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ABSTRACT

Graduation rates are often used indicators of the performance of institutions of higher education. How institutions are represented can be profoundly affected by different approaches used to develop the data for the rates. The impact of variations in how these rates are constructed is illustrated by the example of the City University of New York (CUNY). The completion rate 3 years after entrance is less than 10 percent for the bachelor's degree but at 8 years after entry, the rate is 40 percent, a five-fold difference. It can be shown that many methods of graduation tracking are not adequate to accurately reflect student and college success. There is great distortion when conventional calculations are used to describe non-traditional students. Narrow time intervals and failure to include transfers tend to accentuate differences among institutions to the advantage of elite institutions and detriment of others. Open access institutions stand to gain the most when college completion is more broadly conceived and more flexible parameters are used to define graduation rates. (Contains 24 references.) (JLS)

The Social Construction of Graduation Rates: Conceptions of College Completion and Their Socio-Political Implications

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The Social Construction of Graduation Rates: Conceptions of College Completion and Their Socio-Political Implications.

In this century, statistics describing various social conditions have come increasingly to influence beliefs about society. Americans are deluged by numbers about phenomena such as the rate of inflation, changes in the cost of living, unemployment, divorce rates, crime rates, life expectancy, reading and mathematics achievement scores, and trends in the educational attainments of the population.

Such indicators are considered credible because they are produced by professional staff of organizations such as government departments, universities, research institutes, or official commissions. Because such sources are typically deemed trustworthy, "...their findings are commonly presented--and accepted--as neutral observations, like a weatherman's report on temperature and atmospheric pressure" (Alonso and Starr 1987, 1).

Notwithstanding the general view, one does not have to scratch very deeply beneath the surface of many traditionally used indicators to realize their limitations. The unemployment rate provides one of the best known examples: only those who are out of work and looking for a job are counted as unemployed. Those who become discouraged and stop looking after unsuccessful efforts to find a job, are considered to be out of the labor force and are not counted as unemployed. It is arguable that the traditional definition of joblessness fails to reflect important aspects of the unemployment process,

and so, in this case underestimates the unemployment rate. Clearly, this definition is a choice from alternative definitions of joblessness

Sometimes public debate erupts because of the social consequences of different approaches to definition or measurement. A leading example is the current controversy over the Consumer Price Index. Alleging that technical factors lead the CPI to overstate inflation, the Boskin Commission suggested that adjustments in the way the CPI is calculated would produce a more accurate--and lower--estimate of the inflation rate. Controversy over this proposal for change has raged, not merely because of technical disagreements over the merits of proposed adjustments, but because of their social impact. On the one hand, because many federal program expenditures--most importantly, Social Security benefits--are indexed to the CPI, it has been asserted by the Commission that the government will spend an additional $1 trillion between now and the year 2008 because the CPI overstates inflation. On the other hand, downward adjustments of the index would trigger funding cuts that might erode the living standard of elderly and disabled people (Stark 1996; Madrick 1997).

Controversy may result even from change in a seemingly straightforward system of social classification. For example, some racial and ethnic groups have been concerned by a proposal to add a multiracial category to the list of official categories used by the Census Bureau in identifying racial

and ethnic membership. Although the proposal's intent is to be sensitive to individuals who consider themselves multiracial, it could reduce the proportions in established racial groups, thus affecting the criteria used for determining compliance with affirmative action guidelines (Holmes 1996).

In effect, how indicators are constructed is partly a result of social choices that may add to the frequency of phenomena in some cases, and lower them in others. In either case the consequences of redefinition for individuals and/or organizations may be large.

To summarize, statistics representing social and economic phenomena are hardly neutral. That they are social constructions has been cogently put by Alonso and Starr, when they say that, "...statistics do not merely hold a mirror to reality. They reflect presuppositions and theories about the nature of society. They are products of social, political, and economic interests that are often in conflict with each other. And they are sensitive to methodological decisions made by complex organizations with limited resources" (Alonso and Starr 1987, 1).

Statistics in Higher Education: The Case of Graduation Rates

In higher education, numerous statistics exemplify the considerations we have been noting. Among the most important is the college completion or graduation rate, a key bottom-line measure of educational accounting. For students

college completion is an event of fundamental significance,for a number of reasons. One of the most important is that it substantially enhances economic and social rewards: graduates are more likely to hold high status, well-paying jobs that provide interesting and challenging work.1

Graduation rates are also of growing importance for institutional well-being. Fueled by a national climate promoting consumer awareness and protection (represented for example, by regulations requiring corporations to adhere to "truth in packaging" guidelines in product labeling), colleges and universities increasingly have been subject to demands for accountability and public disclosure of various types of information (see Joint Commission on Accountability Reporting 1995). These include data pertinent to issues such as crime on campus, and alleged exploitation of minority student athletes. With regard to the latter, college specific graduation data were needed, comparing minority athletes with non-athlete students (Blum 1993).

As part of this consumerism ethos in American society, the U.S. Congress passed in 1991 the "Student Right-to-Know and Campus Security Act." As a result, higher education institutions are now required to furnish public information about their graduation rates--for example, in documents such as college catalogues. Such information is useful to students and their families as potential consumers of education making college choice decisions. Moreover, as part of the growing demand for accountability and outcomes

assessment, institutional graduation rates are now included as a component of the IPEDS (Institutional Post-Secondary Education Data System) federal reporting system.

