differences. Of course, we also found that some significant relationships were not at all related to differences between senior and community colleges. Therefore, our research enabled us to show which variables, besides ability and college level, actually accounted for some of the variation in summer attendance.

Among the major determinants of summer attendance were ascribed characteristics such as: sex, race, religion, and a combined race and religion variable, ethnicity. Women, white students, and Jewish students were generally more likely to attend summer school than men, minority students, and non-Jewish students respectively. Again, there were significant quantitative variations in the importance of these variables between senior and community colleges.

Although status variables were rather significant indicators of summer attendance, a large amount of the variation they explain is attributable to demonstrated (high school) academic ability and subsequently, to college performance. Thus, high ability students became high achieving students in college; high achievers were more likely to attend summer school; summer attendance itself contributed to further high achievement. This cycle led

to a significant accumulation of advantage for students of higher ability.² In this fashion, summer school worked to the disadvantage of the new arrivals -- open admissions students, as well as other lower ability freshmen. Blau (1975) points out that often the "rewards of one kind become resources for obtaining more rewards of other kinds, which may be considered another manifestation of the Matthew effect."³ Thus a potentially ameliorative function of summer school, to enable slower students to "catch up" with their peers, was shown, in fact, not to work in the aggregate; the gap between high and low achievers was somewhat widened.

In addition to status variables, student background variables were presented in the analyses. These included parental influences, student personality and character traits, and attitudes. Although the relationships of these variables to summer school attendance was not strong, some of them continued to show a relationship to summer attendance in the multivariate analyses.

Most student attributes, although related to summer attendance, were found not to be causal. Since ability and level of college determined summer attendance to such a large extent, and since many of the other measures varied by level and ability as well, most student characteristics were limited to the role of being merely excellent indicators of summer attendance.

Several independent variables were shown to have an effect upon summer attendance, while several other seemingly related measures did not show similar effects on attending summer school. We therefore hypothesized that these "robust" variables were actually measuring an underlying concept: student attitudes towards education. As a consequence, a positive attitude increased the likelihood of attending summer school. For example, we found that the importance of personal intellectual growth was related to attending summer school, while other motivational variables were found to be unrelated. Attitudinal measures appear to be determinants of college success indirectly, by affecting intervening variables; summer school attendance is one such intervening variable.

b. Multiple Regression Analyses

Using multiple regression analyses, we were able to quantify the effects of independent variables, while controlling for all other variables in the data set. As expected, the regression analyses showed that summer school was far from being remedial: students with lower ability were less likely to attend, and open admissions students were even less apt to take summer courses. Students who were educationally motivated tended to participate in summer school to a greater extent than students who scored lower on these motivational indexes.

The regression analyses also showed that women were,

indeed, more likely to attend summer school. Since there is ample evidence that female students outperform men (Astin 1972; Sewell 1980), sex difference is another indicator that more able students utilize summer sessions and thereby perform at an even higher level. The hypothesis that summer school was predominated by students who had received poor grades or too few credits was again shown to be false.

Ethnicity remained an important determinant of summer attendance. It accounted for approximately the same amount of variation in summer attendance as did academic ability. In senior colleges, Jewish and Asian students attend summer school at a higher rate than all other ethnic groups; Hispanic students are least likely to attend. In community colleges, Jewish students are only somewhat more likely to attend, while Catholic students attend least. Thus, we found that even after controlling for all available measures, there are substantial differences in summer school participation among ethnic groups.

Age maintained a relationship to summer attendance for students at both levels of college. However, its influence was twice as large in the community college population. Older students were more likely to attend. The regression analysis enabled us to explain the zero-order relationship (which showed the opposite to be true). Since younger students are more academically able, the

The regression analysis enabled us to explain the zero-order relationship (which showed the opposite to be true). Since younger students are more academically able, the original negative correlation of age to summer attendance, without controlling for ability, was spurious.

Other significant variables affecting summer attendance were found. For senior college students, behavioral maladjustment and political liberalism were shown to be negatively related to summer attendance. Having an active social life, having bad work habits, working and having a concern for social welfare issues are also negatively related for senior college students. Students for whom personal growth is important, who have made a decision about their future careers, and who are in favor of government intervention into social problems are more likely to attend. Differences between the two levels exist only in that having job plans, having bad work habits and being concerned about social welfare issues were unrelated to summer attendance in community colleges.

