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Tatiana Melguizo, Linda Serra Hagedorn, and Scott Cypers

While the most recent decades have recorded a continuous increase in student enrollment in higher education, the most salient trend is increasing numbers of students enrolling specifically in community colleges (Adelman, 2005). In fact, enrollments in community colleges grew 14% during the 1990s—a rate of approximately 5% more than higher education as a whole (ACE, 2004). The extent of community college enrollments is especially high in California. Recent data for the state revealed that approximately 73% of public undergraduates attend a community college; in contrast, 18% attend an institution from the California State system (CSU) and 9% an institution from the University of California system (UC). Community colleges have
become popular choices for many low-income students because enrollment does not preclude living at home or concurrent employment. Despite high popularity, however, Shulock and Moore (2007a) contend that only a minority of students, 25% are successful in either attaining a certificate or an associate degree (A.A.), or in transferring to a four-year institution. Although a longitudinal study conducted by the California Community College Chancellor’s office released a slightly higher success estimate of 29%, the total number of students who transferred to a CSU or UC campus was 22% of their original sample (CPEC, 2007).

Historically, community colleges have been an integral part of the California higher education system since the establishment of the master plan in 1960 (Cohen, 1983; Douglas, 2000). The plan created a tri-level system of postsecondary education. First, the campuses of the University of California system were to function as the state’s public research institutions, admitting the state’s top undergraduates. In the middle tier are campuses of the California State system, providing postsecondary education through the master’s degree and accepting undergraduates who finish in the top third of their high school graduating classes. Finally, the campuses of the California community colleges were created to serve the rest of the state’s postsecondary needs including developmental instruction, English as second language programs, community service, and workforce development. Thus, a significant aspect of the community college mission is providing access to a diverse pool of students. It has been widely documented that the competing and somehow contradictory missions of community colleges (Dougherty, 1987) have created significant challenges to successfully providing more than just postsecondary access. For the purposes of this paper, we focus solely on the transfer mission.

There are many reasons why a student may choose to begin postsecondary education at a community college with the goal of later transfer. Community colleges offer a full array of remedial courses¹ thus welcoming a large group of students who are left with community colleges as their only postsecondary source (Lewis, Farris, & Green, 1996). For many students, the combination of lower price plus convenient location is the main attraction. The annual full-time tuition and fee costs of attending a California community college are $791 compared to $3,070 in the CSU, $7,336 at a UC, and $18,506 at a private four-year college.² Thus, the California community colleges offer

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¹We use the same definition of remedial education as Bettinger and Long (2005), meaning below college-level courses that include developmental, remedial, basic-skills training, and non-traditional coursework. They excluded English as a second language courses. We use “remedial” and “developmental education” interchangeably.

²These tuition and fees estimates are the most recent available on IPEDS, expressed in 2006 dollars (IPEDS, 2004).
postsecondary training at one-fourth the costs of the CSU system, one-ninth the cost of the UC system, and one-twenty-third the average cost of a private institution.

Although initial comparisons to four-year institutions reveal a definite cost savings in attending community college, it is important to include indirect costs to understand the full financial effects. Particularly significant are the extra time and related costs incurred by many community college students who take developmental classes. These extra costs associated with community college attendance may actually contribute to a regressive form of postsecondary expenses. We apply the term regressive because remedial education is more prevalent among lower-income groups who are also more likely to be subjected to substandard elementary and high school environments (Fry, 2002). Compared to the national average, California has a higher proportion of students enrolling in basic skills (Academic Senate for California Community Colleges, 2000; 2004); and, according to their scores on placement tests, over 70% of the students require remedial math (Brown & Niemi, 2007).

Our study is grounded in human capital theory (Becker, 1967) and uses an equity framework for public education (Levin, 1987, 2002). To test the cost-effectiveness and equity of community college attendance, we analyzed a unique dataset of community college transfer students from the nine colleges of the Los Angeles Community College district (LACCD). Our goal was to provide empirical evidence of the true costs of attending a community college in California. Under a perfectly articulated system students would spend the first two years of their postsecondary education taking college-level courses, then would transfer as juniors to a four-year college. In reality, however, only a very slim minority of students fit this pattern. More typically, they spend four or more years at the community college and take over an academic year’s worth of courses below college-level courses before transferring (U.S. Department of Education, 2003). We asked the following research questions:

1. What were the actual monetary costs of transferring for individuals with different remediation needs?
2. What were the actual costs in terms of time of transferring for individuals with different remediation needs?

We developed a methodology to estimate the students’ incurred costs and explored differences for individuals with different needs for remediation. To the best of our knowledge, this is the only study that has used transcript-level data to estimate these costs. There do exist national estimates of the aggregate cost of remediation (Breneman, 1998; Lewis, Farris, & Green, 1997), estimates of costs for a community college in Boston (Dowd & Ventimiglia, 2005), and estimates of the effect on persistence of taking remedial
courses for a cohort of students in Ohio (Bettinger & Long, 2005); but we found no studies for any state that looked specifically at the costs students incur before transfer.

We first present the review of the literature including a model that describes the factors affecting transfer. We then describe our methodological strategy, the main results of the study, and, in conclusion, a summary and discussion of findings as seen through an equity framework.

**Literature Review**

According to human capital theory, additional years of education translate to higher productivity and higher earnings (Becker, 1967). Traditional economic theory further hypothesizes social as well as individual returns to education. Economists consider two main dimensions when they analyze investments in education: efficiency and equity. If the benefits of higher education are higher than the costs, then it is considered efficient. The second consideration appraises the equity of additional earned income and costs shared across society (Bowen, 1980; Hansen & Weisbrod, 1969). Although this study focuses on the efficiency concept by testing the hypothesis that community colleges provide an inexpensive postsecondary education, it also challenges the equity assumed inherent in community colleges.

A review of the literature about community college transfers identifies five main groups of factors: (a) students’ background characteristics, (b) pre-college academic preparation and achievement, (c) institutional characteristics, (d) financial aid, and (e) state-level characteristics. (See Figure 1.) It has been widely documented that such background characteristics as socioeconomic status, age, gender, race, and ethnicity affect transfer. Dougherty and Kienzl (2006) reported that among the most affluent students, transfer rates are approximately 55%; in contrast, those in the lowest income deciles are only 10%. Wassmer, Moore and Shulock (2003, 2004) found that transfer rates in California are higher for traditional-age students, and lower for minority students.