Increasingly, given these developments, the reputation of colleges and universities, especially public ones, is influenced by the proportion of students who cross the educational finish line. When graduation rates are perceived as high, public approval of institutions is more likely. A perception of low rates may drain the reservoir of good will, as criticisms are expressed by public officials and the media that tax dollars are being wasted in support of educationally unsuccessful college dropouts. Moreover, in a political environment where support for higher education has been eroding and legislatures seek to justify funding cuts, statistics about graduation and dropout are subject to increasing scrutiny.

Demands for institutional data about college completion have produced considerable controversy over how they should be conceptualized. In large part the debates stem from the assumption that a single statistic can be used to compare and evaluate the performance of various institutions. Until fairly recently, the traditional measure for students entering bachelor's programs has been the graduation rate four years after college entry. As an example, major national news magazines such as **U.S. News and World Report** provide statisitcs including the four-year graduation rate when presenting "quality"

rankings for various categories of colleges (i.e., the "best" liberal arts colleges). This tracking period has been extended in some instances; for example, under the federal Student Right to Know legislation and the IPEDS reporting system, tracking periods cover a six year period.

Short time frames for calculating college completion rates are consistent with the traditional place of the educational attainment process in the life course. Typically in the past, students have finished high school in late adolescence (17 or 18 years old), entered college the following fall, and four years later--at age 21 or 22--attended commencement. Subsequently, they may have continued into postgraduate study, or entered the world of work. For many, marriage and parenthood coincided with labor market entry. The essential point is that in the traditional sequence of statuses, undergraduate education is completed during the years from late adolescence through young adulthood, and it precedes entry into other adult statuses.

As access to higher education has broadened over the last half of this century, this traditional picture has corresponded less and less with the realities of college-going in America. Indeed, between 1970 and 1991, the proportion of undergraduates age 25 or older grew from 28 to 45 percent (National Center for Education Statistics 1996, p. 13). A fundamental aspect of change concerns the time required to earn a degree: the many older students[2] now in higher education often must juggle the demands of full-time

employment and child care. For economic and/or family reasons they are frequently unable to register as full-time students, or they may be forced to interrupt their studies entirely for a semester or more.[3] Students with less than a full exposure to academic courses in high school, and/or who are immigrants with little facility in English often must take remedial and ESL courses before they can enter fully into mainstream college work.[4]

Institutional factors may also affect the pace of student progress toward a degree. For example, sharply rising tuition charges--not fully covered by financial aid--may force more students, especially ones from impoverished or low-income families, toward reduced credit loads or interrupted attendance in order to conserve money (for discussion, see Lavin and Hyllegard 1996, chapters 2 & 9). Another factor may be increased difficulty enrolling in required courses, as colleges have had to reduce course or section offerings in response to budget cuts (National Center for Education Statistics 1996, p. 13). Moreover, it might be expected that at institutions where graduation credit requirements are higher than average, students will need additional time to complete college.[5]

Factors such as these, alone and in concert, can greatly extend the time needed for graduation. Indeed, less than half of bachelor's graduates now receive their degree within four years of starting college (National Center for Education Statistics 1996, tables 11, 12). Studies that follow bachelors

entrants for long time periods (9 years or longer) show that a focus on short time periods to represent college completion may seriously underestimate the proportion of students who actually graduate from college. For example, a recent study by Astin, et. al. (1996) is consistent with other research showing that less than half of bachelor's entrants to public colleges earn a degree within four years.

Short time periods especially underestimate the college completion rates of minority graduates. In the Astin data for example, a so-called "on time" four-year graduation rate would fail to report 27 percent of eventual Puerto-Rican American graduates, 23 percent of Mexican-American/Chicano graduates, and 43 percent of black graduates. By contrast this time period would miss only 10 percent of white graduates. In effect then, the choice of short tracking periods may seriously underestimate the educational attainments of minority students. Put another way, narrow time intervals overstate the gaps in college completion that separate whites from minority students, and, therefore can serve to reinforce negative stereotypes about black and Latino students as educationally unsuccessful students. Such a conclusion deflects attention away from the burdens of meager economic resources and educational disadvantage that minority students are more likely to bear which often lead them to need more time than others to graduate.

Ethnic differences in rate of progress toward a degree are dramatically illustrated in the Astin data where, after four years, the black graduation rate is less than half that of whites, but after 9 years it jumps to 72 percent of the white rate. For Mexican-Americans/Chicanos, four-year graduation is 71 percent of the white rate, while after 9 years, it is 84 percent. For Puerto Rican students the ratios are 63 percent and 78 percent. In urban universities which often have especially high concentrations of older, low-income, educationally disadvantaged minority students, the distortions introduced by tracking intervals that are too short may be even more dramatic. Later we shall return to this point.

Transfer is another aspect of college careers that is rarely taken into account in studies of institutional graduation rates. Tinto (1993, p.1) has estimated that of the 2.4 million students who entered higher education for the first time in 1993, a majority will have left their initial institution without receiving a degree. Of course, departure from college of first enrollment is, obviously, not the same as departure from the system of higher education. Many students who leave their original college subsequently enroll in another institution. Indeed, according to one national study (the 1990 Beginning Postsecondary Students--or BPS--Longitudinal Study), close to 30 percent of students who initially enroll in four-year colleges leave those institutions without a degree and transfer to another college (U.S. Department of

Education 1996, Table 13, p. 14). Moreover, among bachelor's recipients who were full-time entrants to four-year colleges, a large proportion--40 percent--were transfers; that is they earned their diplomas at a college other than the one at which they started (National Center for Education Statistics 1995c:41).

