DOCUMENT RESUME

ED 306 977 JC 890 221

AUTHOR Crook, David B.; Lavin, David E.
TITLE The Community College Effect Revisited: The Long-Term Impact of Community College Entry on B.A. Attainment.
PUB DATE Mar 89
NOTE 36p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 27-31, 1989).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; Bachelors Degrees; Black Students; *College Transfer Students; Community Colleges; *Educational Attainment; Educational Background; Higher Education; Hispanic Americans; Minority Groups; *Student Characteristics; *Student Educational Objectives; Two Year Colleges; White Students
IDENTIFIERS *City University of New York

ABSTRACT

To date, much of the research on the community college's effect on baccalaureate degree (B.A.) attainment has been based on the assumption that the educational attainment process occurs in the same way at two- and four-year institutions. However, the distinctive mission and clientele of community colleges create a different environment than that of a typical four-year college, and, as a result, some predictors of B.A. attainment may behave differently in the two contexts. Data gathered in a 14-year longitudinal study of students who first entered the City University of New York in the early 1970s indicate that the community college effect may not act uniformly on all types of students. Several variables were analyzed, including students' gender, ethnicity, age at entry, family income, father's education, high school grades, high school academic preparation courses, academic self-confidence, orientation to higher education, degree aspirations, employment status, amount of remediation needed, first-year grade point average, and baccalaureate attainment. Study findings included the following: (1) students who began at the community college level were 21% less likely to earn a B.A. than students who entered a four-year institution; (2) both Blacks and Hispanics were 27% less likely than Whites to earn a B.A.; (3) students who intended to earn an associate degree were 33% less likely to earn a B.A. than students who aimed higher; (4) at senior colleges, Blacks and Whites with the same background characteristics were equally likely to graduate, but among two-year college entrants, Blacks were at a slight disadvantage; and (5) students who enrolled in the liberal arts at a community college were substantially more likely to earn a B.A. than otherwise comparable students in vocational programs. (ALB)

The Community-College Effect Revisited: The Long-term Impact of Community-College Entry on B.A. Attainment

David B. Crook
City University of New York
and Columbia University

David E. Lavin
City University of New York

Paper presented to the annual meeting of the American Educational Research Association, San Francisco: March, 1989

Introduction*

To date, much of the quantitative research that has been done on the community-college effect, the deficit in the likelihood of earning a B.A. incurred by students who begin at a two-year college, compared to those who begin at a four-year institution, has been based on the assumption that the educational attainment process occurs in the same way at the two-year and four-year levels. Models designed primarily to assess direct effects of potential predictors typically control for a variety of social origins variables, high school preparation and achievement, educational and occupational aspirations, grades, and other college experience variables in order to assess the net effects of college type on outcomes (e.g. Breneman and Nelson, 1981; Alba and Lavin, 1981; Velez, 1985). These models are designed to test whether beginning at a two-year college depresses the likelihood of B.A. attainment compared to entry at a four-year institution, holding constant the characteristics of students. An underlying assumption is that there is no interaction between the college environment and other independent variables. These models do not assess whether the community colleges depress B.A. attainment equally for all types of students--whether, for instance, black-white differences in B.A. attainment are different among community-college entrants than they are among students who begin at other types of institutions or whether the community-college environment affects the relative advantage of students who have high degree aspirations compared to those with lower aspirations.

---

* This research was supported in part by grants from the Ford Foundation and The Spencer Foundation.

Likewise, causal analyses of degree attainment generally have not tested for interactions between student characteristics and the type of college attended. It is assumed that exogenous background characteristics such as race, sex, SES, age, high school curriculum and achievement, and initial educational and occupational aspirations are differentially selected into colleges of various types. Once enrolled, students are subjected to the influence of the college environment (college effects), as well as intervening factors, such as role obligations that compete with college study, and college experiences, including grades and contact with faculty. Background variables, college effects, role involvement, and college experiences may directly or indirectly influence still other intervening factors such as commitment to the goal of graduating and commitment to persist at the current institution, as well as ultimate persistence or educational attainment (Anderson, 1984, 1988). Causal modeling approaches typically explore the relationships among these groups of variables on a sample of students attending a number of types of colleges. Analyses designed to explore variation between college types in the relationships among background characteristics, role involvement, college experiences, and educational outcomes are uncommon.

The presence of a community-college effect is not in doubt: A substantial body of research has shown that students who begin at a two-year college are less likely than comparable four-year entrants ultimately to earn a B.A. (Dougherty, 1987). The estimates of this deficit range from 11.2%, among a sample of B.A. aspirants entering the City University of New York (CUNY) (Alba and Lavin, 1981) to 18.7% in a national sample of students who entered academic programs in their freshman year (Velez, 1985)[1] These estimates reflect educational attainment in the 1970s, and given declining

transfer rates since then, the disadvantage to community college entrants may now be even greater.

By controlling simultaneously for college type and attributes of colleges, it has been possible to identify a number of the components of collegiate environments that affect educational outcomes. Anderson (1984a) found that 10 institutional characteristics explained most of the differences in B.A. attainment associated with entry at public community colleges on the one hand and private and public four-year institutions and private two-year colleges on the other. The most influential variables were expenditures per student, percentage of low SES and percentage of part-time students, total enrollment, percentage of majors offered in vocational areas, and mean SAT score.

Evidence That the Educational Attainment Processes at Two- and Four-year Institutions are Different

Although the research described above assumes that college environments affect all students similarly, theory and some empirical evidence generated both by ethnographic and by quantitative research suggest that this assumption should be explored further. Theorists debating the impact of the community college on inequality in American society have focused attention on the differences in function, student and faculty cultures, and academic standards between two-year public colleges and four-year institutions. In addition, fieldwork at community colleges has described subcultures that help to insulate minority and working class students from the demands of white middle class faculty, creating an environment that may affect the

attainment of these students differently than others. Finally, a few quantitative studies also point to the presence of interaction effects.

Defenders and critics of the community college agree that its function in higher education is quite different from that of four-year baccalaureate-oriented institutions. Two-year colleges have increasingly come to specialize in continuing, remedial, and terminal vocational education. Another function attributed to community colleges is to "cool out" students whose aspiration to transfer is deemed to exceed their grasp. These functions are quite different from the mission of the four-year liberal arts institution to teach students to analyze and manipulate abstractions, often in preparation for advanced training. On this much, the advocates and critics agree. The battle is joined over what standards should be applied in assessing the impact of two-year colleges on the educational and occupational attainments of their students and on economic inequality in general.

