THE PERFORMANCE-BASED SCHOLARSHIP DEMONSTRATION

PROVIDING MORE CASH FOR COLLEGE

Interim Findings from the Performance-Based Scholarship Demonstration in California

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BUILDING KNOWLEDGE TO IMPROVE SOCIAL POLICY

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Overview

One of the original purposes of student financial aid was to ensure fairer access to postsecondary education to those least able to afford it and to those traditionally underrepresented. Various federal and state programs were put in place to achieve this goal, including the federal Pell Grant and state aid programs. Yet policymakers and education leaders continue to grapple with how to boost college attendance and completion in an era when the number of college graduates is lagging behind demand and government resources are increasingly limited. Increasing the number of college graduates is particularly difficult given the continued rising cost of attending college and the failure of financial aid to keep pace.

This report presents early findings from an evaluation of performance-based scholarships targeting college-bound high school seniors in California, referred to as the Cash for College Performance-Based Scholarship (CFC-PBS) Program. This program is one of six being studied as part of the Performance-Based Scholarship (PBS) Demonstration. Performance-based scholarships are need-based grants contingent on meeting certain academic benchmarks to receive payment — in this case, a half-time course load with a "C" or better grade point average (GPA). Unlike merit-based scholarships, there are no academic criteria to be eligible for the program at the outset. The CFC-PBS scholarship can be taken to any accredited, degree-granting college or university in the country. The goal of the CFC-PBS Program is to increase the amount of aid available for students while simultaneously providing an incentive for academic achievement.

Using a random assignment design — the gold-standard methodology in program evaluation — MDRC assigned over 5,000 students to one of five program groups that were eligible for the incentive scholarship, to a group that was eligible for a scholarship without performance criteria, or to a control group that received their colleges' standard financial aid packages. This report analyzes three terms of follow-up data from the program in California. Overall, the findings in this report show the following:

- The CFC-PBS Program was largely implemented as designed.
- While few students received the entire amount of the scholarship for which they were eligible, most students received some funding. In this way, the design of the scholarship enabled more students to receive additional financial aid.
- The CFC-PBS Program encouraged more students to matriculate, by about 5 percentage points above the control group rate of 84.4 percent. This increased matriculation largely occurred at community colleges. However, the program had only limited effects on persistence from semester to semester, and only for community college students.
- The program had positive impacts on academic success. These effects extend to numerous subgroups, such as males, females, and students of Latino ethnicity. There is strong evidence that the program affected students with lower high school GPAs more than students with higher high school GPAs.
- The cost to administer scholarships increased as performance requirements were added, but since on the whole, students received only a portion of the scholarship amount they were offered, the decrease in payments to students more than offset the increased cost of administration. All else being equal, scholarships with more performance requirements cost less than scholarships with fewer performance requirements.

A future report will present a cross-site synthesis of the final results from this and other sites from the PBS Demonstration programs.

Contents

List of Exhibits

Table

Figure

Box

Preface

From the White House to the schoolhouse, policymakers, educators, and citizens alike are calling for more college graduates across the country. President Obama has set the lofty goal of graduating a higher proportion of citizens than any other nation in the world by 2020. Reaching this level is a daunting task: Only 59 percent of students entering four-year institutions graduate within six years, and just 31 percent of students entering two-year institutions graduate within four years. The completion rate for low-income students is even bleaker, as they face barriers such as limited resources to manage the various costs associated with college, competing demands on their time (such as work or child-care responsibilities), and insufficient preparation. One of the ways that this administration has tackled these obstacles is to expand federal support — primarily Pell Grants to help more students afford college.

State and private donors also contribute more than $16 billion in scholarships, many of which use merit-based criteria that reward high school performance. What do we know about the most effective way to structure these scholarship programs? Little research has been done to understand how creative financial aid structures might better assist students, especially low-income, disadvantaged students who might not meet merit-based criteria. With support from a consortium of foundations, colleges, and intermediaries, MDRC has worked in six states with over 12,000 students to test several different scholarship designs. All of these subsidies are known as performance-based scholarships — need-based grants, contingent on meeting academic benchmarks in college, that are intended to reduce the cost of college for low-income students and create incentives for academic success once they are enrolled.

This report presents early findings from an evaluation of an innovative application of performance-based scholarships that targeted college-bound high school seniors in California, referred to as the Cash for College Performance-Based Scholarship Program. The program recruited over 5,000 students into the study and randomly assigned them to be eligible for one of six different scholarships (ranging from $1,000 to $4,000 and from one term to two years) or a control group. The scholarships were completely portable, meaning that a student could use them at any accredited, degree-granting college or university. The findings indicate that such a statewide program could be implemented well, enabling more students to receive some funding toward their college costs. Additionally, the program encouraged students to matriculate, mainly at two-year institutions. While there is evidence that the program had positive impacts on academic success, it did not boost persistence in college after the students' initial registration.

More time is needed to investigate whether these early results will translate into impacts on graduation and to understand whether certain scholarship amounts and durations work better for students. However, these early results and the design of this study lay an important foundation for understanding how we can better configure existing scholarship programs.

Gordon L. Berlin
President, MDRC

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The study would not have been possible without the hard work of Despina Costopoulos from the California Student Aid Commission; David Rattray, Alma Salazar, and Carmen Gomez from the Los Angeles Area Chamber of Commerce; Julia Lopez, Katie Tremper, Marty Campbell, and Jay Sherwin from the College Futures Foundation of California; and Cash for College regional coordinators Marylee Boales, Monica Roberts, and Frank Ramirez.

Many MDRC staff members have contributed to the PBS Demonstration and to this report. On the project team, we would like to recognize Robert Ivry for his leadership and guidance; Alissa Gardenhire for implementation and qualitative research leadership; Michelle Ware, Oscar Cerna, and Elliot Peterson for operations and qualitative research support; Amanda Grossman for resource management; and Colleen Sommo for technical advising. Consulting support came from Edward Deci and Mindy Hernandez, and Leslyn Hall helped design the survey instrument. The authors also thank Hannah Fresques, Melvin Gutierrez, Rich Mezzasalma, Sahil Raina, Jasmine Soltani, and Mary Clair Turner for their help with data processing. Random assignment and baseline data collection would not have been possible without Joel Gordon, Galina Farberova, and Shirley James and her staff in the data room. Gordon Berlin, Alissa Gardenhire, John Hutchins, Robert Ivry, Therese Leung, Alex Mayer, Colleen Sommo, Jed Teres, Johanna Walter, Michelle Ware, and Pei Zhu from MDRC and Phil Oreopoulos from the University of Toronto reviewed drafts of the report and provided invaluable feedback. Phoebe Richman and Himani Gupta fact-checked the report, with support from Alyssa Ratledge, who managed the process. Rebecca Bender, with Alice Tufel, edited the report and Stephanie Cowell and Carolyn Thomas prepared it for publication.

Last, and most important, we would like to thank the thousands of students pursuing postsecondary education who participated in the study in California. We hope that the findings from this study and the demonstration overall can be used to improve college programs and services for them and others in the future.

The Authors

Executive Summary

Students, families, educators, and policymakers alike realize the growing importance of a post-secondary degree or credential in competing for jobs. In fact, many state economic projections show a steadily increasing demand for a highly educated workforce. Yet policymakers and education leaders are grappling with how to boost college attendance and completion in an era when the number of college graduates is lagging behind demand and government resources are increasingly limited.[1] Increasing the number of college graduates is particularly difficult given the continued rising cost of attending college and the failure of financial aid to keep pace, which connects to both access and retention. The combination of these factors particularly affects low-income students, who have limited means to pay for college.

While the Pell Grant is the main federal source of need-based aid, states and private donors together contribute more than $16.4 billion in scholarships to undergraduates.[2] Many of these scholarships are structured so that they go to students who already have a high chance of success. In contrast, performance-based scholarships are need-based grants with payment contingent on meeting certain academic benchmarks in college. These types of scholarships have the potential to help students who might not otherwise qualify for merit aid, which is often given based on high school performance. With anchor funding from the Bill & Melinda Gates Foundation and a consortium of other foundations, MDRC has worked in six states with over 12,000 students, eight institutions, and one intermediary to test several different performance-based scholarship designs and to address on a much larger scale and in a wide range of settings the question of whether this innovative form of financial aid can improve academic achievement in both the short term and long term.

This report presents early findings from an ambitious evaluation of performance-based scholarships targeting college-bound high school seniors across the state of California, referred to as the Cash for College Performance-Based Scholarship (CFC-PBS) Program. Building on an existing program geared to induce students to complete their Free Application for Federal Student Aid (FAFSA), CFC-PBS recruited over 5,160 students to participate in the chance to earn scholarships that ranged from $1,000 to $4,000. Students were eligible for one of six different scholarship types over a period from one semester to four semesters, so that researchers could learn what amounts and durations of scholarships work best for students. The scholarships were completely portable — not tied to attendance at a particular institution — and could

[1]Organisation for Economic Co-operation and Development, *Education at a Glance 2007: OECD Indicators* (Paris: OECD Publishing, 2007); College Board, *Trends in Student Aid 2012* (New York: The College Board, 2012).

[2]College Board (2012).

be taken to any accredited, degree-granting college or university in the country. The program is evaluated using a random assignment design, similar to that used in medical efficacy trials. The specialized nature of the program and rigor of the evaluation design provide unique causal information on the role of financial aid in matriculation.

This report analyzes three terms of follow-up data from the program in California to address these research questions:

- Is it feasible to implement a statewide, portable scholarship program that makes aid contingent on students' performance in college?
- Do students who are offered performance-based scholarships have better academic outcomes than similar students offered scholarships without performance conditions attached?
- What does it cost to implement a performance-based scholarship program?

This report finds that the CFC-PBS Program was largely implemented as designed, encouraged more students to matriculate, and had positive impacts on academic success.

The CFC-PBS Program

The program in California is part of a multistate evaluation of performance-based scholarships taking place at institutions in Arizona, Florida, New Mexico, New York, and Ohio. The Performance-Based Scholarship (PBS) Demonstration is testing different versions of these scholarships, and each state represents a program with a different target population, scholarship design, and performance benchmark. However, all programs share a few basic tenets: Payments are based on registering for a certain number of credits and earning a "C" or better at the end of the term; the scholarships are paid directly to students rather than to their institutions; and the scholarship dollars are paid on top of the federal Pell Grant, state-based aid, and any other aid for which students are eligible.

The program in California was built into an existing statewide program called Cash for College, a public-private partnership effort co-led by the California Student Aid Commission and the Los Angeles Area Chamber of Commerce and its affiliate, UNITE-LA, with funding provided by the College Futures Foundation. The Cash for College program brings together high schools, colleges, communities, businesses, and local government organizations and agencies to help low-income youth successfully complete the college financial aid application process (consisting of completing the FAFSA and the application for the California state financial aid program, Cal Grant), with the goal of helping to maximize the amount of state and federal aid that students can obtain. Between December and March of each academic year, college fi-

nancial aid staff members, high school counselors, and trained community volunteers assist students and families at hundreds of Cash for College workshops throughout the state.

Prior to the evaluation of performance-based scholarships, Cash for College workshops offered a $1,000 scholarship (*not* performance-based) to a randomly selected attendee at every workshop who completed a financial aid application as an incentive to attend. MDRC collaborated closely with the Cash for College partners and the College Futures Foundation to develop an ambitious plan to test not only this Cash for College scholarship but an entire suite of performance-based scholarships, with the goal of determining which configuration would produce the greatest impact on academic outcomes. During the study period (from spring 2009 to summer 2012), students were randomly assigned to one of several different scholarship groups that varied in key features:

- **Scholarship Type 1:** Original Cash for College scholarship of $1,000 over one term with no performance incentive, described above.[3]
- **Scholarship Type 2:** Performance-based scholarship of $1,000 over one term.
- **Scholarship Type 3:** Performance-based scholarship of $1,000 over one year.
- **Scholarship Type 4:** Performance-based scholarship of $2,000 over one year.
- **Scholarship Type 5:** Performance-based scholarship of $2,000 over two years.
- **Scholarship Type 6:** Performance-based scholarship of $4,000 over two years.

The evaluation also randomly assigned some students to a control group that was not eligible for a scholarship. Random assignment ensured that students in all the groups had similar levels of academic preparation, motivation, and other characteristics at the start of the study. By tracking students in the different groups over time and comparing their outcomes, researchers can determine the "value added," or impact, of different types of scholarships on college enrollment, credits attempted and earned, graduation, and other outcomes. As a result of the various durations of the scholarship types, the three semesters of follow-up analyzed in this report

[3]Students who were eligible for this scholarship type received the funds at the start of the semester, so they were not subject to the satisfactory academic progress (SAP) requirements of their institutions, which often require the maintenance of a certain grade point average (GPA) and attainment of a certain pass rate for courses attempted.

show effects that were observed for some scholarships after the program period had ended and for others that had not yet reached the end of the intervention.

The CFC-PBS Study Sample

MDRC and Cash for College recruited students for the evaluation over a two-year period. To be eligible, students had to be high school seniors, attend a Cash for College workshop in a geographic region targeted for the study, complete the federal and state financial aid application process, and meet certain income thresholds.[4] Intake began in 2009 in Los Angeles County and a vast area referred to as the Far North region, encompassing 11 rural counties below the Oregon border. In 2010, the evaluation expanded to include the Capital region around Sacramento and Kern County in California's agricultural Central Valley.

The analysis in this report focuses on over 5,000 students who met the eligibility criteria and were randomly assigned to one of six program groups or a control group. Students who attended workshops in the Los Angeles region make up over half of the sample, while around one-fourth of the sample are Far North workshop attendees. Over three-fifths of sample members identified themselves as Hispanic/Latino, and around one-fifth of sample members identified as white. Over half of the CFC-PBS sample reported that they are the first member of their family to attend college.

Baseline financial aid data were also collected for all students in the sample and showed that around half received some public benefits (mostly free or reduced-price lunches or food stamps).[5] Most students had financial circumstances that qualified them for the federal Pell Grant. Around 65 percent of students were eligible for a Cal Grant award. Together, the financial aid and Cal Grant characteristics indicate that the sample is made up primarily of low-income, traditionally aged, dependent students with high levels of financial need.

The CFC-PBS Program sample was not designed to represent all California first-year students. It was drawn out of a population of students who actively chose to attend a Cash for College workshop and opted to be considered for the study. This self-selecting group of fairly motivated students was drawn while students were still in high school applying for admission to college.

[4]Students had to be below the Cal Grant A and C income thresholds defined by the state of California.

[5]The former Food Stamp Program is now the Supplemental Nutrition Assistance Program (SNAP), but SNAP benefits are often referred to as "food stamps," and the two terms are used interchangeably in this report.

Program Implementation

The program design for the CFC-PBS study was quite complex. During the 2010 intake period, 10,624 students participated in 210 Cash for College workshops in the targeted regions and 9,765 participants were interested in being part of the study. (A total of 15,420 students expressed interest in participating in the study over the two-year intake period.) In addition, eligible participants were randomly assigned to one of six program groups or a control group, and the various verification and disbursement processes were modified to address the dramatic increase in the volume of scholarship disbursements (almost three times larger than the volume given out in 2008-2009).

- **The CFC-PBS Program was largely implemented as designed.**

The existing structure of Cash for College provided a strong foundation for the CFC-PBS Program. The scholarship program complemented the Cash for College program, attesting that a large-scale portable scholarship program can be implemented successfully. The study required additional procedures in order to manage the various scholarship types, the increased volume of program group students, and the additional requirements attached to the disbursement of the award.