Students who leave their first school before graduation are conventionally regarded as college dropouts. Since students who dropout are typically viewed as educational failures, studies of graduation which fail to account for transfers overestimate the proportion of entrants labeled as academically unsuccessful.

In summary, how long it takes students to cross the educational finish line and whether they are accurately accounted for by their initial colleges if they transfer, are two considerations of fundamental significance when graduation is an outcome in institutional assessment.

A third consideration overarches the preceding ones: institutional assessment is intrinsically a comparative process. In assessing institutional performance, the question often asked both by colleges and by outside agencies, state departments of education and the like is this: how well is the institution doing relative to some standard such as a national graduation rate? Such comparisons may be of very limited usefulness, even when rates are defined in the same way; for instance, by using the same time frame. In

general, national rates (produced, for example, from a data set such as High School and Beyond) are calculated over a sample of individual students. It is not clear what light is shed on the performance of an institution when it is compared with a rate for the population of individuals. An institutional context for comparison--that is, comparing institutions directly with one another--suggests that it is simplistic to think that a single national rate can furnish a yardstick to measure the performance of individual colleges. When comparisons are conducted within an institutional context, the process immediately becomes much more complex, for an inspection of the array of institutional graduation rates reveals an absolutely stunning degree of diversity.

As an example, a look at 6 year graduation rates reveals that they vary from well over 90 percent at highly selective elite private coleges and universities (such as Amherst, Pomona, Swarthmore, Harvard, Yale, Princeton, and Stanford, to less than 20 percent at schools with very high concentrations of low-income and impoverished students from minority origins who undoubtedly have been very disadvantaged in terms of their prior educational experiences (see rates for schools in Blum 1993). Even a comparison across broad categories of institutions shows how dramatic are the differences in graduation rates. For example, as Astin, et. al. (1996, table 1) demonstrate, average graduation rates vary from under 40 percent at public colleges and universities, to over 70 percent at private universities.

In short, institutional comparisons help one to see beyond the idea that differences in graduation rates are a direct measure of institutional "effectiveness." They help us to focus on the idea that institutional differences are produced by a number of sources--especially by characteristics of student bodies (for related discussion, see Astin, undated).

Different Constructions, Different Rates: A Case Study of The City University of New York.

To return to our main point, graduation rates may vary tremendously, depending on how they are defined, and it makes little sense to think of a graduation rate as a single statistic. To demonstrate the profound effect different definitions can have on rates of college completion, we use data from the seventeen-campus, two-hundred thousand student system of the City University of New York (CUNY), the nation's largest urban university system and its third largest overall (after the California and State University of New York systems). Like many urban institutions, CUNY enrolls large concentrations of low-income blacks and Hispanics, two of higher education's most disadvantaged minority groups. The CUNY data indicate how various constructions of graduation can alter judgments about the success of institutions and their students.

Methods and Data.

Two data sets comprise the point of departure for our case study. The first, the 1988 cohort file, contains information on ethnic origins and annually updated academic records, including graduation and retention for students who entered CUNY in fall 1988. We shall look at graduation rates and persistence at CUNY for this cohort over the 8 year period through June 1996. The

analysis demonstrates how different time intervals affect the magnitude of graduation rates.

A second data set contains information from a special follow-up survey of students who entered CUNY bachelor's programs in fall 1990. This 1990 cohort file contains information on social background, including ethnic origins, as well as academic records containing CUNY graduation and retention data covering the five-year period through June 1995. By that time, 44 percent of this cohort were neither enrolled in CUNY, nor had they graduated from any of the University's colleges. As we said earlier, in studies of college completion, such students typically have been classified as college dropouts.

At CUNY there have, for a long time, been ample grounds to suspect that quite a few apparent "dropouts" may actually be transfers. In earlier studies of the student cohorts that entered just after CUNY initiated its open-admissions policy, it was apparent that large numbers of students departed from the University carrying satisfactory and even very strong academic averages (Lavin, et. al. 1981:129-30; 168). Undoubtedly, some proportion of these students had enrolled in and ultimately graduated from colleges outside the CUNY system. To assess what happens to students who depart from the University without graduating, we surveyed the leavers from the 1990 cohort. A mail survey--conducted during the summer and fall of 1995--asked them a number of questions about their college enrollment status. Using this

information, we consider what happened to these leavers. Did they simply drop out of higher education, or did they transfer to schools outside the University? What were the destinations of the transfers; that is what kinds of schools did they go to? How well did they do in their new schools? What proportion had graduated by 1995? An assessment of these questions will provide a more complete picture of educational attainments among members of the 1990 cohort.

Results 1: Time to Degree.

In considering the achievements of 1988 entrants over the eight-year period to June 1996 (Table 1), one is struck by how few students received bachelor's degrees from CUNY in the traditional "on time" period of four years: by that point, less than one in ten had marched down the commencement aisle. Quite a few were not very far behind, however, as the graduation rate more than tripled to 25 percent after five years. Many more students cross the finish line as the time frame is widened, so that after eight years, 42 percent of the 1988 entrants had received degrees from CUNY. The inadequacy of traditional tracking periods is clearly revealed when one realizes that a four-year interval misses more than 80 percent of eventual graduates, while a six-year time frame misses 17 percent of them.