Given these functions, community colleges tend to attract a clientele quite different from that of four-year institutions. Students are more likely to be members of minority groups, come from low SES families, enter at an older age, study part-time, and have inferior academic preparation in high school (Cohen and Brawer, 1982). Ethnographic research has provided valuable clues as to how such students can generate subcultures that may pervade two-year colleges, hindering academic achievement, and creating an environment quite different in some respects from those more common on four-year campuses.

Non-traditional students often must attempt to balance their social class and identity concerns with the potentially threatening demands of

faculty and administration. London (1978) observed that many of the white working class males in his study seemed to adhere to a "code of honor" requiring resistance particularly to liberal arts teachers who made them feel uncomfortable by asking them to intellectualize, an activity that these students regarded as inappropriate to their class and gender. In accordance with the code, these students exerted minimal effort, skipped classes regularly, and often were rude in class-- behaviors that probably reduced their chances for degree completion or transfer. Interestingly, a greater percentage of the female secretarial students at the school came from middle-class backgrounds and for this reason did not seem to react with the same anxiety and hostility in their liberal arts classes. Partly as a result, the faculty considered them to be superior students. Although the complexity of the setting makes it difficult to extract hypotheses that can be tested with quantitative methods, London's work suggests that it might be fruitful at least to explore the possibility that compared to four-year colleges, community-college environments depress the grades and perhaps the educational attainment of low SES students more than those of students at higher SES levels.

Quantitative analyses have generally found that SES exerts a small positive direct effect on early persistence (Anderson, 1981) as well as on B.A. attainment, when college type and other predictors have been controlled (Breneman and Nelson, 1981; Velez, 1985; Anderson, 1984). We know relatively little about potential interactions of SES with type of college first entered, however. When Pascarella and Chapman (1983) tested Tinto's (1975) model of persistence at four-year commuter and two-year commuter institutions, they found a small positive association between SES and first-year persistence at the two-year schools and a small negative

relationship at the four-year institutions.[2] In neither environment did they find a direct effect on persistence, but they were able to identify indirect paths, which differed in the two settings. To the extent that early (first-year) persistence at both types of institution is related to B A. attainment, this research again suggests that investigators be alert to the possibility that SES is differentially associated with B.A. attainment at the two levels.

Community-college critics also have called attention to the impact of community colleges on the B.A. attainment rates of minority groups, but they generally have not considered whether blacks and Hispanics are hurt by the community-college environment more than whites. Enrollment data consistently confirm that minorities are more likely than whites to enter higher education at the two-year level (Astin, 1982; Warren, 1985). As a result, a higher proportion of these groups are exposed to the community-college effect (Pincus, 1980; Karabel, 1986; Bernstein, 1986). Nevertheless, community colleges seem to reduce the likelihood of B.A. attainment for blacks less than for whites, when background characteristics and other predictors are controlled. Astin (1982) found that blacks were hurt less than whites by beginning at a community college, as were Puerto Ricans. For Chicanos, however, the community-college effect was greater than it was for whites. Likewise, Anderson (1984b), analyzing NLS-72 seven-year follow-up data, found a smaller community-college effect for blacks than for comparable whites. A contributing factor may be a higher rate of transfer from two- to four-year institutions by blacks than comparable whites (Velez, 1983).

SES and race may not be the only variables that interact with the com-

munity-college environment. High school grades and track also seem to behave somewhat differently in the two types of colleges. The B.A. attainment process for community-college entrants can be divided into three stages, each of which the student must negotiate successfully: the community-college phase, transfer, and the senior-college stage. Failure to persist at either level, or inability to make the move between levels results in failure to earn the B.A.[3] Analyses performed by Lavin, Alba, and Silberstein (1981) are relevant to the first stage: persistence in community college. Investigating five-year persistence separately for CUNY senior and community colleges, they found that high school grades and college preparatory courses predict persistence somewhat differently at the two levels. High school grades were positively related to persistence at both levels, but they predicted persistence substantially better at the senior colleges than at the community colleges. College preparatory courses, however, were a much stronger influence on persistence at the community colleges than at the senior level.

Burton Clark's classic (1960) description of cooling out, which has been adopted by Karabel (1972) and other critics, suggests that the relationship between degree aspirations and B.A. attainment may be different in the community-college context than it is at the four-year level. Many features of the community-college environment function to lower the educational aspirations of weak students. Clark contrasts the "hard" response of state universities to poor academic performance with the "soft" response of community colleges. Rather than being dismissed outright, weak students in two-year transfer programs are gradually reoriented to embrace terminal vocational, business, or semi-professional training through a series of mechanisms including pre-entrance testing, counseling interviews, orienta-

tion courses, "need-for-improvement" notices, and academic probation. This apparatus depresses the initially high aspirations of some students, perhaps reducing their chances for B.A. attainment even further. At four-year colleges, according to Clark, this emphasis on lowering expectations is absent. To the extent that aspirations affect B.A. attainment independent of other factors, and to the degree that cooling-out mechanisms are unique to community colleges and are effective, we would expect to find that initially high aspirations have less impact on B.A. attainment among two-year entrants than among entrants to four-year programs.

Quantitative analyses that assess the influence of degree aspirations on educational outcomes have produced inconsistent results. Breneman and Nelson (1981) and Velez (1985) find no direct effects of degree aspiration on B.A. attainment, controlling for community college entry, while Anderson (1984) does find a positive direct effect. To our knowledge, however, no studies have assessed differences in the influence of degree aspirations at the two- and four-year levels of entry.[4]

Discussion and research on the extent to which academic standards have been relaxed at community colleges suggest the possibility that the relationship between first-year grades and ultimate B.A. attainment may be different among community-college entrants than it is at the four-year level. Some critics of the community college argue that faculty attitudes and behavior have contributed heavily to the declining transfer rates of the 1970s and 1980s. Faculty have too often lowered their expectations for student performance and have come to take for granted high rates of attrition. In their grading, they tend to engage in norm-referenced assessment-- that is, they compare student performance to that of others in the

same class. Faculty at four-year institutions are more likely to practice criterion-referenced assessment, in which student performances are judged against absolute standards (Bernstein, 1986). The result is grade inflation at community colleges.

