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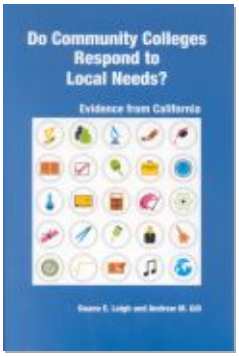
5. Responsiveness to the Educational Needs of Immigrants by Broad Categories of Race or Ethnicity



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Responsiveness to the Educational Needs of Immigrants by Broad Categories of Race or Ethnicity

This chapter addresses the first research question posed in Chapter 1. The question is whether California community colleges are meeting the educational needs of current and recent generations of immigrants. By educational needs, Chapter 1 specified that what we have in mind is a successful outcome of a student's community college experience. Among the major immigrant groups into the United States—Latinos and Asians—we also identified as an important national problem the low level of educational attainment of Latinos. At the same time, Asians typically possess a much higher level of educational attainment. The literature review in Chapter 3 described that common measures of educational attainment for community college students include transferring to a four-year college, receipt of an AA degree, and total number of credits earned.

The primary data source for our empirical analysis is administrative data reported by individual community colleges to the Chancellor's Office. These data are specific to the universe of first-time-freshmen (FTF) students enrolled at any CCCS campus during the 1996–1997 academic year. Members of this student cohort are followed for six years through 2002. In Appendix A, we describe the construction of our data extract from the four data files available for the 1996 FTF cohort. As explained in this appendix, after merging the four student files and appending several institutional-level variables, there are 335,615 FTF in our extract.

This chapter is organized into three main sections, the first of which describes the FTF data set and the variables we construct from these data. A primary purpose of this section is to look for differences in student characteristics and the characteristics of colleges attended that may be helpful in understanding gaps in educational attainment between major race or ethnic groups. The next section follows with an attempt to

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explain the gaps we observe between Latinos and whites and between Asians and whites. We seek to identify major barriers to higher educational attainment for Latinos, as well as to quantify those factors that result in Asians outperforming whites, despite disadvantages associated with recent immigration. In the third section, we break out for separate analysis two subgroups of students of particular concern to policymakers: 1) first-generation immigrants, and 2) high school dropouts. Focusing on transfer rates, we also consider the impact of individual college fixed effects to better control for differences between the individual colleges attended by community college students. The last section summarizes the main empirical results presented in the chapter.

FIRST-TIME-FRESHMEN DATA AND DESCRIPTIVE STATISTICS

Chapter 3 identified five categories of student-level variables that should be measured and included in our empirical analysis. The first of these is community college outcome variables. As just noted, these include transfer to a four-year college, receipt of an AA degree, and total credits earned. On the other side of the equation, our four categories of explanatory variables measured for individual students include 1) student preparation and background, 2) financial need, 3) students' academic goals, and 4) students' academic abilities. In addition, a fifth category of explanatory variables is measured at the institutional level. This section focuses on the measurement of these outcome and explanatory variables. We begin by addressing the critical question of how race or ethnicity is recorded in FTF data.

Measures of Race or Ethnicity

First-time-freshmen data measure race or ethnicity at two levels of detail. At the broad or "one-digit" level, categories of race or ethnicity reported are white, black, Latino, Asian, Filipino, American Indian, Pacific Islander, and other nonwhite. The distribution of FTF students at the one-digit level of race or ethnicity is shown in Table 5.1. Percentages of students in each category are calculated for the data set

Table 5.1 Descriptive Statistics for One-Digit and Two-Digit Race or Ethnicity Variables, 1996 FTF Data, by Gender (%)

Race or ethnicity variable	Males	Females
Whites	42.8	41.9
Blacks	9.8	10.6
Latinos (all)	28.3	29.3
Mexico	15.8	16.0
Central America	2.7	2.6
South America	0.9	0.9
Other Latino	2.2	2.2
Undesignated Latino	6.7	7.6
Asians (all)	11.3	11.2
China	2.9	3.2
India	0.5	0.5
Japan	0.8	0.9
Korea	1.0	1.1
Laos	0.2	0.2
Cambodia	0.2	0.3
Vietnam	2.5	2.1
Other Asian	1.1	0.9
Undesignated Asian	2.1	2.0
Filipino	3.4	3.0
American Indian	1.5	1.4
Pacific Islander	0.8	0.7
Other nonwhite	2.0	1.9
Number of students	148,508	156,751

we obtain after imposing three restrictions on observations included in our data extract:

1) respondents must be reported as male or female (i.e., we omit the "other" gender category),
2) respondents' ages must be between 17 and 60, and
3) respondents' race or ethnicity must be reported (i.e., we omit the "unknown" and "declined to state" categories).

Application of the first restriction removes only a handful of community college students from the data set. The second and third restric-

tions are more important and are roughly equally binding. Their combined impact is to reduce the number of individuals included in our data set from 335,615 students to 305,259 students. We stratify by gender in the table based on a paper by Surette (2001) that shows, using national data, that female students are much less likely to transfer than males. Slightly over 51 percent of students in our data set are female.

Collection and reporting of data at the one-digit level are required by the Chancellor's Office. The Chancellor's Office also instructs individual colleges to report, if collected, additional detail on Latino and Asian students' country or region of family origin. These "two-digit" ethnicity categories are listed in Table 5.1. In addition to the detailed ethnicity, the table distinguishes an "other" category from an "undesignated" category. The "other" category is reported in FTF data, and it indicates for Latinos, for example, a student whose two-digit designation is a heritage other than Mexican, Central American, or South American. In contrast, "undesignated" is a category we define to capture individuals who report a one-digit category of Latino but no two-digit category of Mexico, Central America, South America, or other Latino. Given the large percentage of students of Mexican ancestry, it is quite likely that the bulk of undesignated Latinos belong in the Mexican category. However, we have no way of knowing which ones are really Mexican Americans. Two-digit ethnicity categories, including the undesignated category, sum up to one-digit totals.

At the one-digit level, Table 5.1 shows that the largest racial or ethnic category of students is whites at about 42 percent. Latinos follow at about 29 percent, then Asians (including Filipinos) at about 14 percent, and finally blacks at about 10 percent. Gender differences in the race/ethnicity distributions at the one-digit level are minor.

The more detailed two-digit breakdowns of Latino and Asian students shown in Table 5.1 correspond closely to the immigration statistics presented in Chapter 1 for California and the entire United States. That is, most Latino community college students are of Mexican ancestry, and Latino immigrants to California are primarily from Mexico. Similarly, the table shows that the largest categories of Asian students are Chinese, Filipino, and Vietnamese, followed at a distance by Indians, Koreans, and Japanese. Table 1.1 in Chapter 1 (p. 9) indicated that the Philippines, China, India, and Vietnam, in that order, send the greatest numbers of Asian immigrants to California.

The empirical analysis presented in this chapter is based on the one-digit breakdown of race or ethnicity. In Chapter 6, we exploit the greater race/ethnicity detail available for Latino and Asian students.

Community College Outcome Variables

The three community college outcome variables displayed in Table 5.2 capture alternative measures of success in a student's community college experience. Transfer to a four-year college represents the successful accomplishment of an important step in the academic program of students who aspire to a BA degree. From a policy point of view, failure to transfer to a four-year college in sufficient numbers is a key factor in understanding why Latinos lag behind whites in overall educational attainment. Receipt of an AA or AS degree signals the completion of an academic program that serves as a stepping stone for further course work at a four-year institution. But an AA degree may also represent completion of a two-year occupational training program. In connection with total credits earned, Kane and Rouse (1995) draw attention to the

Table 5.2 Descriptive Statistics for Community College Outcome Variables, by One-Digit Race or Ethnicity Categories and Gender

Outcome variable	Latinos	Whites	Blacks	Asians[a]
		Males		
Transfer (%)	7.4	14.9	9.5	25.4
Receipt of AA or AS degree (%)	5.7	8.1	5.2	10.7
Semester-equivalent credits earned	21.8	24.9	17.3	35.6
Number of students	42,070	63,551	14,482	21,957
		Females		
Transfer (%)	9.0	16.3	8.9	27.7
Receipt of AA or AS degree (%)	9.6	11.8	6.6	15.8
Semester-equivalent credits earned	27.2	28.1	20.0	38.0
Number of students	45,962	65,668	16,563	22,231

[a]Includes Filipinos.

fact that many community college students complete very few credits. We view total credits earned as capturing the persistence needed to successfully complete either a traditional transfer-oriented program or a stand-alone occupational training program. Total credits earned are expressed in terms of semester equivalents, and all three outcome variables are measured over the six-year window between 1996 and 2002.[1]

In addition to distinguishing males and females as in Table 5.1, we further disaggregate in Table 5.2 by broad categories of race or ethnicity. Beginning with student transfers, Appendix A notes that FTF data track community college student transfers to any four-year college, whether public or private or California or out of state. Our impression from the data is that the vast majority of student transfers are in-state and to a UC or CSU campus. Among males, the transfer rate calculated for white students is exactly double that for Latinos (14.9 percent versus 7.4 percent). At the same time, the transfer rate for Asian students is nearly double that of whites (or nearly four times that of Latinos). African Americans transfer at a rate that is above that of Latinos but well below the rate of whites. In the lower half of the table, transfer rates are slightly higher for females than males within all race/ethnicity categories, except for blacks. Not shown in Table 5.2, overall female and male transfer rates are 14.9 percent and 13.7 percent, respectively. Differences for females across race/ethnicity categories are very similar to those just discussed for males. That is, the transfer rate for Asians is much higher than that for whites (27.7 percent versus 16.3 percent), and the white rate exceeds that for Latinos and blacks.

Before moving to the other outcome variables, two further points should be made in connection with transfer rates. First, the rates appear low in comparison to the national transfer rate of 25 percent measured as of 1989–1990 (Bradburn and Hurst 2001). One difference is that the national rate is calculated excluding first-time community college students taking only noncredit courses. As indicated in Appendix A, however, imposing this restriction reduces the number of California students by only 608 individuals, which makes no difference in calculating the transfer rate. A more important consideration is the difference in students' academic goals. At the national level, Bradburn and Hurst indicate that 71 percent of entering community college students anticipate earning a bachelor's degree or higher. Looking ahead to Table 5.3, the Educational Goals section of the table indicates that only about 35

percent of entering California students plan to transfer to a four-year institution. Instead, large fractions of students express an interest in enhancing their occupational skills or in pursuing a basic skills curriculum. Others are "undecided" at the time they first enrolled. As suggested by the discussion in Chapter 2, a broad diversity in student academic goals reflects the ready access to California's community colleges made possible by an open-admission policy, low tuition, and conveniently located campuses.