Ethnic differences in time to degree are quite stunning, especially those

between white and Asian graduates on the one hand and black and Hispanic graduates on the other. Hardly any of the latter received an "on time" degree: less than 10 percent of eventual black and Hispanic graduates completed a degree within four years, compared with more than a quarter of whites. After an additional year, 70 percent of white graduates had crossed the finish line, but less than half of minority graduates had. Underlining the critical importance of longer time periods in capturing the educational attainments of black and Hispanic students is the fact that a longitudinal study that followed students even for six years would fail to report more than a quarter of eventual minority degree recipients, and it would miss as well about 12 percent of eventual white graduates. Another way to highlight the role of time in relation to ethnic differences in rate of progress is to note that after four years the black rate is only 25 percent of whites', while the Hispanic rate is 20 percent of the latter, but after eight years, minorities tend to catch up so that the graduation rate for both blacks and Hispanics rises to about 70 percent of the white rate. Time interval is also quite important in the case of Asians: their four-year rate is only about half that of whites, but they are almost on a par after eight years.

These ethnic differences in rate of progress toward a degree have been well known among CUNY students for a long time. As Lavin and Hyllegard (1996, Chap. 2) have shown, black and Hispanic students are the ones who

most often come from low-income families, have weaker academic preparation prior to college entry, more frequently are placed in remedial courses, are the most likely to be employed full-time, and who--partly as a result of working--have weaker grade point averages. Such factors extend the time it takes to finish college. Even among Asians, who tend not to be viewed as disadvantaged in the ways other minority students are, language difficulties probably slow down their initial progress--at least our data suggest this may be the case.

The choice of time frame for tracking cohorts can have important political consequences. Because shorter ones underestimate minority achievements more than those of whites, this may reinforce stereotypes of minority students as academically unsuccessful. Institutions also have an important stake in the definition of tracking periods, especially schools where minority students form a large share of enrollments. For such colleges, longer time intervals are essential for an accurate representation of graduation rates. On the other hand, institutions with few minority students will typically be much less affected by time frame. Clearly, if graduation rates are a component of outcome assessment, colleges with large minority enrollments will be at a decisive comparative disadvantage when reporting periods are short.

Results 2: The Influence of Transfer.

Time frame is not the only consideration affecting the representation of educational attainments. To this point, the discussion has focused on graduation from institution of initial enrollment. Consequently, even lengthy tracking periods would underestimate completion rates if, as we suspect, many graduates receive their degrees at a different college from the one at which they began. To assess this issue, during summer and fall 1995 we surveyed students who--five years earlier in fall 1990--had entered CUNY bachelor's programs as first-time freshmen.[6]

According to the conventions that institutions use for reporting graduation and retention, about 25 percent of the 6,507 fall 1990 bachelor's level entrants had graduated from CUNY by June 1995, five years after entry. Another 30 percent were still enrolled, and 44 percent, or 2,872 students, had left the University without a degree (table 2). Conventionally, they are labeled as dropouts--as academically unsuccessful students.

What we have found in surveying them sheds light on this conventional perception. Unsurprising perhaps, is the fact that among students with unsatisfactory academic averages--that is, below the "C" or 2.0 average required for graduation--over 70 percent had left CUNY (table 3). But weak students are hardly the only ones to depart: a third of students in good

academic standing also left. Indeed, among the leavers, those in good academic standing outnumbered those with unsatisfactory averages. That stronger students are a majority of leavers flies in the face of the common belief that "dropouts" leave college because they are failures in higher education.

In assessing the paths taken by students in this cohort, ethnicity is an important consideration. Different ethnic groups typically begin college with unequal economic resources and educational preparation. These disparities, in turn influence academic chances. In institutions such as CUNY, that are concerned with the creation of educational opportunity, it is of importance to look at ethnic differences in departure from CUNY and in the destinations of these leavers. Although whites and Asian students are less likely to leave than blacks and Hispanics, overall the gaps separating groups are not large.

Since we have followed these 1990 enrollees for five years, or a total of ten semesters, students could have departed from CUNY at many different points. Judging by the number of degree credits earned, leavers tend to depart fairly early. By the time they left, they had, on average, completed only a little more than one year's worth of credits.

What Happens to the Leavers?

Do students who leave their initial institution simply leave the stage of

higher education, never to set foot on it again, or do they use their first college as a steppingstone to a new school? The CUNY results show that both happen. They demonstrate dramatically that the term, "dropout," grossly misrepresents the actual behavior of leavers: almost 50 percent transferred to colleges outside of the CUNY system (table 4).

Who are these transfers? Not unexpectedly, the majority of students who left CUNY with satisfactory grade-point averages transferred (61 percent did so). However, going against the grain of conventional wisdom is that a substantial proportion--close to 40 percent--of those who left with less than a 2.0 average also were able to transfer. Even though they were not doing well enough to graduate from CUNY at the time they left, the fact that their records were acceptable to other institutions suggests that admissions standards at many institutions in the post-secondary system are more open than is commonly believed. Of course, this raises the question of precisely where in this system transfers are found. We shall return to this point later, when we discuss the destinations of transfers. In any event, these data demonstrate that a large proportion of the students in academic difficulty when they leave their initial college are, contrary to what many would expect, able to persist in higher education.

Other characteristics of transfers also are noteworthy. One is gender. Although women were less likely to leave CUNY than men, the women who

left were more likely to transfer: 54 percent moved to another school compared with 46 percent of men. One reason the transfer rate of women was higher, is that on average they left with better grades than men.

Earlier we saw that blacks and Hispanics were a bit more likely than others to leave CUNY. Although their departure rates were higher, their probabilities of transfer--though substantial--were lower than those of Asians and whites. Differences in transfer rates are often very large. To cite the largest, there is more than a 30 percentage point gap separating Hispanics--the least likely transfers--from Asians who are by far the most likely to enroll in new colleges; there is almost a 25 point difference between the latter and blacks.