For community college students, those who work, who are active socially and are politically more liberal, and who report behavioral maladjustment attend summer school less; those who value personal growth and government involvement are more likely to attend.

An extremely significant finding in the analyses was that differences between college levels were actually

college students.

2. The Effects of Summer Attendance

Having examined the determinants of summer attendance and having established that more able students most often participated in summer school, we were interested in determining what performance differences were discernible between students who attended and those who did not attend. That is, what benefits, if any, accrued to these participating students.

The findings were quite substantial: attending summer school was a significant factor in the academic success of many students. The major aspect of summer school which contributed to student success rates was the increment to credits and grade point average made during the summer semester itself. Since the majority of summer attendees was academically more able, summer school tended to increase the aggregate differences between these more able students and those with less demonstrated ability. Therefore, summer school had the unanticipated (and ironical) consequence of exacerbating the problem the university faced in attempting to bring open admissions students' performance closer to the performance of regular students.⁴ While open admissions students who did avail themselves of summer school received benefits -- in many cases equal to the benefits enjoyed by regular students in terms of performance and outcomes -- they were much less

likely to attend. Other, less academically able students suffered from low summer attendance rates as well.

Besides contributing directly to credits and grades, summer attendance was found to be related to increases in performance in non-summer semesters. Generally, students who had attended summer school earned more credits in subsequent regular semesters. This finding is consistent with the hypothesis that there is a "value-added" component of attending summer school which contributes to students' attitudes towards education (as well as to their increased cognitive development). The patent effect of this component is an increased level of performance. This is manifested not only in credit and grade acceleration, but in increased success rates in terms of student outcomes. Higher graduation and persistence rates were consistently found for summer attendees at both levels of the university. As a result, summer attendees also benefited from having lower dropout rates.

For community college students, summer school offered another reward. Summer attendance was shown to have a positive effect upon transferring to senior colleges. This enabled many students to earn bachelor's degrees from one of the four-year colleges within CUNY, some of which are among the most prestigious undergraduate institutions in the nation. By enabling many open admissions and other low achieving students to transfer, summer school was an

important contributor to the success of the open admissions policy. Transferring afforded many of its first beneficiaries in the freshman class of 1970 the opportunity to graduate from a senior college. Of course, as we have seen throughout the research, summer attendance greatly benefited high achieving students as well.

3. Summer Attendance and the University

Summer school was an important factor in the success of many students. Its benefits were not limited to assisting failing or slower students to achieve parity with more successful peers. Although this was certainly an important function of summer school, its latent function has proven to be even more pervasive -- to enhance superior students' performance and to increase their amount of successful outcomes. While this was not in itself a pejorative attribute of summer school at CUNY, it illustrates that summer school was indeed exploited by students who already enjoyed considerable advantage. Thus summer school widened the gap between regular students and open admissions students. Therefore, summer school tended to thwart a major goal that CUNY had adopted for its open admissions policy: to reduce the relative disadvantage with which open admissions students entered the university. Summer school for the 1970 freshman class was another example of Merton's Matthew effect, "the principle of cumulative advantage that operates in many systems of

with which open admissions students entered the university. Summer school for the 1970 freshman class was another example of Merton's Matthew effect, "the principle of cumulative advantage that operates in many systems of social stratification to produce the same result: the rich get richer at a rate that makes the poor become relatively poorer" (Merton 1973:457). Our research has shown that better students did, in fact, utilize summer school to a much greater degree than did less able students. Thus, summer school represents another facet of a process which generally characterizes social stratification systems: to maintain or enhance the status quo. Blau (1975:125) describes the effects of this process: "As a result, individuals experience greater status consistency with their hierarchical standing on one dimension being similar to their standing on others, but this also means, looking at it from another perspective, that inequalities are more pronounced and that status disadvantages in some respects are not mitigated by status advantages in others." This tendency of stratified systems led us to one of our theoretical concerns. We attempted to determine which characteristics of students affected their decision to attend summer school. One reason for that analysis was our interest in demonstrating who utilizes educational programs which are open to all students. The findings enabled us to show one mechanism by which ameliorative

creased probability of success. As for the evaluation of summer school's effect upon the open admissions policy itself, however, since open admissions students were much less likely to attend, the relative advantages between them and regular students were actually increased.