- **On average, across all six scholarship types, students received about $900 in scholarships over the first year and the initial enrollment payment of the second year.**

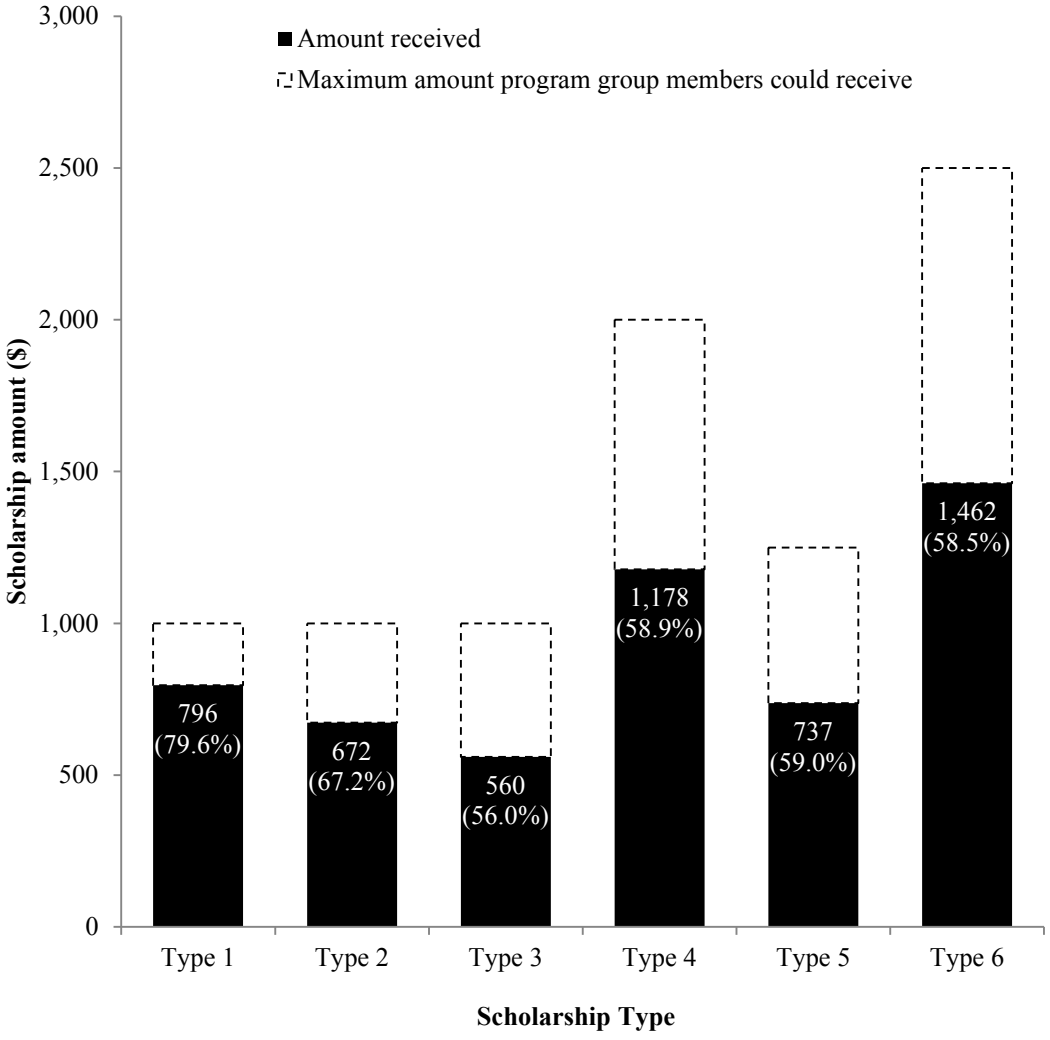
Scholarship disbursements were divided into two categories: those made upon proof of a student enrolling in a college or university, and those made upon proof of a student meeting the performance requirements of a "C" or better GPA in at least six credits. About 83 percent of program group members received at least one scholarship payment over the program's first three terms. On average, program group members received about $900 in scholarships, which represents slightly more than 63 percent of the total scholarship amount for which they were eligible. Because of the design of the scholarship, students had to submit documentation to show that they had enrolled at the beginning of a term and then that they had achieved the requirements to receive the award; therefore, there may be a subset of students who met the scholarship benchmark but did not submit their documentation, and thus did not receive their payment. Figure ES.1 outlines the average scholarship amount received by program group members for each scholarship type.

Students who received CFC-PBS payments reported that the money was primarily used toward college-related expenses — books being the most commonly purchased item. They also mentioned that the timing of the disbursements of CFC-PBS moneys helped cover up-front costs that were incurred before financial aid was disbursed.

Figure ES.1

Average Scholarship Amount Received by Program Group Members: First Through Third Terms

Cash for College Performance-Based Scholarship Study



(continued)

Figure ES.1 (continued)

SOURCES: MDRC calculations using scholarship payment data provided by the California Student Aid Commission as well as data from the U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS).

NOTES: The figure does not include performance payments in the third term, as fall 2010 cohort data were not available at the time of data acquisition.

Dotted lines above the bars represent the maximum amount of money that students were eligible for over the first two terms and the enrollment payment of the third term.

The percentage of the maximum possible award earned over the first three terms is reported in parentheses under the average amount received over the first three terms.

Students assigned to Scholarship Type 1 are eligible for an enrollment scholarship payment only in the first term.

Students assigned to Scholarship Type 2 are eligible for scholarship payments only in the first term.

Students assigned to Scholarship Types 3 and 4 are eligible for scholarship payments only in the first and second terms.

- **The scholarships' benchmark of a GPA of "C" or better seemed attainable to large numbers of students.**

Field research was conducted to learn about students' experiences in college and their perceptions of the CFC-PBS Program. The majority of focus group participants mentioned that while the extra money was beneficial, they did not feel the scholarship by itself made a significant difference in motivating them academically. However, knowing that they could lose the award did appear to give a considerable number of students an incentive to work harder, based on interviews and survey results. Survey respondents were fairly split between those who were encouraged by the scholarship to take more classes and those who were unaffected by it.

Findings on Academic Outcomes

The academic findings are presented for students' first year in college, as well as the first term of their second year. Sample members were surveyed about 12 months after they entered the study to provide information about their levels of effort in their studies, their motivation levels, and their employment patterns. Overall, the program generated some modest but positive early effects on student outcomes; a future report will provide effects on longer-term outcomes, such as graduation. Moreover, since this report does not present data for *all* of the terms during which students were eligible for an award, it is premature to draw final conclusions about the effectiveness of these awards or to determine what amounts of aid matter based on the analyzed data. Specifically, the early findings show the following:

- **The CFC-PBS Program encouraged more students to matriculate.**

The CFC-PBS Program is one of the first studies to document a causal relationship between financial aid and matriculation. Although the program was marketed mainly to students who had already taken steps to enroll in college (namely, attending a Cash for College workshop for completing financial aid applications), the scholarship offer resulted in about a 6 percent increase in matriculation among program group students (by 4.7 percentage points over the control group mean of 84.4 percent). Figure ES.2 shows that the matriculation impacts are concentrated among students attending two-year colleges (specifically, California community colleges). This is reasonable given the timing of the notification of scholarship eligibility: Letters were sent out in June, in the summer prior to fall matriculation but after the deadlines for acceptance to most four-year institutions. Because community colleges have flexible start dates, this suggests that the program induced students who were not going to attend school to change their decision and enroll in a community college.

These effects extend to numerous subgroups, such as males, females, and students with high school GPAs below and above 3.0. There is compelling evidence that the intervention had larger effects on enrollment for those students with lower high school GPAs than for students with higher high school GPAs. Lastly, the program had stronger effects for students who may not have been intrinsically motivated to apply for financial aid. (In other words, the program seemed to have a greater effect on those students who attended the workshops based on parental pressure, counseling pressure, or other external pressures.)

- **Positive impacts of the program seem to be concentrated among students attending two-year colleges (specifically, California community colleges).**

In addition to increasing matriculation at community colleges, the program also modestly increased persistence at such colleges. During the second term after random assignment, students in the program group were 3.7 percentage points more likely to register compared with the control group mean of 84.7 percent. The small increases in enrollment continued into the third term as well.

The program also induced students attending California community colleges to attempt and to earn a greater number of college-level credits. However, the credits attempted and earned are relatively small in magnitude (about one-quarter of a course).

- **The program had positive impacts on students' participation in activities aimed at helping them improve their academic performance.**

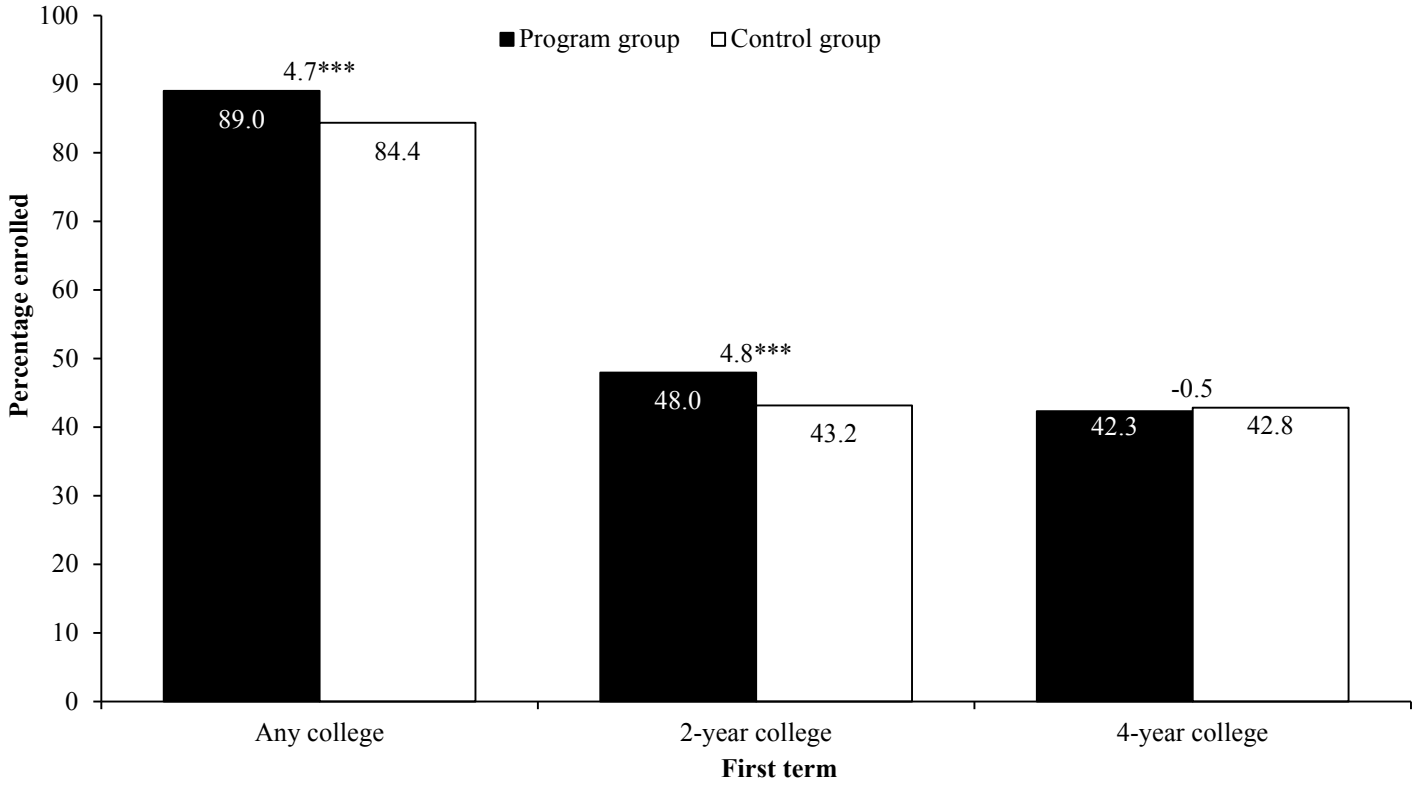
Students who were eligible for scholarships were more likely to take courses on improving their study skills, seek academic services outside of class, and participate in study

The Performance-Based Scholarship Demonstration

Figure ES.2

Matriculation

Cash for College Performance-Based Scholarship Study



(continued)

Figure ES.2 (continued)

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

National Student Clearinghouse data were not found for 320 students (6.5 percent of the sample).

groups. The program also seems to increase the "good" types of extrinsic motivation: The survey findings suggest that the money from the intervention likely motivates students to achieve academically, and the motivation may remain when the stimulus of the money is removed. Lastly, there is some evidence that the intervention decreased employment, giving students more time to focus on their studies.

Program Cost

Cost estimates are based on actual scholarship payments and program expenditures over two years (from January 2009 to June 2011). The cost analysis estimates the cost of Scholarship Types 1 through 4 for the period covered in this report. Cost analyses over the full period of the scholarship will be published in a later report. The analysis describes costs that are required to continue operating the program, as it is believed that this provides the most informative estimate for policymakers, foundations, colleges, or others who may be interested in implementing such a program. As a result, all costs related to MDRC's evaluation have been excluded, as have start-up costs.[6] Overall, the analysis suggests the following:

- The conditional nature of performance-based scholarships results in the cost of scholarship payments being noticeably lower than the dollar amount of the scholarships offered to students. The difference between the amount offered and the amount paid widened as scholarship performance requirements were spread across longer periods of time (hence, with a larger number of total performance criteria). That said, there may have been some students who met enrollment or performance benchmarks but did not receive a payment because they did not submit the necessary verification. The size of this group of students may have increased over time.

[6]For example, this analysis excludes costs related to the design and development of the PBS Scholars website but includes costs related to its ongoing maintenance over the analysis period. Start-up costs can be expected to vary widely from setting to setting depending on the existing infrastructure and resources available.

- The cost to administer scholarships increased as performance requirements were added, but the decrease in payments to students more than offset the increased cost of administration. All else being equal, scholarships with more performance requirements cost less than scholarships with fewer performance requirements.

Placing These Findings in Context

A number of factors may contribute to the results summarized above. First, the budget climate in California during the program operation period was marred by funding cuts, which may have created a sense of urgency among students and their parents. Second, the timing of the program — randomly assigning students to scholarship groups while they were still in their senior year of high school, just before graduation — may also have been a strong contributing factor, prompting students on the verge of nonattendance to change their minds. Finally, the results may reflect the increase in the financial aid given to students, similar to other sites in the PBS Demonstration.

Given that the program operated very much like an external scholarship program (that is, one not linked to a particular institution), it is interesting to see how the findings compare with others in the literature. Overall, the magnitude of the CFC-PBS findings is in alignment with those reported previously in other studies, indicating that relatively small scholarship amounts could be effective in increasing matriculation among students if the scholarships are well designed and targeted effectively.[7] Interestingly, the CFC-PBS Program also compares favorably with the other sites in the PBS Demonstration. This is notable as it may have had the lightest interaction with students as a result of the scholarship being completely portable and implemented by a statewide partnership, while other programs in the PBS Demonstration have been based at institutions. Notably, all of the Demonstration sites, with the exception of New Mexico, have been focused on community colleges, and the positive results from the study in California have been driven almost entirely by students attending community college.

[7]Susan Dynarski, "Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion," *American Economic Review* 93, 1 (2003): 279-288; Thomas J. Kane, "A Quasi-Experimental Estimate of the Impact of Financial Aid on College-Going," NBER Working Paper 9,703 (Cambridge, MA: National Bureau of Economic Research, 2003).

In general, impacts for performance-based scholarship programs are slightly more positive than other incentive-based programs found in the literature.[8] This may reflect the targeting of programs; on average, students in the PBS Demonstration have one or more risk factors for not completing college, such as being low-income, older, parents, and so on, which may contribute to the larger effect of the contingent grant on academic outcomes. Finally, the analysis indicates that the CFC-PBS Program impacts in particular are sizable relative to those reported in other studies. This suggests that larger impacts from these types of designs may not result from larger infusions of money, but rather from better targeting of students who may be responsive to incentives and consideration of the components of the incentive program itself.

Policy Implications and Conclusions

The California Cash for College program provided distinctive features conducive to a large-scale experimental study: (1) the program was able to reach a large group of students, (2) the workshops were held in communities that are low-income or have low college-going rates to ensure that scholarships targeted students at the highest risk of not matriculating, and (3) the original practice of offering a $1,000 scholarship to one attendee at every workshop provided a platform for adding other scholarships that could be awarded at random. While the strong Cash for College partnership may be distinctive, similar approaches may be possible for state agencies or large, private scholarship providers. In this way, the results speak to both the ability to implement such a program on a large scale and the efficacy of the strategy in helping students persist and be academically successful in college.

Implications for National Policy

Since performance-based scholarships seem to improve outcomes for students, some policymakers might ask whether it would be a good idea to tie federal financial aid payments such as the Pell Grant more closely to achievement.

In some ways, the Pell Grant program is already tied to performance: Students remain eligible for their Pell Grants by meeting satisfactory academic progress (SAP) requirements. The exact SAP criteria vary by institution, but in most cases this means maintaining a GPA of at least 2.0. But there are important differences between this standard and those used in performance-based scholarships. With Pell Grants, performance consequences come with a time lag: Students who fail to meet SAP requirements may see their Pell eligibility revoked the following semester or academic year. In contrast, performance-based scholarships reward performance

[8]Richburg-Hayes, L., "Incentivizing Success: Lessons from Experimenting with Incentive-Based Grants," pages 101-126 in Andrew Kelly and Sara Goldrick-Rab (eds.), *Reinventing Financial Aid* (Cambridge, MA: Harvard Education Press, 2014).

immediately at the end of the semester: If students do not meet their benchmarks in a given term, they do not receive a payment.

There are a few reasons to be cautious about drawing conclusions for Pell Grants from the results of performance-based scholarships, however. First, the Pell Grant is far more generous than the performance-based scholarships studied here, and as such, it is generally the foundation of a student's financial aid package. Performance-based scholarships are paid in addition to all other financial aid. For example, both the program group and the control group in the CFC-PBS project received significant base levels of financial aid. This means that changing disbursement criteria for Pell Grants could change students' behavior in quite different ways from the CFC-PBS project.

Second, structuring Pell Grants more like performance-based scholarships could have a chilling effect on enrollment. The Pell Grant is generally paid all at once, near the beginning of the semester. Students often use it to pay for tuition and fees first, before other educational expenses. Performance-based scholarships, on the other hand, are paid in increments, and could help with other educational expenses, such as room and board, books, and transportation over the semester. These expenses are important, but only after the primary expense of tuition is covered at the outset of the semester. Therefore, an incremental payment model could bar many low-income students from the higher education system altogether and create a lot of upheaval for colleges, which are unlikely to have other funds to assist students who need a stable source of aid.

The question of whether the current Pell program should be more performance-based is another study entirely. The PBS Demonstration was designed to answer the question of whether additional financial aid, made contingent on certain academic benchmarks, could help low-income students progress through college. It was not a test of whether a large, existing, need-based grant program, such as the Pell Grant program, should be similarly performance-based. Additional research is needed before informed decisions could be made about such a large change.[9]

[9]A current evaluation of Aid Like A Paycheck — an intervention in which financial aid refunds are disbursed every two weeks during the semester — is testing the effects of changing the timing of Pell Grant disbursements to be more closely aligned with when aid is earned. By providing students with their refunds evenly throughout the term, the program may help students better manage their time and money. As with performance-based scholarships, the incremental disbursements of aid may also give students an incentive to continue in their classes in order to receive all of their financial aid. See Michelle Ware, Evan Weissman, and Drew McDermott, *Aid Like a Paycheck: Incremental Aid to Promote Student Success* (New York: MDRC, 2013).