In part, these differences are due to ethnic disparities in academic standing: higher percentages of Hispanics and blacks had GPA's of less than 2.0, and as we have seen, academic standing is strongly associated with transfer. But also, inequalities in economic resources undoubtedly make a difference, though not in any simple way. Although whites are generally well above Hispanics and blacks in income and transfer rate, the economic resources of Asians are only slightly higher than that of Hispanics and blacks. Obviously, more exploration is needed to further illuminate ethnic differences in the transfer process.

Destinations of Transfers.

That half of leavers transfer is of fundamental importance, but the story does not end there. Another question concerns the destinations of these transfers: in what kinds of institutions do they enroll? Over 70 percent transferred to another four-year college (table 5). Most of this group ended up in private colleges (although we have no direct evidence, we think that some students enter CUNY with a plan to transfer after a year or two at a public college; this allows them to save on overall college costs and later to afford higher tuition in the private sector). Of those who did not transfer within the four-year college tier, almost all switched collegiate levels by moving to a community college; a very small fraction (3 percent overall) enrolled in short-cycle certificate programs, often in proprietary schools.

Students with stronger academic records were far more likely to transfer to four-year colleges than students with weak transcripts. Still, almost half of the latter were able to move to a four-year school; apparently, quite a few private colleges have open access policies, since most of these weaker students enrolled in the private sector.

The dominant pattern of transfer to four-year colleges is generally visible among different groups. Men, however, were a bit more likely than women to move to four-year schools. Among ethnic groups, differences are generally

narrow. However, possibly as a consequence of their generally higher incomes, whites were more likely than others to move to private colleges. Asian students, who typically had the strongest academic records, but whose incomes were, on average, well below whites, were the ones most likely to remain in the public sector.

Educational Attainments of Transfers

Although transfers reported to us only five years after starting college, half already had graduated (table 6). The typical diploma earned was a bachelor's degree--over 60 percent of graduates received one; almost all of the remainder completed a sub-baccalaureate credential (certificates and associate degrees).

Transfers in good academic standing when they departed CUNY were far more likely to have graduated than students who left with low grades. There was also a dramatic difference in the type of credential held. Among the former, almost 8 in 10 degrees were at the bachelor's level; among the latter this was true for only about 1 in 10. Partly, this large difference is a consequence of the fact that transfers with stronger averages were more likely to move into bachelor's programs, but also students with weaker grade-point averages usually take longer than others to graduate.

Although male transfers were more likely than women to have moved to

four-year institutions, the latter were about as likely as men to receive bachelor's degrees. Overall, women were more likely than men to have earned some credential after five years.

There are substantial ethnic differences, not only in graduation rates, but also in the type of degree held. Most Asian and white transfers had received some credential five years after starting college; mostly it was a bachelors degree (this was the credential held by 60 percent of white degree recipients; among Asians 83 percent of graduates earned a bachelors degree). On the other hand, the majority of black and Hispanic students had not yet graduated; among blacks who had completed some degree, two-thirds received a bachelor's. Hispanic credential holders, however, were especially unlikely to have completed a BA (only a third did so).

In considering these ethnic differences in the likelihood of completing the most valuable credential, a bachelor's degree, it is important to reiterate that the relatively short time period--five years--available for assessing graduation is especially likely to produce an underestimate of ultimate baccalaureate attainments for black and Hispanic students.

How Transfer Affects the Picture of Graduation, Persistence, and Dropout.

In the conventional accounting, less than 10 percent of the 1990 freshmen had graduated four years after entry to baccalaureate programs.

After five years the graduation rate had risen to about 25 percent; another 30 percent were enrolled in CUNY, still working for a degree. The remaining 44 percent were not enrolled in CUNY. These students, typically classified as college dropouts, are the ones we surveyed.

When we take into consideration that almost half of the "dropouts" had actually transferred to non-CUNY colleges, that five years after they started college, almost half of these transfers had earned some kind of credential, mostly a bachelor's degree, and that among those who had not graduated by that time, many were still working toward a degree in their new institutions, the picture of outcomes is fundamentally changed: combining the within-CUNY graduation rate with the graduation rate of the transfers, the proportion graduating with a bachelor's degree within five years rises from 25 percent to almost a third,[7] and considering those transfers still working for a degree, the proportion of students not currently enrolled anywhere in post-secondary education ("dropouts") is actually halved, declining from 44 to 22 percent (table 7).

Five years is, of course, too short an interval to accurately track graduation rates. A more complete assessment requires at least a six--and preferably--an eight or even ten-year period. To give a better idea of college completion among the 1990 entrants, we applied to this cohort the eight-year within CUNY rate for the 1988 entering class.[8] Further, we assumed that the college

completion of transfers after 6 and 8 years would occur at a rate identical with the students who remained at CUNY. We believe that these procedures provide a conservative[9] estimate of future completion rates for the 1990 cohort. The projected six-year graduation rate with transfers included is about 46 percent. In turn, the eight-year graduation rate rises to almost 55 percent. At the end of this time, we estimate that 14 percent of the 1990 cohort will still be enrolled in college, either at CUNY or elsewhere, so that the baccalaureate attainment rate undoubtedly will rise still further, likely going over 60 percent after 10 years. This stands in sharp contrast with a six-year rate of 35 percent calculated for conventional reporting.