Griffen and Alexander (1975:135) identify the locus of programs in higher education, such as summer school, within an educational system which tends to increase inequality. "Insofar as schools...are implicated in the reproduction of socioeconomic inequality from generation to generation...attention should be devoted to postsecondary educational institutions and to the differential access to utilization of resources located within them. Our results suggest that these mechanisms both enhance career achievements and transmit some of the benefits associated with advantaged social origins."

NOTES

1. See Caplovitz (1983:240-45) for an excellent introduction to the use of typologies in empirical social research.
2. See Merton (1973) and Blau (1975) for the definition and examples of accumulated advantage and its sociological implications in maintaining status consistency (status quo).
3. See Merton (1973:439-59) for an explanation of the Matthew effect and the "rich get richer" syndrome.
4. For a detailed sociological overview of the unanticipated consequences of purposive social action, see Merton (1936). Open admissions at CUNY appears to have suffered from one general type of factor which leads to unanticipated consequences where "...the 'imperious immediacy of interest,' refers to instances where the actor's paramount concern with the foreseen immediate consequences excludes the consideration of further or other consequences of the same act." (Merton 1936:901).

APPENDIX A

12. For each item, indicate if it is a source for financing your education. Mark one in each row.
- | | Major Source | Minor Source | Not a Source |
|--|--------------------------|--------------------------|--------------------------|
| Part-time or summer work | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Savings from full-time employment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Parents or family and/or gifts | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Federal benefits from parents' military service | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| GI benefits from U.S. military service | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Scholarships and grants | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOA loans (regularly insured loans or college loans) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other, (separable loans) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

13. What is the highest level of formal education obtained by your parents? Mark one in each column.
- | | Father | Mother |
|------------------------|--------------------------|--------------------------|
| Grammar school or less | <input type="checkbox"/> | <input type="checkbox"/> |
| Some high school | <input type="checkbox"/> | <input type="checkbox"/> |
| High school graduate | <input type="checkbox"/> | <input type="checkbox"/> |
| Some college | <input type="checkbox"/> | <input type="checkbox"/> |
| College degree | <input type="checkbox"/> | <input type="checkbox"/> |
| Postgraduate degree | <input type="checkbox"/> | <input type="checkbox"/> |

14. What is your best estimate of the total income last year of your parental family (not your own family if you are married)? Consider annual income from all sources before taxes. Mark one.
- | | |
|--|--|
| <input type="checkbox"/> Less than \$4,000 | <input type="checkbox"/> \$15,000-\$19,999 |
| <input type="checkbox"/> \$4,000-\$9,999 | <input type="checkbox"/> \$20,000-\$24,999 |
| <input type="checkbox"/> \$6,000-\$7,999 | <input type="checkbox"/> \$25,000-\$29,999 |
| <input type="checkbox"/> \$8,000-\$9,999 | <input type="checkbox"/> \$30,000-\$34,999 |
| <input type="checkbox"/> \$10,000-\$12,499 | <input type="checkbox"/> \$35,000-\$39,999 |
| <input type="checkbox"/> \$12,500-\$14,999 | <input type="checkbox"/> \$40,000 or more |

15. Are you: Mark one
- | | |
|--|--|
| <input type="checkbox"/> White/Caucasian | <input type="checkbox"/> (Mark one in each column) |
| <input type="checkbox"/> Black/Negro/Alto American | |
| <input type="checkbox"/> American Indian | |
| <input type="checkbox"/> Oriental | |
| <input type="checkbox"/> Other | |

16. Current religious preferences:
- | | Yours | Father's | Mother's |
|------------------------------|--------------------------|--------------------------|--------------------------|
| Baptist | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Congregational (U.C.C.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Eastern Orthodox | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Evangelical | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Anglican | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Luther Day Saints (Lutheran) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lutheran | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Methodist | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Presby/terian | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Quaker (Society of Friends) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Roman Catholic | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sepventh Day Adventist | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unitarian-Universalist | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other Protestant | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other Religion | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| None | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