Other commentators have directed attention to the declining skills of community-college students. Cohen and Brawer (1982) claim that expectations in collegiate courses have fallen as the compensatory function at the two-year level has grown. Courses have been watered down because the non-traditional students of the 1970s and 1980s "have been dominated in their prior learning by non-print images," (p. 26) and cannot complete the amount of reading that faculty once assigned. As a result, a given grade now represents less academic competence than it once did.

One result of undemanding curricula at the two-year level is the sudden drop in grades that transfers commonly experience when they confront the more rigorous standards of four-year colleges (Lavin, Alba, and Silberstein, 1981; Kintzer and Wattenbarger, 1985). Aside from the fact that transfers must now compete with students with greater academic ability on average, they are also unprepared to do the writing required by many upper division courses (Dougherty, 1987). To the extent that academic standards are weaker at community colleges, we would expect the first-year grades of community-college entrants to be less strongly related to ultimate B.A. attainment than the first-year grades of students who begin at the four-year level.

The discussion and research that we have considered so far suggests that the distinctive mission and clientele of community colleges tend to

generate environments that differ from those more typical of four-year institutions, and that as a result some predictors of B.A. attainment may behave differently in the two contexts. The community-college effect may not act uniformly: certain types of students may be less affected than others. In this paper, we shall explore this possibility using data gathered in a fourteen-year longitudinal survey of students who first entered the City University of New York in the early 1970s as part of one of the most notable opportunity programs in the history of American higher education.

The CUNY Context and Sample

For much of this century CUNY had facilitated the social mobility of the children and grandchildren of European immigrants. By the late 1960s, however, it was clear that the University was not providing the same opportunities to other groups that had migrated to New York in large numbers since the peak of the European in-migration. Blacks and Hispanics, of whom most were Puerto Rican, were virtually barred from entry to CUNY's four-year colleges because of demanding admissions requirements. Largely in response to pressure from these minority groups for greater access to higher education, the University initiated an open admissions policy in 1970. Admissions standards at CUNY's four-year colleges were eased, and the University allowed students who were not accepted at a senior college to enroll in one of eight two-year colleges. Response to the new policy was so great that the first freshman class to enter under open admissions exceeded the previous one by about 75 percent.

Although open-access policies have a long tradition in American higher

education, the CUNY plan had innovative features. Most notably, it was designed to maximize B.A. attainment by community-college entrants. Graduates of two-year programs were guaranteed admission to a senior college, with full credit. The University also recognized that the open-admissions students, those who would not have been admitted before open admissions was put into effect, would have difficulty converting access into credentials unless they were provided with special assistance. CUNY therefore mounted large programs of compensatory education and counseling in order to improve these students' chances for success.

As open admissions commenced in the fall of 1970, an extensive longitudinal research effort was begun to evaluate its results. Drawing from survey questionnaires and official University records, the project collected information on samples of the first three freshman classes to enter after the program began (the 1970, 1971, and 1972 entrants). These samples totaled approximately 34,000 students from a combined entrant population of over 100,000 cases.[5] This data set is the basis for a number of studies that describe and analyze various outcomes of the open-admissions policy (Lavin, Alba, and Silberstein, 1979, 1981; Alba and Lavin, 1981). To ascertain students' ultimate educational attainment, work experience, and other outcomes, we conducted a follow-up survey in 1984 for a subsample of approximately 5,000 respondents who were members of the original 1970-1972 cohort samples.[6] The resulting integrated data set forms the point of departure for our analyses.

Unadjusted Community-College Effects

Previous research on the community-college effect has generally evaluated B.A. attainment within time frames approximating the traditional four-year period associated with baccalaureate study or exceeding it by several years.[7] During the 1970s, however, the students entering community colleges nationally and at CUNY in the wake of open admissions were non-traditional in many respects. At CUNY, open admissions students had weaker and more vocationally oriented high school preparation than students who would have been able to gain entrance to the University without the open access policy (regular students). As a result, the open admissions students required more remediation than others. The new students also were disproportionally minority, slightly older on entry, and somewhat more likely to work full-time while enrolled.

These factors extended the length of academic careers of many students well beyond the traditional four years (Lavin et al., 1986). As Table 1 indicates, four years after entry, 40 percent of the students who had begun at a senior college, but just 7 percent of community-college entrants had completed the B.A. Seven years after entry, these rates had risen to 67 percent and 21 percent, respectively. B.A. attainment rates continue to rise even when the time span over which they are measured is extended well beyond 7 years. By 1984, fourteen years after the 1970 cohort began, 73 percent of the senior-college entrants and 30 percent of community-college entrants had earned a B.A.

Because blacks and Hispanics are disadvantaged on many of the factors associated with extended educational careers, they tend to require much

more time than whites to complete their baccalaureate, whether they begin at the two-year or the four-year level. About a fifth of Hispanics and a sixth of blacks entering a senior college graduated on time, compared to 43 percent of whites (Table 1). With the passage of time, however, this minority-white gap decreases somewhat. By 1984, half of Hispanics and 54 percent of blacks had earned a B.A., as had 77 percent of whites. Among community-college entrants the pattern is similar, but the rates are much lower: Four years after entry, only 1.8 percent of Hispanics had graduated, about one-fifth of the rate for whites, while 2.4 percent of blacks had earned a B.A., less than a third of the white rate. By 1984, Hispanics and blacks were about two-thirds as likely as whites to have earned a B.A. after beginning at a community college, a deficit of 27 percent.

Given this variation in B.A. attainment rates over time and by ethnicity, it is not surprising that the community-college effect also is sensitive to these factors. The size of the effect for all students varies with time, rising from 33 percent after 4 years to a high of 46 percent after 5 years, before declining slightly when measured between 7 and 14 years after entry. If it is measured five or more years after entry, the community-college effect appears to be more stable than the B.A. attainment rates of which it is composed.