The second point is that there are a number of alternative ways to calculate transfer rates. One possibility using FTF data is to calculate three-year as well as six-year transfer rates. Wassmer, Moore, and Shulock (2004) follow up on this possibility and report that the three-year rate is much lower than the six-year rate. This result is expected in view of the large number of community college students attending school on a part-time basis. It is also common to calculate transfer rates only for community college students who somehow indicate an intention to transfer. To isolate on the population of "transfer-eligible" students, Wassmer, Moore, and Shulock examine only those students who completed at least 12 credits and enrolled in transfer-level math or English courses. As they note, however, there is considerable debate in the literature over the criteria to impose in deciding exactly which students to exclude. Our approach is to take the most inclusive approach possible using FTF data. This means that we measure transfers in a six-year rather than three-year window, and retain for analysis all students included in our data set. By including all students in the data set, we allow for the possibility that exposure to a community college may positively affect educational aspirations, making every student a potential transfer student.

An AA degree is seen in Table 5.2 to be a much less common outcome than is transferring to a four-year college. The single exception to this statement occurs for female Latinos, for whom the AA receipt rate is 9.6 percent as opposed to a transfer rate of 9.0 percent. Otherwise, results for AA receipt generally echo those for transfers. For both males and females, that is, AA receipt is higher for whites than Latinos and blacks, and higher for Asians than whites. Associate's degree receipt is about the same for Latinos and black males, but higher for Latino females than black females. Asian female students display the highest percentage of AA degree recipients at 15.8 percent, while the lowest

Table 5.3 Descriptive Statistics for Student-Level Explanatory Variables, Males Only, by One-Digit Race/Ethnicity Categories

Variable name	Latinos	Whites	Blacks	Asians[a]
Background variables				
High school or other degree				
U.S. high school diploma	0.654	0.751	0.704	0.621
Foreign high school diploma	0.064	0.024	0.023	0.201
GED	0.063	0.070	0.087	0.032
Other degree	0.067	0.087	0.065	0.064
No high school diploma	0.152	0.068	0.121	0.083
Took or needs ESL	0.104	0.014	0.016	0.203
Basic skills courses/all courses	0.174	0.060	0.112	0.127
Citizenship status				
U.S. citizen	0.694	0.915	0.931	0.467
Permanent resident	0.247	0.034	0.031	0.388
Other	0.059	0.051	0.038	0.145
Financial need				
Age at first term				
17–25	0.714	0.683	0.675	0.770
26–60	0.285	0.316	0.325	0.229
Semester-equivalent credits attempted/semester	6.89	7.30	7.46	8.32
Educational goals				
Transferring with or without AA	0.298	0.358	0.385	0.438
AA without plans to transfer	0.051	0.046	0.059	0.046
Enhancing occupational skills	0.309	0.264	0.268	0.171
Educational development	0.109	0.082	0.091	0.103
Undecided	0.208	0.222	0.175	0.218
Uncollected or unreported	0.026	0.028	0.022	0.024
Community college progress variables				
GPA[b]	1.98	2.34	1.84	2.25
Credits earned/credits attempted[c]	0.516	0.601	0.437	0.595
Courses transferable to UCs and CSUs/all courses taken	0.357	0.434	0.428	0.477
Number of students	42,070	63,551	14,482	21,957
Percent of total students	29.6	44.7	10.2	15.5

[a] Includes Filipinos.
[b] Omits students who took only nongraded courses.
[c] Omits students who took no classes for credit.

percentage is for black males at 5.2 percent. Overall, the percentage of females receiving an AA degree over the period of observation exceeds that of males 11.1 percent to 7.4 percent.

The total credits earned variable appearing in Table 5.2 is measured in semester-equivalent terms to take account of the fact that a small number of CCCS colleges operate on quarter systems rather than semesters. We multiplied quarter credits by two-thirds and added them to semester credits to arrive at "semester-equivalent" credits. The average student at a CCCS college completed over his or her community college career between 24 and 28 credits, or between 0.82 and 0.94 of the credits that would be earned in one year of full-time college attendance (30 semester credits).

The table indicates a large gap in total semester-equivalent credits earned between Asian students and all others. Among female students, Asians average 38 total credits earned over their community college careers. This compares to 28.1 credits earned for whites, 27.2 credits for Latinos, and 20.0 credits for blacks. Among males, Asians average 35.6 credits as compared to 24.9 credits for whites, the next highest race/ethnicity category.

Background Variables

Turning to student-level explanatory variables, we measure students' academic background and preparation using FTF information on high school degree, citizenship, and need for remedial courses at the community college level. Still disaggregating by one-digit race or ethnicity, Table 5.3 shows for males that whites are most likely to have earned a U.S. high school diploma, followed by blacks, then Latinos, and finally Asians. Just 62.1 percent of Asian male students possess a U.S. high school diploma. However, 20 percent of Asian males hold a foreign high school degree. Lumping together U.S. and foreign high school degrees, Asians are even more likely than whites to have earned a high school diploma (82.2 percent versus 77.5 percent). At 71.8 percent, Latino males are least likely to hold a high school degree. Over 15 percent of Latino male students are high school dropouts.

Consistent with the result that many Asians received their K-12 education outside the United States is the finding that 20.3 percent of Asian male students have taken or are in need of community college

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ESL courses. This compares to about 10 percent of Latinos and only 1.4 percent of whites needing ESL. Nevertheless, it is interesting to note that the ratio of community college basic skills courses (courses that include remedial reading and math as well as ESL) to all courses is lower for Asians (12.7 percent) than for Latinos (17.4 percent).

First-time-freshmen data measure citizenship rather than country of birth. However, it seems very likely that the vast majority of the 92–93 percent of white and black male students who are U.S. citizens are also native-born Americans. Only about 3 percent of both whites and blacks are permanent residents, who are first-generation immigrants holding "green cards" that allow them residence in the United States. In contrast, Latino and especially Asian students are much more likely to be first-generation immigrants. Table 5.3 shows that nearly 25 percent of Latino males and 39 percent of Asian males are immigrants with permanent residency status. Another 5.9 percent of Latinos and 14.5 percent of Asians fall into the "other" citizenship status category, which includes "temporary" residents holding H1-B visas, individuals holding student F1 or M1 visas, refugees or asylees, and individuals with some other or an unknown status. We delve into the details of the other citizenship category in Chapter 6, when we focus on the two-digit level of ethnicity available for Latinos and Asians. At this point, however, it is worth emphasizing that at least 53 percent of Asian male students in our data set are first-generation immigrants. We apply the phrase "at least" because it is likely that other Asian students are first-generation immigrants who have made it through the citizenship process. At least 31 percent of Latino male students in our data set are first-generation immigrants.

Differences between male and female students on the background variables tend to be slight, and we note just a few. For female students described in Table 5.4, the main differences from males are that, except for Asians, females are somewhat more likely to be U.S. citizens and to have earned a U.S. high school degree. Among Asian students, females are slightly less likely than males to be U.S. citizens and graduates of American high schools.

Table 5.4 Descriptive Statistics for Student-Level Explanatory Variables, Females Only, by One-Digit Race/Ethnicity Categories

Variable name	Latinos	Whites	Blacks	Asians[a]
Background variables				
High school or other degree				
U.S. high school diploma	0.686	0.770	0.718	0.587
Foreign high school diploma	0.064	0.040	0.021	0.243
GED	0.055	0.063	0.074	0.023
Other degree	0.056	0.055	0.054	0.070
No high school diploma	0.139	0.073	0.133	0.077
Took or needs ESL	0.117	0.021	0.013	0.252
Basic skills courses/all courses	0.199	0.075	0.139	0.152
Citizenship status				
U.S. citizen	0.713	0.930	0.948	0.442
Permanent resident	0.246	0.048	0.026	0.412
Other	0.040	0.023	0.025	0.146
Financial need				
Age at first term				
17–25	0.703	0.642	0.631	0.711
26–60	0.297	0.357	0.370	0.290
Semester-equivalent credits attempted/semester	7.18	7.31	7.60	8.04
Educational goals				
Transferring with or without AA	0.311	0.343	0.338	0.407
AA without plans to transfer	0.054	0.052	0.059	0.056
Enhancing occupational skills	0.281	0.266	0.316	0.169
Educational development	0.118	0.093	0.098	0.129
Undecided	0.210	0.217	0.169	0.211
Uncollected or unreported	0.025	0.029	0.029	0.027
Community college progress variables				
GPA[b]	2.09	2.48	1.85	2.55
Credits earned/credits attempted[c]	0.550	0.617	0.437	0.663
Courses transferable to UCs and CSUs/all courses taken	0.390	0.471	0.409	0.465
Number of students	45,962	65,668	16,563	22,231
Percent of total students	30.6	43.6	11.0	14.8

[a] Includes Filipinos.
[b] Omits students who took only nongraded courses.
[c] Omits students who took no classes for credit.

Financial Need

First-time-freshmen data do not provide information on family background. Hence, we do not have a direct measure of a student's financial capacity to attend college without having to work at least part time. We do, however, develop two proxy variables to capture financial need. The first is whether the student is older than age 25. An age of 25 is commonly used in the literature to distinguish students who entered college immediately after completing high school from students who worked for a period of time after high school and then entered college. Four examples of articles that make use of this age threshold are Alfonso (2006); Chancellor's Office (2002); Wassmer, Moore, and Shulock (2004); and Alfonso, Bailey, and Scott (2005). The first three of these papers were summarized in Chapter 3. Alfonso, Bailey, and Scott (2005) provide empirical support for the over-25 age variable reporting that their nonlinearity test of the effect of age indicates that students aged 26 and older are different from younger students.