In terms of pre-college academic preparation, evidence is abundant that the academic intensity of the high school curriculum and the student’s high school test scores are among the most significant factors associated with transfer (Adelman, 2005).

A wide variety of institutional characteristics affect transfer. Anne Driscoll (2007) using recent data from the California’s Community College Chancellor’s Office (CCCCO) found that students whose first academic experience is positive and successful are more likely to remain in school and to sustain transfer aspirations. Sengupta and Jepsen (2006), also using CCCCCO data, analyzed the course-taking patterns of two cohorts of first-time freshmen in 1997–1998 and 2003–2004. Even though most stated transfer as a goal,
Figure 1. A model of persistence and transfer to a four-year college for community college students
their transcripts revealed that they were also taking either vocational or non-credit courses. They also found that younger students were more likely to transfer and that Latinos were overrepresented in the developmental courses and in English as a second language. Half did not enroll in the community college the following year.

The effects of remediation on college persistence and attainment have generated debate. Raw estimates establish that students who take more remedial courses graduate at lower rates (Adelman, 1998). However, Bettinger and Long (2005) point out that comparisons between remediated and non-remediated students are problematic due to preexisting differences between the two groups. Bettinger and Long (2005) explored the effects of English and math remediation on persistence for a sample of first-time community college students from 1998 to 2003. They found that students in remediation performed as well as similar individuals who did not enroll in remedial courses although math remediation appeared to improve some student outcomes. Jepsen (2006) analyzed the effects of taking developmental courses on persistence to the second year of college for a sample of community college students in California. He concluded that in general, taking developmental courses was associated with returning for the second year as well as completing transfer-level classes. However, he found differences by age groups; for younger students, developmental courses were negatively associated with transfer; for older students, the association was positive for returning and attaining a degree or certificate.

The fifth area, institutional characteristics, includes many factors such as support programs and a transfer culture within community colleges. Even though there are no formal evaluations on the quality of academic advising or the information provided through transfer centers, evidence from single community college case studies indicates that they have a positive effect on students’ persistence and transfer (Ward-Roof & Cawthon, 2004). Similarly, an evaluation of an Opening Doors Project community college in New York that uses models such as learning communities to increase academic support found that students in the program had higher passing rates and were more likely to have completed their developmental requirements (Bloom & Sommo, 2005). Finally, as illustrated through an ethnographic study of three community colleges across the United States that support strong transfer cultures, there may also be substantial variation in the practices of community colleges (Shaw & London, 2001). The study indicated a strong relationship between institutional ideology and the way the culture organizes practices associated with transfer.

Other studies have focused on the effect of financial aid on community college students’ persistence using studies from the National Center for Education Statistics (NCES). Cabrera, Burkum, and La Nasa (2005) as well as Cofer and Somers (1999) found a positive and significant impact on both
grants and loans on transfer and first-year persistence of community college students. But Dowd and Coury (2006) and St. John and Starkey (1994) found either a negative effect or one that was not statistically significant from receiving a grant or a loan on persistence to the second year or A.A. attainment.

Finally, there are additional factors related to state-level characteristics such as articulation agreements (Ignash & Townsend, 2000) and labor market conditions that may also affect persistence and transfer (Long, 2007). A study that evaluated the effect of articulation policies on transfer found no statistically significant effect (Anderson, Sun, & Alfonso, 2006), but labor market merits more study since community college students are typically poised at the margin between school and work (Kane & Rouse, 1999). Kienzl, Alfonso, and Melguizo (2007) analyzed the effects of tuition costs and labor market characteristics on the persistence of community college students. The findings show that students took into account relative changes in tuition costs and local labor market conditions in the persistence decision process.

Figure 1 illustrates the wide variety of factors that affect the transfer process. Our study focuses on two of them: (a) cost and financial aid, and (b) developmental education. Our approach differs from previous studies because our goal is to test the actual costs of the transfer option for students with different remedial needs. Using student transcript and other college-level records we estimate the monetary costs by adding tuition and fees and subtracting financial aid; but we also estimate the cost in time for students who entered the community college with different remediation needs. This approach contributes to the literature by providing evidence to students, researchers, administrators, and policymakers on the real costs (in both money and time) of transferring.

The next sections present evidence on the increasing costs of higher education and the incremental needs for the developmental education of high school seniors in California.

Costs, Prices, and Financial Aid

Even though the tuition and fee costs of attending a community college in California are relatively low, the reality is that the total cost may be higher than it appears at first blush. Affordability must address all costs of attending college, including textbooks, transportation, housing, health care, child care, and other living expenses. Community college fees account for only 5% of college costs (Shulock & Moore, 2007b). According to the College Board (2006), although the average tuition fees at public two-year colleges are only 39% of the average four-year fees, if one factors in other costs—including opportunity costs incurred by the student—a more appropriate approximation is 75% of the average totals at the four-year col-
lege. Of course, one might argue that four-year college students similarly face hidden and opportunity costs. The difference may be that four-year students have greater access to financial aid, are generally provided with health insurance, and if, living on campus, do not accrue the same level of transportation costs. A recent report by the California Postsecondary Education Commission (CPEC, 2006) provides additional evidence that both the “cost of attendance” and the average “price” of attending California’s public four-year institutions have seen dramatic increases between 1995–1996 and 2000–2001. The increase in price was mainly driven by substantial increases of non-tuition costs (i.e., other fees, housing, transportation, health insurance, and books) which have increased at a much higher rate than household income. For example, between 1994–1995 and 2003–2004 the median household income increased by 13% but other non-fee-related costs such as housing, textbooks, and transportation increased by 32% for students attending a UC institution and by 21% for those attending a CSU (CPEC, 2006). Even though the commission did not report increases for students attending a community college, one would expect that the increase of the costs of nontraditional students with family responsibilities might be even higher than those of traditional dependent undergraduate students. California has one of the lowest levels of community college tuition and fees in the country. However, as noted by Hansen and Weisbrod (1969) almost 40 years ago, tuition alone underestimates the total cost of attendance, and therefore one needs to include the living expenses and opportunity costs that students and their families incur.

Despite a rather dramatic increase in financial aid of all kinds, from $4.2 billion to over $9 billion between 1995–1996 and 2003–2004, increasing numbers of students resulted in a smaller aid package available for the larger pool. Moreover, during the time studied, the indebtedness level increased by 60% (EdFund Trends in Student Aid, 2006 Report, cited in CPEC, 2006). During the same period, the average cumulative family debt from Stafford Programs for undergraduates entering repayment increased from $11,352 to $17,884. Thus, increases in the cost of living coupled with decreasing amounts of grant and loan money created additional challenges for many community college students to remain enrolled.