The community-college effect is quite different for minorities than for whites. Although whites at both the two-year and four-year levels earn the B.A. at substantially higher rates than blacks or Hispanics, the community-college effect is much greater for whites, largely because of the superior attainment of white senior-college entrants. These racial/ethnic differences in the size of the effect tend to decline slightly after five years,

however. By 1984, the community-college effect for whites was 43 percent, while for blacks it was 31 percent and for Hispanics, 28 percent.

The gaps in B.A. attainment between community-college and senior-college entrants reported in Table 1 are not true community-college effects, in the sense that some of the differences in educational outcomes can be attributed to factors other than college environments. Students who entered community colleges tended to have weaker high school backgrounds than senior-college entrants, and they were disadvantaged on a number of other predictors of B.A. attainment. In order to isolate the effects of college type, we conducted a regression analysis of B.A. attainment, focusing our attention on degree attainment as of 1984, 12 to 14 years after entry. We have controlled for social origins, high school background, psychological factors such as academic self confidence and orientation toward higher education, obligations that compete with the student role, and academic achievement in college.

Like most other investigators, we have included gender among the background variables controlled. A large body of research has found that women tend to earn better grades than men in high school and in college, but the relationship between gender and B.A. attainment once grades have been controlled is unclear. Breneman and Nelson (1981) found that women were more likely to graduate than comparable men, while Velez (1985) and Anderson (1984) found an advantage in favor of men. We have also controlled for SES. As we mentioned above, SES consistently has been shown to have a small positive effect on B.A. attainment. We have chosen father's education and family income as indicators of SES. We also have explored the effects of age, since older age at entry figures in some explanations of

declining transfer among the non-traditional community-college population.

High school background also has been found to influence educational outcomes, even when college grades are controlled. High school grades have a direct positive effect on B.A. attainment (Breneman and Nelson, 1981; Anderson, 1984; Velez, 1985), as does college preparatory work.

A number of psychological factors are thought to affect educational outcomes. Being confident in one's academic abilities, for example, seems to boost educational attainment, even when grades are controlled. Breneman and Nelson (1981) found that students who were confident that they had the ability to do college work were more likely than comparable students to have earned a B.A. four years after entry, and Anderson (1984a) found a positive indirect effect through involvement in the student role. In addition, earlier work by Lavin, Alba, and Silberstein (1981) revealed that students' motivation for seeking higher education can affect educational outcomes through grades: students who named personal growth as a key reason for going to college tended to do slightly better than other students.

A third psychological variable that we shall consider is degree aspirations. Although some assessments of the community-college effect advocate exclusion of students who initially plan to earn no more than an associate degree (e.g. Dougherty, 1987), we have chosen to include these students and to control for low aspirations in order to estimate their impact on B.A. attainment. Preliminary analyses showed that almost one-fifth of students who initially planned to finish their studies with an A.A. ultimately earned a B.A., suggesting that although unequal educational aspirations may

contribute to unequal outcomes, they do not determine them. Previous research based on samples from which students who reported low initial educational aspirations were not excluded have reached contradictory conclusions. While Velez (1985) and Breneman and Nelson (1981) found no significant impact on B.A. attainment, Anderson (1984a), analyzing the same NLS-72 data, uncovered a positive direct effect.

Conflict between student and non-student roles also may affect B.A. attainment. Family and peers can weaken commitment to the student role, as can work opportunities and the influence of fellow workers who are not students (Anderson, 1981). Full-time work in places extreme demands on time and energy, threatening academic progress and degree completion. Another factor of special relevance to CUNY is the number of remedial courses taken. Students with weak academic skills were far more likely than others to be placed in remedial courses, which carried little or no credit. These courses tended to improve academic skills, but at the cost of slowed progress toward a degree. We have controlled for remediation in order to assess its net effect on B.A. attainment.

Much previous research on the impact of community-college entry has excluded students in vocational curricula, even though the likelihood of transfer from such programs was increasing during much of the 1970s (Cohen and Brawer, 1982). We have chosen to control for enrollment in a liberal arts curriculum, although programs outside of the liberal arts at the senior level, such as education, engineering, and business, are more academically oriented than vocational majors at community colleges. For this reason the non-liberal-arts curricula at the two levels are not completely comparable.

Not surprisingly, college grades have consistently been shown to have a major impact on the likelihood of B.A. attainment. Poor grades can lead to involuntary withdrawal, as well as to discouragement and voluntary departure. Commonly, GPA is found to mediate background characteristics, psychological variables, and role commitment on the one hand, and degree attainment on the other.

The Variables

We have defined the variables in the analysis as follows: Gender is coded 1 for female, 0 for male. Ethnicity is represented as a set of dummy variables for whites, blacks and Hispanics. Asians and others were excluded. Age at entry to college is measured in years. Family income is a set of dummy variables for less than $10,000, $10,000 to $14,999, and $15,000 or more (current dollars). Father's education is a dichotomy coded 1 for some high school or less. High school grades indicates grades in high school academic courses, expressed on a numerical scale ranging from 51.5 to 97.5. The variable HS academic prep courses is the total number of college preparatory courses taken during high school.

Academic self confidence is an indicator of response to the question "How bright do you think you are in comparison with the other students in your college class?" This variable is coded as a three-point scale in which 1 is "Below average," 2 is "Average" and 3 is "Above average." Orientation to higher education measures response to a survey question asking how important was getting a broad, general education as a reason for deciding to go to college. The indicator is a dichotomy coded 1 for very or somewhat important and 0 for very unimportant. Degree Aspirations, the highest

degree which the student intended to attain on entry to the University, is a set of dummy variables representing the following categories: not sure, less than a B.A., and B.A. or higher.

Liberal arts curriculum is a dichotomy coded 1 if the initial curriculum is liberal arts and 0 if it is another curriculum. Worked full-time in college is a dichotomy coded 1 for the answer "Yes, mostly full time" in response to the following question on the follow-up survey: "During the time you were an undergraduate, were you employed?" Number of remedial courses taken is the total number of remedial courses taken through spring 1975, and First-year GPA is cumulative grade point average earned during the first year of attendance, calculated on a four-point scale in which a 4 is an A and a 0 is an F. Non-credit, pass-fail, and non-CUNY classes have not been included in the calculation. B.A. attainment is a dichotomy coded 1 for students who earned a B.A. at CUNY or elsewhere as of 1984 and 0 for students who have earned a lesser degree or no degree since entering.