Implications for State Policy in California

Budgetary shortfalls and the recent recession spanning 2007 to 2009 have hurt California's community colleges and universities. The demand for postsecondary education has increased at the same time that the state's support has been reduced. Although the passage of California Proposition 30 during the 2012 election cycle helped to stabilize the financial situation in the state, public education funding has only returned to levels comparable to those before the economic collapse.[10]

In such a budgetary situation, accompanied by increased demand for financial aid, systematically studying the effect of randomly implementing performance-based aid or exploring alternative distribution patterns may be prudent policy. For example, policymakers may be able to experiment with performance criteria by lowering the high school GPA threshold and permitting students who would not otherwise be eligible to earn a performance-based Cal Grant.[11] This could potentially increase the proportion of low-income students who matriculate. Alternatively, instead of raising the Cal Grant high school GPA threshold (as was proposed during the 2012-2013 budget discussions), the original GPA level could be maintained if the scholarship were performance-based.[12] In this way, more students would be served despite restrictions to eligibility.

Implications for Scholarship Providers

Private scholarship providers often give scholarships based on various eligibility criteria that may or may not include financial need. Indeed, some of these scholarships are administered somewhat haphazardly.[13] They often do not have a specific goal or, as with merit-based scholarships, they go to students who already have a high chance of academic success.

Scholarship providers that are able to experiment with performance-based aid programs could help answer questions about how performance-based scholarships affect students and how these scholarships might help the providers accomplish their goals. Performance-based scholarships could also help traditional scholarship programs maximize the amount of money

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[10]Jessica Calefati and Josh Richman, "Proposition 30: A Year Later, California Schools Seeing Benefits of Tax Measure," *San Jose Mercury News* (November 2, 2013).

[11]While there are some performance criteria with the existing Cal Grant program, they vary and their application can be delayed based on institutional requirements. Performance-based programs in this context imply a greater frequency and earlier checks on performance adherence.

[12]Mac Taylor, *The 2012-13 Budget: Analysis of the Governor's Higher Education Proposal* (Sacramento, CA: Legislative Analyst's Office, 2012).

[13]Jennie H. Woo and Susan P. Choy, *Merit Aid for Undergraduates: Trends from 1995-96 to 2007-08*, NCES 2012-160 (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 2011).

they are able to offer, because students are offered the opportunity to earn more scholarship dollars than they actually do earn on average. But here, too, there could be trade-offs if dependable, non-performance-based money often makes it possible for students to enroll who otherwise would not.

Next Steps for the Project

A future report will present a cross-site synthesis of the final results from this and other sites from the PBS Demonstration programs. Importantly, it will provide more follow-up on the longer scholarship types to provide more insight into how scholarship amounts and duration can influence student outcomes.

Chapter 1

Introduction

Policymakers and education leaders are grappling with how to boost college attendance and completion in an era when government resources are increasingly limited. In California, the concern is driven in part by projections of the state's economy that show a steadily increasing demand for a highly educated workforce, and by a realization that the state is lagging behind in the number of students who graduate from college. If current trends persist, in 2025, 41 percent of California jobs will require at least a bachelor's degree, while only 35 percent of working-age adults in the state will have one.[1] Arguing that the state needs the innovation and productivity that comes from a well-educated workforce, a nonpartisan group of civic and business leaders issued a call for California to award 2 million more postsecondary credentials by 2025. The group singled out three main strategies to achieve that goal: improving high school completions and the transition to college, closing the racial and ethnic achievement gap in college, and improving student success in California's community college system.[2]

This report presents preliminary findings from an ambitious evaluation designed to test the effectiveness of different configurations of scholarships in improving academic outcomes for college-bound high school seniors in California. In contrast to merit scholarships offered only to the top students, the scholarships in this study were awarded to students with a wide range of academic backgrounds and abilities and could be used at any accredited college or university that students chose. Most of the scholarships were performance-based, meaning that students had to demonstrate that they could maintain at least a half-time course load and a "C" grade point average (GPA) in order to receive full funding. The report analyzes three terms of follow-up data to address these research questions:[3]

- Is it feasible to implement a statewide, portable scholarship program that makes aid contingent on students' performance in college?
- Do students who are offered performance-based scholarships have better academic outcomes than similar students offered scholarships without performance conditions attached?

[1] Johnson (2014).

[2] California Competes (2012).

[3] Given the various durations of the scholarship types, the follow-up period results show effects observed after the program ended for some scholarships and ongoing effects for other scholarships that had not yet reached the end of the intervention.

- What does it cost to implement a performance-based scholarship program?

To answer these questions, the evaluation used a process in which students were randomly assigned to one of several different scholarship groups that varied in key features. For example, all but one of the scholarships had performance criteria attached. The amount of money offered ranged from a total of $1,000 to $4,000, and the scholarships lasted from one academic term to two academic years. The evaluation also randomly assigned some students to a control group that was not eligible for a scholarship. Random assignment ensured that students in all the groups had similar levels of academic preparation, motivation, and other characteristics at the start of the study. By tracking students in the different groups over time and comparing their outcomes, researchers can determine the "value added," or impact, of different types of scholarships on college enrollment, credits attempted and earned, graduation, and other outcomes.

The California Cash for College Performance-Based Scholarship (CFC-PBS) study described in this report is part of a larger, multistate initiative called the Performance-Based Scholarship (PBS) Demonstration. While slightly different programs were implemented and evaluated in Arizona, Florida, New Mexico, New York, and Ohio, all programs share common features: providing an opportunity for targeted students to receive performance-based aid, paying earned scholarships directly to students (as opposed to their institutions, to be applied to their student accounts), and supplementing the existing financial aid for which students are eligible (resulting in a net increase in financial aid).

MDRC, a nonprofit education and social policy research organization, is managing the demonstration and conducting the evaluation, with major funding provided by the Bill & Melinda Gates Foundation. A consortium of philanthropies, government agencies, postsecondary institutions, and nonprofit organizations is providing financial and programmatic support. In California, the lead partners include the College Futures Foundation, which provides the funds for the scholarships; Cash for College, a statewide program of financial aid workshops that provided a platform for recruiting students into the study; and the Los Angeles Area Chamber of Commerce/UNITE-LA, which administered the performance-based scholarships.

The remainder of this chapter is organized as follows: It begins with a brief overview of the PBS Demonstration and explains the history and structure of the CFC-PBS Program (the California portion of the demonstration). This is followed by a discussion of the evaluation design. Next, the chapter provides some context for the evaluation by explaining the higher education landscape in California and the difficult economic conditions under which the evaluation is taking place. The chapter concludes by walking through the program's theory of change and laying out the organization of the rest of the report.

A Brief Overview of the PBS Demonstration

The PBS Demonstration was conceived and funded in response to growing national concern about college access and completion. While college enrollment in the United States has grown steadily over the past several decades, there are persistent gaps among high school graduates from different income levels. In 2009, only 55 percent of high school graduates from families at the bottom fifth of the income distribution went to college; among middle-income and the most affluent families, the rates were 67 percent and 84 percent, respectively.[4] Once they are enrolled at a college or university, a distressingly high percentage of degree-seeking students make slow progress or drop out. Research by the U.S. Department of Education finds that only 35 percent of incoming students at community colleges — and 65 percent of incoming students at four-year institutions — earn a certificate or degree from *any* college or university after six years.[5]

There are many reasons why more Americans do not complete college, but a major factor is cost. Over the past decade, tuition and fees at public colleges and universities across the United States have risen much faster than the rate of inflation. For example, between the 2001-2002 and 2011-2012 academic years, published tuition and fees for community college students increased at an average rate of 3.8 percent a year beyond the rate of general inflation; for in-state students at public four-year institutions, the annual increase was even higher (5.6 percent).[6] While many students and their families pay less than the published prices because of financial aid, the "sticker price" can have a negative effect on college attendance desires. Moreover, the cost of living while going to school has also continued to rise, and grant aid is rarely sufficient to meet those costs.[7] Some students decide that college is not worth the expense; others are forced to borrow money or increase the hours they work while in school, possibly to the detriment of their academic performance and completion of degrees.

Performance-based scholarships offer a strategy to supplement existing financial aid programs in a way that may help make college more affordable for students and give them an incentive to make greater progress. The idea was first developed by MDRC and the state of Louisiana under the auspices of the Opening Doors Demonstration, a project launched by MDRC in 2004-2005 to identify strategies to increase persistence and academic success among students in community college.[8] Low-income parents at two community colleges in the New Orleans area were offered $1,000 for each of two semesters ($2,000 total) on the condition that

[4]Baum, Kurose, and McPherson (2013).
[5]Radford, Berkner, Wheeless, and Shepherd (2010).
[6]College Board (2011).
[7]College Board (2013).
[8]Brock and LeBlanc (2005).

they enrolled at least half-time and maintained a "C" or better GPA. Similar to the PBS Demonstration, MDRC conducted a random assignment evaluation to measure the impacts of the program, and found that students who were offered the scholarship had significantly higher rates of enrollment and attempted and earned more college credits than students in a control group. The evaluation also found that the scholarships had positive social and psychological effects, including helping students feel more positive about themselves and their futures.[9]

The Louisiana study ended prematurely in 2005 because of the devastating impact of Hurricane Katrina, but the positive results from the program led MDRC to launch the PBS Demonstration to find out whether the approach would work at other institutions and with other types of students. The core idea remains the same: Scholarships are predicated on at least half-time enrollment and a "C" or better GPA, and are paid directly to students as a supplement to (not a substitute for) existing financial aid. At the same time, MDRC looked for states and institutions that were interested in testing variations of the Louisiana model. Some sites in the demonstration combine the scholarships with intensive advising or other services, or increase the financial reward if students attend full time rather than part time. Similarly, some sites target students straight out of high school, while others serve students who are older or who have developmental education requirements to meet. While most of the sites focus on two-year institutions, the study in California and New Mexico included students in four-year institutions. Table 1.1 shows the states where the PBS Demonstration is taking place and briefly describes the programs each state is testing. (The Louisiana Opening Doors program is also shown for comparison.)

The CFC-PBS Program is arguably the most ambitious of all the sites in the demonstration. As explained further in the next section, it offers six different types of scholarships in order to answer questions about their optimum amount and duration, and also to determine whether the addition of performance criteria (versus money alone) makes a difference in student outcomes.[10] California is also the only state in the demonstration that offers a portable scholarship, meaning that students can take the funds to any institution they choose — a two- or four-year institution, or even one outside of California. Finally, with over 5,000 students enrolled in the study, California has by far the largest sample of any site in the demonstration.[11]

[9]Richburg-Hayes et al. (2009).

[10]While the data analyzed in this report are from a period that is too early to answer questions about the importance of amount and duration, the study was designed with this goal in mind. A future report will address the question of whether the amount or duration of scholarships (or both together) affect academic performance.

[11]The analysis sample size in this report is 4,921, as discussed in Chapter 2.

The Performance-Based Scholarship Demonstration

Table 1.1

Summary of MDRC Performance-Based Scholarship Interventions

Cash for College Performance-Based Scholarship Study

Summary Characteristic	Opening Doors Louisiana	PBS Sites					
		Arizona	California	Florida	New Mexico	New York	Ohio
Sample selection criteria							
Age	18-34	No age criteria	16-19	At least 18	17-20	22-35	At least 18
Low-income	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional requirements	Must be a parent; earned a HS diploma, GED certificate, or passing score on college entrance exam	Latino male; < 45 credits earned	HS student; must have completed FAFSA and Cal Grant application	In need of remedial math	1st-year student	Live away from parents; in need of at least 1 remedial course	Must be a parent
Intervention							
Maximum scholarship amount per term	$1,000	$1,500	$333 - $1000[a]	$600	$1,000	$1,300	$600 or $900[b]
Scholarship duration	2 semesters	3 semesters	1 term to 2 years	3 semesters	4 semesters	2 semesters and 1 summer semester[c]	2 semesters or 3 quarters
Disbursements per term	3	3	Varies	2	3	3	1
Maximum amount	$2,000	$4,500	$1,000 to $4,000	$1,800	$4,000	$2,600 or $3,900	$1,800
Years of program operation	Spring 2004 to Summer 2005	Fall 2010 to Fall 2012	Fall 2009 to Spring 2012	Fall 2010 to Fall 2012	Fall 2008 to Spring 2011	Fall 2008 to Summer 2010	Fall 2008 to Winter 2010

(continued)

Table 1.1 (continued)

Summary Characteristic	Opening Doors Louisiana	PBS Arizona	California	Florida	New Mexico	New York	Ohio
Performance benchmarks							
Academic criteria	Enroll in college, and complete 6 or more credits with a "C" or better average	Part-time: 6-11 credits with a "C" or better in each; full-time: 12 or more credits with a "C" or better in each	Enroll in college, and complete 6 or more credits with a "C" average or better	Complete a sequence of math courses with a "C" or better in each course	Complete 12 or more credits (1st semester) or 15 credits (subsequent semesters) with a "C" average or better	Enroll in college, and complete 6 or more credits with a "C" or better in each	Part-time: 6-11 credits with a "C" or better in each; full-time: 12 or more credits with a "C" or better in each
Service criteria	Meet with adviser	Meet with adviser, complete tutoring and workshop requirements	None	Complete tutoring requirements	Meet with adviser	None	None

(continued)

Table 1.1 (continued)

	Opening Doors	PBS					
	Louisiana	Arizona	California	Florida	New Mexico	New York	Ohio
Participating institutions	Delgado Community College Louisiana Technical College	Pima Community College	National (portable to accredited institutions)	Hillsborough Community College	University of New Mexico	Hostos Community College Borough of Manhattan Community College	Lorain County Community College Owens Community College Sinclair Community College
Total sample	537[d]	1,028	4,921[e]	1,075	1,081	1,502	2,285

NOTES: Scholarships are limited to the institution where the evaluation occurred, with the exception of PBS California (the Cash for College Performance-Based Scholarship study). In that case, scholarships were portable to any accredited, degree-granting, two-year or four-year postsecondary institution in the United States.

[a]The study in California randomly assigned program group members to one of six scholarship types that varied in amount (from $1,000 total to $4,000 total) and duration (from one term to two years). Students could take the award to any degree-granting, accredited institution in the country, and payments were adjusted to reflect the institution type (quarter or semester).

[b]In the Ohio study the scholarship was worth up to $1,800 and the awards were divided evenly among two consecutive semesters or three consecutive quarters; thus, the maximum amount per term was $900 per semester or $600 per quarter.

[c]The study in New York randomly assigned program group members to one of two scholarship types. One type was offered over two semesters only; the other was offered over two semesters plus one summer semester.

[d]Although there were 1,019 study participants, only 537 participants from the first and second cohorts were analyzed, as Hurricane Katrina disrupted the follow-up period for the third and fourth cohorts.

[e]Although there were 5,160 study participants, undocumented immigrant students were excluded from the analysis because of data reliability concerns. Thus, the analysis sample was 4,921 participants.

History and Structure of the Cash for College Performance-Based Scholarship Program

The CFC-PBS Program was built onto an existing statewide program called Cash for College, an initiative sponsored by the California Student Aid Commission (the agency responsible for administering the state's financial aid programs) and run by a small paid staff and hundreds of volunteers. The goal of Cash for College is to inform high school seniors and their parents about financial aid opportunities and to help them complete the Free Application for Federal Student Aid (FAFSA) and the application for Cal Grant, the state's major financial aid program. The underlying intent is to maximize the amount of state and federal aid for eligible students. In the winter and early spring of each year, Cash for College hosts hundreds of financial aid workshops throughout the state that serve tens of thousands of students annually. The workshops are concentrated in schools and communities that are low-income or have low college-going rates (or both). In order to generate interest and boost attendance in the workshops, Cash for College offers a $1,000 scholarship (not performance-based) to at least one randomly selected attendee at every workshop who completes the FAFSA.[12]

MDRC first became aware of the Cash for College program in 2008, after being contacted by the College Futures Foundation (then called the College Access Foundation of California). At the time, the foundation was the major financial backer of Cash for College, and was interested in an evaluation to learn whether the $1,000 scholarship had any effect on student outcomes. After a few conversations, the foundation and MDRC developed an ambitious plan to test not only the Cash for College scholarship but an entire suite of performance-based scholarships to determine which configuration would produce the greatest impact. The resulting project design led to a significant net increase in the total number of scholarships offered through Cash for College workshops during the 2009-2010 and 2010-2011 academic years and represented a major advance in the overall research questions that could be answered by the PBS Demonstration.

As noted earlier, the CFC-PBS study is using a random assignment design to test the effectiveness of different types of scholarships. The scholarships include the following:

- **Scholarship Type 1:** Original Cash for College scholarship of $1,000 over one term with no performance incentive.[13]
- **Scholarship Type 2:** Performance-based scholarship of $1,000 over one term.

[12]See the Cash for College website (www.californiacashforcollege.org).

[13]Students eligible for this scholarship type received the funds at the start of the semester, so they were not subject to satisfactory academic progress requirements.

- **Scholarship Type 3:** Performance-based scholarship of $1,000 over one year.
- **Scholarship Type 4:** Performance-based scholarship of $2,000 over one year.
- **Scholarship Type 5:** Performance-based scholarship of $2,000 over two years.
- **Scholarship Type 6:** Performance-based scholarship of $4,000 over two years.