The literature indicates that the transfer rate of students 25 years of age and younger considerably exceeds that of older students. Three considerations underlie this result. The first is that younger students may still be able to draw on the resources of their parents while attending school. In contrast, students entering college beyond age 25 are more likely to be financially independent of their parents. As noted by Alfonso, Bailey, and Scott (2005), students who can rely on their parents' income are more likely to be able to attend college in a more "traditional" fashion. A second consideration is that age exceeding 25 indicates students who delay college entry after high school, a factor generally associated with a reduced probability of graduation. Finally, as noted by Sengupta and Jepsen (2006), older students are more likely than younger students to focus on occupational skills courses that will put them in a better position for raises and promotions with their current employers.

Overall, approximately 30 percent of male students and 33 percent of female students in the FTF data set entered community college at an age older than 25. For both male and female students, Tables 5.3 and 5.4 show that Asians tend to be younger than students in the other race/ethnicity categories. While older than Asians, Latino students are younger on average than whites and blacks.

Our second financial need variable seeks to measure the need to combine college attendance with employment. Alfonso, Bailey, and Scott (2005) summarize evidence relating to four-year colleges showing that full-time attendance promotes degree completion, while delaying and interrupting enrollment and working off-campus negatively affect completion. These authors and Alfonso (2006) use monthly enrollment information available in the Beginning Postsecondary Student Longitudinal Study to construct a measure of cumulative full-time equivalent (FTE) semesters in which a student is enrolled during a five-year window. Number of FTE semesters is shown to be strongly related to educational attainment.

Rather than focusing on full-time enrollment, we use FTF data on credits attempted and semesters enrolled to construct an indicator of part-time enrollment. This measure divides total credits attempted over the six years a student is observed by total semesters in which he or she is enrolled. After adjusting for the small number of credits taken at quarter-based colleges, the typical student, both male and female, attempted slightly less than 7.5 semester credits per semester in the semesters in which he or she was enrolled. That is, students typically maintained a half-time course load during their community college careers. Across race/ethnicity categories, Tables 5.3 and 5.4 indicate that male and female Asians carry a considerably higher course load than whites or blacks. Typical course loads taken by whites and blacks, in turn, exceed those of Latinos.

Educational Goals

A solid academic background and basic competence in English are generally a necessary but not sufficient criterion for a successful community college experience. With respect to transferring to a four-year college, students must also have an interest in pursuing a transfer-oriented curriculum. Alternative career objectives that do not involve transferring include occupational skills training necessary for immediate employment or advancement in the student's current job. Using educational goals of FTF uninformed by counseling, we collapse into five categories the 13 possible goals identified in FTF data and listed in Appendix A. These include 1) transferring, either with or without an AA degree, 2) earning an AA degree without planning to transfer,

3) enhancing occupational skills, 4) educational development, which includes training in basic skills, and 5) undecided.

Tables 5.3 and 5.4 indicate that Asians generally are much more likely than other students to express an interest in transferring, either with or without an AA degree. For instance, Table 5.3 shows that nearly 44 percent of Asian males report an interest in transferring as opposed to about 39 percent of black males, 36 percent of white males, and 30 percent of Latino males. About 31 percent of Latino males enroll in a community college with the goal of enhancing occupational skills. Table 5.4 shows that only black females report greater interest in occupational skills training. Overall, female students, except for Latinos, exhibit slightly less interest in transferring than males. Among Latinos, females show somewhat more interest than males in transferring and a slightly lower interest in occupational skills.

Community College Progress Variables

We measure students' academic abilities indirectly by their performance while enrolled in a community college. These measures include

- grade point average (GPA) calculated over courses taken for credit and for a letter grade,
- ratio of credits earned to credits attempted calculated for students who took classes for credit, and
- ratio of courses transferable to both UC and CSU campuses to all courses taken.[2]

What we are trying to accomplish with these variables is to describe students who have the ability and interest to complete transferable courses in a timely manner with letter grades that meet admissions thresholds established by state four-year universities.

Table 5.3 shows that Asian and white male students are roughly comparable on these academic progress variables. For instance, white males have a slightly higher GPA than Asian males (2.34 vs. 2.25), while Asian males have a slightly higher transferable course ratio than whites (0.477 vs. 0.434). Latino and black males lag behind whites and Asians on all three progress measures. Especially striking are the low ratio of credits completed for blacks (0.437) and the low transferable course ratio for Latinos (0.357). Table 5.4 indicates that, except for blacks,

female students tend to perform slightly better than males. Means for all three progress variables are virtually identical for male and female black students.

College-Level Explanatory Variables

Since FTF data provide information on the community college each student attended, we can add to our student records variables measured at the college level that are likely to affect a student's chances of transferring. Recall from the literature review in Chapter 3 that Ehrenberg and Smith (2004) and Wassmer, Moore, and Shulock (2004) recommend use of individual-level data linked to college-level data.

The diversion effect literature summarized in Chapter 3 emphasizes the importance of a community college's academic "culture" in determining whether an entering student aspiring to a BA degree will make progress towards this goal by successfully transferring, or will be diverted from his or her goal. As shown in Table 5.5, our measures of a college's culture include

- freshman students' performance on standardized tests measured by the Academic Preparation Index (API),
- emphasis on transfer programs as measured by the ratio of transfer credits to all credits,
- proximity to a four-year college as measured by distance to nearest UC and nearest CSU campuses, and
- median household income in the community in which the college is located and the percentage of community residents with a BA degree or higher.

The API measures the mean for every CCCS community college of its entering freshmen's scores on standardized exams students took as high school juniors during the 1997–1998 and 1998–1999 academic years. This index is reported in Office of Planning, Research, and Grants Development (2002). Since we append the college-level variables to FTF student records, mean values of API reported in Table 5.5 are calculated over all student observations rather than over CCCS colleges. Hence, the means we report are really weighted averages of all the college means, where the weight applied to each college's individual mean is the proportion of all FTF in the system that enrolled in the particular

Table 5.5 Descriptive Statistics for College-Level Explanatory Variables, Males Only, by One-Digit Race/Ethnicity Categories

Variable name	Latinos	Whites	Blacks	Asians[a]
Academic Preparation Index	45.9	49.1	45.9	48.0
Transfer credits/all credits (%)	73.6	75.5	74.2	77.0
Miles to nearest UC	34.1	42.1	28.0	25.6
Miles to nearest CSU	18.0	20.7	15.6	12.7
Median household income ($,000)	48.4	50.6	47.6	55.4
Percentage BA degree	25.7	27.7	27.7	33.4
Number of observations	42,070	63,551	14,482	21,957

[a] Includes Filipinos.

college. Minimum and maximum values reported in the table have the usual interpretation of the smallest and largest values of the API measured across all 106 campuses included in our data set.

The transfer emphasis, proximity, and community income and education variables appear in Gill and Leigh (2004). As described in Chapter 2, in that project we put together a large data set measuring for each California community college the mix of academic programs offered along with measures of community characteristics and campus-specific characteristics. Our objective was to investigate whether colleges choose different missions as captured in differences in mix of programs offered and, if they do, whether these differences can be accounted for by differences in community needs and special attributes of individual colleges.

Table 5.5 presents means, for male students, of our college-level explanatory variables stratified by race or ethnicity. (Means for female students are virtually identical.) Differences in API and the ratio of transfer credits to all credits are small. The main difference across race/ethnicity categories is for measures of proximity of the community college to a UC or CSU campus. The table indicates that Asian students attend community colleges closer in proximity to UC and CSU campuses than blacks and Latinos, with community colleges attended by whites furthest away on average from the nearest state four-year universities. This suggests that Asians tend to be more concentrated in major metropolitan areas, while whites are more evenly dispersed across the state. Consistent with this observation is the finding that colleges attended by

Asians are located in higher-income, more highly educated communities. The API and transfer credits ratio indicate that whites and Asians, in comparison to Latinos, attend colleges that enroll slightly better prepared students and are somewhat more transfer oriented.

Summary

Thus far in this chapter we have identified gaps in three community college outcome measures between Latinos and whites and between Asians and whites. Latinos lag behind whites on all three measures, especially the transfer rate. Among our student-level explanatory variables, possible candidates to explain observed Latino-whites gaps include a deficient high school background, a high proportion of recent immigrants, a greater obligation to work while attending college, less interest in ultimately transferring to a four-year college as opposed to other goals, and poorer academic performance while in college. On the other hand, Latino students tend to be somewhat younger than whites, a factor that is related to a higher transfer rate. Measured at the institutional level, in addition, we find some small differences between the community colleges attended by Latinos and whites. The colleges attended by Latinos tend to be less transfer oriented, to have student bodies that are generally less well prepared for college, and to be located in less affluent communities. At the same time, colleges attended by Latinos are typically closer to UC and CSU campuses.

The situation is quite different for Asians. Asian students exceed whites on all three community college outcome measures, with especially large gaps calculated for transfer rates and total credits earned. To explain these gaps, we reported that differences in our explanatory variables often, but not always, favor Asians over whites. Beginning with immigration status, we noted that less than half of Asian students are U.S. citizens. As a consequence of their recent immigration status, Asians are more likely than whites to express a need for ESL and to take remedial community college courses. At the same time, Asian students are both younger and slightly more likely than whites to possess a high school degree (combining both foreign and U.S. degrees). Moreover, Asians carry a higher course load and are more likely to express an interest in ultimately transferring. An open question is whether the higher proportion of foreign high school graduates really represents a disad-

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vantage for Asian students. Asians and whites appear to perform equally well in community college classrooms. At the institutional level, differences between Asians and whites tend to be small. The main difference is that Asians attend colleges that are in closer proximity to a four-year university. Also, Asian students are somewhat more likely than whites to attend colleges located in affluent communities.

BASIC RESULTS FOR COMMUNITY COLLEGE OUTCOME VARIABLES

Tables 5.6 and 5.7 present for male and female students, respectively, regression estimates of the effects of the five categories of explanatory variables on our three educational outcomes.[3] Race or ethnicity variables are also included in these regressions, but we defer discussion of their estimated effects until later in the section when we assess in Table 5.8 our ability to explain observed race/ethnicity gaps in the outcome variables. Because students are clustered within community colleges, standard errors are corrected using a robust variance-covariance matrix to account for serial correlation within institutions.