Results

Table 2 presents the results of logistic regression analyses in which a dichotomy representing B.A. attainment as of 1984 has been regressed on predictors in three models. The first includes social origins, high school background, psychological characteristics, and community-college entry. To these variables have been added curriculum, full-time work, and number of remedial courses taken (Model 2) and finally, first-year grades (Model 3). We have reported both the logit coefficients and the corresponding change in the probability of B.A. attainment associated with a unit change in each independent variable (Hanushek and Jackson, 1977: Pp. 188-189).

Looking first at the coefficients for community-college entry, we find that students who began at this level were 21 percent less likely ultimately to earn a B.A. than senior-college entrants (Model 3). The variables for which we have controlled in model 3 account for about half of the unadjusted community-college effect of 43.4 percent reported in Table 1. The impact of the community-college environment does not act to any great extent through curriculum, work, or remediation. Because grades are somewhat higher at the two-year level than at the senior colleges, and good grades improve the odds of graduating, when grades are controlled in Model 3, the direct effect of community-college entry becomes even more strongly negative.

As we saw in the bottom panel of Table 1, by 1984 both blacks and Hispanics were 27% less likely than whites to have earned a B.A. Controlling for the background characteristics included in Model 1 virtually eliminated the black-white difference, but the Hispanic deficit remains substantial. The persistence of a powerful negative direct effect even controlling for grades suggests that factors not included in the model such as language barriers interfere with the educational attainment of Hispanics.

In several respects our results accord with previous research. High school grades and college preparatory courses strongly influence B.A. attainment, even when college grades have been controlled. Our indicators of SES behave about as expected, and students who had a high opinion of their academic ability and listed getting a general education as an important reason for going to college did better than others. College grades were a powerful influence. A letter grade was associated with about a 20

percent difference in the likelihood of earning a B.A. In addition, liberal arts students were more likely to earn a B.A. than students in other programs. An unanticipated finding is the magnitude of the impact of low initial aspirations on ultimate attainment. Students who intended to terminate their studies with an AA were 33 percent less likely to earn the B.A. than students who planned to complete an advanced degree. The influence of educational aspirations persists among more ambitious students as well: B.A. aspirants were about 11 percent less likely to earn that degree than were those who aimed higher.

Like most previous research on the community-college effect, the model just discussed assumes that B.A. attainment occurs similarly at both the community and four-year levels. In order to test this assumption, we conducted an analysis of covariance and found that the use of separate equations for each level of entry significantly improves explanatory power. The equation for community-college entrants is presented in Table 3, and that for the senior colleges, in Table 4. By comparing coefficients in the two models we can ascertain which student characteristics are differentially affected by the two college environments.

In general, community-college entry does not appear to discriminate much in depressing B.A. attainment by groups defined in terms of social origins or age. That is, attainment rates are much lower at the community colleges than at the senior colleges, but within each environment, groups are about equally affected. Women are not significantly disadvantaged compared to men in either setting, nor does age make a difference. Students whose father did not complete high school did not earn the B.A. at rates significantly lower than those who came from a family with greater cultural

capital.

We did find evidence that the relationships of race/ethnicity and family income with B.A. attainment varied somewhat by college type, but these interactions were not statistically significant. At the senior colleges blacks were just as likely to graduate as comparable whites, but among two-year entrants, blacks were at a slight disadvantage, partly because they tended to earn poorer grades than whites. Hispanics, by contrast, were about equally disadvantaged in each setting: when grades are controlled, Hispanics were about 13 percent less likely than whites to complete a B.A. if they began at a senior college and 11 percent less likely if they first entered a community college. Low family income made little difference among students who first entered a community college, but among the senior-college students, having a family income below $15,000 did slightly hurt prospects for graduating, again, in part because of lower grades.

Unlike social origins and age, indicators of high school background--grades and college preparatory coursework-- at first glance appeared to behave quite differently in the two environments. High school grades were a much better predictor of degree completion among senior-college entrants than among those who began at a two-year school, while the number of college preparatory units completed was a stronger influence at the lower level. The interaction terms involving these variables were not statistically significant, however, suggesting that their relationships with B.A. attainment are in fact fairly similar across levels of entry, and that students from the two types of college are clustered along different parts of the distributions of the two variables.[8]

Psychological variables do in fact behave differently among entrants to the two levels. Being confident in one's academic abilities improved the odds of persisting to completion of a B.A. no matter where a student began, but the premium was greater at the senior colleges, where, for example, students who rated themselves above average were almost 5 percent more likely to graduate than those with comparable grades, but who rated themselves of only average ability. Self-confidence seems to be adaptive in the more academically demanding environment of the four-year college.

Placing a high value on obtaining a general education also was a distinct advantage at the senior colleges, but not at the community colleges. This attitude was much more prevalent among senior-college entrants and may have been an aspect of the culture of these colleges. If so, students who value a general education may be better integrated into the value system of senior than community colleges.

The higher their degree aspirations, the better the chance entrants to both levels had of earning a B.A., but aspirations were more critical at the two-year level. In both contexts, being uncertain about educational plans was a detriment compared to planning to earn an advanced degree. At the lower level, however, the deficit was about three times as great, at 23 percent. Community-college entrants who planned to terminate their studies with an A.A. were about 30 percent less likely to earn a B.A.[9] The desire to earn a B.A. also generally represented a significant disadvantage compared to having higher aspirations, but it was a greater handicap in the two-year college context.

In addition, the influence of working full-time and several variables

representing aspects of college experience differed between the two groups of students. Full-time work made no difference among students entering at the lower level, but it did hurt the prospects of students at the senior level, where greater academic stringency might make mediation of work and academic roles more difficult. As expected, we also found that enrollment in a liberal arts curriculum had a much greater impact at the two-year than at the four-year level. Community-college entrants who majored in liberal arts rather than a vocational program were about 13 percent more likely ever to earn a B.A., all else equal. Liberal arts majors who began at a senior college were no more likely to graduate than students in fields more dedicated to teaching the skills of a particular profession or occupation.

Finally, first-year grades were an important predictor of B.A. attainment among both groups, but GPA was a much stronger influence at the senior colleges, where grades are a more reliable indicator of academic competence. A letter grade among community-college entrants was associated with only an 11 percent difference in the probability of graduating, compared to almost a 20 percent difference among students who started at the upper level.