The influence of transfer that we have described is apparent across the board for each racial/ethnic group: in every case cohort graduation rates are boosted when the accomplishments of transfers are taken into account. The effect is especially noteworthy in the case of Asian students: transfers account for over a third of their total graduation rate and boost their overall attainment rate above that of whites. For black and Hispanic students graduation rates also rise substantially when transfers are included: they account for 27 percent of graduates in the case of the former and 18 percent for the latter.

Conclusion

In sum these analyses show the inadequacies of graduation tracking periods that are inappropriate to the actual time many students require for college completion. Importantly, they also demonstrate the distortion introduced by conventional calculation when students who depart from the University are, in effect, regarded as dropouts. The data show a large proportion of these leavers as educationally successful.

Graduation rates are an often used indicator of institutional performance. How institutions are represented can be profoundly affected by different constructions of these rates. The impact of variations in how they are constructed is starkly apparent in the CUNY example. If we take stock after four years at CUNY, less than 10 percent of entering classes completed the bachelor's degree. If the lens is widened to include an eight year focus, then the within-institution rate jumps to about 40 percent. When the circle expands beyond the walls of CUNY to include the accomplishments of transfers, the overall rate of college completion again rises substantially to well over 50 percent. When one considers that a four year within-institution rate and eight year rate across the postsecondary system are both used to describe graduation, it is stunning that one rate for the same institution can be five times higher than the other rate. And when one realizes that the inside +

outside CUNY graduation rate will undoubtedly go over 60 percent after a decade of tracking, the amount of variation in this indicator that is a function of how it is constructed is truly mind-boggling.

Given these considerations, it is no surprise that concepts of college completion are contested, for gains and losses in both the reputation of colleges and the perception of their students may hinge greatly on these constructions. Narrow time intervals and failure to include transfers in calculations tend to accentuate differences among institutions. Such definitions work to the advantage of elite institutions that are highly selective and which have students whose economic resources are substantial. Graduation rates at such schools are little augmented by longer tracking periods, and they lose few students to transfer. Institutional variation in graduation rates is considerably less dramatic when we allow for longer time frames and a more encompassing net that catches transfers. From a comparative standpoint, open-access institutions stand to gain the most when college completion is most broadly conceived.

NOTES

1. There is a voluminous literature analyzing the association between education and economic attainment. See for example Jencks, et. al. (1979), Pascarella and Terenzini (1991, ch. 11), Useem and Karabel (1986), Karabel and McClleland (1987), and Lavin & Hyllegard (1996, Chs. 3, 4, 5).
2. The upward trend in the age composition of the college student population is demonstrated by these facts: between 1970 and 1993, the proportion age 35 or older has more than doubled, from 9.6 to 19.4 percent; those of traditional college entry age of 18 or 19 have declined from 30 to 19 percent (National Center for Education Statistics 1995a, table 169, p. 178).
3. National data for the 1982 high school seniors in the High School and Beyond study show that 30 percent of students interrupt their college attendance; that is, they "stop-out" (Eagle and Schmitt 1990).
4. National data show clearly that the percentage of colleges (four-year and two-year) offering remedial work has increased over the past decade and one-half. As of 1992, 95 percent of four-year colleges offered remedial instruction (National Center for Education Statistics 1994, table 298, p. 306).
5. A review of national data on minimum credit requirements for graduation from bachelors programs indicates diversity in credit requirements, with most colleges requiring between 120 and 128 credits (Lavin and Cutler 1995). Such a gap may translate into a semester or more in terms of how long it takes students to complete requirements.
6. The details of the survey, including the adjustment of the sample for non response, may be reviewed in the Appendix.
7. The proportion completing any degree, including either a bachelor's or associate degree, increases from 26 percent to almost 35 percent.
8. In terms of graduation and retention at various time periods, the behavior of the 1988 cohort is very similar to that of cohorts in contiguous years such as 1986, 1987, 1989, and 1990.
9. We say "conservative" because transfers tend to have higher graduation rates than non-transfers.

Appendix

During the summer of 1995, we conducted a survey of leavers from the CUNY system. The population for the survey consisted of all students who had entered the University as first time freshmen in September 1990, who were not enrolled in the spring semester of 1995, and who had not received a CUNY degree. The number of leavers was 15,876. A short questionnaire was sent to these individuals. Two mailing waves were conducted. After completing them, 1,882 students had responded, and we had 3,465 questionnaires that had been returned by the postal service as undeliverable. The response rate among locatable students was 15.2% percent. Using the total population of leavers as the base, the overall response rate was 11.9 percent.

This report is focused on an important subset of leavers: first time, full-time freshmen who were admitted to baccalaureate programs as "regular" students. In the usage of the University, a "regular" student in a bachelors program is one admitted outside of its smaller special admissions programs for disadvantaged students, the most important of which is known by the acronym SEEK (Search for Education, Elevation and Knowledge). This program annually accounts for about 10 percent of the members of each freshmen class.

In conducting our data analyses, we are generalizing from a sample of 443 cases to the population of 2,872 leavers who had been first-time, full-time regular freshmen in fall 1990. To assess the representativeness of the sample, we have compared it with the leaver population, using a large number of variables common to both. These comparisons allow us to make an assessment of non-response bias. The comparisons presented in table A involve three kinds of variables: (1) those referring to demographic factors (gender, age at entry to CUNY, and ethnicity); (2) those referring to secondary school record (college admissions average, total college preparatory courses taken in the first three years of high school); (3) academic achievements in CUNY (grade point average, total credits earned, and enrollment status in spring 1992 and fall 1992).