Two additional points should be made at the outset about these estimates. First, we should be clear on their interpretation. For transfer and AA receipt, the regression parameters are linear probability estimates.[4] Thus, their interpretation is in terms of the estimated effect on the probability of transferring or of receiving an AA degree. Total credits earned is a continuous variable, and estimated parameters shown in the third column measure the effect on total credits of a one-unit change in each explanatory variable. Second, we omit from the right-hand side of the total credits earned regression the credits earned ratio. The reason is that credits earned appears as both the dependent variable and the numerator of the credits earned ratio, thus resulting in a built-in positive correlation with this explanatory variable.

Background Variables

Many of our a priori expectations regarding the effects of our background variables are not confirmed in Tables 5.6 and 5.7. Beginning

Table 5.6 OLS Estimates of the Determinants of Transfer to a Four-Year College, Receipt of AA Degree, and Total Credits Earned, Male Students

Variable[a]	Transfer	AA degree	Total credits earned[b]
Constant	−0.378**	−0.151**	−21.87**
Race or ethnicity			
Latinos	−0.021**	0.004	1.87**
Blacks	−0.007	0.000	−3.14**
Asians[c]	0.074**	0.006	4.02**
Background			
Schooling			
Foreign high school diploma	−0.003	0.013**	−0.68
GED	−0.026**	−0.008**	−4.35**
Other education	−0.013	−0.015**	−3.61**
No high school diploma	−0.016**	−0.001	−3.65**
Took or needs ESL	−0.020	0.019**	8.92**
Basic skills courses/all courses	−0.009	−0.022**	−6.45**
Citizenship status			
Permanent resident	0.009	0.000	2.77**
Other	0.014	0.019**	3.08**
Financial need			
Over age 25	−0.054**	−0.016**	−4.40**
Semester-equiv. credits attempted/semester	0.012**	0.013**	3.13**
Educational goals			
Transferring with or without AA	0.049**	0.015**	3.24**
AA without plans to transfer	−0.035**	0.016**	0.80
Occupational skills	−0.014**	−0.007**	−1.20**
Educational development	−0.027	−0.015**	−1.42**
Uncollected	0.009	0.005	0.58
Community college progress variables			
GPA	0.034**	0.021**	8.66**
GPA missing	0.042**	0.020**	−13.49**
Credits earned/credits attempted	0.175**	0.129**	
Credits ratio missing	0.074**	0.034**	
Transferable courses/all courses	0.183**	0.064**	6.74**

(continued)

Table 5.6 (continued)

Variable[a]	Transfer	AA degree	Total credits earned[b]
College-specific			
Academic Preparation Index	0.003**	0.000	0.08
Transfer credits/all credits	0.024	−0.043	1.32
Miles to nearest UC	0.000	0.000	−0.01
Miles to nearest CSU	0.000	0.000	−0.02
Median household income	0.000	0.000	0.00
Percentage BA	0.000	0.000	0.03
R^2	0.204	0.124	0.456

NOTE: **Statistically significant at the 0.05 level. $N = 142{,}060$.

[a] Reference group categories for the dummy explanatory variables are as follows: white skin color, U.S. high school graduate, doesn't need ESL, U.S. citizen, 25 years of age or younger, and undecided on educational goals.

[b] Omitted from this relationship is the credits-earned ratio.

[c] Includes Filipinos.

with educational background, we anticipated, in comparison to possession of a U.S. high school diploma, that a foreign diploma, GED, "other" education, and no high school diploma would each have a negative effect on educational outcomes. Instead, we find in Tables 5.6 and 5.7 that a foreign high school degree has a negative and statistically significant effect in only one of the six regressions—the transfer probability of female students. For the remaining relationships, a foreign high school degree has essentially no effect save for the probability that a male student earns an AA degree. In this case, a foreign high school diploma actually increases by 1.3 percentage points the chance of receiving an AA degree. The other measures of educational background (GED, other education, and no high school diploma) all have the anticipated negative effects, and several of these estimates are statistically significant. In the total credits earned relationships, for example, failure to earn a high school degree (either U.S. or foreign) depresses number of credits earned by 3–4 credits.

Another unexpected result is the positive effect estimated for the took/needs ESL variable in the AA degree and total credits earned equations. This finding holds for both men and women. However, the broader basic skills course ratio has the expected negative effect for all three

outcome measures, and parameter estimates are statistically significant except in the transfer relationship for men. The estimated effects, nevertheless, are not large. For an AA degree, the estimates suggest that taking 30 percent of courses in basic skills as opposed to, say, 10 percent, depresses the probability of an AA degree by 0.4 of a percentage point for males and 1.4 percentage points for females. The same 20-percentage-point increase in the basic skills ratio reduces credits earned by about half a credit for males and 1.7 credits for females.

Also unanticipated in Tables 5.6 and 5.7 is the absence of a statistically significant negative effect for our two non-U.S. citizen variables (permanent resident and "other" citizenship). Indeed, the noncitizen variables are estimated to increase total credits earned, other things equal, by 3–4 credits. Taken at face value, these estimates suggest that recent immigrants suffer very little disadvantage in terms of a successful community college experience in comparison to native-born Americans and immigrants who have become citizens.[5]

Other Student-Level Variables

In contrast to the educational background and citizenship variables, estimated impacts of our other student-level explanatory variables are consistent with expectations. Beginning with the financial needs variables, Tables 5.6 and 5.7 indicate that older students on entering college are less successful in comparison to students in the traditional college-age range of 18–25. In the transfer relationships, for example, age exceeding 25 is found to depress the probability of transferring by over 5 percentage points for men and nearly 8 percentage points for women. Ability to carry a larger course load has the anticipated positive effect on educational outcomes. For example, averaging a full-time class schedule of 15 hours per semester rather than a part-time schedule of, say, 7 hours per semester increases transfer probability by 9.6 percentage points (= 0.012 × 8) for both male and female students.

Turning to educational goals, estimated effects shown in Tables 5.6 and 5.7 are also generally consistent with our a priori expectations. In particular, a transfer goal has a positive effect in the transfer relationships of about 5 percentage points for males and nearly 6 percentage points for females. The reference group in this comparison is students who are "undecided" in terms of their educational goals. While this

Table 5.7 OLS Estimates of the Determinants of Transfer to a Four-Year College, Receipt of AA Degree, and Total Credits Earned, Female Students

Variable[a]	Transfer	AA degree	Total credits earned[b]
Constant	−0.414**	−0.209**	−19.41**
Race or ethnicity			
Latinas	−0.020**	0.012**	3.02**
Blacks	−0.001	−0.002	−2.26**
Asians[c]	0.088**	0.014**	2.60**
Background			
Schooling			
Foreign high school diploma	−0.023**	−0.001	−0.56
GED	0.000	−0.011**	−3.40**
Other education	−0.011	−0.014**	−3.04**
No high school diploma	−0.030**	−0.001	−3.22**
Took or needs ESL	−0.010	0.021**	8.74**
Basic skills courses/all courses	−0.026**	−0.072**	−8.73**
Citizenship status			
Permanent resident	0.000	0.000	4.09**
Other	0.002	0.027**	4.07**
Financial need			
Over age 25	−0.078**	−0.015**	−4.24**
Semester-equiv. credits attempted/semester	0.012**	0.019**	3.50**
Educational goals			
Transferring with or without AA	0.055**	0.024**	3.36**
AA without plans to transfer	−0.040**	0.012**	1.35**
Occupational skills	−0.021**	−0.015**	−1.53**
Educational development	0.025	−0.024**	−1.92**
Uncollected	0.006	0.005	−0.25
Community college progress variables			
GPA	0.035**	0.026**	8.98**
GPA missing	0.062**	0.049**	−14.02**
Credits earned/credits attempted	0.189**	0.190**	
Credits ratio missing	0.086**	0.062**	
Transferable courses/all courses	0.192**	0.063**	6.30**

Table 5.7 (continued)

Variable[a]	Transfer	AA degree	Total credits earned[b]
College-specific			
Academic Preparation Index	0.003**	0.000	−0.06
Transfer credits/all credits	0.065	−0.011	4.75
Miles to nearest UC	0.000	0.000	0.01
Miles to nearest CSU	0.000	0.000	−0.01
Median HH income	0.000	0.000	0.00
Percentage BA	0.000	0.000	0.04
R^2	0.218	0.161	0.513

NOTE: **Statistically significant at the .05 level. $N = 150{,}424$.

[a] Reference group categories for the dummy explanatory variables are as follows: white skin color, U.S. high school graduate, doesn't need ESL, U.S. citizen, 25 years of age or younger, and undecided on educational goals.

[b] Omitted from this relationship is the credits-earned ratio.

[c] Includes Filipinas.

result for the transfer outcome is expected, we also find that a transfer goal raises the probability of earning an AA degree and increases number of credits earned. For example, a female student who intends to transfer has a 2.4-percentage-point-higher chance of receiving an AA degree and is expected to earn 3.4 credits more than a comparable student who is undecided in terms of her educational goals. On the other hand, the goal of pursuing an occupational skills program is found to have a negative effect, for both males and females, on all three outcome variables.

Estimates obtained for the community college progress variables in Tables 5.6 and 5.7 suggest that making good grades, completing classes, and taking transferable courses have the expected positive effect on educational outcomes. For men, for example, a one letter grade higher GPA increases a student's transfer probability by 3.4 percentage points, the probability of an AA degree by 2.1 percentage points, and total credits earned by 8.7 credits. Estimates for women are very similar.

Since academic progress is itself likely to hinge on educational background, it may be the case that the progress variables are diluting the effects of educational background, leading to the small and often statistically insignificant parameter estimates discussed earlier in this

section. To check this possibility, we estimated the educational outcome relationships excluding the academic progress variables. By far the biggest change among the explanatory variables is found for the basic skills course ratio. For this variable, excluding the academic progress variables has the effect of making substantially more negative estimates obtained for both men and women in all three outcome relationships. It is clear that in addition to its direct effect on final educational outcomes, taking more basic skills courses has the important indirect effect rate of slowing students' progress through their programs. A similar indirect effect, but of smaller magnitude, is found for absence of a high school degree. On the other hand, parameter estimates obtained for foreign high school diploma and our ESL variable are little affected by omitting the community college progress variables.