Discussion

These analyses confirm that students wishing to earn a B.A. would generally be better off attending a four-year institution from the start. We have estimated that students who entered higher education via a community college were about 21 percent less likely than comparable senior-college entrants ever to earn a B.A. Aside from the type of college first

attended, a number of other factors affected B.A. attainment, the most important of which are Hispanic ethnicity, high school grades, degree aspirations, and first-year grades.

From a methodological standpoint, our analysis suggests that at urban two-year and four-year institutions like those that constitute CUNY, an extended time span is necessary in order to estimate ultimate B.A. attainment rates. Between 7 years after entry, the period covered by several of the studies based on the NLS-72 cohort, and 14 years after entry, B.A. attainment rose by 9 percentage points for community-college entrants and by about 6 at the senior colleges. By contrast, the community-senior college gap in attainment remained fairly constant after about the fifth year. Finally, we have confirmed that college type interacts with other predictors of educational attainment, reinforcing the necessity for other investigators to test the commonly made assumption that no such interaction exists.

Not all predictors of B.A. attainment are involved in such an interaction, however. The community-college environment does not appear either to diminish or to magnify to any great extent the influence of characteristics that students possess as they begin their journey through the educational pipeline-- gender, race/ethnicity, age, family income, and father's education. When a group is comparatively unsuccessful in completing the B.A., as is the case with Hispanics, these deficits are about the same among those who first attend a community college as among those who begin at a senior college. This finding does not contradict the contention of community college critics that disadvantaged students are concentrated in two-year colleges, and for this reason are more apt to be exposed to their

negative effects of these institutions on educational attainment.

Psychological factors-- confidence in one's intellectual ability, orientation toward higher education, and degree aspirations-- consistently were related to B.A. attainment differently among the two groups of students, suggesting that some students adjust better than others to differing normative climates in the two environments. At the senior colleges, self-confident students and those who were interested in gaining a general education were more likely to graduate. It may be that faculty and students at these schools tend to value intellectual activity that is not oriented to occupational demands more highly than do their peers at the community colleges. As a result, students who enter with similar academic orientations may well elicit more positive reinforcement at the senior level.

Having uncertain or relatively low degree aspirations, however, hurt the chances of B.A. attainment by two-year entrants more than those of students who began at the senior level. Again, an explanation may lie in the interplay of individual and institutional characteristics. At the community colleges, there is normative support both for earning a terminal A.A. and for pursuing a higher degree, while at the senior colleges there is no acceptable alternative to earning a B.A. Students who are not certain of their degree intentions as they begin at the senior colleges are almost certainly socialized to pursue a B.A. or a higher degree. At the community colleges, however, a substantial portion of such students may eventually choose not to continue beyond the A.A. Hence our finding that students who entered a community college and who were not sure of their educational plans incurred a greater deficit than did comparable senior-college

entrants. Interestingly, the attainment gap between those who planned to earn a B.A. and those who intended to continue for an advanced degree also was greater in the community-college environment. Plans to earn a B.A. may count for less in this setting because the presence of a legitimate alternative, the terminal A.A., may divert students from their initial goal, or they may be cooled out by faculty and staff.

Our analysis of interaction between first-year grades and college type lends support to those who assert that academic standards at the two-year institutions are lenient and course material less demanding. We found that a letter grade is associated with almost twice as great an increase in the probability of earning a B.A. at the senior colleges as at the community colleges. An A student beginning at a community college would have about the same advantage over a C student as a B student would at a senior college.

Finally, our results also suggest that the liberal arts curriculum did indeed function as a transfer track at CUNY during the 1970s. Critics have argued that nationally, the liberal arts curriculum at the two-year level has become endangered as the number of sophomore-level classes has dwindled and greater emphasis has been placed on introductory coursework. At CUNY students who enrolled in the liberal arts at a community college were substantially more likely to earn a B.A. than otherwise comparable students in vocational programs. Additional research is required to determine to what extent these results can be generalized to public community and four-year institutions nationwide. Moreover, the predictors of educational attainment may well interact not only with college types as defined here but also with more refined typologies and with dimensions of college environments

such as selectivity, size, class and racial composition, and social integration.

Notes

1. The community-college effect found by Alba and Lavin is an underestimate of the CUNY-wide effect because of the matching procedure employed to compare students from the community and senior levels. The community-college entrants in the CUNY sample had degree aspirations that were relatively high compared to all CUNY community-college entrants, while the four-year college entrants in the sample had relatively weak high school backgrounds. As a result Alba and Lavin overestimated B.A. attainment at the lower level and underestimated it at the senior colleges.

2. Pascarella and Chapman also tested a model for four-year residential institutions, but we have not considered the results here because all CUNY campuses (the basis of the analysis to follow) are entirely commuter.

3 This formulation is implicit in the analytical strategy of Lavin, Alba, and Silberstein (1981) and explicit in Dougherty (1987).

4. Breneman and Nelson (1981) ran separate regressions for community-college and four-year entrants, but unfortunately they did not report detailed results of these regressions.

5. Although the sample contains a slightly higher proportion of able students than the population, it is generally representative. See Lavin, Alba, and Silberstein, 1981, pp 313-317, for a full discussion of the quality of the sample data.

6. The follow-up and original samples differed in certain respects. In particular, students in the follow-up graduated at a higher rate. To adjust for non-response bias, we used a logistic weighting procedure.

7. The time periods over which the most careful assessments have been made are as follows: Breneman and Nelson (1981)-- 4 years; Alba and Lavin (1981)-- 5 years; Anderson (1984a) and Velez (1985)-- 7 years; and Astin (1982)-- 9 years.

8. We know that the relationship between these predictors and B.A. attainment are non-linear, and that the means of community-college entrants on both predictors are substantially lower than those of upper-level students. We suspect that community-college students are clustered along the lower to mid- range of the distribution of college preparatory courses, where a difference of course has a relatively large impact on educational outcomes. Their high school grades, however, tend to fall at the low end of the grade distribution, where a difference of a point makes relatively little difference in B.A. attainment, compared to a difference of a point toward the middle of the distribution, where senior-college students are concentrated.

9. A few senior-college entrants indicated that they hoped to earn only an associate degree. We have excluded these students from our analysis.