In addition, some students were randomly assigned to a control group that was not offered any of the scholarships. Because the number of students who attended Cash for College workshops far exceeded the money available for scholarships, random assignment was the most equitable way to allocate the funds. Random assignment also provided the most reliable means for testing the impact of the scholarships, since it ensured that there were no systematic differences between students assigned to the different groups at the start of the study. Random assignment to one of the scholarship groups or to the control group did not affect students' eligibility for federal Pell Grants, state Cal Grants, or other financial aid; therefore, the study examines whether eligibility for the scholarship types listed above produces better outcomes for students than regular financial aid alone.

MDRC and Cash for College recruited students for the evaluation over a two-year period. To be eligible, students had to be high school seniors and attend a Cash for College workshop in a geographic region targeted for the study. Intake began in 2009 in Los Angeles County and a vast area referred to as the Far North region, encompassing 11 rural counties below the Oregon border. In 2010, the evaluation expanded to include the Capital region around Sacramento and Kern County in California's agricultural Central Valley. (See Figure 1.1 for the distribution of Cash for College sites participating in the study.) Together, these four regions approximated the rich diversity of the state. As described in Chapter 2, students had to complete the FAFSA by an early March deadline and demonstrate that they met the family income criteria and other guidelines set by the Cal Grant program in order to be randomly assigned. Over a two-year period, 15,420 students expressed interest in participating and 5,160 were randomly assigned to one of the scholarship groups or the control group.[14]

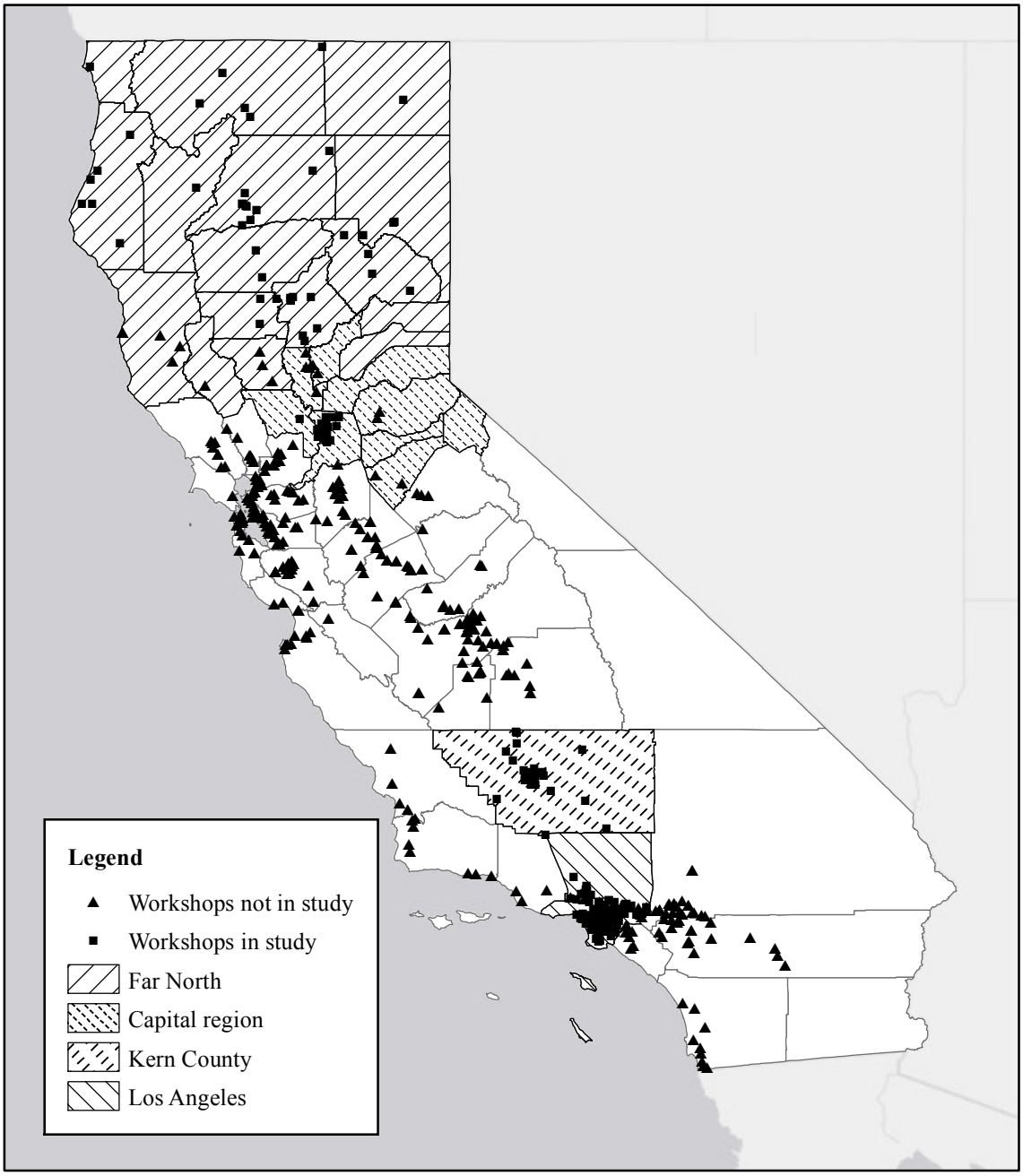
The program was implemented through strong partnerships. (See Box 1.1.) An affiliate of the Los Angeles Area Chamber of Commerce, UNITE-LA, collaborated with Cash for Col-

[14]The number of students who met the eligibility conditions exceeded the number required for evaluation purposes, so some students were randomly assigned to a nonstudy group. MDRC did not collect data on these students. See Chapter 2 for details.

Figure 1.1

Cash for College Workshop Locations

Cash for College Performance-Based Scholarship Study



SOURCE: Performance-Based Scholarship Study Design in California.

Box 1.1

Cash for College Partnerships

Cash for College is a public-private partnership effort led by the California Student Aid Commission and the Los Angeles Area Chamber of Commerce and its affiliate, UNITE-LA. The partnership brings together high schools, colleges, communities, businesses, and local government organizations and agencies to help low-income young people successfully complete the college financial aid application process. Each year, college financial aid staff members, high school counselors, and trained community volunteers assist students and families at Cash for College workshops, held across the state. Key leaders already in place within Cash for College made it possible to implement the CFC-PBS Program. These leaders include the following:

- A statewide coordinator at the California Student Aid Commission and cochair of a statewide advisory group, responsible for strategic planning, day-to-day operations, and coordination with MDRC
- Regional coordinators, responsible for coordinating workshops, recruiting and training volunteers, and working with MDRC to reach the sample target
- UNITE-LA and the Los Angeles Area Chamber of Commerce Foundation (the fiscal agent for Cash for College), responsible for verifying transcripts, disbursing and documenting scholarship payments, communicating with students, and working closely with the statewide coordinator

Cash for College has received support from the California Student Aid Commission, the College Futures Foundation, and the Kresge Foundation, and significant resources from regional and local partners.

lege to administer all of the different scholarships.[15] Most students were notified of their research status in June of their senior year, shortly before graduation. If they were randomly selected to receive a scholarship, they were also given information about the scholarship conditions and how to claim their award. To receive funds, scholarship recipients had to provide proof of enrollment at a college or university in the fall immediately after graduating from high school. For students in any of the performance-based scholarship groups, the program also required that they provide copies of their transcripts at the end of the academic term to show that they met the academic requirements.

[15]Though it primarily focuses on promoting an effective educational system in Los Angeles, UNITE-LA performs a statewide role for Cash for College. More information on UNITE-LA is available on its website, www.unitela.com.

The performance-based scholarships were delivered in two increments: The first was tied to proof of enrollment at the beginning of the academic term, and the second was tied to proof of earning at least six credits and achieving a GPA of "C" or better. Students received reminder notices from UNITE-LA about their scholarship awards and also had access to a program website that showed the total amount they were awarded and how much money remained in their accounts. This feature was particularly important for students who were awarded performance-based scholarships that extended for one or two years. (More information on the implementation of the program and how students drew down their scholarships is presented in Chapter 3.)

The Higher Education Landscape in California

As noted at the beginning of the chapter, increasing the number of college graduates is a major goal for California. While the state faces many challenges to achieving this goal — including severe budgetary and economic challenges brought on by the recession that began in 2007-2008 — the state also benefits from an unusually strong and comprehensive postsecondary education system. Indeed, California's Master Plan for Higher Education — signed into law in 1960 — has long been a model for the nation and other countries. It created three distinct segments:[16]

- **California Community Colleges** are open to all high school graduates and adults age 18 and older. The community colleges have as their primary mission providing academic and vocational instruction through the first two years of undergraduate education. They are also authorized to provide remedial instruction, English as a Second Language courses, adult noncredit instruction, community service courses, and workforce training courses. California's 112 community colleges served over 1.2 million full-time equivalent students in 2010-2011.

- **California State Universities (CSUs)** are open to high school graduates who finish in the top one-third of their class. The CSUs primarily emphasize undergraduate education and graduate education through the master's degree. The 23 CSUs enrolled just under 288,000 full-time equivalent undergraduates in 2010-2011.

- **University of California (UC)** is reserved for high school graduates who finish in the top one-eighth (12.5 percent) of their class. UC is designated the state's primary research institution and delivers undergraduate, graduate, and

[16]Enrollment data are from Taylor (2012).

professional education. Nine UC campuses enrolled approximately 175,000 full-time equivalent undergraduates in 2010-2011.[17]

Because of this large and comprehensive system, public colleges and universities account for the vast majority of college degrees awarded in California. Only 16 percent of the state's undergraduates enroll in a private institution — the lowest rate of private college attendance among the nation's 15 largest states.[18]

In addition to conceptualizing a postsecondary education system that would serve students with a wide range of academic abilities and interests, California's Master Plan was notable for its emphasis on affordability. For many years, the guiding principle was to provide tuition-free education to all state residents, though this policy effectively ended in the 1980s because of state general fund reductions. Budget cuts in the early 2010s led to large increases in tuition and fees, though by national standards, California's community colleges and public universities remain relatively affordable.[19] For example, California charged $1,119 for full-time enrollment at a community college in 2011-2012, compared with an average of $3,288 for community colleges across the United States. During the same years, the cost of full-time attendance for CSU students was approximately $6,500 and for UC students was $13,200.[20] These figures do not include room, board, books, and ancillary expenses.

Federal financial aid — most notably, the Pell Grant (whose maximum was $5,550 in 2011-2012) — provides a buffer against rising tuition and fees for low-income students throughout the United States.[21] In addition, California has enacted its own programs to preserve the goal of tuition-free education for low-income students. For example, students attending California community colleges may apply for the Board of Governors (BOG) Fee Waiver, which eliminates all enrollment fees. It has a simple application form and does not require students to complete the much more complicated FAFSA, though students are encouraged to do so in order to be considered for federal Pell Grants and other need-based aid. In recent years, about one-third of all California community college students received the Board of Governors' Fee Waiver.[22]

[17]There are 10 UC campuses, but one (University of California, San Francisco) solely enrolls graduate students.

[18]Johnson and Sengupta (2009).

[19]College Board (2011).

[20]See CSU and UC cost information on their respective websites (www.calstate.edu/budget and http://admission.universityofcalifornia.edu).

[21]See the Office of Federal Student Aid website (www.studentaid.ed.gov).

[22]Taylor (2012).

Cal Grant guarantees aid to California high school graduates and community college transfer students who meet specified income, academic, and other eligibility criteria. The largest awards (known as Cal Grant A) are reserved for students who earn at least a 3.0 GPA in high school or who transfer from a California community college to a baccalaureate-granting institution. To qualify for an award under the Cal Grant program, students must complete the FAFSA by a spring deadline each year. In 2011-2012, over 240,000 students were awarded Cal Grants, with the majority of recipients enrolled in the CSUs and community colleges.[23]

In summary, the CFC-PBS evaluation took place during a time in which the higher education system in California was under considerable strain. Despite the recession, the state managed to keep its financial aid programs intact, though the bad economy and budgetary shortfalls hurt the state's community colleges and universities in other ways. One likely outcome of the widespread publicity of financial woes is increased interest among students and their parents in applying for financial aid. Despite the availability of and eligibility for federal financial aid, many students in California have forgone applying in the past.[24] This pattern may change as students are now being asked to pay more for attending community colleges and state universities than at any other time in the state's history.[25]

Theory of Change

Why might scholarships in general — and performance-based scholarships in particular — be expected to lead to better outcomes for students? A logic model depicting the theory of change for the CFC-PBS Program is shown in Figure 1.2. Drawing on behavioral economics and discussions with financial aid experts, MDRC postulated that performance-based scholarships might influence students' thinking and behavior in several ways.[26] First, the very use of the term "scholarship" may confer upon students a special group status — that is, the idea of being a scholar who is destined for success. Such labeling may be particularly important for students who may not have considered themselves "star" students in the past. The benchmarks required to earn the money may also motivate students to attempt and complete more credits and to work harder at earning good grades. Second, receipt of a scholarship may help students to work fewer

[23]Taylor (2012). Awards may include full tuition coverage at the UCs and CSUs for up to four years, contributions of up to $9,708 toward tuition costs at private institutions for up to four years, and cash stipends of up to $1,551 to help cover books and living expenses for the neediest students. In 2011-2012, the Cal Grant program provided up to $5,472 to students attending CSUs and up to $12,192 to students attending UCs. These amounts equal the cost of tuition but do not include other fees that these institutions charge.

[24]Institute for College Access & Success (2010); Cochrane (2007).

[25]Taylor (2014).

[26]MDRC used guidance from the extensive literature on stereotype threat (Steele and Aronson, 1995) and discussions with noted cognitive psychologist Edward Deci on motivation in developing the conceptual framework.

hours and to devote more time to school. Third, receipt of a scholarship may help students cover other expenses associated with going to college — everything from books and supplies to transportation — and thereby increase their odds of success.

If students respond to the scholarships in the ways outlined above, they are expected to meet the conditions of the performance-based scholarship and to feel increased confidence in their ability to succeed. They are also expected to feel less stressed about money while in college. These short-term outcomes may lead to greater persistence in college and less time to earn a degree. Ultimately, these behavioral changes are expected to lead to increased graduation rates, better employment prospects, and the higher earnings associated with a college credential.

While MDRC is using the logic model in Figure 1.2 to guide the evaluation generally, some aspects of the model cannot be explicitly examined at every PBS Demonstration site.[27] There are also some important questions beyond the scope of the current research. For example, it is difficult to know how the dire economy and the cutbacks affecting postsecondary education in California at the time may have influenced the students in this study. On the one hand, media reports of fee hikes and difficulties getting into courses could have had a chilling effect on students' decision to go to college — or at least may have affected their choice of institution. On the other hand, it was not an easy time for recent high school graduates (or anyone else) to find jobs, and this may have increased the interest in attaining a degree to gain an advantage in the employment market while also lowering the opportunity cost for doing so. The performance-based scholarships were predicated on the idea that relatively modest supplements to financial aid would provide additional needed funding and lead to better academic outcomes, but the scholarships were not designed to help students deal with other, contextual problems like fewer course offerings at community colleges. A main advantage of the random assignment design used for this evaluation is that it ensures that both program and control group members experienced the same conditions, thereby providing the most reliable test of the impact of scholarships in difficult economic times.