College-Level Explanatory Variables

Once we have controlled for the student-level explanatory variables, the six college-level variables shown in Tables 5.6 and 5.7 appear to have little impact on the educational outcomes. Only the API variable representing the academic quality of entering students has a statistically significant effect in the transfer equations, and the magnitude of this effect is small. Taken at face value, these results suggest that individual characteristics are much more strongly related to successful student outcomes than are institutional factors.

Bailey et al. (2005) reach the same conclusion in a study, like ours, in which individual student characteristics are merged with institutional variables. Student-level variables are taken from the National Educational Longitudinal Study of 1988, and four categories of institutional variables are developed from the Integrated Postsecondary Education Data System (IPEDS). Institutional measures include 1) general institutional characteristics such as college size, proportion of faculty working part time, and mix of certificates and AA degrees; 2) measures of student body composition; 3) financial variables such as tuition, federal student aid per FTE, and average expenditures per FTE on instruction, academic support, student services, and administration; and 4) location characteristics. Data are available for 2,438 students and 686 community colleges.

Despite the detailed institutional measures utilized, Bailey et al. (2005) conclude that institutional factors offer little explanatory power once individual student characteristics are controlled for. By way of explanation, they offer four suggestions. First, they note that individual variables are measured with more precision than institutional variables, an especially important point when outcome variables are measured at the individual student level. Second, it is probably not too surprising that well-prepared students backed by adequate financial resources are likely to do well in a variety of institutions. On the other hand, students facing academic challenges or those with heavy financial responsibilities may run into difficulties even in strongly academically oriented colleges. Third, the authors note that individual student success is likely to be more strongly influenced by "subcultures" within a college than by the average characteristics of the entire institution. Finally, they point out that measured institutional characteristics do not capture effective institutional policies such as pedagogic strategies, guidance and academic counseling efforts, faculty culture, and differences in organization.

In the next section, we examine in greater depth the role of institutional factors in determining the academic success of Latino and Asian students.

Explanation of Observed Race/Ethnicity Gaps

For male and female students and all three outcome variables, Table 5.8 compares the observed, or unadjusted gaps, by race or ethnicity with the regression-adjusted gaps. The observed gaps are calculated from Table 5.2, and the regression-adjusted gaps are parameter estimates obtained for race or ethnicity variables in the regressions underlying Tables 5.6 and 5.7. Beginning with the AA degree, we noted earlier that receipt of an AA is a less common outcome than transferring, and that race/ethnicity differences in AA degree receipt tend to be small. Table 5.8 indicates that already small observed gaps are reduced to essentially zero in the three male relationships and in the female black-white comparison. The positive observed gap favoring Asian over white women is cut by roughly two-thirds, and the small negative gap favoring white over Latino women reverses sign.

Turning to total credits earned, controlling for differences in the explanatory variables likewise has the effect of substantially reducing

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in size positive observed race/ethnicity gaps for Asians and negative observed gaps for blacks. This result holds for both male and female students. For female Asians, for example, an observed gap of nearly 10 credits is reduced to only 2.6 credits. Among Latinos, the small negative gaps favoring whites in total credits earned are seen to actually reverse sign once adjustment has been made for differences in the explanatory variables.

For the transfer relationships, much the same story can be told for Latino and black students. That is, Table 5.8 shows that controlling for differences in our explanatory variables is sufficient to substantially reduce the size of negative Latino-white gaps and to entirely eliminate the negative black-white gaps. For Asian students, on the other hand, we

Table 5.8 Comparison of Unadjusted and Regression-Adjusted Gaps by Race or Ethnicity in Educational Outcome Variables, by Gender

Outcome variable	Latino-white	Black-white	Asian-white
		Males	
Transfer			
Unadjusted	−0.075	−0.054	0.105
Adjusted	−0.021**	−0.007	0.074**
AA degree			
Unadjusted	−0.024	−0.029	0.026
Adjusted	0.004	0.000	0.006
Total credits			
Unadjusted	−3.10	−7.6	10.7
Adjusted	1.87**	−3.14**	4.02**
		Females	
Transfer			
Unadjusted	−0.073	−0.074	0.114
Adjusted	−0.020**	−0.001	0.088**
AA degree			
Unadjusted	−0.022	−0.052	0.040
Adjusted	0.012**	−0.002	0.014**
Total credits			
Unadjusted	−0.9	−8.1	9.9
Adjusted	3.02**	−2.26**	2.60**

NOTE: **Indicates regression estimate statistically significant at the 0.05 level.

are much less successful in explaining observed gaps favoring Asians over whites. After controlling for all five categories of explanatory variables, we reduce the male gap from 10.5 percentage points to 7.4 percentage points, a reduction of only about 30 percent. The reduction in the slightly larger gap for female students is even smaller at about 23 percent.

Table 5.9 reports "explained" portions, or differentials, of observed race/ethnicity gaps in student transfers and total credits earned based on the standard decomposition approach first described in Oaxaca (1973). Conceptually, explained differentials are the flip side of the regression-adjusted, or unexplained, gaps shown in the previous table that remain after controlling for differences in explanatory variables.[6] In turn, explained differentials are decomposed in Table 5.9 into the individual contributions of each of our five categories of explanatory variables. We do not report the results for AA degree receipt because of the small size of observed differentials.

To clarify the interpretation of Table 5.9, consider, for example, estimates for the differential between Latino and white males in student transfers. The table indicates that we can explain about 72 percent (= 0.054 / 0.075) of the observed gap in transfer rates by controlling for differences in our explanatory variables. Of the explained differential of 5.4 percentage points, by far the most important category of explanatory variables is the set of community college progress variables. This category of explanatory variables accounts for about 70 percent of the explained differential or 51 percent of the observed differential. That is, Latino males lag behind white males in transferring to four-year institutions primarily because they fail to match whites in terms of academic progress. Other results appearing in the table indicate that we can reach much the same conclusion for Latino males in the credits earned relationship, Latino females in the transfer and credits earned relationships, and both black males and black females in the transfer and credits earned relationships.

Table 5.9 suggests a quite different situation for Asian students. As indicated earlier, we do a much less satisfactory job in explaining observed differentials in transfer rates for Asians. As a proportion of observed differentials, the explained differential is only 42 percent for males and 39 percent for females. Among male students, Asian-white differences in background variables and financial need are shown to

Table 5.9 Decomposition of "Explained" Differentials by Race or Ethnicity in Student Transfers and Total Credits Earned, by Gender

Gaps in outcome variable	Latino-white	Black-white	Asian-white
		Males	
Transfer			
Explained gap (total)	0.054	0.051	0.044
Background variables	−0.002	0.003	0.012
Financial need	0.003	−0.002	0.018
Educational goals	0.003	−0.001	0.006
Community college progress	0.038	0.041	0.003
Institutional variables	0.012	0.009	0.005
Explained gap/observed gap	0.72	0.94	0.42
Total credits			
Explained gap (total)	4.45	4.52	7.77
Background variables	−0.94	0.56	3.59
Financial need	1.11	−0.48	3.61
Educational goals	0.28	−0.07	0.34
Community college progress	3.81	4.50	−0.01
Institutional variables	0.19	0.02	0.25
Explained gap/observed gap	1.44	0.59	0.73
		Females	
Transfer			
Explained gap (total)	0.052	0.077	0.044
Background variables	0.001	0.003	0.007
Financial need	−0.003	−0.002	−0.003
Educational goals	0.002	0.002	0.002
Community college progress	0.039	0.062	0.039
Institutional variables	0.014	0.013	0.014
Explained gap/observed gap	0.71	1.04	0.39
Total credits			
Explained gap	3.35	5.77	8.20
Background variables	−0.86	0.93	4.12
Financial need	0.16	−0.93	2.76
Educational goals	0.18	0.09	0.30
Community college progress	4.05	5.97	0.79
Institutional variables	−0.17	−0.29	0.23
Explained gap/observed gap	3.72	0.71	0.83

NOTE: Negative observed and explained differentials for Latinos and blacks are treated as positive to allow more ready comparison with Asians differentials. Used in the decompositions are pooled parameter estimates from regressions omitting race or ethnicity variables.

be the most important considerations in explaining the relatively small explained differential. On the other hand, superior community college academic performance is the most important factor for female students. We do a much better job of explaining observed Asian-white gaps in total credits earned. Table 5.9 shows that the leading categories of explanatory variables for both men and women are background variables and financial need.

ADDITIONAL RESULTS FOR EDUCATIONAL OUTCOMES

First-Generation Immigrants

First-time-freshmen data allow us to hone in on first-generation immigrants using our measures of foreign high school diploma and citizenship. With these variables, we define first-generation immigrants as students possessing a foreign high school diploma, plus students who are not U.S. citizens and do not possess a foreign high school diploma. Educational outcomes and selected personal attributes of these individuals broken down by gender and race/ethnicity are displayed in Table 5.10. To sharpen the comparisons, we include for Latinos and Asians means calculated for nonimmigrant as well as immigrant students. For whites and blacks, we include only first-generation immigrant students. First-generation immigrants total 32,810 males and 33,465 females. Hence, we classify about 22 percent of both male and female students enrolled in CCCS colleges as first-generation immigrants.

The totals appearing in Table 5.10 probably underestimate the true number of first-generation immigrant students. Left out are foreign-born individuals who, before enrolling in a community college, came to the United States without a high school degree and subsequently became citizens. On the other hand, there is reason to think that we may overstate the number of first-generation immigrants. Adding together the two non-citizen categories under the heading Citizenship Status, Table 5.10 shows that 90–95 percent of first-generation immigrant students are noncitizens. The remaining 5–10 percent must then be United States citizens who possess a foreign high school diploma. While we believe that most of these individuals came to this country as immigrants and

later became citizens, it is also possible that others were born in the United States and received a foreign high school diploma in a student-exchange program.

The personal characteristics of first-generation immigrant students described in Table 5.10 indicate three basic differences from the characteristics of all CCCS students. First, as expected, first-generation immigrant students are distinctly more likely to be Latino and Asian. Latinos and Asians each represent about 40 percent of all first-generation immigrant students. By comparison, Latino and Asian students as a percentage of all students are about 30 percent and 15 percent, respectively. Slightly over 30 percent of all Latino students are first-generation immigrants, while nearly 60 percent of all Asian students are first-generation immigrants. A second difference, also expected, is that first-generation immigrants are more likely to lack English language skills and to take more basic skills courses while attending a community college.