REFERENCES

Alba, Richard, and David E. Lavin. 1981. "Community Colleges and Tracking in Higher Education." Sociology of Education 54: 223-47.

Anderson, Kristine L. 1981. "Post-High School Experiences and College Attrition." Sociology of Education 54: 1-15.

_____. 1984a. "Institutional Differences in College Effects." Boca Raton: Florida Atlantic University. (ERIC No. ED 256 204).

_____. 1984b. "Race Differences in the Effects of College Characteristics on Educational Attainment." Boca Raton: Florida Atlantic University. (ERIC No. ED 256 249).

_____. 1988. "The Impact of Colleges and the Involvement of Male and Female Students." Sociology of Education 61: 160-177.

Astin, Alexander. 1982. Minorities in American Higher Education. San Francisco. Jossey-Bass.

Bernstein, Alison. 1986. "The Devaluation of Transfer: Current Explanations and Possible Causes." Pp. 31-40 in The Community College and its Critics, edited by L. Steven Zwerling. New Directions in Community Colleges No. 54. San Francisco: Jossey-Bass.

Breneman, David and Susan Nelson. 1981. Financing Community Colleges Washington, D.C.: Brookings Institution.

Clark, Burton. 1960. "The Cooling-out Function in Higher Education." American Journal of Sociology 65: 569-576.

Cohen, Arthur and Florence B. Brawer. 1982. The American Community College. San Francisco: Jossey-Bass.

Dougherty, Kevin. 1987. "The Effects of Community Colleges: Aid or Hindrance to Socioeconomic Attainment?" Sociology of Education. 60:86-103.

Karabel, Jerome. 1972. "Community Colleges and Social Stratification." Harvard Educational Review 42: 521-562.

_____. 1986. "Community Colleges and Social Stratification in the 1980s." In L.S. Zwerling (ed). Pp. 13-30 in The Community College and its Critics, edited by L. Steven Zwerling. New Directions in Community Colleges No. 54. San Francisco: Jossey-Bass.

Kintzer, Frederick and James L. Wattenbarger. 1985. "The Articulation/Transfer Phenomenon." Washington, D.C. American Association of Community and Junior Colleges. (ERIC no ED 257 539).

Lavin, David, Richard D. Alba and Richard Silberstein. 1979. "Open Admis-

sions and equal access: A study of ethnic groups in the City University of New York." Harvard Educational Review 49: 53-92.

Lavin, David, Richard Alba, and Richard Silberstein. 1981. Right Versus Privilege: The Open Admissions Experiment at the City University of New York. New York: Free Press.

Lavin, David, James Murtha, Barry Kaufman, and David Hyllegard. 1986. "Long-term Educational Attainment in an Open-Access University System: Effects of Ethnicity, Economic Status, and College Type." Paper presented at the annual meetings of the American Educational Research Association, San Francisco.

Pascarella, Ernest T. and David W. Chapman. 1983. "A Multi-institutional, Path Analytic Validation of Tinto's Model of College Withdrawal." American Educational Research Journal 20: 87-102.

London, Howard B. 1978. The Culture of a Community College. New York: Praeger.

Pincus, Fred L. 1980. "The False Promises of Community Colleges: Class Conflict and Vocational Education." Harvard Educational Review 50: 332-361.

Tinto, Vincent. 1975. "Dropout from Higher Education: A Theoretical Synthesis of Recent Research." Review of Educational Research 45: 89-125.

Velez, William. 1983. "The College Attainment Process in the U.S. During the Seventies." PhD Dissertation, Department of Sociology, Yale University.

_____. 1985. "Finishing College: The Effects of College Type." Sociology of Education 58: 191-200.

Warren, J. 1985. "The Changing Characteristics of Community College Students." In Reviewing the American Community College, edited by W. L. Deegan and D. Tillery. San Francisco: Jossey-Bass.

TABLE 1

CUMULATIVE RATES OF BACCALAUREATE ATTAINMENT
BY ETHNICITY AND LEVEL OF ENTRY

	Years After Entry				
	4	5	7	9	13*
Community-College Entrants	6.7%	14.0%	20.8%	24.2%	29.8%
White	9.1%	18.3%	25.6%	28.3%	33.4%
Black	2.4%	5.0%	11.6%	17.3%	23.1%
Hispanic	1.8%	6.6%	11.6%	14.9%	21.8%
Senior-College Entrants	40.1%	60.4%	66.8%	69.2%	73.1%
White	43.4%	64.8%	71.0%	73.3%	76.5%
Black	17.5%	33.3%	42.9%	45.8%	54.2%
Hispanic	21.6%	33.3%	38.9%	41.4%	50.0%
Difference between Senior- and Community-College Rates					
All Entrants	33.4%	46.4%	46.0%	45.0%	43.4%
White	34.4%	46.5%	45.5%	45.0%	43.1%
Black	15.1%	28.3%	31.4%	28.5%	31.1%
Hispanic	19.8%	26.8%	27.3%	26.5%	28.2%
Minority-white Differences in B.A. Attainment Rates (All Entrants)					
Black - White	-22.8%	-33.0%	-32.1%	-29.7%	-27.0%
Hispanic - White	-20.3%	-29.4%	-31.0%	-30.6%	-27.0%

* The maximum time period was 14 years for the 1970 cohort, 13 years for the 1971 cohort, and 12 years for 1972 entrants.