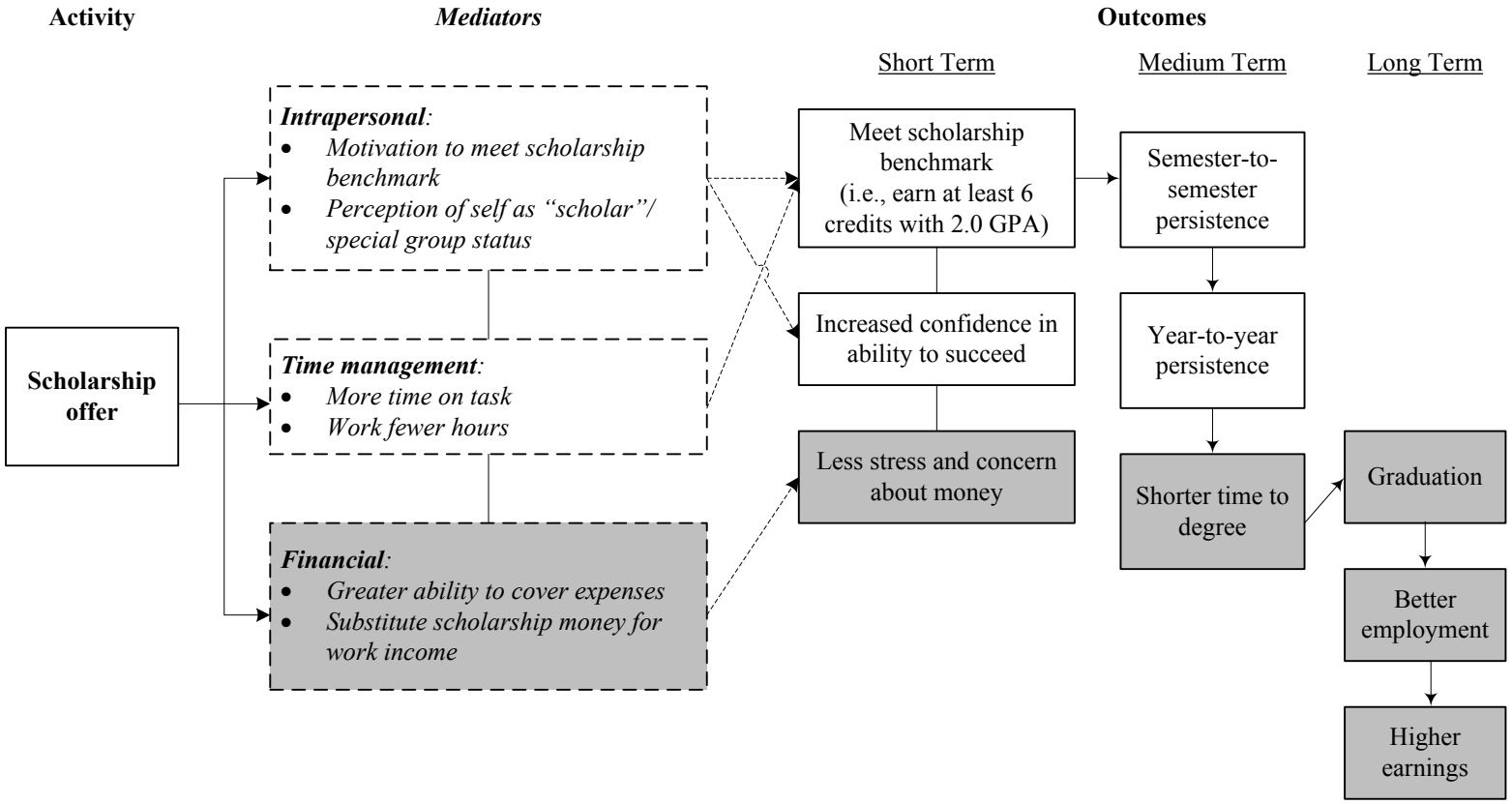
This report examines whether the different types of scholarships affect some of the intrapersonal mediating factors shown in the logic model, such as motivation, and whether they affect short-term academic outcomes. Moreover, as this report does not analyze all terms for students who received the longer-duration scholarships (specifically, Scholarship Type 5 and Scholarship Type 6), it is premature to draw final conclusions about the effectiveness of these awards. Nonetheless, the early findings in this report suggest that the program was largely implemented as designed; that the intervention generated small, positive effects on enrollment; and that these effects were spread across numerous subgroups, though concentrated among students

[27]The shaded boxes in Figure 1.2 show the aspects for which data are unavailable in the California study.

Figure 1.2

Logic Model for the Cash for College Performance-Based Scholarship

Cash for College Performance-Based Scholarship Study



NOTE: The shaded boxes represent variables that are not examined in this report. Italics represent mediators.

attending two-year colleges. A cross-site synthesis report will focus more heavily on longer-term persistence and completion of certificate and degree requirements.

Organization of the Report

The rest of the report is organized as follows: The research sample and evaluation design are described in Chapter 2. Chapter 3 covers program implementation, including students' take-up of the scholarship offer. Chapter 4 contains a discussion of the effects of the scholarship programs on students' academic outcomes and takes a closer look at how students' behaviors changed as a result of the scholarships (as determined through a follow-up survey). Chapter 5 provides some information on program costs, and Chapter 6 offers policy implications and conclusions.

Chapter 2

Sample Intake, Sample Characteristics, Data Sources, and Methodology

The California Cash for College Performance-Based Scholarship (CFC-PBS) Program is using a random assignment research design to estimate the effects of a performance-based scholarship — earned in addition to existing financial aid — on student progress toward degree attainment. This chapter includes a description of how students became a part of the research sample. It also presents a discussion of the data sources used in this report and the follow-up period for the impact analyses, gives selected characteristics of the sample members, and introduces the methodology used for the analyses in this report.

Target Population

As noted in Chapter 1, the CFC-PBS Program is a study embedded into the statewide Cash for College program infrastructure. As a result, the program targeted the same population of students that Cash for College typically targets through its workshops: high school seniors in low-income communities that tend to have low college-going rates. To be eligible for the program, students were required to meet the following criteria:

- Attend a Cash for College workshop in one of the four eligible regions of the program
- Be a high school senior at the time of the workshop (and under the age of 20)
- Submit a federal Free Application for Federal Student Aid (FAFSA) and a state Cal Grant GPA [grade point average] Verification Form by the March 2 Cal Grant deadline
- Complete the Cash for College Exit Survey
- Meet low-income eligibility standards based on Cal Grant income thresholds[1]
- Sign an informed consent form or have a parent provide consent for participation in the study

[1]For example, the Cal Grant A/C income ceiling for a dependent student in a four-person household was $80,200 in the 2010-2011 academic year.

MDRC and the Cash for College partners mutually agreed to keep all eligibility requirements that had previously been established by Cash for College for receipt of the $1,000 Cash for College scholarship (the scholarship without performance criteria). However, the income threshold and informed consent form criteria were added for purposes of the study. MDRC and the Cash for College partners agreed on the income threshold after an income analysis on workshop participants was completed. The objective of the income threshold was to ensure that scholarship funds would be disbursed to students with the highest level of need.

Under the traditional Cash for College program, students without residency status — referred to as AB 540 students — were eligible to receive the $1,000 Cash for College scholarship. MDRC, the Cash for College partners, and the regional coordinators agreed that this past practice should be upheld and undocumented students should be allowed to participate in the study. Since AB 540 students are not eligible for federal or state financial aid, they were not required to complete the FAFSA and Cal Grant GPA Verification Form. Instead, they were asked to submit an AB 540 Income Worksheet — a form akin to the FAFSA but not submitted to the federal government — to determine whether they met the study's income threshold eligibility criteria.[2]

Recruitment and Random Assignment

Study Regions

As mentioned above, MDRC and the Cash for College partners targeted four regions from which to draw the CFC-PBS sample.[3] The study used a phase-in strategy over two years to enroll students in the study. In 2009, the Los Angeles and Far North regions enrolled the first cohort of study participants. These regions were chosen for a number of reasons:

- Both regions had the staff capacity to implement the study procedures in a short time frame.
- The two regions have different student populations — Los Angeles has the largest minority student population, mainly Latino, while the Far North's student population is mainly white.
- Urban, suburban, and rural communities are represented across both regions.
- There is high level of need within each region.

[2]There are 239 AB 540 students in the CFC-PBS study.

[3]In total, there were 11 Cash for College regional coalitions at the time of the study.

The Los Angeles region is primarily urban and suburban; it includes all of Los Angeles County and neighboring communities. The Far North region is primarily rural and is spread out across 11 counties in northern California. In 2010, Kern County and the Capital regions joined the study for a total of four Cash for College regions participating in the CFC-PBS study. (Refer to Figure 1.1 for a map of the study regions.) Similar considerations to those described above were used in choosing the additional regions — namely, level of need, population, and regional diversity. Kern County is primarily an agricultural region found in California's Central Valley, while the Capital region is mostly urban and suburban. The Capital region includes Sacramento (the state's capital) and surrounding communities.

Given the study's scale and complex design, a decision was made to enroll students over two years. This allowed MDRC and the Cash for College partners to address issues that arose early on in the implementation of the CFC-PBS Program. These lessons were then applied to the second round of student enrollment, which resulted in a smoother enrollment process for workshop organizers in the Kern County and Capital regions.

Outreach and Recruitment

MDRC built upon Cash for College's publicity strategies to reach and recruit the study's sample. These strategies included the "College Cash Box" that contained posters and information about Cal Grants — need-based entitlement and competitive awards funded by the state of California — and other financial aid for workshop organizers, a flyer template that could be customized by each site, direct mailings, and radio spots promoting Cash for College. In addition to letting students know they could receive help with their FAFSA by attending a Cash for College workshop, the promotional materials also mentioned the opportunity for students to be included in a drawing for a $1,000 scholarship — an incentive used by Cash for College to encourage students to attend workshops.

MDRC worked with the Cash for College partners to incorporate language about the study and the CFC-PBS scholarships into the marketing materials provided to study regions. As a result of the study, students attending a Cash for College workshop could qualify for an award that ranged from $1,000 to $4,000. During 2009 and 2010, over 15,000 high school seniors attended a Cash for College workshop in the four study regions and expressed interest in being part of the study.[4]

[4]For the purposes of the study, the Cash for College workshops were the vehicle to recruit the study sample and were not a direct part of the intervention being evaluated. However, the workshops were essential in providing students with information about the opportunity to qualify for a CFC-PBS scholarship.

In addition to the marketing strategies discussed above, Cash for College conducted outreach to priority high schools in each region. Some of the criteria that determined a priority high school included a concentration of poverty, high numbers of parents with low educational levels, and low high school graduation rates. Workshop organizers in study regions were encouraged to pay particular attention to reaching priority schools in their areas.

Enrolling Students in the Study

Cash for College had an existing infrastructure to provide workshop organizers with optional yearly training sessions on Cash for College workshop procedures. MDRC worked with the Cash for College partners to incorporate an additional training session, led by MDRC staff members, on study enrollment procedures. Workshop organizers were required to attend this training session if they wanted to offer their students the opportunity to earn a performance-based scholarship. The purpose of these study enrollment procedure training sessions was to ensure that workshop organizers, who would be explaining the study to students, understood what it meant for a student to be part of a random assignment study. It was critical for students — and in the case of students under age 18, for their parents — to understand this information clearly so that they could make an informed decision about participating in the study.

Study training sessions were offered from December through March before study intake and were provided both in person and via webinars. During the sessions, workshop organizers learned about the time commitment and additional responsibilities required of them to effectively carry out the study procedures, which included explaining the study and obtaining students' and parents' consent to participate in the evaluation. The study training sessions also familiarized workshop organizers with the forms students would be asked to fill out.

Implementation of the CFC-PBS Study Procedures at the Cash for College Workshops

During a typical Cash for College workshop, a financial aid specialist would go over each line of the FAFSA. After questions were answered, students were directed to computers to work on their financial aid applications. Volunteers were present during the workshop to assist students with any questions. Most workshops were approximately three hours long.

A number of adjustments were made to these workshops to accommodate the study procedures: A formal check-in process was put in place, after which students were given the study forms and directed to a location where they were informed about the study.[5] Staff mem-

[5]Students in the fall 2010 cohort were also shown a video in order to make sure that information about the CFC-PBS study was disseminated uniformly.

bers explained the random assignment process and a student's responsibilities as a study participant, while emphasizing that all of the information provided would be kept confidential.

Students who agreed to be part of the study signed an informed consent form and completed an Exit Survey. Upon completing the study enrollment process, students then proceeded to work on their FAFSAs and seek assistance as needed. Before leaving the workshops, students were directed to a check-out station. A workshop organizer was responsible for ensuring that a student's informed consent form was signed by the appropriate person and verifying the student's age. Students who were younger than 18 and did not attend with a parent were instructed to have a parent or guardian sign the informed consent form and return it to a specific person at the student's high school. Once forms were collected, they were submitted to the appropriate regional coordinator. The regional coordinators packaged the paperwork and forwarded the informed consent forms to MDRC and the Exit Surveys and financial aid applications to the California Student Aid Commission.

After these documents were received, MDRC verified informed consent forms for students who expressed a desire to be a part of the CFC-PBS study, while the California Student Aid Commission verified Exit Surveys and financial aid applications. Students were then matched across the three data sources, and MDRC began the process of determining program eligibility.

Overall, 15,420 students were assessed for participation, 9,665 were deemed eligible,[6] and 5,160 participants were randomly assigned into a program group or control group stratified by workshop, while the remaining students were assigned to a nonstudy group.[7] Further, within each workshop, program group and control group students were randomly assigned to one of six scholarship type groups, which correspond to the six different scholarship types of varying amount and duration outlined in Chapter 1.[8] The CFC-PBS Program's process of random assignment is depicted in Figure 2.1.[9]

After students were randomly assigned, MDRC compiled a list of scholarship recipients and provided the regional Cash for College coordinators with scholarship award notification

[6]That is, these students satisfied all of the bulleted criteria listed in the "Target Population" section presented at the beginning of the chapter.

[7]The nonstudy group was created to minimize the size of the control group in order to lower evaluation costs (by lowering tracking and survey costs) while maintaining the ability to detect impacts.

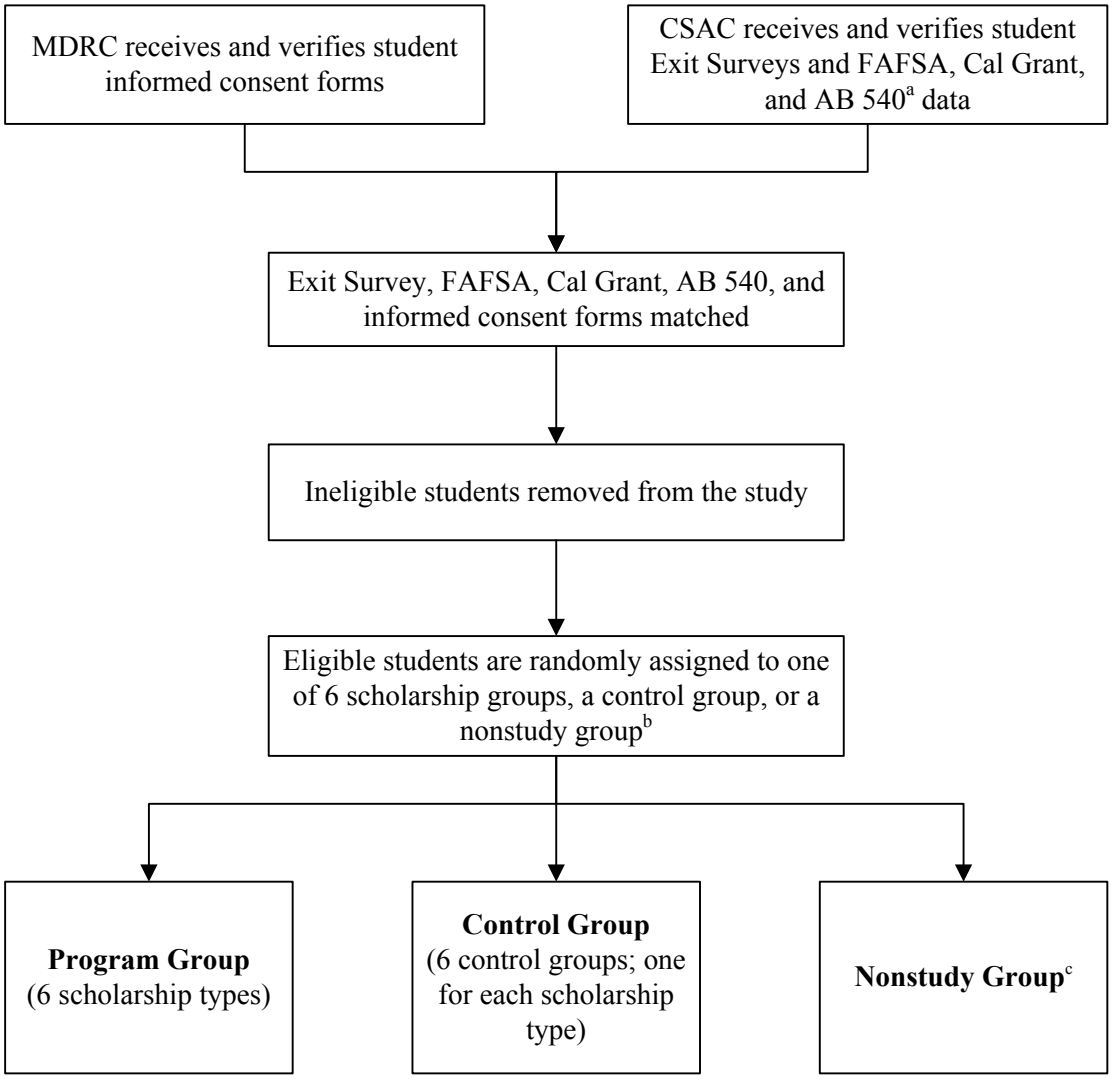
[8]Though control group students were randomly assigned to an individual scholarship type, they are pooled into a single control group in the analyses in this report.

[9]For additional detail on the exclusion and randomization process, see the Consolidated Standards of Reporting Trials (CONSORT) diagram in Appendix Figure A.1 and the discussion of the randomization process in Appendix A.

Figure 2.1

Random Assignment Diagram

Cash for College Performance-Based Scholarship Study



NOTES: [a]Undocumented, qualified students declare AB 540 status in order to obtain in-state tuition from which they would normally be precluded because of their documentation status.

[b]The nonstudy group was created to limit the size of the research sample to constrain research costs.

letters. In June of 2009 and 2010, local workshop organizers notified students of their status as program group participants in the CFC-PBS study. Because the CFC-PBS scholarships were portable, students had to take active steps to become part of the program. In particular, they had to go to the Cash for College website and claim their scholarships by indicating which postsecondary institutions they intended to attend in the fall. Program group students who did not claim their awards by an early August deadline risked losing part or all of their scholarships. For a more in-depth discussion about the messages to CFC-PBS students after award notification, see Chapter 3 and Appendix Figure B.1, which depicts a sample CFC-PBS scholarship award letter.

MDRC also sent letters to control group students informing them that they would not be eligible for a scholarship, but thanking them for agreeing to participate in the study. Appendix Figure B.2 presents a sample CFC-PBS control group notification letter.

Data Sources

To examine the impact, implementation, and cost of the CFC-PBS Program, the analyses presented in this report rely on several data sources, described below.

Baseline Demographic Information

- **Baseline data:** The Cash for College Exit Survey (also known as the Baseline Information Form) provides demographic and background information on program and control group students before they participated in the CFC-PBS Program. Data from the Exit Survey are used to describe the sample and assess the success of random assignment. Students were asked to fill out the Exit Survey at their Cash for College workshops; those who failed to complete the survey were deemed ineligible for the study.