The third difference between first-generation immigrant students and all students is age. First-generation immigrants are distinctly older than other students in the same race/ethnicity categories. Among Latino males, for example, over 46 percent of first-generation immigrant students are older than 25, as opposed to about 29 percent of all students and 20 percent of nonimmigrants. A striking finding is that about two-thirds of white males who are first-generation immigrants are older than 25. About 60 percent of white female first-generation immigrants fall into the older age category.

Based on the regression results in Tables 5.6 and 5.7, older students are expected, other things equal, to have a less successful community college experience. This is exactly what we find for whites and especially for Latinos. Again looking at Latino males, Table 5.10 shows that the transfer rate drops from 8.5 percent for nonimmigrant students to 5.0 percent for first-generation immigrant students. The effect of an older age for first-generation immigrant Latinos is reinforced by the negative effects of a higher proportion of high school dropouts, a lighter average class load, and less initial student interest in transferring.

Among blacks, on the other hand, outcome measures are consistently higher among the small number of first-generation immigrant students than for all black students, a result that holds for both males and females. For example, black female first-generation immigrants earn on average 30.5 credits, as opposed to 20.0 credits completed for

all female black students (see Table 5.2). It is interesting to note that black male first-generation immigrants enjoy higher outcomes than immigrant white males on all three outcome measures. For first-generation immigrant black females, we report a higher AA degree rate than for immigrant white females.

For Asians, differences in educational outcome measures between first-generation immigrant students and nonimmigrant students are small, and the sign of the differences vary by outcome measure. For both male and female Asian students, first-generation immigrants earn AA degrees at a slightly higher rate and complete more total credits. On the other hand, the transfer rate of first-generation immigrants falls short of the rate of nonimmigrants. Among Asian females, for example, the transfer rate for first-generation immigrant students is 24.4 percent as compared to 32.7 percent for nonimmigrants. There is little difference in the educational goals of Asian first-generation immigrants and nonimmigrants.

Overall, just as is the case for all students, Table 5.10 indicates that the performance of first-generation Asian immigrants substantially exceeds that of first-generation immigrants in the other race or ethnicity categories. Conversely, first-generation immigrant Latino students lag behind other first-generation immigrant students and Latino nonimmigrants. It is instructive to compare these findings with those of Leinbach and Bailey (2006) for Latino students in the CUNY system in New York City. Leinbach and Bailey find, as we do, that Latino immigrants accumulate far fewer total credits than other immigrants, keeping in mind that they measure total credits across both two-year and four-year colleges.[7] Total credits earned is very similar for immigrant and native-born Latino students. In contrast to our results, Leinbach and Bailey find that the AA degree rate is essentially the same for Latino and other immigrant students (at about 20 percent), and that the transfer rate of other immigrants (about 15 percent) only slightly exceeds the rate of Latino immigrants. Nevertheless, Latino immigrants are far less likely than other immigrant students to eventually earn a bachelor's degree. We report that Latinos lag substantially behind other immigrants in terms of both AA degree rate and transfer rate. As seen in Table 5.10, the AA degree rate for Latino male immigrants is 4.6 percent as compared to 11.6 percent for Asian males, and transfer rates for Latino and Asian males are 5.0 percent and 23.4 percent, respectively.

Table 5.10 Descriptive Statistics for Outcome Variables and Selected Explanatory Variables for White and Black First-Generation Immigrant Students and for Latino and Asian First-Generation Immigrant and Nonimmigrant Students, by Gender

Variable	Latinos		Whites	Blacks	Asians[a]	
	Immigrants	Non-immigrants			Immigrants	Non-immigrants
	Males					
Outcomes						
Transfer	0.050	0.085	0.114	0.141	0.234	0.280
AA degree	0.046	0.061	0.056	0.087	0.116	0.095
Total credits earned	19.6	22.9	20.8	25.1	37.6	32.9
Educational background						
Foreign high school diploma	0.200	—	0.259	0.306	0.355	—
GED	0.049	0.070	0.017	0.035	0.023	0.043
No high school diploma	0.217	0.121	0.035	0.017	0.091	0.072
Took/needs ESL	0.254	0.034	0.099	0.107	0.299	0.079
Basic skills courses ratio	0.281	0.123	0.083	0.111	0.164	0.077
Citizenship status						
Permanent resident	0.770	—	0.376	0.408	0.685	—
Other	0.184	—	0.557	0.509	0.257	—
Financial need						
Age 26–60	0.462	0.202	0.665	0.556	0.284	0.158
Credits attempted/semester	6.13	7.25	5.28	6.48	8.47	8.11
Educational goals						
Transferring	0.202	0.343	0.207	0.330	0.437	0.439

Occupational skills	0.331	0.299	0.160	0.189	0.174	0.167
Educational development	0.178	0.076	0.084	0.068	0.114	0.088
Number of students	13,504	28,566	5,791	1,083	12,432	9,525
Percent of total immigrants	41.2	—	17.6	3.3	37.9	—
Immigrants/all students	0.321	—	0.091	0.075	0.566	—
	Females					
Outcomes						
Transfer	0.060	0.103	0.159	0.107	0.244	0.327
AA degree	0.076	0.104	0.115	0.126	0.169	0.141
Total credits earned	25.9	27.8	33.5	30.5	40.1	34.8
Educational background						
Foreign high school diploma	0.211	—	0.505	0.357	0.403	—
GED	0.045	0.059	0.024	0.055	0.016	0.032
No high school diploma	0.205	0.111	0.046	0.084	0.081	0.071
Took/needs ESL	0.295	0.040	0.212	0.115	0.346	0.108
Basic skills courses ratio	0.330	0.142	0.162	0.168	0.194	0.088
Citizenship status						
Permanent resident	0.810	—	0.607	0.459	0.683	—
Other	0.133	—	0.292	0.439	0.242	—
Financial need						
Age 26–60	0.462	0.225	0.597	0.520	0.347	0.201
Credits attempted/semester	6.24	7.42	7.26	7.15	8.12	7.85

(continued)

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Table 5.10 (continued)

Variable	Latinos		Whites	Blacks	Asians[a]	
	Immigrants	Non-immigrants			Immigrants	Non-immigrants
	Females					
Educational goals						
Transferring	0.210	0.355	0.264	0.304	0.399	0.418
Occupational skills	0.301	0.273	0.264	0.300	0.176	0.158
Educational development	0.212	0.077	0.178	0.081	0.146	0.105
Number of students	13,970	31,992	5,145	954	13,396	8,835
Percent of total immigrants	41.7	—	15.4	2.9	40.0	—
Immigrants/all students	0.304	—	0.078	0.058	0.603	—

NOTE: First-generation immigrants are defined as students with a foreign high school diploma or as non-U.S. citizens who do not possess a foreign high school diploma. A dash (—) indicates variables not calculated for nonimmigrants.

[a] Includes Filipinos.

Later in this section, we look for differences between community college campuses in seeking to explain the higher transfer rate of Asian students and the lower rate of Latinos. In Chapter 6, we exploit the finer two-digit breakdown of ethnicity available for Asians and Latinos to gain further insight into the contrasting educational outcomes for Asians and Latinos.

High School Dropouts

A second student group of particular interest is high school dropouts. We focus on high school dropouts for two reasons. First, community colleges represent an important "second-chance" opportunity for dropouts to obtain the academic background or occupational skills necessary to continue their education or to enter the mainstream labor force. Second, since students can enter community colleges without a high school diploma, there is concern in California and other states that the number of community college students who are high school dropouts will expand substantially as students fail to complete high school because of state exit exams. In California, this exam is called the California High School Exit Exam.

Before enrolling in a community college, it is common for U.S. high school dropouts to earn a GED certificate. As noted in Appendix A, information on whether students have passed a GED exam is included in the FTF Cohort File. This is significant because this file contains information collected from students at the time of first enrollment. Since high school dropouts may or may not have earned a GED prior to entering a community college, we include both categories of dropouts in the descriptive statistics, again stratified by gender and race/ethnicity, shown in Table 5.11. Note how common a GED is for students we characterize as high school dropouts. Between one-third and one-half of white and black students who dropped out of high school earned a GED. This is not too surprising as the GED is a uniquely U.S. educational certificate. But even for Latinos and Asians, individuals much more likely to be first-generation immigrants than whites and blacks, GED recipients are between 23 and 29 percent of students who dropped out of high school. Overall, about 16 percent of male and female students are classified as high school dropouts. Latino students are overrepresented among dropouts, while whites and Asians are underrepresented. Dropouts represent

21.5 percent and 19.5 percent of all Latino male and female students, respectively.

Comparing students who are high school dropouts in Table 5.11 to all community college students in Table 5.2, the most striking finding is the low level of educational outcomes for dropouts. Even Asian dropouts, who again report relatively high outcomes in comparison to other race/ethnicity groups in Table 5.11, do more poorly relative to other Asian students including first-generation immigrants. For example, the transfer rate of Asian male dropouts is only 9.9 percent as compared to 25.4 percent for all Asian males and 23.4 percent for Asian first-generation immigrant males. Among Latino dropouts, the transfer rate is a miniscule 2–3 percent, which is matched by an equally low AA degree receipt rate. Credits earned by Latino dropouts average only about half the number of credits earned by all Latino students, both male and female.

The lack of success as measured by our educational outcome variables is consistent with the individual attributes of dropout students described in Table 5.11. Compared to all students, dropouts across all four race/ethnicity categories tend to be older, take a higher ratio of basic skills courses, and attempt fewer credits per semester. Furthermore, dropouts are less interested in ultimately transferring and more interested in acquiring occupational skills and educational development. Among the community college progress variables shown, dropouts tend to complete fewer courses of those they attempt and take fewer courses that are transferable. The GPA of dropouts is not noticeably different from that of all students in the same race/ethnicity category. What is different is the large fraction of dropouts for which GPA is missing, indicating students enrolled in only nongraded courses. For example, over 31 percent of Latino male dropout students took no courses at all for a grade.