\(^3\)CPEC defined “cost of attendance” that used by postsecondary institutions for federal Title IV financial aid purposes and “net cost” as the posted price of attendance minus aid received by student or family. By “net price,” we mean this second definition—what students and families pay.
The Costs of Developmental Education

The debate is keen regarding colleges’ responsibility to provide remedial/developmental education in basic reading, writing, and mathematics. For example, Phipps (1998) contends that these subjects should have been learned in high school, if not junior high school, and thus should not be repeated in college. However, in reality, remediation has been an omnipresent part of postsecondary education since the 19th century. In 1895 most of the colleges had remedial education programs, and about 40% of the freshmen were drawn from these programs (Rudolph, 1977). More recent estimates suggest that almost all public two-year institutions offer remedial education, and almost 75% of four-year colleges offer at least one remedial course. According to national estimates, approximately 42% of entering first-year students at public two-year colleges enrolled in at least one remedial course. Among institutions offering remedial courses, 63% of public two-year institutions reported that their students averaged a year or more of remedial course-taking (USDOE, 2003, 2004). Rough estimates of the total cost of remediation, presented by Bettinger and Long (2004), suggested that the annual cost is over $1 billion dollars for public colleges alone. However, this cost may be modest when compared to the total budget of $115 billion, amounting to less than 1% of total expenditures (Phipps, 1998).

There is substantial variation in terms of who provides the remedial courses; but in recent years, several states have moved toward concentrating this function at the community colleges (Mazzeo, 2002). In California, students requiring remediation are encouraged to take developmental-level courses at a community college. Further, transfer agreements allow students to be concurrently enrolled in the UC or CSU while taking developmental courses at the community college. In recent years, the CSU Board of Trustees has taken some controversial measures to curb the amount of remediation offered by their 22 campuses. Executive Order 665 (1997) ruled that remedial students who failed to complete remediation within one year would be dis-enrolled (Parker & Bustillos, 2007).

In summary, substantial evidence suggests that remediation needs and related costs have been increasing, not only in California, but in the country as a whole. In the next section, we use descriptive and multivariate analysis to compare differences in transfer costs for students with different remediation needs, followed by a description of our methodology to estimate the associated costs of developmental education for transferring students in our sample.
Methodology

Data

We drew our sample from 5,011 students enrolled in the nine community colleges in the Los Angeles district (LACCD). The LACCD is one of the largest districts in the country as well as one of the most highly diverse in ethnicity, socioeconomic status, and native language. The initial sample consisted of all students who answered a 47-item questionnaire during spring semester 2001. The questionnaire included an optional release form allowing us to use all enrollment records (past, present, and future) and other college files for research purposes.

We performed a stratified sampling of 241 classrooms that reflected the students’ remedial and college-level distribution of students. More specifically, the sampling relied heavily on four levels of English courses (three levels below transfer, two levels below transfer, one level below transfer, and transfer level), plus a smaller number of occupational programs stratified by gender, other courses, learning communities, and traditional gateway courses. We assessed the validity of the sampling design by comparing the sample to the entire LACCD population on several factors, including ethnicity, primary language, and age. It was deemed representative of the district’s population (Hagedorn, Maxwell, & Moon, 2002).

We developed the questionnaire to reflect issues specific to community college students based on the extant literature (Bean & Metzner, 1985; Bers & Smith, 1991; de los Santos & Wright, 1990; Hagedorn & Castro, 1999; McCormick & Carroll, 1997; Moss & Young, 1995). In addition to the initial survey, we mailed two follow-up surveys (paper) and had the survey available online in 2002 and 2004. We attempted to contact all nonresponders and, when successful, attempted to immediately administer a shorter version of the survey over the phone. The combination of follow-up questionnaires, telephone contacts, and continuing enrollments at the LACCD resulted in our knowledge about the enrollment status of 85% of the original sample.

In the fall of 2003, we checked all participants in the initial survey against records from the National Loan Clearinghouse to determine transfer. In the fall of 2005, we again checked the names against national “Right to Know” records. Students reported as enrolled in a four-year institution during either of these sweeps were coded as transfer. We also noted the institutional type (i.e., state school, research university, for-profit, etc.).

Our final sample was a database consisting of the individual records of 411 students who participated in the initial survey and successfully transferred to a CSU, UC, private institution in California, or an out-of-state institution, with or without an associate’s degree by 2005.
Empirical Strategy

To estimate the true costs of community college attendance, we calculated the total cost of community college education prior to transfer for students with different remedial/developmental needs by (a) adding all the costs, and (b) then subtracting the financial aid received in the form of grants. We did not deduct student loans because it is an actual student cost that must be paid back eventually. The pre-transfer price includes both direct and indirect costs. Direct costs include tuition, fees, books, supplies, and living expenses. Indirect costs are the opportunity costs—or the income students would earn if they were employed full time instead of going to college. Because the majority of community college students work at least part-time, estimating the exact level of opportunity costs is not possible. Even though the majority of the individuals in this sample are college-age students and might be working less than full time, we decided to apply the opportunity costs of students who are enrolled part-time.

Total Cost of Transferring

Total student cost = total price minus grants (1)

Total price = total direct (tuition + fees + living expenses + books + supplies) and indirect/opportunity costs (foregone salary) paid by students between the time of first attendance at the community college and the time of transfer.

We estimated the direct cost by summing the costs of tuition, books, and supplies. We chose a low to moderate average cost of living for a single individual in California and estimated the indirect/opportunity cost by multiplying the median salary for workers in the manufacturing industry in Los Angeles County. Opportunity costs is a fairly routine concept in economics and studies of rates of return to education (Long, 2007; Psacharopoulos, 1985).

Various types of grants are available to students and to the parents of dependent students, primarily federal Pell grants, state grant programs, and institutional grants. In 1999 constant dollars, between 1990 and 2000, the average Pell grant to full-time dependent students in two-year public colleges ranged between $1,700 and $2,200. The average Pell grant in California in 2004 was $2,450 (Committee on Government Reform, 2004). Average state grants ranged from $1,000 to $1,200, while average institutional aid for both years was $900 (Choy, 2004). California’s major state grant program is the Cal Grant. Individuals can apply it toward the costs of up to two years at a community college (Cal Grant C) plus two additional years at a four-year college (Cal Grant B).