Financial Aid

- **FAFSA data:** The California Student Aid Commission provided financial aid application data for all sample members in the study. The FAFSA is an application filled out annually by prospective and current college students in order to determine eligibility for federal financial aid. Many states and postsecondary institutions also use the FAFSA to determine a student's eligibility for state and institution aid.[10] FAFSA data prior to random assignment are

[10]See the Office of Federal Student Aid's website for more information about the FAFSA (http://studentaid.ed.gov).

available for all students in the study.[11] These data are used in this chapter to describe students' financial aid application characteristics at baseline (that is, at the time of random assignment).

- **Cal Grant data:** The California Student Aid Commission provided information on Cal Grant awards for all sample members in the study. Students apply for the Cal Grant by filling out the FAFSA and submitting a verified grade point average (GPA). If students meet the financial eligibility and GPA requirements, they are eligible for a Cal Grant award. Cal Grants can be used to pay for an array of college expenses at qualifying two-year, four-year, and vocational postsecondary California schools.[12] Like the FAFSA, Cal Grant data prior to random assignment are available for all students in the study.[13] These data are used in this chapter to describe students' financial aid award packages at baseline.

Scholarship Receipt

- **Scholarship data:** The California Student Aid Commission provided scholarship information for all program group members in the study. Findings on CFC-PBS scholarship payments are presented in Chapter 3 to describe program implementation. Scholarship receipt data are available up to three terms after random assignment.

Enrollment

- **National Student Clearinghouse data:** The National Student Clearinghouse (Clearinghouse), a nonprofit organization, collects and distributes enrollment, degree, and certificate data from over 3,300 colleges that enroll 96 percent of the nation's college students.[14] Given the portable nature of the CFC-PBS scholarship, MDRC was not able to obtain detailed transcript information for every school at which students were enrolled. Thus, the Clearinghouse data are used in Chapter 4 as the primary source of enrollment information. How-

[11]FAFSA applications are technically filed before random assignment, but it is possible that these verified forms may have changed after random assignment.

[12]See the California Student Aid Commission's website for more information about the Cal Grant program (http://calgrants.org).

[13]Cal Grant GPA Verification Forms are also technically filed before random assignment, but it is possible that these verified forms may have changed after random assignment.

[14]See the National Student Clearinghouse's website for more information (www.studentclearinghouse.org).

ever, the data do not include information about important transcript-level outcomes such as credits attempted, credits earned, and GPA. The Clearinghouse data cover up to three terms after random assignment.

- **California Community College Chancellor's Office (CCCCO) data:** The CCCCO provided transcript data for all sample members who attended a California community college. Findings on California community colleges are presented in Chapter 4 to shed light on the effect of the performance-based scholarships on students enrolled in two-year schools. The CCCCO data cover up to two terms after random assignment.

Survey

- **The Performance-Based Scholarship follow-up survey:** MDRC designed a follow-up survey that was administered to all sample members in the spring of the year following random assignment (roughly 12 months after they attended a Cash for College workshop). The survey contained questions on a wide range of topics, including sample members' educational background, work histories, motivation levels, social supports, health, and experiences in the program. Close to 80 percent of the sample completed the follow-up survey. Student responses are presented in Chapters 3 and 4 and Appendix A.

Field Research

- **Study partner interviews:** MDRC conducted interviews with the Cash for College partners in the summer of 2011 to understand their perspectives on the implementation of the CFC-PBS Program. Findings from these interviews are highlighted in Chapter 3.

- **Student focus groups:** MDRC also organized student focus groups and interviewed study participants to learn about students' experiences in college and perceptions of the CFC-PBS Program. Both program group and control group students participated in the focus groups, and students represented all six scholarship types. Students from both the fall 2009 and fall 2010 cohorts were also represented, as were community college and four-year college students. There were two rounds of focus groups, the first beginning in November 2010 and the second beginning in May 2011. A total of six student focus groups were conducted over a five-month period in the earlier round, while seven student focus groups and five individual student interviews were conducted over a three-month period in the latter round. Findings from these focus groups and interviews are presented in Chapter 3.

Cost

- **Cost data:** All costs have been categorized into one of two categories — scholarship payments or program administration. These two cost categories are estimated using different data sources. The cost of scholarship payments is estimated using data provided by the California Student Aid Commission. These costs are tracked at the student level and therefore assigned to a scholarship type, which allows for a precise estimate of how much was paid out in scholarships for each scholarship type. The cost of program administration is estimated using program expenditure data as recorded by the Los Angeles Area Chamber of Commerce. This information was tracked at the program level (that is, it was not tracked by scholarship type). The Los Angeles Area Chamber of Commerce expenditure data capture all expenditures between January 2009 and June 2011. A cost analysis of the CFC-PBS study is presented in Chapter 5.

Methodology

The implementation research draws upon both qualitative and quantitative data sources to provide information about how the program was implemented. The qualitative data are primarily gathered from interviews with program staff members and focus groups with study participants as well as observations of program activities and operations. These sources provide impressions of the program from the viewpoints of those who run it and who receive its services. Quantitative data drawn from surveys and administrative records are used to understand how and how much of the program components were taken up, or used, by participants.

The main analytical strategy for impacts pools all of the program groups together to provide an average estimate of the CFC-PBS Program by comparing the outcome for the pooled program groups with the outcome for the pooled control groups through standard t-tests. For analyses of the effect of scholarship type, the results of an overall F-test with all six program groups and one pooled control group are first examined.[15] If the F-test statistic of this overall test proves to be nonsignificant, then all observed differences between the pooled control group and individual program groups can be attributed to chance alone.[16] As a result, no additional

[15]See Lindquist (1953) and Chapter 3 for the underlying assumptions and Appendix A for the underlying calculations.

[16]Nonsignificance may also occur if the test is underpowered to detect existing differences. The proposed total sample size for the study was estimated to able to detect a 3.6 percentage point difference at community colleges and a 3.1 percentage point difference at four-year universities. For an additional discussion of power, see Appendix A.

information is gained by examining differences for individual pairs of treatments (that is, for individual scholarship types). This procedure effectively avoids the possibility of spurious findings as a result of multiple hypothesis testing.[17]

As a supplement to the primary analysis, MDRC analyzed transcript data obtained from the CCCCO to examine the effects of the scholarships for community college students. These data are limited to the students attending California community colleges, which is roughly half of the sample. MDRC takes a conservative analytical approach and assumes that students not attending these institutions are not enrolled in any postsecondary institution. (That is, such students are assumed to have zeros for outcome measures such as enrollment or credits attempted.)

Characteristics of the CFC-PBS Sample

The analysis sample for this report consists of 4,921 students. While 5,160 students were randomly assigned, the study's 239 AB 540 students were excluded from all analyses because data collection for these students was incomplete as a result of the absence of Social Security numbers and poor matches by name and date of birth.

Table 2.1 shows the baseline characteristics from the Exit Survey for members of the analysis sample (hereinafter referred to simply as the sample) compared with the characteristics of all 2010 Cash for College workshop attendees. Around 60 percent of the CFC-PBS sample was female — a proportion that was fairly consistent across the four workshop regions and that reflects the proportion of female students who attend Cash for College workshops overall. Per the eligibility criteria, all sample members were high school seniors at the time of random assignment. In contrast, 96 percent of all Cash for College attendees were high school seniors at the time of their workshops.

Over three-fifths of sample members identified themselves as Hispanic/Latino. This number is about 9 percentage points higher than the proportion of all Cash for College attendees who identify with this ethnicity. The proportion of Latino students in the CFC-PBS sample was closer to three-fourths for the Los Angeles and Kern Country regions; both of these regions also have higher proportions of Latino students who attend Cash for College workshops overall.[18] Around 20 percent of sample members identified as white, but this proportion ranged from 3 percent in the Los Angeles region to over 63 percent in the Far North region. These percentages,

[17]Schochet (2008).

[18]CFC-PBS students who chose more than one race on their Exit Survey but identified as Latino were considered Latino, while all other Cash for College attendees who chose more than one race on their Exit Survey were considered multiracial; this may help explain why the proportion of Latino students was higher for the CFC-PBS sample than for the population of all Cash for College attendees.

The Performance-Based Scholarship Demonstration

Table 2.1

Selected Characteristics of Sample Members and All 2010 Cash for College Attendees at Baseline, by Region

Cash for College Performance-Based Scholarship Study

Characteristic	All CFC Attendees	Study Analysis Sample	Los Angeles		Far North		Kern County		Capital	
			Region-wide	PBS Study	Region-wide	PBS Study	Region-wide	PBS Study	Region-wide	PBS Study
Gender (%)										
Male	41.3	39.8	41.4	39.8	42.1	40.1	41.6	38.7	43.3	41.1
Female	58.7	60.2	58.6	60.2	57.9	59.9	58.4	61.3	56.7	58.9
Race/ethnicity[a] (%)										
Latino	52.1	60.9	73.6	77.4	14.7	22.5	66.2	73.9	29.0	40.9
White	20.0	20.3	4.4	2.9	63.8	63.6	17.6	13.6	16.3	12.8
Black	5.4	3.8	6.0	4.6	1.0	0.8	5.0	4.0	14.1	9.8
Asian or Pacific Islander	13.1	11.0	11.3	13.2	5.9	5.3	4.4	5.0	25.8	28.5
Other	9.4	4.0	4.8	2.0	14.6	7.8	6.9	3.5	14.9	8.0
High school senior (%)	96.5	100.0	97.3	100.0	99.8	100.0	99.6	100.0	96.7	100.0
First person in family to attend college (%)	49.4	53.7	59.7	60.7	33.3	38.6	52.3	55.9	46.7	48.1
Highest degree/diploma earned by either parent (%)										
Not a high school graduate	31.8	34.9	45.3	45.1	12.6	13.5	39.1	37.6	27.8	26.6
High school diploma or GED certificate	27.5	31.1	27.1	29.9	27.4	29.8	30.1	36.3	33.6	36.9
Some college or associate's degree	23.1	22.7	17.5	17.1	32.4	35.8	19.3	19.5	26.9	25.3
Bachelor's degree or higher	17.7	11.3	10.2	8.0	27.5	20.8	11.6	6.6	11.8	11.2
Language other than English regularly spoken at home (%)	55.3	60.7	76.0	80.5	17.2	18.3	55.7	61.3	49.3	54.5
High school cumulative GPA (average)	-	2.9	-	2.9	-	3.0	-	2.8	-	3.0

(continued)

Table 2.1 (continued)

Characteristic (%)	All CFC Attendees	Study Analysis Sample	Los Angeles Region-wide	Los Angeles PBS Study	Far North Region-wide	Far North PBS Study	Kern County Region-wide	Kern County PBS Study	Capital Region-wide	Capital PBS Study
Motivation to apply for financial aid[b] (average)										
Relative Autonomy Index	-	1.4	-	1.5	-	1.1	-	1.6	-	1.7
External regulation subscale	-	6.7	-	6.8	-	6.7	-	6.7	-	6.7
Introjected regulation subscale	-	4.2	-	4.2	-	4.1	-	4.1	-	4.0
Identified regulation subscale	-	6.3	-	6.3	-	6.2	-	6.3	-	6.3
Integrated regulation subscale	-	6.4	-	6.5	-	6.2	-	6.4	-	6.5
Sample size	25,860	4,921	5,423	2,760	2,114	1,263	2,064	622	1,023	276

SOURCES: MDRC calculations using Exit Survey (Baseline Information Form) data and Cal Grant data provided by the California Student Aid Commission, and Exit Survey data compiled by the California Student Aid Commission for the statewide population.

NOTES: Estimates are adjusted by research cohort.

Missing values are not included in individual variable distributions.

Distributions may not sum to 100 percent because of rounding.

[a]For the columns that present PBS study measures, students who identify as Latino are shown only in the Latino category, even if they selected more than one race. Students who selected more than one race and are not Latino are considered multiracial. The "other" category comprises American Indian/Alaska Native or multiracial students, or students of some other race/ethnicity. For the columns that present region-wide measures, the same categories apply except that students who chose more than one race are considered multiracial, regardless of whether they identify as Latino.

[b]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

both total and by region, are consistent with the proportions of white students who attend Cash for College workshops overall.

Over half of the CFC-PBS sample reported that they were the first member of their family to attend college. In fact, only one-third of sample members have a parent with any college-going experience. CFC-PBS students were less likely to have family members with some college education — both overall and by region — than were all Cash for College workshop attendees.

Over 60 percent of sample members reported speaking a language other than English with high frequency at home, ranging from a low of 18 percent in the Far North region to a high of over 80 percent in the Los Angeles region. Again, these proportions were slightly higher for CFC-PBS students than for all workshop attendees.

Given the growing literature on the possibility for incentives to undermine intrinsic motivation for completing tasks, the Relative Autonomy Index (RAI) provides an overall measure of whether CFC-PBS students' motivation to apply for financial aid was internally driven.[19] The average RAI for the full CFC-PBS sample was 1.4, which indicates a relatively low level of intrinsic motivation to apply for financial aid, meaning that few students were inherently interested in applying for aid but were likely compelled more by external factors (the scale ranges from -18 to 18). Internal motivation to apply for financial aid was highest in the Capital region (1.7) and lowest in the Far North region (1.1). The Los Angeles and Kern County regions had RAI values slightly higher than the mean, but no region demonstrated a particularly high level of intrinsic motivation.

On balance, the study evaluates an intervention targeted to a low-income sample with a sizable proportion of minority students — a sample that the California Student Aid Commission does a successful job of targeting through its Cash for College workshops. Though there are a few characteristics on which the CFC-PBS sample and 2010 Cash for College workshop attendees differ — namely, the proportions of Latino students, first-time college-goers, and non-native English speakers — by and large, these two populations are quite similar.

It is important to bear in mind that the CFC-PBS Program sample was not designed to be representative of all California first-year students. It was drawn from a population of students who actively chose to attend a Cash for College workshop and opted to be considered for the study. This self-selecting group of fairly motivated students was drawn while students were still in high school applying for admission to college.

[19]For more information about the RAI see www.selfdeterminationtheory.org/self-regulation-questionnaires.

Table 2.2 shows the same baseline characteristics from the Exit Survey for sample members, but presented by research group. That is, the second column of Table 2.1 is identical to the first column of Table 2.2. Of the 4,921 students in the CFC-PBS analysis sample, one-third were randomly assigned to the program group, and the rest were assigned to the control group. An asterisk in the far-right column of Table 2.2 indicates that the percentage point difference between the program and control groups for a given characteristic is statistically significant at a prespecified level. Statistical significance indicates that there is only a small probability that the observed difference between the two groups occurred by chance. (See Box 2.1 on how to read an impact table.) Overall, the proportions for each baseline characteristic are almost identical for the program and control groups. The few differences that are observed are no more than what would be expected to occur by chance.[20]

Baseline financial aid data were also collected for all students in the sample through the FAFSA and Cal Grant GPA Verification Form, both of which were completed about three to five months before random assignment. The first panel of Table 2.3 shows that nearly all students in the CFC-PBS study completed their FAFSA.[21] Over 95 percent of sample members were dependents of their parents, with an average household size of four members. The Adjusted Gross Income (AGI) was around $34,000 for both program and control group students, and around half of sample members received no public benefits, while the other half received mostly food stamps or free or reduced-price lunches.

The Expected Family Contribution (EFC) reflects the amount of money students are expected to pay out of pocket or procure in additional loans to cover the Cost of Attendance (COA). The EFC, which is not expressed in dollars, is calculated based on family income and size, state of residence, and a number of other factors. In general, a lower EFC is associated with being eligible for higher levels of need-based aid.[22] The average EFC for students in the CFC-PBS study was around 2,200, with 52 percent of the sample having an EFC of zero. Over 86 percent of both program and control group students had EFCs that made them Pell-eligible.

The second panel of Table 2.3 shows that virtually all program and control group members completed their Cal Grant GPA Verification Forms. Around 20 percent of students were eligible for and awarded Cal Grant A, while around 44 percent were instead eligible for and awarded Cal Grant B. No program or control group members qualified for Cal Grant C, which

[20]A p-value of 0.57 was reported for the F-test of whether baseline characteristics jointly predict research group status. Convention suggests that this probability is large enough that the potential differences can be ignored in the analyses. See Appendix A for a discussion of the employed methodology.

[21]Because of application errors, MDRC did not obtain verified, post-random assignment FAFSA data for 10 students or verified, post-random assignment Cal Grant data for five students.

[22]U.S. Department of Education, Federal Student Aid, Customer Experience Group (2011).

Box 2.1

How to Read the Impact Tables in This Report

Most tables in this report use the format illustrated in the table excerpt below, which displays a hypothetical enrollment outcome for the program and control groups. The one row of data shows that 83.9 percent of program group students and 80.4 percent of control group students enrolled in any college during their first term in the study.

The "Difference" column in the table shows the observed difference between the two research groups on the outcome — that is, the estimated average impact of the opportunity to participate in the program. For example, the estimated average impact on enrollment can be calculated by subtracting 80.4 from 83.9, yielding an impact estimate of 3.5 percentage points.