To the extent that an increased enrollment of high school dropouts materializes in the CCCS, these findings indicate that California community colleges should be prepared to redirect additional resources to their basic skills curriculums. Our results also suggest that community colleges may need to increase their counseling and mentoring efforts to encourage dropout students to raise their educational aspirations.

Table 5.11 Descriptive Statistics for Outcome Variables and Selected Explanatory Variables for High School Dropouts, by Gender and One-Digit Race or Ethnicity

Variable	Latinos	Whites	Blacks	Asians[a]
	Males			
Educational outcome				
Transfer	0.023	0.047	0.033	0.099
Receipt of AA degree	0.019	0.032	0.017	0.050
Total credits earned	11.5	12.8	9.6	22.3
Educational background				
GED	0.294	0.507	0.418	0.277
Took or needs ESL	0.191	0.009	0.013	0.249
Basic skills courses/all courses	0.259	0.093	0.152	0.209
Citizenship status				
Permanent resident	0.349	0.024	0.020	0.455
Other	0.048	0.010	0.018	0.112
Financial need				
Age 26–60	0.479	0.460	0.392	0.316
Credits attempted/semester	5.69	6.12	7.09	7.04
Educational goals				
Transferring	0.140	0.208	0.254	0.288
Occupational skills	0.410	0.386	0.346	0.222
Educational development	0.201	0.127	0.163	0.176
Community college progress variables				
GPA	2.02	2.13	1.79	2.03
GPA missing	0.314	0.220	0.299	0.205
Credits earned ratio	0.455	0.476	0.319	0.472
Transferable courses ratio	0.238	0.341	0.375	0.348
Number of students	9,054	8,813	3,016	2,516
Percent of total dropouts	38.7	37.6	12.9	10.8
	Females			
Educational outcome				
Transfer	0.025	0.056	0.030	0.127
Receipt of AA degree	0.034	0.054	0.032	0.092
Total credits earned	15.4	16.2	12.6	25.5
Educational background				
GED	0.282	0.462	0.359	0.226
Took or needs ESL	0.229	0.012	0.012	0.327

(continued)

Table 5.11 (continued)

Variable	Latinos	Whites	Blacks	Asians[a]
	Females			
Citizenship status				
Permanent resident	0.351	0.026	0.017	0.491
Other	0.040	0.014	0.021	0.097
Financial need				
Age 26–60	0.568	0.555	0.459	0.442
Credits attempted/semester	5.9	6.2	7.5	6.7
Educational goals				
Transferring	0.131	0.186	0.193	0.249
Occupational skills	0.364	0.364	0.379	0.207
Educational development	0.233	0.130	0.185	0.229
Community college progress variables				
GPA	2.14	2.26	1.79	2.32
GPA missing	0.287	0.201	0.279	0.223
Credits earned ratio	0.497	0.499	0.324	0.562
Transferable courses ratio	0.253	0.367	0.313	0.328
Number of students	8,951	8,912	3,434	2,217
Percent of total dropouts	38.1	37.9	14.6	9.4

NOTE: High school dropouts include GED recipients.
[a] Includes Filipinos.

The Effect of Clustering on Institution-Specific Transfer Rates

In the second section of this chapter, we described that once we controlled for the effects of a variety of student-level characteristics, the inclusion of six college-specific explanatory variables had little effect on estimated race or ethnicity effects in the transfer, AA receipt, and total credits earned equations. Nor, for that matter, does the inclusion of institutional variables affect measurably the coefficients estimated for the student-level explanatory variables. Because FTF data provide information on the college initially attended by each student, an available alternative approach to including college-specific explanatory variables is to estimate a relationship that includes dummy variables for each of the 106 CCCS colleges. Supporting this "fixed-effects" approach is the suggestion of Bailey et al. (2005) that measured college-specific char-

acteristics may not capture unobserved, but still important, variables such as specific institutional policies that affect program completion.

Following up on the fixed-effects approach, we estimated separate transfer regressions for males and females. Two main results were obtained. First, estimated race/ethnicity gaps in transfer rates are not changed substantially from those shown in Table 5.8. That is, regardless of college attended, Asians appear to transfer at a higher rate than whites, and whites at a higher rate than Latinos. Second, controlling for student-level variables, college fixed-effect estimates are frequently quite large, often exceeding 5 percentage points and occasionally exceeding 10 percentage points.

There is some support in the literature for the second of these results. In a study summarized in Chapter 3, Ehrenberg and Smith (2004) report evidence of large community college-specific effects on transfer propensity and attainment of a BA degree, although they indicate that these effects often disappear once student characteristics are controlled for. Bailey et al. (2006) find that community colleges differ in their effectiveness in helping students graduate, even after controlling for characteristics of the student body.

Based on our evidence showing large college fixed effects, we wondered whether, controlling for individual student characteristics, particular campuses are especially effective, or especially ineffective, in promoting transfers to four-year colleges of their Latino and Asian students. To answer this question, we stratified our data by the one-digit level of race/ethnicity (using data for both males and females) to estimate college-specific fixed effects in separate regressions for Latinos, whites, blacks, and Asians. For each race/ethnicity category, frequency distributions of the 105 college fixed effects estimated are shown in Table 5.12. To clarify the interpretation of these estimates, consider, for example, the first row of the distribution shown for whites. The number 3 appearing in that cell indicates that, after controlling for our individual-level explanatory variables, a total of 3 (out of 105) colleges are found to have an adjusted transfer rate that is 12 percentage points or higher above the transfer rate calculated for whites attending the reference college. (College number 106, Victor Valley Community College, serves as the reference category college.)

Looking across race/ethnicity categories in Table 5.12, the spread of the distribution estimated for Latinos is clearly smaller than the spreads

Table 5.12 Frequency Distributions of Estimates of College-Specific Fixed Effects on Transfer Rates, Holding Constant Student-Level Characteristics, by One-Digit Race or Ethnicity

Percentage point difference from reference college[a]	Latinos	Whites	Blacks	Asians
12.0 or higher	1	3	2	9
9.0 to 11.9	2	3	1	7
6.0 to 8.9	4	9	8	18
3.0 to 5.9	12	20	13	18
0 to 2.9	40	45	38	22
−0.1 to −2.9	37	8	33	14
−3.0 to −5.9	7	13	4	7
−6.0 to −8.9	2	4	4	5
−9.0 or lower	0	0	2	5
Transfer rate for reference college (in percent)	7.3	12.7	9.0	21.6
Number of colleges	105	105	105	105

[a] The reference college is Victor Valley. For the dummy explanatory variables, held constant in this calculation is age 25 or younger, U.S. high school diploma, U.S. citizen, does not need/took ESL, and undecided educational goal. For the continuous explanatory variables, we use race/ethnicity-specific means.

for whites and blacks, and the spread of the Asian distribution is larger still. But even for Latinos, substantial variability is indicated. Notice from the Latino distribution that standardized transfer rates for 28 colleges are at least 3 percent higher or at least 3 percent lower than that for the reference college.

We next sought to determine whether a large concentration of students of a particular race or ethnicity background has an impact on the standardized transfer rate measured for that race/ethnicity category across the 106 CCCS colleges in our data set. Table 5.13 presents separate regression estimates for Latinos and Asians. Concentration or "clustering" is measured by the ratio of students of a particular ethnic background to all students, and the dependent variable is the ethnicity-specific standardized transfer rate calculated for each campus. Control variables in columns (1) and (3) are proximity of the community college to nearest UC campus and nearest CSU campus and total enrollment. Close proximity may make it possible for 1) students to transfer

Table 5.13 OLS Estimates of Effects of College-Level Explanatory Variables on College-Specific Transfer Rates Calculated Holding Constant Individual Student Characteristics, Latino and Asian Students

	Latinos		Asians	
College-level variable	(1)	(2)	(3)	(4)
Constant	9.55**	8.52**	20.58**	18.17**
	(1.47)	(1.87)	(2.57)	(2.95)
Ratio of Latino students to all students	−8.12**	−7.79**	—	—
	(2.82)	(2.85)	—	—
Ratio of Asian students to all students	—	—	23.45**	20.48**
			(7.63)	(7.78)
Total students (in thousands)	0.026	0.042	0.096	0.150
	(0.063)	(0.066)	(0.106)	(0.110)
Distance from UC (in miles)	0.003	0.005	−0.009	−0.004
	(0.012)	(0.012)	(0.020)	(0.002)
Distance from CSU (in miles)	0.008	0.013	0.009	0.022
	(0.021)	(0.021)	(0.035)	(0.035)
Multiple campus district	—	0.90	—	2.76
		(1.00)		(1.69)
R^2	0.082	0.089	0.135	0.157
Mean of dependent variable	8.23	8.23	24.84	24.84

NOTE:**Statistically significant at the 0.05 level. A dash (—) indicates variable not included in the regression. $N = 106$; standard errors in parentheses.

without having to move their households, and 2) development of closer relationships between faculty and administrators of two-year and four-year colleges, allowing a more seamless transfer process. Total enrollment is included to capture the scale required for a community college to develop specialized programs designed to assist particular categories of students. In columns (2) and (4), we add a dummy variable measuring whether a community college is a member of a multicampus community college district. Multicampus districts typically serve large metropolitan areas.[8] These control variables are discussed in detail in Gill and Leigh (2004).

As indicated in Table 5.13, coefficients estimated for our control variables are not typically statistically significant, and the R^2 statistics are quite low. Nevertheless, we obtain a striking result for our clustering

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variables. Columns (1) and (2) suggest that a greater concentration of Latino students has a negative and statistically significant impact on the standardized transfer rate. On the other hand, columns (3) and (4) show that clustering of Asian students has a positive, and even larger, impact on standardized transfer rates. In terms of magnitudes, a 10-percentage-point increase in the share of Latino students decreases the standardized transfer rate for Latinos by nearly 1 percentage point. The same 10-percentage-point increase in the share of Asians increases the standardized Asian transfer rate by 2.0 to 2.3 percentage points.