Community college students also have access to loans. We reported the average total of loans received between 2000 and 2005 by the transfer stu-
Level of Developmental Education

Using transcript-level data, we calculated the cost estimates of students who enroll at community colleges with different remediation needs. We grouped the students according to the level of English and math courses in which they enrolled during their first semester in community college: (a) level 0 = remedial, (b) level 1 = basic, (c) level 2 = intermediate, and d) level 3 = transfer level (no remediation required). (See Table 1.) Students were classified according to the lowest level of enrollment required. We present estimates of tuition and fee costs, as well as total of semesters of enrollment, for individuals with different remediation needs.

Math Remediation and Costs before Transfer

We employed regression analysis to explore the relationship of the total cost of pre-transfer education with the student’s pass rate in his or her first math remedial course and the initial level of remediation. We acknowledge the limitations inherent in regression analysis; they may not sufficiently account for students’ unobserved characteristics. In other words, not controlling fully for individual characteristics may bias the coefficients of the regression analysis. Still, we find value in assessing the relationship between passing the initial math remedial course (and the initial level of remediation) on the cost of pre-transfer community college education. We remind the reader that no causal relationships can be assumed with this type of analysis.

We use ordinary least squares because the two dependent variables of interest (total tuition/fee costs and total semesters enrolled) are continuous variables. The independent variables are (a) whether the student passed the initial remedial math course attempted, and (b) three variables that identify the initial level of remediation (Level 0: two levels below college level; Level 1: two levels below college level; Level 2: one level below college level). We argue that the variable “passed the initial remedial math course attempted” provides some information on how a community college assigns its students to remedial courses. One limitation of this variable is that some students might have been placed either above or below the appropriate remediation level. Students placed too low may be more likely to pass while those placed too high are more likely to experience difficulty and not pass. We include three “dummy” variables: Level 0, Level 1, and Level 2. (We omit variable Level 3, or transferable courses.) We hypothesize that the cost in both money and time to transfer is higher for students with deeper remediation needs.
1. Level of Remediation
   Three levels of remedial courses were identified in terms of content knowledge, difficulty and relationship to four-year colleges.
   - Level 0: There exist no prerequisites to enter the course and the course is designed to teach the students the necessary skills to be successful in level 1 courses and beyond.
   - Level 1: There may be a prerequisite to join the course and the course is designed at a basic skills level aiding the student to master the basic skills needed to be successful in the advanced level courses.
   - Level 2: There exists a prerequisite to enroll in the course and the course is beyond the basic understanding of the core concepts. Usually the course itself is indicated with the title of intermediate. However, the course does not provide transfer credit to either the University of California or California State University systems, so is not at the advanced transfer level.
   - Level 3: The course provides transfer credits and is considered a college level course.

2. Course Success Ratios
   Successful completion of courses was measured by the course success ratio. This ratio is formed by a denominator consisting of the number of credits in which a student enrolled and did not drop prior to the add and drop period (or census date). The numerator consists of those credits resulting when the grade of A, B, C, or P (pass) was earned.
   \[
   \frac{\text{# courses with the grade of A, B, C, or P}}{\text{# of courses of enrollment}}
   \]

3. Academic Integration
   There is generally a relationship between a student's academic performance and academic integration. We included a nine-item scale (alpha coefficient of .8005) from the TRUCCS survey to measure student determination. Specifically, the items measured on a five-point Likert scale were:
   - Work in small groups during class time
   - Telephone/email /student about studies
   - Ask the instructor questions
   - Speak up during class discussions
   - Talk w/instructor before or after class
   - Talk with instructor during office hours

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**Table 1**

**List of Variables and Definitions**

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Definition of Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Level of Remediation</td>
<td>Three levels of remedial courses were identified in terms of content knowledge, difficulty and relationship to four-year colleges. Level 0: There exist no prerequisites to enter the course and the course is designed to teach the students the necessary skills to be successful in level 1 courses and beyond. Level 1: There may be a prerequisite to join the course and the course is designed at a basic skills level aiding the student to master the basic skills needed to be successful in the advanced level courses. Level 2: There exists a prerequisite to enroll in the course and the course is beyond the basic understanding of the core concepts. Usually the course itself is indicated with the title of intermediate. However, the course does not provide transfer credit to either the University of California or California State University systems, so is not at the advanced transfer level. Level 3: The course provides transfer credits and is considered a college level course.</td>
</tr>
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</tr>
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</tr>
</tbody>
</table>
Help another student understand homework  
Study in small groups outside of class  
Speak with an academic counselor  

3. Determination  
There is generally a relationship between a student’s academic performance and general attitude and level of determination. We included a five-item scale (alpha coefficient of .7807) from the TRUCCS survey to measure student determination. Specifically, the items measured on a five-point Likert scale were:  
I am very determined to reach my goals  
It is important for me to finish courses in program of studies  
I am satisfied when I work hard to achieve my goals  
I expect to do well and earn good grades  
I keep trying even when I am frustrated by a task  

Source: Transfer and Retention of Urban Community College Students (TRUCCS) data.
We include a number of variables that have traditionally been used in the persistence literature (Tinto, 1993): socioeconomic status (SES), gender, race/ethnicity, age, highest English and math placement scores, grade point average (GPA), and two variables that control for some unobserved student characteristics that might be correlated with persistence: academic integration index and determination index. We considered including some controls for institutional characteristics, but unfortunately this was not possible because the sample is representative only of the LACCD and not of each individual campus. (See Table 2.)

Limitations

The major limitation of this study is related to the sample. The small number of individuals who successfully transferred to date (about 10% of the original sample), prevents large-scale generalizability. However, it must be noted that the low proportion of transfers is representative of large urban districts. In addition, the results of this study may hold true only for the relatively few students who attended college in Los Angeles. It must be noted that California is a diverse state from many perspectives and as such, the experiences of transfers in the urban areas of the state may differ substantially from those in rural areas. Finally, due to the limitations inherent in the data, we had to rely on state-level data to calculate some of the costs. We recommend that future studies gather as much detailed information as possible in terms of the tuition and fees, living expenses, and opportunity costs.