17. During the next few years, to what extent do you think the Federal Government should be involved in each of the following national issues? Mark one in each row.
- | | A | B | C | D | E |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Eliminate any existing programs or remain unchanged | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Decrease involvement from current level | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintain current level of involvement | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Increase involvement from current level | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Initiate new crash program | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

18. Where did you live for most of the time while you were growing up? (Mark one)
- | | |
|--|--|
| <input type="checkbox"/> In a small town | <input type="checkbox"/> In a suburb of a large city |
| <input type="checkbox"/> In a medium size town or city | <input type="checkbox"/> In a large city |

19. Mark one in each row
- | | A | B | C | D | E |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Far left | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Liberal | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Middle of the road | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Conservative | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Far right | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

20. How many miles is this college from your home? Mark one.
- | | |
|------------------------------------|--|
| <input type="checkbox"/> 5 or less | <input type="checkbox"/> 51-100 |
| <input type="checkbox"/> 6-10 | <input type="checkbox"/> 101-500 |
| <input type="checkbox"/> 11-50 | <input type="checkbox"/> More than 500 |

21. From what kind of secondary school did you graduate? Mark one
- | | |
|--|---|
| <input type="checkbox"/> Public school | <input type="checkbox"/> Non-public Catholic |
| <input type="checkbox"/> Non-public Christian | <input type="checkbox"/> Non-public other religious affiliation |
| <input type="checkbox"/> Non-public, not religious affiliation | <input type="checkbox"/> Special Government, (military) |

22. What is your best guess as to what your freshman grade point average will be? Mark one.
- | | |
|----------------------------------|-----------------------------|
| <input type="checkbox"/> A or A+ | <input type="checkbox"/> B- |
| <input type="checkbox"/> A- | <input type="checkbox"/> C+ |
| <input type="checkbox"/> B+ | <input type="checkbox"/> C |
| <input type="checkbox"/> B | <input type="checkbox"/> D |

23. MARK ONE YOU HAVE ANSWERED ITEMS 19-22
23. What is your best guess as to the chances that you will: (Mark one in each row)
- | | Very Good Chances | Some Chances | Little Chances | Very Little Chances |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| Get married while in college? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Change major field? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fail one or more courses? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Graduate with honors? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Be elected to a student official? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Join a social fraternity, sorority, or club? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Author or co-author a published article? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Be drafted while you are in college? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Be elected to an academic honor society? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Enroll in the Armed Services Forces program, be more successful after graduation than most students attending this college? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Drop out of this college temporarily (exclude transferring)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Drop out permanently (exclude transferring)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Transfer to another college before graduating? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Be drafted while in college? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

24 Mark only three responses, one in each column

Your probable career occupation
 Your father's occupation
 Your mother's occupation

- NOTE: If your father or mother's occupation does not indicate his or her occupation, check one of the following:
- Scientist or scholar
 - Actor or entertainer
 - Architect
 - Artist
 - Business (clerical)
 - Business executive
 - Management administrator
 - Business owner or proprietor
 - Business manager or buyer
 - Clergyman (minister, priest)
 - College professor
 - College teacher
 - Computer programmer
 - Consultant or reporter
 - Dentist (including orthodontist)
 - Editor or home economist
 - Engineer
 - Farmer or rancher
 - Foreign service worker (including diplomat)
 - Housewife
 - Interior decorator
 - Investor (dealer)
 - Interpreter (translator)
 - Lab technician or hygienist
 - Law enforcement officer
 - Lawyer (attorney)
 - Military service (career)
 - Musician (performer, composer)
 - Nurse
 - Odontologist
 - Pharmacist
 - Physician
 - School counselor
 - School principal or superintendent
 - Scientific researcher
 - Social worker
 - Statistician
 - Therapist (physical, occupational, speech, or occupational therapist)
 - Teacher (secondary)
 - Veterinarian
 - Writer or journalist
 - Skilled trades
 - Other
 - Unclassified
 - Unborn (unclassified)
 - Semi-skilled work or other occupation
 - Unobserved