Differences marked with one asterisk or more are considered statistically significant, meaning that there is a low probability that the difference occurred by chance. Differences that have no asterisk indicate that the opportunity to participate in the program did not have a discernible effect on that outcome. Assuming the true effect is zero, the number of asterisks indicates the probability that an estimate at least as large as the observed difference could have occurred by chance. One asterisk corresponds to a 10 percent probability, two asterisks to a 5 percent probability, and three asterisks to a 1 percent probability. The more asterisks that appear next to a positive difference, the more likely it is that the opportunity to participate in the program had a true positive average impact on the outcome. The impact in the table excerpt below has two asterisks, indicating that the impact is statistically significant at the 5 percent level — meaning that there is a 5 percent chance of observing an estimated average impact this large (or larger) if the opportunity to participate in the program actually had no average effect on first-term enrollment. In other words, there is a 95 percent level of confidence that the opportunity to participate in the program had a positive impact on first-term enrollment.

Also shown in the table is the standard error of the impact estimate. The standard error is a measure of uncertainty or variability around the impact estimate. A useful guideline is that the confidence interval is usually calculated as 1.96 multiplied by the standard error (for a 95 percent confidence interval). In the example below, the confidence interval is 2.4 (1.96 multiplied by the standard error, or 1.96×1.2). Thus, there is a 95 percent chance that the "true" average impact on enrollment lies between 1.1 percentage points and 5.9 percentage points, calculated as $3.5 \pm (1.96 \times 1.2)$.

Outcome (%)	Program Group	Control Group	Difference	Standard Error
First program term				
Enrolled in any college	83.9	80.4	3.5 **	1.2

The Performance-Based Scholarship Demonstration

Table 2.2

Selected Characteristics of Sample Members at Baseline, by Research Group

Cash for College Performance-Based Scholarship Study

Characteristic	Analysis Sample	Program Group	Control Group	
Gender (%)				
Male	39.8	39.3	40.1	
Female	60.2	60.7	59.9	
Race/ethnicity[a] (%)				
Latino	60.9	60.9	60.9	
White	20.3	19.9	20.5	
Black	3.8	3.4	4.0	
Asian or Pacific Islander	11.0	10.8	11.1	
Other	4.0	5.0	3.5	**
High school senior (%)	100.0	100.0	100.0	
First person in family to attend college (%)	53.7	54.5	53.3	
Highest degree/diploma earned by either parent (%)				
Not a high school graduate	34.9	35.1	34.7	
High school diploma or GED certificate	31.1	29.8	31.8	
Some college or associate's degree	22.7	24.0	22.1	
Bachelor's degree or higher	11.3	11.0	11.5	
Language other than English regularly spoken at home (%)	60.7	59.9	61.0	
High school cumulative GPA (average)	2.9	2.9	2.9	
Motivation to apply for financial aid[b] (average)				
Relative Autonomy Index	1.4	1.5	1.4	
External regulation subscale	6.7	6.7	6.8	**
Introjected regulation subscale	4.2	4.2	4.2	
Identified regulation subscale	6.3	6.3	6.3	
Integrated regulation subscale	6.4	6.4	6.4	
Sample size	4,921	1,640	3,281	

(continued)

Table 2.2 (continued)

SOURCES: MDRC calculations using Exit Survey (Baseline Information Form) data and Cal Grant data provided by the California Student Aid Commission.

NOTES: To analyze whether baseline characteristics jointly predicted research group status, a likelihood ratio test was performed, which yielded a p-value of 0.57. This suggests that the differences in baseline characteristics between program and control group students are likely to have occurred by chance.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Missing values are not included in individual variable distributions.

Distributions may not sum to 100 percent because of rounding.

[a]Students who identify as Latino are shown only in the Latino category, even if they selected more than one race. Students who selected more than one race and are not Latino are considered multiracial. The "other" category comprises American Indian/Alaska Native or multiracial students, or students of some other race/ethnicity.

[b]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

can be used to help pay for tuition and expenses at occupational or technical colleges for up to two years. As discussed in Chapter 1, Cal Grant A awards can be used to help cover tuition and fees at public and private institutions for up to four years; for CSU and UC schools, this amounts to contributions of up to $4,429 and $11,124, respectively. For private institutions, this amounts to annual awards of up to $9,708. Cal Grant B awards provide the neediest students with a stipend of up to $1,551 to help cover books and living expenses; after a student's first year, Cal Grant B awards also help cover tuition and fees at public and private institutions in the same amount as Cal Grant A awards.[23] The average amount of financial aid awarded from the Cal Grant was around $2,400 for both program and control group students.

Because part of determining Cal Grant eligibility is verifying a student's GPA, Table 2.3 also shows the average high school GPA for all students in the sample.[24] Around 48 percent of program and control group students reported a high school GPA of 3.0 to 4.0, the GPA range

[23]Though no CFC-PBS students were awarded a Cal Grant C, students who are enrolled in vocational programs that are not based at California community colleges are also eligible to receive up to $2,592 for tuition and fees. See the California Student Aid Commission's website (www.calgrants.org) for additional information.

[24]In order to qualify for Cal Grant A, students must have earned at least a 3.0 GPA in high school or have transferred from a California community college to a baccalaureate-granting institution. Cal Grant B awards are reserved for the neediest students who maintained at least a 2.0 GPA in high school.

The Perfomance-Based Scholarship Demonstration

Table 2.3

Financial Aid Application Characteristics of Sample Members at Baseline

Cash for College Performance-Based Scholarship Study

Characteristic	Program Group	Control Group	Difference	Standard Error
Free Application for Federal Student Aid (FAFSA)				
Completed the FAFSA[a] (%)	99.8	99.8	0.0	0.1
Dependency status (%)				
Dependent	95.8	95.8	0.0	0.6
Independent	4.2	4.2	0.0	0.6
Household size (%)				
1	3.4	3.2	0.2	0.5
2	9.8	10.1	-0.2	0.9
3 or 4	47.3	46.8	0.5	1.5
5 or more	39.5	40.0	-0.5	1.5
Average household size	4.2	4.2	0.0	0.0
Average total number of household members in college, including sample member	1.3	1.3	0.0	0.0
Received public benefits[b] (%)				
SSI	4.6	5.1	-0.5	0.7
Food stamps	9.1	10.6	-1.5 *	0.9
Free or reduced-price lunch	42.3	43.4	-1.1	1.4
TANF	1.8	1.9	-0.2	0.4
WIC	5.9	6.0	-0.1	0.7
No benefits	53.7	52.6	1.1	1.4
Adjusted Gross Income (AGI) (%)				
Less than $10,000	10.4	11.3	-0.9	1.0
$10,000 to less than $20,000	19.0	19.3	-0.3	1.2
$20,000 to less than $30,000	19.9	18.5	1.4	1.2
$30,000 to less than $40,000	14.2	15.2	-1.0	1.1
$40,000 to less than $50,000	12.4	12.6	-0.2	1.0
$50,000 or more	24.1	23.0	1.0	1.3
Average Adjusted Gross Income ($)	34,184	33,749	435	728

(continued)

Table 2.3 (continued)

Characteristic	Program Group	Control Group	Difference	Standard Error
Expected Family Contribution (EFC) (%)				
0	53.9	53.9	0.0	1.5
1 to less than 2,500	20.9	20.8	0.1	1.2
2,500 to less than 5,000	11.3	12.5	-1.2	1.0
5,000 or more	13.9	12.8	1.1	1.0
Average Expected Family Contribution (EFC)	2,256	2,136	121	163
Pell-eligible[c] (%)	86.3	87.2	-0.9	1.0
Cal Grant				
Applied for Cal Grant[a] (%)	99.9	99.9	0.1	0.1
Awarded Cal Grant (%)	64.1	63.6	0.4	1.4
Awarded Cal Grant type A	20.2	19.4	0.8	1.2
Awarded Cal Grant type B	43.9	44.2	-0.3	1.5
Average Cal Grant award ($)	2,407	2,394	13	100
Average Cal Grant award among recipients	*3,754*	*3,765*		
High school GPA (%)				
3.0 to 4.0	48.3	47.8	0.5	1.5
2.0 to 2.9	43.6	44.4	-0.8	1.5
Less than 2.0	8.1	7.8	0.3	0.8
Sample size (total = 4,921)	1,640	3,281		

(continued)

Table 2.3 (continued)

SOURCES: MDRC calculations using FAFSA and Cal Grant data provided by the California Student Aid Commission.

NOTES: To analyze whether baseline characteristics jointly predicted research group status, likelihood ratio tests were performed on FAFSA characteristics and on Cal Grant characteristics. For FAFSA characteristics, this test yielded a p-value greater than 0.99. For Cal Grant characteristics, this test yielded a p-value greater than 0.99. Convention suggests that these probabilities are large enough that these potential differences can be ignored in the analyses.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Characteristics shown in italics are calculated for a portion of the full sample, and indicate nonexperimental data.

Distributions may not sum to 100 percent because of rounding.

[a]MDRC and CSAC ensured that students completed the FAFSA and Cal Grant GPA Verification Form prior to enrolling in the study, but because of application errors, MDRC did not obtain verified FAFSA data for 10 students or verified Cal Grant data for 5 students.

[b]Distributions may not sum to 100 percent because categories are not mutually exclusive. SSI is Supplemental Security Income. TANF is Temporary Assistance for Needy Families. WIC is the Supplemental Nutrition Program for Women, Infants, and Children.

[c]MDRC calculated Pell eligibility using the maximum EFC eligible for a Pell Grant. Maximum EFC for Pell eligibility was 4,617 for 2009-2010 and 5,273 for 2010-2011. This measure represents a proxy for Pell eligibility and does not reflect whether students actually received a Pell Grant.

needed to be eligible for a Cal Grant A, while a slightly lower proportion reported a high school GPA of 2.0 to 2.9.[25]

Together, the FAFSA and Cal Grant characteristics indicate that the sample is made up primarily of low-income, dependent students with high levels of financial need. The relatively high proportion of students with a GPA of 3.0 to 4.0 supports the notion that the CFC-PBS sample is a self-selecting population of fairly motivated students. As was the case with the data shown in Table 2.2, the baseline financial aid characteristics of program and control group members are virtually identical. The few differences that do exist between research groups are no more than what would be expected to occur by chance.[26]

[25]The Cal Grant B cutoff is a 2.0 GPA. While the proportion awarded Cal Grants may be low given the sample eligibility criteria, the 36 percent not awarded can be broken down into 8 percent not meeting the GPA requirement and 13 percent exceeding the Cal Grant B income limits but failing to meet the Cal Grant A GPA requirement. The remaining 15 percent may be related to Cal Grant application processing procedures and other reasons. Chapter 4 explores the connection between Cal Grant receipt and CFC-PBS awards.

[26]A p-value of 0.99 was reported for the F-test of whether FAFSA application characteristics jointly predict research group status. A p-value of 0.99 was reported for the F-test of whether Cal Grant characteristics jointly predict research group status. Convention suggests that both of these probabilities are large enough that the potential differences can be ignored in the analyses. See Appendix A for a discussion of the methodology employed.

Chapter 3

Program Implementation

This chapter describes how performance-based scholarships were incorporated into the Cash for College program. It also discusses student participation rates in the Cash for College Performance-Based Scholarship (CFC-PBS) Program and presents student accounts regarding their experiences with the program and how they used their scholarship dollars.

The following are among the key findings:

- The existing structure of the Cash for College program provided a strong foundation that facilitated the development of the CFC-PBS Program, which was largely implemented as designed.
- Over 80 percent of students received at least one scholarship payment over the first two terms and the initial enrollment payment of the third term. Students who received Scholarship Type 6 ($4,000 over two years) were eligible for and received the most money on average, while students who received Scholarship Type 3 ($1,000 over one year) received the least money on average. Because complete data are not yet analyzed for students receiving Scholarship Type 5 ($2,000 over two years) and Scholarship Type 6 ($4,000 over two years), it is too early to determine whether the payment patterns among the different scholarship types are significant.
- Based on qualitative research, the scholarships' grade point average (GPA) benchmark of "C" or better seemed attainable to large numbers of students. However, knowing that they could lose the award did appear to give a considerable number of students an incentive to work harder, based on interviews and survey results.
- Students who received CFC-PBS payments reported that the money was primarily used for college-related expenses — books being the most commonly purchased item. They also mentioned that the timing of the disbursement of CFC-PBS moneys helped cover up-front costs that were incurred before financial aid was disbursed.

Program Operations: Embedding Performance-Based Scholarships into Cash for College

The CFC-PBS Program is unique within the PBS Demonstration in that California's program was implemented within an existing framework and operated not by a single college or university but by a partnership of two principal organizations: the California Student Aid Commission (a government agency) and the Los Angeles Area Chamber of Commerce (L.A. Chamber, a private organization).

Cash for College Partner Roles

The California Student Aid Commission was responsible for the administration of the CFC-PBS Program's notification and claiming procedures. Additionally, it oversaw the web-based management system used for collecting student data and administrative records and for tracking payment documentation. These responsibilities were in addition to the California Student Aid Commission's significant role in the outreach and recruitment of study participants for the CFC-PBS study (as discussed in Chapter 2).

The Los Angeles Chamber Foundation (an affiliate of the L.A. Chamber), the fiscal agent for Cash for College, oversees the day-to-day operation of the verification and disbursement procedures of the traditional Cash for College scholarship. For the purposes of the CFC-PBS study, it also assumed the administration of the CFC-PBS Program scholarships.

Scholarship Policies and Procedures

MDRC worked closely with the Cash for College partners to adapt existing scholarship notification, claiming, verification, and disbursement processes for the purposes of the study. The most significant modifications were made to the verification and disbursement procedures. The addition of a performance payment for the CFC-PBS Program required that some major enhancements be made to the Cash for College management database. In order to effectively implement the six scholarship types of the CFC-PBS Program, the database needed to have the capacity to track different cohorts, types of payments (enrollment and performance), and multiple verification points, in addition to meeting the data needs of the study.

In keeping with past Cash for College program practices, it was incumbent upon students to submit the required documentation (class schedules or transcripts) to verify they met the scholarships' enrollment or performance criteria. No changes were made to the verification and disbursement of the traditional Cash for College scholarship (Scholarship Type 1 — $1,000 over one term with no performance incentive), including the award being paid to students' institutions. The CFC-PBS Program's five performance-based scholarships (Scholarship Types 2 through 6) had two payments: an enrollment payment (similar to the Cash For College scholar-

ship), contingent upon enrollment in six credit hours or more at an accredited, degree-granting institution in the United States, and a performance payment, contingent on students' completing six credits or more with a "C" or better GPA. Fall-term payments for all five performance-based scholarships were paid in two equal installments per term. The spring payment for Scholarship Types 3 through 6 (offered over one or two academic years) had no enrollment payment and consisted of one performance payment disbursed at the end of the term. See Table 3.1 for more details on the semester payment points and payment amounts for each scholarship type.[1]

MDRC and the Cash for College partners wanted to create as strong an incentive as possible for students to enroll at least part time, perform satisfactorily, and receive all the money that was offered. Hence, some flexibility was put in place in the following ways:

- Students receiving the two-year scholarships (Scholarship Types 5 and 6) did not have to enroll consecutively; they could "stop out" for a semester and still remain eligible for the remaining portion of their scholarships. In other words, students who attended the first term and not the second, but returned to school in the third term of a four-term scholarship, would still be eligible for the scholarship payments in the third and fourth terms as long as they met the enrollment and performance benchmarks in those terms. However, these students would forfeit the second-term award.
- Students who failed to meet the scholarship's criteria for a given semester of the program still had the opportunity to receive the following semester's payment. In essence, their slate was wiped clean; the "C" or better GPA required for the scholarships was based on each semester's GPA rather than cumulative performance.
- While students were strongly encouraged to observe document submission deadlines, the program did not penalize students for submitting documents past the deadline; students still remained eligible for their scholarships.[2]

Notifying Scholarship Recipients

As mentioned in Chapter 2, the Cash for College workshops, the primary function of the Cash for College program, served as the outreach mechanism to enroll both program and control group students into the CFC-PBS study. However, an important distinction should be

[1]For simplicity of discussion, only the semester payment structure is referenced in the text. However, Appendix Table C.1 shows the payment schedule adapted for students who attended institutions operating on a quarter system.

[2]In practice, 368 of the 1,640 program group members in the study sample (or 22.4 percent) submitted their documents after the program's submission deadlines for one or more payments.

The Performance-Based Scholarship Demonstration

Table 3.1

Semester Payment Schedule

Cash for College Performance-Based Scholarship Study

Characteristic	Scholarship Type 1	Scholarship Type 2	Scholarship Type 3	Scholarship Type 4	Scholarship Type 5	Scholarship Type 6
Performance-based scholarship	No	Yes	Yes	Yes	Yes	Yes
Amount of scholarship per semester ($)	1,000	1,000	500	1,000	500	1,000
Duration of scholarship	1 semester	1 semester	2 semesters	2 semesters	4 semesters	4 semesters
First year						
Fall payments ($)						
Enrollment	1,000	500	250	500	250	500
Performance	--	500	250	500	250	500
Spring payment ($)						
Performance	--	--	500	1,000	500	1,000
Second year						
Fall payments ($)						
Enrollment	--	--	--	--	250	500
Performance	--	--	--	--	250	500
Spring payment ($)						
Performance	--	--	--	--	500	1,000
Total scholarship amount ($)	1,000	1,000	1,000	2,000	2,000	4,000

NOTE: For simplicity, the payment schedule for semester-based institutions is shown. The majority of the students in the CFC-PBS study attended semester-based institutions.

made between the Cash for College workshops and the CFC-PBS Program. Students' recruitment into the CFC-PBS Program was initiated through the workshops, but participation in the study began after they were randomly assigned into one of the two study groups, the program group or control group. Thus, although they were essential for the recruitment and intake of the students, the workshops themselves are not a direct part of the intervention being tested.