Results

The demographic characteristics of the students who transferred reflect California’s diversity. Slightly more women transferred than men. Almost 60% were Hispanic or African American, reflecting the high number of minorities attending community colleges. A larger percentage of the students were age 30 or younger, a finding that corroborates Adelman’s (2005) finding that younger students are much more likely to transfer than their older counterparts. Despite the relatively low average scores on the English and math placement courses (1.66 and 1.22 respectively, indicating placement between basic and intermediate levels), the cumulative grade point average of students in the sample was 3.0. For a more thorough description of the sample and a comparison of transfer/nontransfer students, see Hagedorn, Cypers, Lester, and Chi (2006).

The average number of semesters (fall/spring) spent at the community college before transfer was 9.5—or almost five calendar years. It is important to note that continuous and full-time enrollment are more exceptions than rules at community colleges. Cohen (1990) and Cohen and Brawer (2003)
TABLE 2

DEMOGRAPHIC CHARACTERISTICS AND COURSE-TAKING PATTERNS OF TRANSFER STUDENTS

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Transfers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>416</td>
</tr>
<tr>
<td>Female 249 (60.6%)</td>
<td></td>
</tr>
<tr>
<td>Male 162 (39.4%)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Younger than 30 359 (87.3%)</td>
<td></td>
</tr>
<tr>
<td>30 and older 52 (12.7%)</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>African American 73 (17.8%)</td>
<td></td>
</tr>
<tr>
<td>Asian 61 (14.8%)</td>
<td></td>
</tr>
<tr>
<td>Caucasian 48 (11.7%)</td>
<td></td>
</tr>
<tr>
<td>Hispanic 166 (40.4%)</td>
<td></td>
</tr>
<tr>
<td>Other 63 (15.3%)</td>
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</tr>
<tr>
<td>Socioeconomic Status: Highest Occupational Status</td>
<td>54.827 (27.268)</td>
</tr>
<tr>
<td>Score of Parent</td>
<td></td>
</tr>
<tr>
<td>Academic Preparation</td>
<td>9.54 (4.24)</td>
</tr>
<tr>
<td>Cumulative Grade Point Average (GPA) 2.94 (596)</td>
<td></td>
</tr>
<tr>
<td>English placement score</td>
<td>1.66 (.913)</td>
</tr>
<tr>
<td>Mathematics placement score</td>
<td>1.22 (.991)</td>
</tr>
<tr>
<td>Academic Path at the Community College</td>
<td></td>
</tr>
<tr>
<td>Number of semesters</td>
<td>32.5 (4.24)</td>
</tr>
<tr>
<td>Average number of courses per semester attempted</td>
<td>3.2 (822)</td>
</tr>
<tr>
<td>Total courses attempted</td>
<td>29.53 (12.34)</td>
</tr>
<tr>
<td>Total courses passed</td>
<td>24.35 (9.66)</td>
</tr>
<tr>
<td>Remedial English and Math Courses</td>
<td></td>
</tr>
<tr>
<td>Total English remedial courses (level 0 to 2) attempted</td>
<td>2.59 (2.06)</td>
</tr>
<tr>
<td>Total math remedial courses (level 0 to 2) attempted</td>
<td>2.81 (2.15)</td>
</tr>
<tr>
<td>Ratio of total remedial courses attempted to total courses attempted</td>
<td>.14 (.09)</td>
</tr>
<tr>
<td>Ratio of total remedial courses passed to total courses passed</td>
<td>.13 (.08)</td>
</tr>
<tr>
<td>Transfer Level Courses</td>
<td>11.49 (6.32)</td>
</tr>
<tr>
<td>California State University system (CSU)</td>
<td></td>
</tr>
<tr>
<td>Number of CSU transfer level courses attempted</td>
<td>.39 (.152)</td>
</tr>
<tr>
<td>Ratio of CSU transfer level courses attempted to total courses attempted</td>
<td>.39 (.16)</td>
</tr>
<tr>
<td>Number of CSU transfer level courses passed</td>
<td>.845 (.162)</td>
</tr>
<tr>
<td>Ratio of CSU transfer level courses passed to total courses passed</td>
<td>.834 (.150)</td>
</tr>
<tr>
<td>Success ratio in CSU transfer courses</td>
<td></td>
</tr>
<tr>
<td>Success ratio in ALL courses attempted</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>411</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using Transfer and Retention of Urban Community College Students (TRUCCS) data.
reported that the majority of community college students across the nation are enrolled part-time, commute, matriculate without goals of transferring but have long-term educational plans, and are employed at least part-time. Our sample of students averaged enrollment in 30 courses and passed most of them (about 24). The average number of courses per semester of enrollment was three.

On average students in the sample enrolled in multiple remedial courses. The average number of remedial English courses was 2.59 while the average number of remedial math courses was 2.81. However, the standard deviations for these two statistics were high—2.06 for English and 2.15 for math, suggesting wide variation among students. These results also suggest that these students arrived at the community college with slightly higher remedial needs in math. The total ratio of remedial courses attempted to the total number of courses attempted was 0.14. Thus, a student with average remediation needs could spend an entire year of full-time enrollment taking only remedial courses. However, the fact that students averaged almost five years of enrollment may indicate several scenarios:

1. Students may not be consistently exposed to the appropriate types of instruction that would facilitate their success.
2. Academic advising may be inadequate, unavailable, or possibly flawed.
3. Students may not be taking their courses seriously. They may be dropping courses and not enrolling contiguously.
4. Course availability may be limited, forcing students to take either long intervals between levels or take courses out of sequence.
5. Placements may be flawed or inappropriate.
6. Students may not be taking their own education seriously. Nonacademic pursuits may be consuming their attention, leaving relatively little time or energy for academic pursuits (California Community Colleges Chancellor’s Office, 2002).

On average, students in our sample enrolled in 11 transfer-level courses and passed 9 of them. This result suggests that students are leaving the community college with just a year’s worth of transferable courses.

One of the more revealing findings was that just over 50% of all courses taken by our sample were remedial, indicating that they are spending half of their time taking nontransferable college-level courses. In other words, the transfer students in this sample averaged enrolling in courses over a five-year time span but transferred only the equivalent of one year’s worth of full time study credits.

**The Cost of Transferring**

This section presents estimates of the total cost of tuition and fees (minus grants) paid before transferring to a postsecondary institution. Students in
the sample transferred to the University of California system, the California State system, to a private school, or to an out-of-state. Table 3 suggests that the total tuition and fees that students paid before transferring was over $5,000. This cost is less than tuition and fees for two years of full-time enrollment at a California state university ($3,070) and almost the same as the national average for attending a public four-year institution in the nation ($5,836).