25 Which of the following currently is true about your parents? (Mark one)

- Both live and married to each other
- Both live and divorced or separated
- One or both parents deceased

26 How would you characterize the neighborhood in which your family lives? (Mark one)

- Upper class
- Upper middle class
- Middle class
- Working class
- Lower class

27 Which group most characterized the secondary school you attended? (Mark one)

- Upper class students
- Upper middle class students
- Middle class students
- Working class students
- Lower class students

28 How many students in high school did you consider to be your close friends? (Mark one)

- None
- 1-25
- 26-50
- 51-75
- 76 or more

29 What percentage of students in your high school graduation class went on to college? (Mark one)

- Under 10 percent
- 10-24 percent
- 25-49 percent
- 50-74 percent
- 75 percent or more

30 Are you a veteran? (Mark one)

- No
- Yes, I served in Vietnam
- Yes, but I did not serve in Vietnam

31 MAKE SURE YOU HAVE ANSWERED ITEM 31

32 Mark one in each row.

- Agree somewhat
- Disagree somewhat
- Disagree strongly

Students should have a major role in specifying the college curriculum. College officials have the right to regulate student behavior off campus. The chief benefit of a college education is that it increases one's earning power. Faculty promotions should be based in part on student evaluations. College grades should be withheld. Student publications should be cleared by college officials. College officials have the right to ban persons with extreme views from speaking on campus. Students from disadvantaged social backgrounds should be given preferential treatment in college admission. Most college officials have been too lax in dealing with student protests on campus.

31 Below is a general list of things that students remember to indicate which of these things you did during the year in school. If you engaged in an activity, mark "1" if you engaged in an activity one or more times but not frequently, mark "2" or more frequently. Mark "N" if not at all. If you have not performed the activity during the past year, mark "0" for each item.

- Participated in a student election
- Carried on in class
- Played a musical instrument
- Studied in the library
- Checked out a book or journal from the school library
- Arranged a date for another student
- Overhaul and visited a car or job
- Traveled a significant amount
- Discussed my future with my parents
- Failed to complete a homework assignment on time
- Argued with a teacher in class
- Attended a religious service
- Did extra (unassigned) reading for a course
- Took sleeping pills
- Tuited another student
- Prayed chess
- Headed party not connected with a course
- Took a plagiarizing pill
- Discussed religion
- Took vitamins
- Visited an art gallery or museum
- Worked in a local, state or national political campaign
- Worked in a hotel, state or national political campaign
- Mixed school because of illness
- Smoked cigarettes
- Discussed politics
- Drank beer
- Discussed sports
- Asked a teacher for advice after class
- Had vocational counseling
- Stayed up all night
- Cried
- Cursed or swore
- Missed classes or contact times

Agree strongly

Disagree strongly

Disagree somewhat

Agree somewhat

APPENDIX B

VARIABLES USED IN THE TABULAR AND REGRESSION ANALYSES

All of the dependent variables that were used in the research were obtained from official CUNY records which were made available for the 1970 freshman cohort. These included: (1) summer semester data, which were presented in two forms: (a) the number of summers attended, with categories 0, 1, and 2 or more, and (b) a dummy variable, with the categories 0 (never attended) and 1 (attended at least one summer session); (2) credit data were used both by semester and cumulatively. These data were taken from the official performance records maintained for each student and were used as they were coded, that is, the actual credit information in the student's file. The special variables created to exclude summer credit data from the official cumulative data were outlined in the text; (3) grade point averages were also obtained by semester and cumulatively, and were utilized in the same manner as the credit data; (4) the outcome data -- graduating, persisting and dropping out -- were also obtained from student performance data which listed last semester registered and graduation data, if applicable. Transfer data were obtained by comparing college of registration for each semester a student enrolled. A change from a community

college to a senior college connoted a transfer (a transfer dummy variable was created).

The independent variables measuring ability, namely high school academic average and the open admissions dummy variable were obtained from CUNY official records. The remainder of the independent variables used in the research were obtained from the Student Information Form and Supplementary Questionnaire which were administered to students in their first semester of attendance (see appendix A). Many of the measures used in the research were indexes constructed from two or more items within the questionnaire. The following table lists all of the indexes which maintained a relationship to summer attendance in the regression analyses. The items that were used to create them are also given. Independent measures that are not listed were used as they appear in the questionnaire.