There are a few sample-population differences on the demographic variables.

The sample contains a higher proportion of women (60 percent) than does the population (52 percent). There are also discrepancies regarding ethnicity: the representation of whites (47 percent) is greater in the sample than in the population (40 percent), while blacks are somewhat underrepresented in the sample (18 percent vs. 24 percent in the population).

Overall, respondents with low high school averages are somewhat underrepresented in the sample, while those with higher averages are overrepresented. The sample was slightly above the population in terms of the average number of college preparatory courses taken in high school.

Generally larger differences are visible for the collegiate academic performance variables. Compared with the population, the sample respondents' were about 9 percent more likely to have a grade point average equal to- or above 2.00, they had earned nine more credits at the time they left, and they were about 9 percent more likely to have been still enrolled at CUNY in the spring and fall semesters of 1992.

Overall, then, those with stronger high school averages who did better while enrolled in CUNY were more likely respondents to the leaver survey, raising the possibility that our analyses might produce invalid findings because of response bias. For example, since those with stronger college grades were generally more likely to transfer than those with lower grades, and since the former are overrepresented in the sample, such response bias might lead to overestimates of transfer.

To address such possibilities, we used a weighting procedure designed to answer this question: among the population of leavers, what are the odds that individuals with various characteristics will be in- or not in the sample? To examine this question, we used logistic regression where the dependent variable is the odds that someone from the population would respond to the survey questionnaire. We looked at the contribution of a number of demographic and academic variables that we expected to affect the odds of being in the sample. These are the variables presented in table A, including several indicators constructed to assess the effect of missing values on the odds of being in the sample. The log odds of the variables which significantly differentiated the two groups were converted into probability levels. The inverse of these probabilities was used to weight individuals in the sample.

The results of this procedure are shown in the column of table A labeled "Adjusted Value." The results closely align the sample values with those of the population. College grade point average is an important example, since it is strongly associated with departure from the CUNY system and with subsequent transfer, and since, as we saw above, sample-population discrepancies are fairly large. The adjusted values for our GPA indicators almost match the population values. For example, among leavers with averages above 2.00 and below 2.00, initial differences of 8.8 percentage points are reduced to 2.0 points. The discrepancies for retention are almost eradicated: unadjusted differences for retention in spring 1992 and fall 1992 of 8.9 and 8.7 percentage points are, after adjustment, narrowed to 0.4 and 0.2 points.

Overall then, it appears that the logistic model was effective in adjusting the sample so that it provides a good representation of the population of leavers. Obviously, we do not have measures in the population for the transfer and graduation data in the sample, but as far as we have been able to compare the two, there seems little reason to suspect that findings from the sample are invalid. Especially because we have been able to align the sample with the population for variables such as college grade point average which are quite strongly associated with leaving CUNY and transfer to outside institutions, we feel confident about the conclusions we draw from our analyses.

Table A

Respondents to the Leaver Questionnaire compared with the Population of Leavers in the 1990 Cohort: Unadjusted and Adjusted Values: Regular Full-time BA Entrants only

	Survey Respondents		All Leavers
	N=443		N=2,872
	Unadjusted	Adjusted	
% Female	59.8%	52.5%	52.1%
Mean Age	19.5	19.5	19.5
Ethnicity			
% White	46.7%	39.6%	39.9%
% Black	18.1%	21.4%	24.0%
% Hispanic	19.6%	22.6%	20.2%
% Asian	15.6%	16.4%	15.9%
College Admissions Average			
Mean	81.6	81.0	81.0
% => 80	60.9%	57.8%	55.1%
% < 80	34.1%	36.1%	35.9%
missing College Admissions Average	*5.0%*	*6.1%*	*9.0%*
Total High School Units- 3 yrs	13.1	12.7	12.4
GPA			
Mean	2.36	2.11	2.02
% >= 2.0	67.6%	56.8%	58.8%
%< 2.0	32.4%	43.2%	41.2%
Total Credits Earned	42.6	33.3	33.3
Retention			
Enrolled in Spring 1992	60.5%	51.2%	51.6%
Enrolled in Fall 1992	46.5%	37.6%	37.8%

Source: CUNY Leavers File- Office of Institutional Research

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Table 1.
Rates of Baccalaureate Attainment and Retention by Ethnicity: Entrants to Bachelor's Programs*

	White	Black	Hispanic	Asian	Total
Number of Cases	3,130	1,634	1,320	1,240	7,324
4 Years					
% Still enrolled	47.4	52.9	50.8	52.2	50.1
% Graduated	12.6	3.2	2.5	6.5	7.6
5 Years					
% Still enrolled	21.8	36.7	31.1	29.3	28.1
% Graduated	33.8	14.4	16.4	25.9	25.0
6 Years					
% Still enrolled	10.8	23.4	22.1	12.4	15.9
% Graduated	42.5	24.0	25.0	39.4	34.7
7 Years					
% Still enrolled	6.1	13.6	13.9	8.5	9.6
% Graduated	46.1	29.8	31.0	43.1	39.2
8 Years					
% Still enrolled	3.9	9.2	9.9	4.4	6.2
% Graduated	48.3	32.7	33.9	46.0	41.8

Source: City University of New York, Office of Institutional Research, 1988 Cohort file

* Results are for first-time entrants who were registered full-time in their initial semester. Special program (SEEK and CD) students are not included.