We found cost differences associated with the various types of four-year colleges to which students transferred. Students who transferred to a CSU institution paid the most: $6,175, or about $600 more than the national average. We hypothesize that this sum is probably related to their relatively higher remediation needs. According to a report by James, Morrow, and Perry (2002), about 64.4% of the students who transferred to a CSU needed remediation in basic skills compared to 13.1% of those who transferred to a UC campus. Furthermore, students who incurred lower costs were also more likely to transfer out of state and, as we found on further inquiry, took fewer remedial courses.

Some individuals received grants and work study opportunities that covered all tuition and fees. The negative cost suggests that the financial aid may have also helped cover some living and transportation costs. However, the fact that the students required loans suggests that they required supplements, possibly due to California's high cost of living. The average loan amount was $3,000, or about half the amount they received in grants. However, the financial data covered only a portion of the time the students were enrolled. Because most attended college part-time, they were ineligible for Pell grants, subsidized loans, etc.

Furthermore, all of the students in this sample reported working at least part-time. Again, we conjecture that the high cost of living in Los Angeles required supplemental employment. According to the College Board, the estimated low-cost of living for a single individual in the Los Angeles area in 2006 was more than $15,000, and $23,000 for moderate-cost. These estimates may be low for the individuals in this sample. Unlike students who enroll as freshmen in a four-year college, community college students are more likely to have family responsibilities and thus incur a greater need to be concurrently employed.

Finally, we present estimates of a very rough measure of the opportunity costs, or the earnings the students would have occurred if, rather than attending community college, they had worked full-time. Based on the fact that their highest level of education was high school, we chose the salary of workers in manufacturing as approximating foregone salary—a figure of more than $30,000 a year. In other words, if the students had chosen to be employed rather than enrolling in community college, they could have earned approximately $150,000 in their five years as students. However, if
### Table 3

**Average Costs that Students Paid before Transferring to a Four-Year College**  
*(standard deviation)*

<table>
<thead>
<tr>
<th>Type of Four-Year College</th>
<th>CSU</th>
<th>UC</th>
<th>Private</th>
<th>Out of State</th>
<th>Average ($2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuition and fees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6,175</td>
<td>5,240</td>
<td>6,193</td>
<td>4,283</td>
<td>5,473</td>
</tr>
<tr>
<td></td>
<td>(2,380.17)</td>
<td>(2,098.79)</td>
<td>(2,766.08)</td>
<td>(1,670.89)</td>
<td></td>
</tr>
<tr>
<td><strong>Financial Aid</strong>(^1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants</td>
<td>6,454</td>
<td>7,308</td>
<td>5,761</td>
<td>5,869</td>
<td>6,348</td>
</tr>
<tr>
<td></td>
<td>(3,903.46)</td>
<td>(4,404.52)</td>
<td>(3,313.92)</td>
<td>(3,174.17)</td>
<td></td>
</tr>
<tr>
<td>Work Study</td>
<td>2,754</td>
<td>1,749</td>
<td>3,241</td>
<td>3,323</td>
<td>2,767</td>
</tr>
<tr>
<td></td>
<td>(1,671.53)</td>
<td>(1,892.13)</td>
<td>(1,883.15)</td>
<td>(781.01)</td>
<td></td>
</tr>
<tr>
<td><strong>Net Price (Tuition and fees minus financial aid)</strong></td>
<td>-3,032</td>
<td>-3,817</td>
<td>-2,808</td>
<td>-4,908</td>
<td>-3,641</td>
</tr>
<tr>
<td></td>
<td>(3,089.46)</td>
<td>(2,816.03)</td>
<td>(1,865.47)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>Loans</strong></td>
<td>3,812</td>
<td>2,422</td>
<td>3,074</td>
<td>0</td>
<td>2,327</td>
</tr>
<tr>
<td></td>
<td>(3,089.46)</td>
<td>(2,816.03)</td>
<td>(1,865.47)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>Living expenses</strong>(^2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate 12 month budget (2006)</td>
<td>22,687</td>
<td>22,687</td>
<td>22,687</td>
<td>22,687</td>
<td>22,687</td>
</tr>
<tr>
<td>Low 12 month budget (2006)</td>
<td>15,201</td>
<td>15,201</td>
<td>15,201</td>
<td>15,201</td>
<td>15,201</td>
</tr>
<tr>
<td><strong>Indirect/Opportunity costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average yearly wage in manufacturing (2006)(^3)</td>
<td>31,500</td>
<td>31,500</td>
<td>31,500</td>
<td>31,500</td>
<td>31,500</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using Transfer and Retention of Urban Community College Students (TRUCCS) data.

\(^1\)The financial aid information is limited because it only includes the funds received between 2000 and 2005.

\(^2\)The living expenses were calculated using information from the “Living Expenses” calculator from the College Board, multiplied by 50 weeks assuming two weeks of paid holidays a year.
the students were enrolled part-time for two years, the opportunity cost was just $30,000. This estimate may be high because the students in the sample made some money through part-time employment. Unfortunately, their part-time earnings were not available.

The results for this sample suggest that tuition and fees may not be barriers while the financial aid available may be sufficient to cover costs. However, financial aid predominantly comes from taxes. Furthermore, when students take out loans, those loans must be paid back even when students fail to transfer or graduate. Moreover, equating the price of an education with tuition and fees is deceiving because the real issue may be the cost of living and the time spent in a community college before transferring. If individuals are taking long periods of time to transfer, then the opportunity costs (foregone earnings) contribute to the real costs. Taking remedial courses that provide the foundation for college-level courses is a genuine cost in terms of time. The next section illustrates the differences in the total cost of transfer for students who require different levels of remediation.

**THE COST OF REMEDIATION**

As expected, our results suggest that individuals who enter the community college with the greatest needs of remediation are those who eventually pay more in tuition and fees. (See Table 4). The average cost for our sample of former community college students who enrolled in at least one remedial course in the first semester but who subsequently transferred was almost $7,000, in contrast to just over $4,000 paid by individuals who began community college with transfer-level courses. Likewise, individuals who began with remedial courses spent almost five years at the community college—the traditional amount of time in which students are supposed to be able to earn a bachelor’s degree (Adelman, 1999). While the transferring students in our sample accumulated many units, relatively few could be counted toward their bachelor’s degree. Transferring students with remedial needs enrolled for more than 100 units; in contrast, those who started with college-level courses enrolled for just over 60 units. In other words, transferring students in our sample with high remediation needs would have had to spend three additional years enrolled full-time at their four-year college to complete the degree. Thus, these transfer students will spend about eight years in pursuit of the B.A., almost inevitably delaying such subsequent education as a graduate degree. In summary, while students with remedial needs pay slightly more than students not requiring remediation, the real costs may be more appropriately measured in excessive time to degree.