Measure	VARNAME (Compute Name)	(Q)uestionnaire or (S)upplementary Item Numbers	Comments or Formulas
Age	AGE	3Q	Age was collapsed into 3 categories (see text).
Religion	REL	16Q	If no answer, mother's religion used, then if necessary, father's. Collapsed into Catholic, Protestant, Jewish, Other and None.
Ethnicity	ETH	15Q,16Q	Uses race and religion in following order: Jewish, Catholic, Other White, Black, Hispanic.

Measure	VARNAME (Compute Name)	(Q)uestionnaire or (S)upplementary Item Numbers	Comments or Formulas
Student Degree Aspiration	DEGINT	9Q	Collapsed into None, AA, BA, MA and doctoral level degrees.
Personal Growth Factor	FAC1	14S	Item"c"+Item"f"+ Item"h".
Working Index	WORK	12Q	Item"a"+Item"b".
Job Plans	JOBPLANS	24Q	Dummy variable: 1=indicated career choice 0=no career choice.
Family Income	FAMINC	14Q	Collapsed Low [<\$8000], Middle [\$8-12,500], and High Income [>\$12,500].
Parental Education	PARED	13Q	Mean of both parents; If either missing, one parent was used.
Neighborhood SES	SESINDEX	26Q,27Q	Mean of neighborhood and high school SES.
Parent Degree Aspiration	PSARASP	9Q	Mean of parental degree aspiration.
H.S. Honors	HONORS	8Q	Count of honors achieved in Item 8Q.
Expected Honors	HONINDEX	23Q	Count of expectations: be elected to office, author article, or join honor society.
Expected Achievement	EXPACH	22Q,23Q	Count of expectations: GPA(22Q)+Graduate with honors+Not fail course.
Bad Work Habits Index	BADWORK	31Q	Count of bad habits: Came late to class+late handing in assignments+ overslept: missed class.

Measure	VARIABLE (Compute Name)	(Q)uestionnaire or (S)upplementary Item Numbers	Comments or Formulas
Good Study Habits Index	GOODSTUD	31Q	Count of good study habits: library uses+ museum visits+extra reading+read poetry.
Government Intervention Index	GOVINT	17Q	Index composed of item"b"+item"c"+item"d"+ item"f"+item"h"+item"k".

BIBLIOGRAPHY

BIBLIOGRAPHY

- Acker, Joan R. 1980. "Women and Stratification: A Review of Recent Literature." Contemporary Sociology 9:25-35.
- Alexander, Karl L., Martha A. Cook and Edward L. McDill. 1978. "Curriculum Tracking and Educational Stratification." American Sociological Review 43:47-66.
- Alwin, Duane. 1974. "College Effects on Educational and Occupational Attainments." American Sociological Review 39:210-23.
- Alwin, Duane. 1976. "Socioeconomic Background, Colleges, and Post-Collegiate Achievement," in W. Sewell, R. Hauser and D. Featherman (eds.), Schooling and Achievement in American Society. New York: Academic Press.
- Astin, Alexander W. 1972. College Dropouts: A National Profile. Washington: American Council on Education.
- Astin, Alexander W. 1977. Four Critical Years -- Effects of College on Beliefs, Attitudes and Knowledge. San Francisco: Jossey-Bass.
- Astin, Helen S. 1972. Sex Roles: A Research Bibliography. Washington: National Institute of Mental Health.
- Bell, Daniel. 1973. The Coming of Post-industrial Society. New York: Basic Books.
- Birnbaum, Robert. 1977. "Factors Related to University Grade Inflation." Journal of Higher Education 48:519-39.
- Blau, Peter and Otis Dudley Duncan. 1967. The American Occupational Structure. New York: Wiley.
- Blau, Peter M. 1975. "Structural Constraints of Status Complements," in The Idea of Social Structure, edited by Lewis A. Coser, 117-38. New York: Harcourt Brace Jovanovich.
- Board of Higher Education. 1968. 1968 Master Plan of the Board of Higher Education. New York: City University of New York.