It is common in the literature to find that share of minority students affects a community college's transfer rate, with the Latino share typically depressing transfers and the Asian share increasing transfers. For example, Wassmer, Moore, and Shulock (2004) find these Latino and Asian effects for California community colleges. There are two important differences between our results and those reported by Wassmer, Moore, and Shulock. First, their study is based on college-level data. Although they attempt to control for student body characteristics, their control variables measured at the college level are likely to be imperfect measures of individual student characteristics. Hence, their finding for Latinos might simply indicate that admitting a larger proportion of less-well-prepared students results in less favorable educational outcomes. In contrast, our dependent variable, the standardized transfer rate, is purged of individual student characteristics that might lead to cross-college differences. Second, our dependent variable is the college's ethnicity-specific transfer rate rather than the college's overall transfer rate. Hence, our results establish that, after controlling for differences between students that affect their transfer propensity, a college's share of Latinos depresses the Latino transfer rate, while a greater share of Asians, again controlling for individual student characteristics, increases the Asian transfer rate.

How can we explain these diametrically opposite effects for Latinos and Asians? One possibility is that the clustering variables capture differences in socioeconomic backgrounds, with the Latino variable representing a less advantaged background and the Asian variable a more advantaged background. Data from the 2000 census (U.S. Census 2000) indicate for California that there are large differences in median family income stratified by one-digit race/ethnicity categories.[9] What jumps out from these data are enormous differences in incomes between Latino

families and white and Asian families. Specifically, median family incomes in 1999 for Asians and whites are about $61,400 and $60,200, respectively, as compared to about $36,000 for Latinos. Median family income for blacks is about $39,700.

These large differences, nevertheless, probably overstate income differences that would be observed for the families of community college students, since high-income Asian and white families are more likely to send their children to UC and CSU campuses than to a community college. In the absence of student-level data on variables such as family income and parents' education, what we have done is to develop measures at the college level of median family income and average education in the community (see Table 5.5). But, as discussed earlier in this chapter, we were unable to find much of an impact of these college-level variables on our educational outcome measures.

Another possible explanation of particular relevance to students who are immigrants is Borjas's (1999, pp. 55–58) suggestion that the geographic clustering of immigrant groups in ethnic enclaves has an important effect on labor market outcomes, in either a positive or negative direction. As Borjas explains, a positive clustering effect might arise because the "warm embrace" of the enclave helps immigrants escape the labor market discrimination that they would otherwise encounter. On the other hand, clustering may hinder movement to better-paying jobs outside the enclave by reducing immigrants' incentive to learn the culture and language of the American labor market.

In an education context, clustering of immigrant groups in particular colleges may affect educational outcomes, either positively or negatively, for similar reasons. That is, the presence of a substantial number of students of a particular racial or ethnic background may supply a new student of the same background with the support system needed to succeed in an unfamiliar environment. Note that we are emphasizing that it is the share of students of the same race or ethnicity that is important. Our results for a limited set of institutional-specific variables coupled with similar evidence supplied by Bailey et al. (2005) for a broader set of such variables suggest that a college's overall academic culture has little impact. On the other hand, clustering may inhibit students from expanding their educational aspirations beyond the norms established by their peer group, where peer group is defined in terms of students of the same race/ethnicity background. Note that what we

mean by educational aspirations must go beyond educational goals such as a student's intention to transfer, since these goals are held constant in our analysis.

Proceeding with this argument, a Latino student attending a college with few other Latinos is obliged to interact with students of other race/ethnicity backgrounds. If they are white or Asian, these students are likely to place a greater value on educational attainment than is the case in the Latino community. Relevant here is the discussion of "Hispanic culture" in Chapter 3. As described by Wassmer, Moore, and Shulock (2004), the idea is that while individual Latino parents value the education of their children, the broader culture places a higher value on family welfare than on individual aspirations and encourages Latino youth to stay close to home and family. Lazear (2005) makes much the same point in a labor market context, arguing that because they tend to live in ethnic enclaves, Mexican immigrants are slower to assimilate, earn lower wages, and complete fewer years of education.

For Asians, the argument goes in just the opposite direction. That is, clustering results in Asian students who come to college with high aspirations finding reinforcement by interacting with students with similarly high aspirations. In colleges in which the concentration of Asians is low, however, the high aspirations of Asian students may be diminished by interaction with students of other racial/ethnic backgrounds with generally lower aspirations.

We return to this argument in the next chapter when we disaggregate Latino and Asian students by national or regional origin. As will be shown, subgroups of Latinos and Asians differ in a variety of ways, including the proportion of first-generation immigrant students.

SUMMARY

We began this chapter with a detailed overview of the data that are available for FTF students enrolled in CCCS campuses during the 1996–1997 academic year. Focusing on our three community college outcome variables, we then identified important gaps between Latino and white students and between Asian and white students. Observed gaps favor whites over Latinos and Asians over whites. We also pointed

out a number of differences by race or ethnicity in our student-level and college-level explanatory variables that might be important in understanding these gaps in educational outcomes.

Next we proceeded with a quantitative analysis designed to identify barriers to educational attainment for Latino students, and, for Asians, to identify factors that lead to their superior academic performance. We were quite successful in explaining the gaps favoring whites over Latinos. Looking at transferring to a four-year college, for example, we were able to reduce the observed male Latino-white gap of 7.5 percentage points to a standardized gap of only 2 percentage points. Our decomposition analysis indicates that the primary factor in explaining the observed Latino-white gap is failure to keep up with white students in terms of academic progress.

On the other hand, our ability to explain Asian-white gaps in educational outcomes was mixed. While we are reasonably successful in explaining the observed gaps in receipt of an AA degree and total credits earned, we were less successful in accounting for the gap in transfers. Among Asian females, for example, our regression-adjusted gap of 8.8 percentage points is only marginally smaller than the observed gap of 11.4 percentage points.

We also attempted to hone in on two student categories of particular interest to policymakers: first-generation immigrants and high school dropouts. First-generation immigrants represent about 32 percent and 57 percent, respectively, of all Latino and Asian students. Probably our most important finding for recent immigrants is that the academic success of Asian immigrants far exceeds that of other immigrant groups and is comparable to that of Asian nonimmigrants. On the other hand, first-generation Latino immigrants do less well than other immigrant groups and Latino nonimmigrants.

High school dropouts represent about 16 percent of all community college students. Our cross-tabulations indicate that dropouts are distinctly older than other students and are disproportionately Latino. Not surprisingly, dropouts perform very poorly as measured by our three outcome variables. For example, the observed transfer rate for Latino male dropouts is a miniscule 2.3 percent. Even the 9.9 percent rate observed for Asian males is far below the 23.4 percent reported by Asian male first-generation immigrants.

Finally, we explored more deeply the question of whether individual colleges might have different effects on educational outcomes. Taking a college fixed-effects approach, an affirmative answer to this question led us to wonder whether, controlling for individual student characteristics, particular campuses are especially effective, or especially ineffective, in promoting student transfers of their Latino and Asian students. Measured across colleges, we presented evidence indicating that a concentration, or "clustering," of Latino students decreases the transfer rate of Latinos adjusted for differences in student characteristics. At the same time, a clustering of Asian students appears to increase the transfer rate of Asians. We return to this finding in the next chapter.

Notes

1. Appendix A suggests a fourth community college outcome variable that might be considered: receipt of an occupational skills certificate. As indicated in Table A.1, however, only 3 percent of students earned a certificate. Furthermore, as the table shows, certificates are awarded in programs that differ substantially in terms of number of semester credits required. If we decided to focus on certificates awarded on completion of 30–59 semester credits, for example, only 1.2 percent of students received a certificate.
2. As indicated in Appendix A, FTF data distinguish transferable courses as transferable to both UC and CSU campuses or transferable to CSU campuses only. Our conversations with Charles Klein, a specialist in student transfers in the Curriculum Standards and Instruction Services unit in the Chancellor's Office, indicate that the community colleges themselves determine which courses are transferable to CSUs, while the UC system scrutinizes all courses it designates as transferable. Consequently, we define transferable courses as courses transferable to both UCs and CSUs in our analysis.
3. We also pursued a sequential estimation approach beginning by controlling for background characteristics, then adding financial need variables, then educational goals, then community college progress measures, and, finally, college-level variables. These estimates are referred to later in this section.
4. We also estimated some of our models using logistic regression. In general, the marginal effects obtained from the logistic regressions are little changed from the OLS estimates reported in the Tables 5.6 and 5.7.
5. To investigate whether the effects of our background variables differ across race/ethnicity categories, we interacted measures of foreign high school, ESL, and permanent resident and other citizenship with race/ethnicity dummy variables. We were specifically looking for evidence of differential effects of these variables for Latinos and Asians. What we found, however, is that the Latino and

Asian interaction terms are generally small and insignificant. In the few cases in which the coefficients estimated are statistically significant, they are of the same sign. The strongest interaction effects are found for black students, with the evidence indicating that blacks who attended high school in other countries and who are not citizens enjoy superior community college outcomes in comparison to other blacks. As will be seen, this result is consistent with our findings later in this chapter for first-generation black students.

6. The explained differentials appearing in Table 5.9 differ slightly from comparable estimates calculated as the differences between unadjusted gaps and regression-adjusted gaps in Table 5.8. The reason is that the regression-adjusted estimates in Table 5.8 are parameter estimates obtained for the race or ethnicity variables. Hence, they measure shifts in the regression functions for students who differ by race or ethnicity. In contrast, the explained differentials shown in Table 5.9 are calculated as differences by race or ethnicity in student characteristics and college-level measures, which are weighted by parameter estimates obtained from a pooled regression that omits race/ethnicity variables. In other words, estimates in Table 5.8 measure shifts in the regression function for students who differ by race or ethnicity. The Table 5.9 estimates capture race/ethnicity shifts in the regression function plus differences between pooled coefficient estimates and race/ethnicity-specific coefficient estimates.
7. Although Leinbach and Bailey (2006) do not emphasize Asian students, they do note that Asians, both immigrants and native-born, have significantly higher mean credits earned than any other subpopulation distinguished by race/ethnicity and nativity.
8. Whether a community college comprises its own district or is part of a multi-campus district is an important part of the analysis in Chapter 7 concerning how well community colleges respond to local labor market demand.
9. As will be seen in Chapter 6, median family income calculated for all Latinos and all Asians masks substantial differences within these broad ethnicity categories.