We next use multivariate analyses to account for the impact of passing the first remedial math course and the initial remediation level on the cost of transfer. As mentioned above, it is important to recognize that the pre-
Previous estimates might be biased due to sorting students into remediation and into specific types of institutions. Even though community colleges are open-admission institutions, some community colleges with stronger transfer histories and reputations might attract students with better academic preparation and fewer remediation needs (Shaw & London, 2001). Students who sort themselves into these types of institutions might be more motivated and persistent—characteristics that are very difficult to account for in multivariate analyses. The estimation strategy includes controls for differences in academic preparation and variables such as “determination” and “academic integration.” Despite these limitations and the fact that no causal interpretation is possible, the estimates still shed light on the dynamic between remediation and cost of transfer. The results of regression analysis suggest a positive and significant relationship between the initial level of remediation and cost of transfer. (See Table 5.) Holding all else constant, for individuals who started at the lowest remediation level (Level 0) as opposed to Level 3, there was a positive and significant relationship between

### Table 4

**Average Cost of Transferring by Remediation Levels**

<table>
<thead>
<tr>
<th>Course Level</th>
<th>Remedial</th>
<th>Basic</th>
<th>Intermediate</th>
<th>Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>English/math combined</td>
<td>6,983.02</td>
<td>6,197.11</td>
<td>5,318.76</td>
<td>4,191.23</td>
</tr>
<tr>
<td>(2362.83)</td>
<td>2286.33</td>
<td>(1533.03)</td>
<td>(1772.09)</td>
<td></td>
</tr>
<tr>
<td>Costs in terms of time (semesters)</td>
<td>9.81</td>
<td>8.07</td>
<td>6.92</td>
<td>5.52</td>
</tr>
<tr>
<td>Total number of semesters</td>
<td>(4.27)</td>
<td>(3.50)</td>
<td>(2.84)</td>
<td>(2.47)</td>
</tr>
<tr>
<td>Total number of credits attempted</td>
<td>105.7</td>
<td>94.09</td>
<td>81.07</td>
<td>63.76</td>
</tr>
<tr>
<td>(35.50)</td>
<td>(34.22)</td>
<td>(22.99)</td>
<td>(26.55)</td>
<td></td>
</tr>
<tr>
<td>Total number of credits passed</td>
<td>81.97</td>
<td>78.93</td>
<td>69.32</td>
<td>55.26</td>
</tr>
<tr>
<td>(27.34)</td>
<td>(26.79)</td>
<td>(19.31)</td>
<td>(25.14)</td>
<td></td>
</tr>
<tr>
<td>Total number of transferable credits passed</td>
<td>26.53</td>
<td>26.75</td>
<td>27.58</td>
<td>24.81</td>
</tr>
<tr>
<td></td>
<td>(12.99)</td>
<td>(14.24)</td>
<td>(12.64)</td>
<td>(14.21)</td>
</tr>
</tbody>
</table>

*Source: Authors’ calculations using Transfer and Retention of Urban Community College Students (TRUCCS) data.*
remediation and monetary cost. Students with Level 0 remediation needs paid almost 44% more than those who started with transfer-level courses. The same was true for the other remedial levels, but the magnitude of the coefficients decreased. These results confirm that remediation increases the monetary cost of transfer. The F-statistic and R-square value suggest that the variables in the model affected final cost. The R-square value of 0.16 suggests that the variables in the model explain about 16% of the variance. This coefficient is low, but it is not substantially lower than R-square values of persistence models (Bettinger & Long, 2004).

Remediation and Time to Transfer

Transfer costs measured in terms of time parallel estimates of the monetary cost of transfer. The results also present positive and significant values for all levels of remediation. Holding all else constant, individuals who started with the deepest remediation needs (Level 0), spent an additional half of a semester enrolled before transferring. The coefficients decreased for lower levels of remediation and were all significant. The F-statistic and R-square value suggest that the variables in the model affected final cost, and the R-square value of 0.24 suggest that the variables in the model explained about 24% of the variance. It is noteworthy that the R-square value of the model measuring time to transfer was larger than the one measuring cost of transfer.

Discussion of Major Findings

This study’s main finding is that, despite the relatively low tuition and fees of community colleges in California, the real cost for transfer students is the substantial amount of time they spend at the community college taking remedial/developmental and/or nontransferable courses. This study thus empirically provides evidence of the intuitive perception that students with the most needs are those that must make the greatest efforts to succeed—spending the most time and the most money to do so. It is also intuitive that students not academically prepared for college likely have the greatest academic challenges. Those with the most academic capital not only have the greatest chances of success but will be spending less time and money for their degree than those who enter with less preparation. The long terms of enrollment affect not only these students but also their families. A significant finding is that almost 60% of students in remedial courses are African American and Latino/a. An implication of this finding is that community colleges have the responsibility of providing students with the basic skills necessary to progress to the transfer level as quickly as possible.

We emphasize our three major findings: First, despite the community college’s low tuition and fees, the cost of transfer in California may be high because of the length of time students spend in remedial/developmental or
nontransferable courses. Students average five years at a community college before transferring to a four-year college. This finding reinforces that it is a misnomer to call community colleges “two-year colleges.” Sengupta and Jepsen (2006) analyzed two cohorts of students (2003–2004, 1997–1998) in 107 community colleges in California. They found that, on average, students transferred to four-year colleges in four years rather than two. The long periods of enrollment add another level of costs to the equation. Furthermore, it is not students alone who bear these costs. As public institutions, community colleges are supported and subsidized by tax dollars. The more time students spend in remedial courses, the more funding goes to their needs that could be applied to the education of other students.

Second, despite the long time that the students remain enrolled in college, they transfer only about one year’s worth of credits. Students spent 60% of their time taking remedial and nontransferable courses and only 40% of the time taking transferable courses.