- Board of Higher Education. 1972. 1972 Master Plan of the Board of Higher Education. New York:City University of New York.
- Boocock, Sarane. 1972. An Introduction to the Sociology of Learning. Boston:Houghton Mifflin.
- Bowles, Samuel. 1972. "Schooling and Inequality from Generation to Generation." Journal of Political Economy 80:219-51.
- Bowles, Samuel and Herbert Gintis. 1976. Schooling in Capitalist America. New York:Basic Books.
- Bureau of the Census. 1973. 1970 Census of Population. Characteristics of the Population: New York Section 1. Washington:Bureau of the Census.
- Bureau of the Census. 1983. 1980 Census of Population. General Social and Economic Characteristics: New York Section 1. Washington:Bureau of the Census.
- Caplovitz, David. 1983. The Stages of Social Research. New York:John Wiley & Sons.
- Clark, Burton. 1960. "The Cooling Out Function in Higher Education." American Journal of Sociology 65:569-76.
- Coleman, James, et al. 1966. Equality of Educational Opportunity. Washington:U.S. Government Printing Office.
- Collins, Randall. 1971. "Functional and Conflict Theories of Educational Stratification." American Sociological Review 36:1002-19.
- Collins, Randall. 1977. "Some Comparative Principles of Educational Stratification." Harvard Educational Review 47:1-27.
- Davis, Sharon A., and Emil J. Haller. 1981. "Tracking, Ability and SES: Further Evidence on the 'Revisionist-Meritocratic' Debate." American Journal of Education 89:283-303.
- Eckland, Bruce K. 1980. "Education in the Meritocracy." American Journal of Education 89:76-85.
- Farley, Reynolds. 1977. "Trends in Racial Inequalities: Have the Gains of the 1960s Disappeared in the 1970s?" American Sociological Review 42:189-208.

- Featherman, David and Robert Hauser. 1978. Opportunity and Change. New York:Academic Press.
- Feldman, R. and T. Newcomb. 1969. The Impact of College on Students. San Francisco:Jossey-Bass.
- Griffin, Larry J., and Karl L. Alexander. 1978. "Schooling and Socioeconomic Attainments: High School and College Influences." American Journal of Sociology 84:319-47.
- Gross, Theodore. 1978. "How to Kill a College: The Private Papers of a Campus Dean." Saturday Review, February 4:2-20.
- Hauser, Robert and Thomas Daymont. .1977. "Schooling, Ability, and Earnings: Cross-sectional Findings 8 to 14 Years After High School Graduation." Sociology of Education 50:182-205.
- Heise, David R. 1972. "Employing Nominal Variables, Induced Variables, and Block Variables in Path Analysis." Sociological Methods and Research 1:147-73.
- Heller, Louis G. 1973. The Death of the American University: With Special Reference to the Collapse of the City College of New York. New Rochelle:Arlington House.
- Heyns, Barbara. 1974. "Social Selection and Stratification in Schools." American Journal of Sociology 79: 1434-51.
- Heyns, Barbara. 1978. Summer Learning and the Effects of Schooling. New York:Academic Press.
- Hurn, Christopher J. 1978. The Limits and Possibilities of Schooling: An Introduction to the Sociology of Education. Boston:Allyn & Bacon.
- Hyman, Herbert, Charles Wright, and John Shelton Reed. 1975. The Enduring Effects of Education. Chicago: University of Chicago Press.
- Jencks, Christopher and David Riesman. 1968. The Academic Revolution. Chicago:University of Chicago Press.
- Jencks, Christopher, et al. 1972. Inequality: A Reassessment of Family and Schooling in America. New York:Basic Books.