TABLE 2
LOGISTIC REGRESSION ANALYSES OF BACCALAUREATE ATTAINMENT: COMMUNITY-COLLEGE AND SENIOR-COLLEGE ENTRANTS[a]

Independent Variables	Model Number 1	2	3
Female	-0.027	-0.099	-0.191*
	(-0.007)	(-0.024)	(-0.047)
Black	-0.238*	-0.161	-0.032
	(-0.059)	(-0.040)	(-0.008)
Hispanic	-0.669***	-0.560***	-0.576***
	(-0.166)	(-0.138)	(-0.141)
Age at entry	0.009	0.015	-0.014
	(0.002)	(0.004)	(-0.003)
Family income lt $10,000	-0.183	-0.121	-0.105
	(-0.045)	(-0.030)	(-0.026)
Family income = $10,000 to $14,999	-0.301**	-0.283*	-0.267*
	(-0.075)	(-0.070)	(-0.065)
Father's education lt HS	-0.197*	-0.157	-0.167
	(-0.049)	(-0.039)	(-0.041)
HS grades	0.069***	0.066***	0.030***
	(0.017)	(0.016)	(0.007)
HS academic prep courses	0.083***	0.061**	0.059**
	(0.021)	(0.015)	(0.014)
Academic self-confidence	0.202***	0.200***	0.186**
	(0.050)	(0.049)	(0.045)
Orientation to higher education	0.291*	0.274*	0.179
	(0.072)	(0.068)	(0.044)
Not sure of education plans	-0.837***	-0.797***	-0.743***
	(-0.207)	(-0.197)	(-0.181)
Aspires to AA only	-1.470***	-1.285***	-1.368***
	(-0.364)	(-0.318)	(-0.334)
Aspires to BA only	-0.590***	-0.495***	-0.441***
	(-0.146)	(-0.122)	(-0.108)
Began at a community college	-0.687***	-0.667***	-0.866***
	(-0.170)	(-0.165)	(-0.211)
Liberal arts curriculum		0.382***	0.351***
		(0.094)	(0.086)
Worked full-time in college		-0.258*	-0.155
		(-0.064)	(-0.038)
Number of remedial courses taken		-0.059*	-0.043
		(-0.015)	(-0.011)
First-year GPA			0.798***
			(0.195)
Model X^2	1406.78	1406.51	1497.95

[a] Logistic regression coefficients represent the change in the log-odds of earning a B.A. per one-unit change in the independent variable. The corresponding change in the probability of B.A. attainment is given in parentheses.

* P < .05 ** P < .01 *** P < .001

TABLE 3
LOGISTIC REGRESSION ANALYSES OF BACCALAUREATE ATTAINMENT: COMMUNITY-COLLEGE ENTRANTS[a]

Independent Variables	Model Number 1	2	3
Female	-0.074	-0.114	-0.179
	(-0.016)	(-0.024)	(-0.040)
Black	-0.397*	-0.317	-0.241
	(-0.084)	(-0.068)	(-0.053)
Hispanic	-0.494*	-0.388	-0.493*
	(-0.105)	(-0.083)	(-0.109)
Age at entry	0.007	0.009	-0.011
	(0.001)	(0.002)	(-0.002)
Family income lt $10,000	0.132	0.208	0.198
	(0.028)	(0.045)	(0.044)
Family income = $10,000 to $14,999	-0.200	-0.194	-0.180
	(-0.043)	(-0.042)	(-0.040)
Father's education lt HS	-0.170	-0.120	-0.094
	(-0.036)	(-0.026)	(-0.021)
HS grades	0.033**	0.037***	0.019
	(0.007)	(0.008)	(0.004)
HS academic prep courses	0.107***	0.088***	0.083***
	(0.023)	(0.019)	(0.018)
Academic self-confidence	0.147*	0.144*	0.139
	(0.031)	(0.031)	(0.031)
Orientation to higher education	0.030	0.000	-0.091
	(0.006)	(0.000)	(-0.020)
Not sure of education plans	-1.227***	-1.070***	-1.052***
	(-0.261)	(-0.230)	(-0.233)
Aspires to AA only	-1.552***	-1.292***	-1.340***
	(-0.330)	(-0.277)	(-0.296)
Aspires to BA only	-0.734***	-0.614***	-0.587***
	(-0.156)	(-0.132)	(-0.130)
Liberal arts curriculum		0.579***	0.585***
		0.124)	(0.129)
Worked full-time in college		-0.062	0.036
		-0.013)	(0.008)
Number of remedial courses taken		-0.025	-0.006
		-0.005)	(0.001)
First-year GPA			0.517***
			(0.114)
Model X^2	254.43	273.64	307.32

[a] Logistic regression coefficients represent the change in the log-odds of earning a B.A. per one-unit change in the independent variable. The corresponding change in the probability of B.A. attainment is given in parentheses.

* P < .05 ** P < .01 *** P < .001

TABLE 4
LOGISTIC REGRESSION ANALYSES OF BACCALAUREATE ATTAINMENT: SENIOR-YEAR COLLEGE ENTRANTS[a]

Independent Variables	Model Number 1	2	3
Female	0.055	-0.003	-0.124
	(0.010)	(-0.001)	(-0.023)
Black	-0.058	-0.022	0.117
	(-0.011)	(-0.004)	(0.022)
Hispanic	-0.856***	-0.800***	-0.700***
	(-0.163)	(-0.151)	(-0.129)
Age at entry	0.009	0.021	-0.021
	(0.002)	(0.004)	(-0.004)
Family income lt $10,000	-0.410**	-0.381*	-0.281
	(-0.078)	(-0.072)	(-0.052)
Family income = $10,000 to $14,999	-0.335*	-0.311*	-0.257
	(-0.064)	(-0.059)	(-0.048)
Father's education lt HS	-0.180	-0.186	-0.226
	(-0.034)	(-0.035)	(-0.042)
HS grades	0.102***	0.094***	0.040**
	(0.019)	(0.018)	(0.007)
HS academic prep courses	0.056	0.041	0.046
	(0.011)	(0.008)	(0.009)
Academic self-confidence	0.291**	0.300***	0.251**
	(0.056)	(0.057)	(0.046)
Orientation to higher education	0.588***	0.554***	0.394*
	(0.112)	(0.104)	(0.073)
Not sure of education plans	-0.409**	-0.441**	-0.367*
	(-0.078)	(-0.083)	(-0.068)
Aspires to BA only	-0.467***	-0.437***	-0.365**
	(-0.089)	(-0.082)	(-0.068)
Liberal arts curriculum		-0.024	-0.113
		(-0.005)	(-0.021)
Worked full-time in college		-0.550***	-0.386*
		(-0.104)	(-0.071)
Number of remedial courses taken		-0.046	-0.041
		(-0.009)	(-0.008)
First-year GPA			1.054***
			(0.195)
Model X^2	381.37	373.13	529.74

[a] Logistic regression coefficients represent the change in the log-odds of earning a B.A. per one-unit change in the independent variable. The corresponding change in the probability of B.A. attainment is given in parentheses.

* P < .05 ** P < .01 ** P < .001