Third, there is a direct relationship between remediation and cost of transfer. The monetary cost of transfer for students who started with the deepest remediation needs were the highest (almost $7,000) and they spent almost five years enrolled at the community college. The cost was much lower for those who started with transfer level courses, just over $4,000,
and their enrollment time was just over two and a half years. The students with deepest remediation needs attempted over 100 credits of which only over one-fourth, 26%, was transfer credit. The situation is slightly better for those who start with transfer-level courses; but still, these students attempted an average of almost 64 credits, of which only 40% was transferable credit. Finally, the results of regression analysis confirmed the relationship between initial remediation level and cost of transfer measured both by money and time to transfer.

The main implication of these findings is that the substantial majority of the students in this sample—African Americans and Latino/as—arrive at the community college with high remediation needs that force them into a long and costly path that only a small minority succeed in navigating. Primarily because of their remediation needs, they spend an inordinate amount of time taking nontransfer courses. Those needs might be related to the lack of high school academic preparation but may be exacerbated by other factors such as inappropriate placement in remedial courses, insufficient numbers and focus of support centers, unavailability of counseling, misalignment between remedial and college-level courses, and/or lack of early information about the California transfer curriculum (Kirst, 1997; Mazzeo, 2002). In addition, previous studies have reported that the criteria for entrance into “college-level” courses are often highly arbitrary and institution specific (Meriosotis & Phipps, 2000).

**Implications for Access and Equity**

Our findings, as well as their implications for access and equity, may be contextualized by using Levin’s (2002) comprehensive evaluative framework. He proposed four criteria to evaluate educational vouchers but also acknowledges their value in appraising other educational options. The four criteria are:

1. Freedom of choice is defined as the right to choose a school premised on values, educational philosophies, religious teachings, or political outlooks consistent with the learner’s personal preferences or family background.
2. Productive efficiency is defined as the maximization of educational results for any given resource constraint.
3. Equity, the universally accepted goal of education in the United States, is the quest for fairness in access to educational opportunities, resources, and outcomes regardless of gender, social class, race, language origins, and geographical location.
4. Social cohesion, a major public purpose of education in a democratic society, is the provision of a common educational experience that will orient all students to become full participants in the social, political, and economic institutions of that society.
Our findings on cost have implications for the community college’s mission of supplying access and equity. Accordingly we have applied Levin’s framework to incorporate our findings in an evaluative structure of community colleges.

**Freedom of Choice**

The open access of community colleges does provide a basic choice of college attendance. Further, California residents are not restricted to the college in their local community but can choose to attend any of the state’s 110 community colleges under the same low fee structure. However, the reality is that many students are restricted by their geographical locations, work opportunities, family responsibilities, and financial constraints. The additional time to degree demonstrated by our analyses does not detract from the students’ choice to attend, not attend, or remain enrolled over an extended period of time; but it does enhance the likelihood that students will not finish the long paths to success.

**Productive Efficiency**

In theory, the community college option represents a more cost-effective way both for students to receive and for the state to provide the first two years of college. In addition, given the increasing needs of remedial education juxtaposed with the lower costs of community colleges, utilizing the state’s community colleges as the main provider of remedial/developmental courses appears to be a cost-effective option. The question of efficiency, however, must be squarely placed next to the time and costs of providing remedial/developmental education over such long periods of time. Colleges must reexamine the procedures by which they currently encourage students to complete the process in a timely fashion or reexamine the processes and instructional methods to determine why students are not successful within a more acceptable time period.

**Equity**

Without doubt, community colleges have opened doors to provide the opportunity for equity in education. But it cannot be ignored that the provisions, resources, and likelihood of success for students in community colleges do not equal those provided to students enrolled in four-year universities. Moreover, since community colleges have an overrepresentation of low-income minority students, the question of equity must be faced squarely.

Students requiring long periods of remediation often have been educated in low-income neighborhoods and schools that lacked the necessary resources to compete with schools in high-income environments. While this type of inequity lies beyond the scope of our analysis, we argue that it is unfair to expect community colleges to obliterate earlier inequities within
a short time-frame. Nevertheless one must face the inequitable outcomes of students spending long periods of time in remediation.

**Social Cohesion**

The process of social cohesion is certainly not limited to the elementary and secondary educational systems. Due to societal changes and complexities, it can be argued that a college education is not a luxury but a necessity if one is to fully participate in society’s cultural, professional, political, and economic institutions. From a financial viewpoint, an individual who successfully transfers and attains a bachelor’s degree will earn an estimated $20,000 a year more than a high school graduate (Mortenson, 2006). Adding equity considerations to those of social cohesion for the state of California, indicates that there is an increase of benefits in educating the state’s residents from ethnically diverse backgrounds who will become members of a more educated workforce of consumers, tax payers, home buyers, voters, and political leaders in the coming years (Myers, 2007).

Applying the evaluative conceptual framework to community colleges suggests that, when evaluating the times and costs of remediation, the path may be long before citizens can achieve the goals assigned to education in a democratic society. The four criteria represent the tensions inherent in providing a cost-effective and equitable educational system for a diverse population.

The problems outlined in our study cannot be addressed with simple fixes or short-term interventions. While offering remedial education in community colleges gives students a chance to catch up and earn a bachelor degree, the time and costs associated for many students is likely a barrier that they cannot overcome. Alleviating the problem in the short run are such changes as strengthening secondary school preparation, aligning developmental curricula with college-level courses (Cohen & Brawer, 2003), providing additional counseling to students (including support in course-taking decisions), decreasing the student-to-academic-advisor ratio, increasing individualized attention and supplementary tutoring for at-risk students, providing professional development and appropriate incentives for teachers of developmental courses, and building more learning communities appropriate for developmental students. But the problem will persist until a major overhaul of the educational system occurs.

In summary, community colleges are an alternative form of postsecondary education that will yield significant financial advantages for many students. A substantial majority of students of African American and Latino racial/ethnic backgrounds first attend the community college (Wassmer, Moore, & Shulock, 2004). For these students, frequently from underfunded and underperforming schools (Fry, 2002), community colleges provide the main opportunity to attain a postsecondary degree. The reality is that many
of these students arrive with higher developmental needs that place them at risk of academic failure.

It is true that the tuition and related costs of most community colleges are significantly less than those charged at public and private institutions. Furthermore, for students who use the community college wisely, transfer successfully, and earn a bachelor’s degree, the community college may be a cost-effective rational choice. However, the substantial majority of students with remediation needs will find the cost of transfer higher in both time and money than they anticipate.

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