- Jencks, Christopher, et al. 1979. Who Gets Ahead? New York:Basic Books.
- Johnson, Eldon L. 1981. "Misconceptions About the Early Land-Grant Colleges." Journal of Higher Education 52:333-51.
- Karabel, Jerome. 1972a. "Community Colleges and Social Stratification." Harvard Educational Review 42:521-62.
- Karabel, Jerome. 1972b. "Perspectives on Open Admissions." Educational Record 33:30-44.
- Karabel, Jerome and A.H. Halsey. 1976. Power and Ideology in Education. New York:Oxford University Press.
- Kendrick, S. A. 1967. "The Coming Segregation of Our Selective Colleges." College Review Board 66:6-13.
- Kramer, Rena, Barry Kaufman, and Lawrence Podell. 1974. Distribution of Grades, 1972. New York:Office of Program and Policy Research, CUNY.
- Lavin, David E. 1976. From Selective to Free Access Higher Education: Institutional Responses to Open Admissions at the City University of New York. New York:City University of New York.
- Lavin, David E., Richard D. Alba and Richard A. Silberstein. 1979. "Open Admissions and Equal Access: A Study of Ethnic Groups in the City University of New York." Harvard Educational Review 49:53-92.
- Lavin, David E., Richard D. Alba and Richard A. Silberstein. 1981. Right versus Privilege: The Open-Admissions Experiment at the City University of New York. New York:The Free Press.
- Luecke, Daniel F., and Noel F. McGinn. 1975. "Regression Analyses and Education Production Function: Can They Be Trusted?" Harvard Educational Review 45:325-48.
- Mayer, Martin. 1973. "Higher Education for All?: The Case of Open Admissions." Commentary 54:47.
- Merton, Robert K. 1936. "The Unanticipated Consequences of Purposive Social Action." American Sociological Review 1:894-904.

- Merton, Robert K. 1973. The Sociology of Science. Chicago: University of Chicago Press.
- Milner, Murray. 1972. The Illusion of Equality. San Francisco: Jossey-Bass.
- National Decision Systems. 1982. U.S. Census Population and Housing Characteristics. Encinitas: National Decision Systems.
- New York State Regents Advisory Council on New York City. 1972. Impact of CUNY's Open Admissions Policy on Private Institutions. Albany: New York State Regents.
- Nie, Norman H., et al. 1975. SPSS Statistical Package for the Social Sciences. New York: McGraw-Hill.
- Office of the Chancellor. 1978. Effects of the New York City Fiscal Crisis on the City University of New York. New York: City University of New York.
- Persell, Caroline. 1977. Education and Inequality: The Roots of Stratification in America's Schools. New York: Free Press.
- Posen, David, Seth Brunner and Steven Fowler. 1973. Open Admissions: The Promise & the Lie of Open Access. Lincoln, Nebraska: University of Nebraska Printing and Duplicating Service
- Rosenbaum, James. 1976. Making Inequality: The Hidden Curriculum of High School Tracking. New York: Wiley.
- Rossman, J.E., H.S. Astin, A.W. Astin, and E.H. El-Khawas. 1975. Open Admissions at City University of New York: An Analysis of the First Year. Englewood Cliffs: Prentice-Hall.
- Sewell, William H. 1971. "Inequality of Opportunity for Higher Education." American Sociological Review 36:793-809.
- Sewell, William H. and Robert Hauser. 1980. "The Wisconsin Longitudinal Study of Social and Psychological Factors in Aspirations and Achievements," pp. 59-99, in A.C. Kerckhoff (ed.). Research in the Sociology of Education and Socialization. Volume 1. Greenwich, CN: JAI Press.
- Sewell, William H. 1980. "Sex, Schooling and Occupational Status." American Journal of Sociology 86:551-84.

- Tinto, Vincent. 1982. "Limits of Theory and Practice in Student Attrition." Journal of Higher Education 53:687-700.
- Trimberger, Ellen Kay. 1973. "Open Admissions: A New Form of Tracking?" Insurgent Sociologist 4:29-43.
- Trow, Martin. 1961. "The Second Transformation of American Secondary Education." International Journal of Comparative Sociology 2:144-65.
- Van Dyne, Larry. 1976a. "The New York Tragedy." Chronicle of Higher Education September 13:10.
- Van Dyne, Larry. 1976b. "The Free-Tuition Fight Is Lost: The New York Tragedy-2." Chronicle of Higher Education September 20:4.
- Wagner, Geoffrey. 1976. The End of Education: The Experience of CUNY with Open Enrollment and the Threat to Higher Education in America. Cranbury:Barnes.
- Zeisel, Hans. 1968. Say It With Figures--Fifth Edition. New York:Harper & Row.