Table 2.
Enrollment and Graduation of 1990 Bachelor's Entrants to CUNY as of 1995 (N = 6,507)

	Percent
Graduated/ Bachelor's Degree	24.6%
Graduated/ Associate Degree	1.5%
Still Enrolled	29.6%
Not Enrolled ("Dropouts")	44.3%

Source: CUNY Leavers File- Office of Institutional Research

Table 3.
Rates of Leaving CUNY Among Bachelor's Entrants by Gender, Ethnicity, and Grade Point Average

	Leavers	Non Leavers
Gender		
Male	48.3%	51.7%
Female	40.9%	59.1%
Ethnicity		
White	43.3%	56.7%
Black	47.0%	53.0%
Hispanic	46.8%	53.2%
Asian	39.7%	60.3%
Grade Point Average		
=> 2.00	32.5%	67.5%
< 2.00	72.4%	27.6%
Mean Cumulative Credit	33.3	90.3

Source CUNY Leavers File- Office of Institutional Research

Table 4.
Rates of Transfer Among Leavers from Bachelor's Programs by Gender, Ethnicity, and Grade Point Average

	Percent of Leavers who Transfer
Total	49.9%
Gender	
Male	45.6%
Female	53.8%
Ethnicity	
White	52.5%
Black	43.6%
Hispanic	37.9%
Asian	68.5%
Grade Point Average	
=> 2.00	60.7%
< 2.00	37.6%

Source CUNY Leavers File- Office of Institutional Research

Table 5.
Institutional Destinations of Transfers from Bachelor's Programs: Level of College Entered by Public/Private Status

	4 Year		2 Year		Less Than 2 year
	Public	Private	Public	Private	
Entrants	30.7%	41.9%	14.5%	9.9%	3.0%
Gender					
Male	31.6%	45.4%	12.8%	6.7%	3.4%
Female	30.0%	39.4%	15.8%	12.2%	2.7%
Ethnicity					
White	24.7%	49.6%	14.2%	9.7%	1.8%
Black	32.8%	38.4%	20.9%	4.8%	3.1%
Hispanic	30.0%	37.5%	13.3%	16.7%	2.6%
Asian	40.4%	34.0%	10.9%	9.4%	5.4%
Grade Point Average					
% => 2.00	37.2%	47.3%	8.6%	5.3%	1.6%
% < 2.00	16.5%	31.1%	21.7%	23.6%	7.1%

Source CUNY Leavers File- Office of Institutional Research

Table 6.
Degrees Earned as of 1995
By Transfers from Bachelor's Programs

	Certificate	Associate	Bachelors	Masters	No degrees
Total	10.6%	7.4%	31.3%	0.2%	50.4%
Gender					
Male	9.9%	4.6%	30.7%	0.6%	54.2%
Female	11.2%	9.6%	31.8%	0.0%	47.4%
Ethnicity					
White	11.2%	10.4%	33.1%	0.6%	44.7%
Black	7.7%	5.0%	25.9%	0.0%	61.4%
Hispanic	20.2%	6.8%	13.5%	0.0%	59.5%
Asian	4.7%	4.5%	46.1%	0.0%	44.7%
Grade Point Average					
=> 2.00	6.5%	6.1%	46.4%	0.4%	40.6%
< 2.00	17.5%	11.8%	3.5%	0.0%	67.3%

Source CUNY Leavers File- Office of Institutional Research

Table 7:
Enrollment and Baccalaureate Attainment of 1990 Entrants to CUNY Bachelor's Programs with Transfers included: 5 and 6 Year Results and 8 year Projections[1]

	5 year results					6 year results[2]					8 year projection				
	Total	White	Black	Hispanic	Asian	*Total*	White	Black	Hispanic	Asian	*Total*	White	Black	Hispanic	Asian
Graduated from CUNY	*24.6%*	32.6%	16.5%	12.7%	29.0%	*35.2%*	41.9%	26.4%	24.8%	42.2%	*41.8%*	48.3%	32.7%	33.9%	46.0%
Graduated from non-CUNY college	*7.0%*	7.7%	5.3%	2.4%	12.6%	*10.7%*	10.2%	9.5%	5.2%	19.9%	*13.0%*	11.6%	12.3%	7.2%	23.7%
Total Bachelor's Graduates[3]	31.6%	40.3%	21.8%	15.1%	41.6%	45.9%	52.1%	35.9%	30.0%	62.1%	54.8%	59.9%	45.0%	41.1%	69.7%
Transferred but not yet graduated	*13.5%*	12.8%	14.3%	14.2%	13.6%	*10.9%*	10.5%	11.6%	12.3%	7.9%	*7.7%*	7.9%	7.8%	9.0%	6.2%
Still enrolled in CUNY	*29.5%*	21.7%	35.2%	39.1%	29.5%	*14.9%*	10.7%	19.3%	20.7%	12.7%	*6.2%*	3.9%	9.2%	9.9%	4.4%
Not enrolled in CUNY or in any College	*22.2%*	20.6%	26.6%	29.1%	12.6%	*23.9%*	21.3%	29.7%	32.5%	13.6%	*24.4%*	21.1%	31.0%	32.7%	14.9%

Source: CUNY Leavers File, Office of Institutional Research

[1]Colums do not total 100% because Associate Degrees and Certificates are not shown.

[2] For Non-CUNY graduates, 6 year results are projections.

[3] In addition to Bachelor's Degrees, a total of 3.2%, 4.4% and 6.9% earned Associate Degrees after 5, 6 and 8 years respectively.

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