As also noted in Chapter 2, MDRC built upon Cash for College's scholarship selection process to randomly assign program group students to one of the study's six scholarship types. The notification letters sent to program group students congratulated them on their award and formally inducted them into the "Cash for College Scholars Group" (that is, the program group). In addition to making the students feel part of a special group, the letter served as a means to inform students of the scholarship type they were awarded and provide instructions on the process for claiming the scholarship payment via the Cash for College scholarship-claiming website. Along with the scholarship award letter, a handout (shown in Figure B.1) was included, which was intended to do the following:

- Provide students with more detailed instructions on how to log on to the Cash for College scholarship-claiming website
- Remind students that their scholarship is performance-based
- Give students an overview of the enrollment and performance award verification and payment process
- Alert students that the CFC-PBS Scholars website (described below) would be the primary means of communication regarding their particular scholarship
- Reiterate to students that they were part of a select group

Scholarship Claiming

Following standard Cash for College practices, students awarded CFC-PBS Program scholarships were required to complete two steps in order to receive the scholarships. The first step was to declare their intent to enroll in an accredited college or university in the fall after attending a Cash for College workshop. Students did so by accessing the Cash for College scholarship-claiming website and filling out a form using the information provided in their notification letter. The site was linked to a web-based management information system that was used by the Cash for College program and the L.A. Chamber to collect student data and track verification documentation and scholarship disbursements.

After claiming their scholarship awards, CFC-PBS Program scholarship recipients were redirected from the Cash for College scholarship-claiming website to the CFC-PBS Scholars website, which was developed solely for study participants. Here students found a customized home page with specific information about their scholarship — how much they had received, a calendar of submission deadlines, and other pertinent information about their award.

In addition to directing students to access information about their scholarships from the Scholars website, MDRC built upon the Cash for College electronic reminder system, which consisted of e-mails sent to Cash for College scholarship recipients reminding them to submit a class schedule by the given deadline. E-mails modeled after the Cash for College electronic reminders were developed for the CFC-PBS Program. These reminded scholarship recipients of the class schedule or transcript they needed to submit to receive either an enrollment or performance payment. Reminder e-mails were sent out once before each verification deadline. In keeping with past practice, students who did not claim their scholarships by the given deadline received one phone call as a reminder.

The CFC-PBS Program's communication components, described above, were implemented during the early period of the CFC-PBS Program and were modeled after those used by the Cash for College program. Communication with scholarship recipients was envisioned to be limited (or "light-touch"). In addition, the CFC-PBS model is unlike others in the PBS Demonstration in that students were expected to assume the bulk of the responsibility for turning in the required documents in order to receive their scholarships.

Scholarship Payments

Enrollment Payment

Once students completed the first step in the scholarship-claiming process, meaning they went to the Cash for College scholarship-claiming website to claim their payments, they were expected to follow through with the second step in order to receive their scholarship payments: Submit the appropriate verification documents to the L.A. Chamber. Class schedules were used to determine whether students had met the scholarships' enrollment criteria. Once staff members at the L.A. Chamber confirmed that each class schedule came from an accredited institution and the student met the necessary credit hours, they would authorize the disbursement of the initial enrollment payment.

Performance Payment

CFC-PBS Program Scholarship Types 2 through 6 had a second payment based on performance criteria. Students had a choice of submitting either an unofficial or official transcript

to verify they had met the CFC-PBS Program academic benchmark (a "C" or better GPA) in six or more credit hours. Documentation could be submitted via e-mail, fax, or regular mail. Once all the information was verified by L.A. Chamber staff members, performance payments were authorized for disbursement.

Disbursement

During the study period, the Los Angeles Chamber Foundation continued to send the traditional Cash for College scholarship payments directly to students' institutions by check, as was the prior practice. However, using paper checks for payment disbursements of the other scholarship types was an inefficient option, as the CFC-PBS Program brought about an increase in the numbers of scholarships awarded, variations in amount, additional payment points over multiple terms, and awards being paid directly to individual students with shifting contact addresses (as opposed to single institutions). Moving to an electronic transfer system by which direct deposits were made to student bank accounts was seen as the best way to effectively manage the payment process. During the claiming process, students were encouraged to sign up for direct deposit, and instructions were posted on the Scholars website. The electronic funds transfer payment option applied only to Scholarship Types 2 through 6. The majority of students opted to have their scholarship moneys deposited directly into their bank accounts. The option to request a check was still available to students, though only 12 percent of scholarship recipients chose this option.

Another change in the scholarship administration process resulting from the implementation of the CFC-PBS Program was that L.A. Chamber staff members had to ensure the authenticity of hundreds of class schedules and transcripts from 170 different colleges and universities for each disbursement period. The biggest challenge of verifying whether students met enrollment and performance benchmarks was the variation among transcripts from different institutions. In some cases, L.A. Chamber staff members had to make manual credit and GPA conversions to understand whether a student met the scholarship's requirements.[3]

Spot Audit

Because documents could be submitted by the students electronically, they were easier to alter compared with official documents sent directly from a college or university. Thus, there was a concern that students might submit fraudulent documentation to receive a particular scholarship payment. To address this concern, MDRC and the Cash for College partners estab-

[3]Some colleges and universities count units for developmental courses in a student's overall GPA, while others do not. The CFC-PBS Program did count developmental courses toward the scholarship benchmarks. In addition, some institutions give cumulative, not term, GPAs.

lished an auditing process that was communicated to students. The hope was that this process would deter any student from altering verification documents. During the verification process, every twenty-fifth student who submitted an unofficial transcript was asked to submit an official one. The official document would be checked against the unofficial copy to ensure the authenticity of the information before payment was released.[4]

Evolution of the CFC-PBS Program's Student Communication

Unlike the other models in the PBS Demonstration, the CFC-PBS Program was forced to confront a communication challenge. The portable nature of the scholarships resulted in 1,720 program group students being spread out among 170 colleges and universities. The CFC-PBS Program could thus not rely on a campus-based representative or institution resources (both of which were available to the other PBS Demonstration interventions) to ensure scholarship recipients continued to be engaged with the program for the duration of their scholarships.

As the CFC-PBS Program began, MDRC and the Cash for College partners questioned whether the light-touch communication strategy would be enough to keep the CFC-PBS Program at the forefront of students' minds. Subsequently, a decision was made to enhance the student communication components of the program. In addition to providing information about the processes students had to follow in order to receive their scholarships, the enhancements were meant to engage scholarship recipients to create a sense of community among students as well as a more direct connection to the CFC-PBS Program. The use of online media and electronic communication was thought to be the best strategy to accomplish these goals.

To develop an effective messaging strategy, MDRC retained the services of a behavioral economist through a program sponsored by the Annie E. Casey Foundation. The consultant worked with the Cash for College partners and MDRC to develop messages that used concepts from behavioral economics in an effort to increase student engagement. One recommended strategy was to create a strong "scholar" group identity tied to the CFC-PBS Program. From the consultant's perspective, this had the potential to prime students to remember the scholarship and its motivating power. Additionally, it could subtly convey to students that they could achieve and persist in college. Targeting the program's messages was believed to increase the chances that students would exhibit the changes in behavior that the CFC-PBS Program was designed to trigger: taking more classes, spending more time studying, and strengthening self-perception.

[4]Over the course of the study, only one student was found by the auditing process to have submitted suspect documentation. Upon discovery, the student was asked to submit an official transcript but never responded to the request. No further disbursements were made to the student.

The Scholars website was enhanced with affirming statements throughout. Students were referred to as "Cash for College Scholars" on the website's home page, which was personalized for each student. In addition to scholarship information, a dial was added that provided each student with a visual representation of his or her scholarship earnings in real time. Information about scholarships, motivational facts, and short videos with advice from other CFC-PBS Program scholarship recipients were also added to the website. Finally, a scholar advice section was developed. Students could submit questions and receive an answer from a staff member who monitored questions and responded. Motivational e-mails that reinforced the group's identity — "Cash for College Scholars" — and encouraged students to work hard in order to earn their scholarships were sent to students in addition to e-mails reminding them of deadline submissions. Text messages to remind students of upcoming submission deadlines were also added in the second year of the program.

Was the Program Implemented as Designed?

The CFC-PBS study was built on a solid foundation: a strong partnership and a sound programmatic framework. As is common with organizations involved in many new programs, the Cash for College partners, made up of a small number of staff members from each partner organization, underwent some growing pains early in the study's implementation. As mentioned previously, the study required the enhancement and addition of procedures to manage the volume of students receiving awards and the disbursement of the various CFC-PBS scholarship payments. The study also required that additional, more complex data be collected and shared between organizations, something that had been done on a much smaller scale in prior years. These requirements caused initial hurdles, primarily related to technical issues and new accounting procedures and systems, but these impediments were eventually overcome.

Overall, the implementation story suggests that the CFC-PBS Program received a "fair test." In other words, the impacts found in this research should reflect the program itself and not any flaws in implementation. Changes made to Cash for College's notification, claiming, verification, and disbursement systems to create the CFC-PBS Program were implemented largely as designed.

However, MDRC and the Cash for College partners' venture into online media and electronic communication turned out to be too ambitious. MDRC and the Cash for College partners put significant thought into the challenges that a portable scholarship might face in terms of connecting students to the program. The Scholars website was envisioned as the primary mechanism that would keep the scholarship and program at the forefront of students' minds. However, an analysis of website usage data showed that for the most part, the website was underused by students.

A number of issues affected the ability of the additional communication elements to live up to their full potential. MDRC and the Cash for College partners did not have the ability to maintain and update the Scholars website in a timely manner, and as a result, students' engagement with it diminished over time. In addition, several limitations related to maintaining the confidentiality of the study's subjects precluded the addition of more interactive elements to the various communication tools. Ultimately, the Scholars website was considered too expensive relative to its reach or impact on students, and it was discontinued in the fall of 2011.

Student Participation in the Cash for College Performance-Based Scholarship Program

The proportion of students in the program group who received a scholarship measures the level of participation in the program. Program participation is defined as the rate at which students met the academic benchmark and submitted their transcript verification information. Thus, students who are identified as having received a scholarship are those who enrolled for or completed six or more credits with a "C" or better GPA and submitted the necessary paperwork to receive a scholarship.

Table 3.2 presents the scholarship receipt rates for students in the program group and for each scholarship type, from the first term through the enrollment payment of the third term. Because students receiving Scholarship Type 5 ($2,000 over two years) and Scholarship Type 6 ($4,000 over two years) are eligible to receive payments over four terms, it is too early to draw meaningful conclusions from comparisons of take-up rates across scholarship types, as this report covers just the first three terms.

The panel listing first-term outcomes in Table 3.2 shows that over 93 percent of program group members claimed their scholarships by going to the Cash for College scholarship-claiming website and verifying their institution information. While over 82 percent of all program group students received their first-term enrollment payments, this percentage ranged from a low of 79.6 percent for Scholarship Type 1 students to a high of nearly 85 percent for Scholarship Type 6 students. According to enrollment data from the National Student Clearinghouse (which are discussed in greater detail in Chapter 4), the proportion of program group students enrolled in any postsecondary institution in the first program term ranged from a low of around 88 percent for Scholarship Type 1 students to a high of over 90 percent for Scholarship Type 6 students. Thus, most students who did not receive a scholarship payment in the first term failed to enroll in any college. However, a higher proportion of students enrolled (89.3 percent in the first term, shown in Table 4.1) than received a payment (82.6 percent in the first term), indicating that a small contingent of program group students (over 6 percent) did not receive a scholarship payment, either because they were enrolled for fewer than six credits or because they did not submit their transcript verification information.

The Performance-Based Scholarship Demonstration

Table 3.2

Scholarship Receipt Among Program Group Members: First Through Third Terms

Cash for College Performance-Based Scholarship Study

Outcome	Program Group	Scholarship Type 1	2	3	4	5	6
Performance-based scholarship		No	Yes	Yes	Yes	Yes	Yes
Amount of scholarship per semester ($)		1,000	1,000	500	1,000	500	1,000
Duration of scholarship		1 semester	1 semester	2 semesters	2 semesters	4 semesters	4 semesters
First term							
Claimed scholarship (%)	93.4	91.8	91.7	94.5	94.6	92.4	95.6
Received a scholarship payment (%)	82.6	79.6	79.9	83.2	84.4	83.3	84.9
Received performance payment[a]	60.0	NA	54.5	61.5	62.3	60.1	61.0
Average scholarship amount received ($)	624	796	672	374	770	382	749
Average scholarship amount among recipients	*756*	*1,000*	*841*	*450*	*912*	*458*	*882*
Second term							
Received a scholarship payment[b] (%)	45.5	NA	NA	40.3	44.2	50.0	47.4
Average scholarship amount received ($)	317	NA	NA	186	408	228	446
Average scholarship amount among recipients	*697*	NA	NA	*462*	*924*	*456*	*941*

(continued)

Table 3.2 (continued)

Outcome	Program Group	Scholarship Type 1	Scholarship Type 2	Scholarship Type 3	Scholarship Type 4	Scholarship Type 5	Scholarship Type 6
Third term							
Received a scholarship payment (%)	56.8	NA	NA	NA	NA	56.2	57.4
Average scholarship amount received ($)	196	NA	NA	NA	NA	127	267
Average scholarship amount among recipients	*346*	NA	NA	NA	NA	*226*	*465*
Cumulative terms 1 through 3							
Received one or more scholarship payments (%)	83.2	79.6	79.9	83.2	85.1	84.4	86.8
Average scholarship amount received ($)	902	796	672	560	1,178	737	1,462
Average scholarship amount among recipients	*1,084*	*1,000*	*841*	*674*	*1,384*	*873*	*1,685*
Proportion of possible award received (%)	63.2	79.6	67.2	56.0	58.9	59.0	58.5
Sample size	1,640	279	264	273	276	276	272

SOURCES: MDRC calculations using scholarship payment data provided by the California Student Aid Commission as well as data from the U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS).

NOTES: Characteristics shown in italics are calculated for a portion of the program group, and indicate nonexperimental data. NA = not applicable. At the time of analysis, the "received any scholarship payment" row reflects initial enrollment payments only and not performance payments.

Students assigned to Scholarship Type 1 are eligible for an enrollment scholarship payment only in the first program term, and thus are excluded from the performance scholarship payment in the first term and from all measures in all other terms.

Students assigned to Scholarship Type 2 are eligible for scholarship payments only in the first program term, and thus are excluded from all measures from the second program term onward.

Students assigned to Scholarship Types 3 and 4 are eligible for scholarship payments only in the first and second program terms, and thus are excluded from all measures from the third program term onward.

Third program term average scholarship amounts do not include performance payments as fall 2010 cohort data were not available at the time of data acquisition. Cumulative average scholarship amounts also exclude these awards.

[a]Includes performance payments made at quarter institutions during the winter term, which represent a small portion of the sample.

[b]All scholarship payments in the second program term were performance payments.

Program group students with Scholarship Types 2 through 6 were eligible to receive a performance payment in the fall term, and 60 percent of these students met their performance benchmarks and submitted verification documents.[5] Scholarship Type 2 students received this first-term performance payment at a rate of 54.5 percent, which was around 6 percentage points to 8 percentage points lower than rates attained by Scholarship Types 3 through 6 students. Overall, there was about a 23 percentage point drop in scholarship receipt from the initial enrollment payment to performance payment for all Scholarship Type 2 through 6 program group students. The magnitude of the decline in scholarship receipt from enrollment to performance payment in the CFC-PBS study was very close to that at the PBS New York and Opening Doors Louisiana sites, at which site coordinators disbursed scholarship payments based on in-house transcript information.[6] This is encouraging, given that program group students in the CFC-PBS study are required to submit their transcript information manually, so the decline is not likely to be a result of this potential hurdle.

In the second term — in which only one payment was disbursed at the end of the term — only program group students with Scholarship Types 3 through 6 were eligible to receive performance payments. Table 3.2 indicates that close to 46 percent of these students received their second-term performance payments. Scholarship Type 5 and 6 students received the scholarship at slightly higher rates than Scholarship Type 3 and 4 students. Enrollment rates (shown in Table 4.1 in the following chapter) do not vary dramatically between the first and second terms, and thus do not explain the drop in scholarship receipt from the first program term to the second. The overall percentage of program group students receiving a performance payment in the second term is slightly lower for the students in the CFC-PBS study than for those in the Opening Doors Louisiana study. The performance-based scholarship payment rate for Opening Doors Louisiana in the second program term was around 58 percent. It may be possible that part of the decline is due to students failing to submit their paperwork.[7]

Only Scholarship Type 5 and 6 students were eligible for third-term payments. About 56 percent of these students received their initial third-term enrollment payments. There was

[5]This percentage includes Scholarship Type 3 through 6 students who attended quarter-type institutions and received a performance payment in the winter quarter. Around 14 percent of Scholarship Type 3 through 6 students received a performance payment in the winter quarter.

[6]See Patel and Rudd (2012) and Richburg-Hayes et al. (2009). The magnitudes of the declines in scholarship receipt from the first-term enrollment payment to the first-term performance payment in the New York and Louisiana studies were 27 percent and 22 percent, respectively. Additionally, recruitment for the CFC-PBS study occurred among students in their senior year of high school, rather than among students already registered at their site's college. Students in the New York and Louisiana studies also represent a nontraditional college-going sample, with a high proportion of older female students with at least one child.

[7]See Chapter 4 for an estimate of the proportion of students at community colleges who may have failed to submit their paperwork. See Richburg-Hayes et al. (2009) for additional details.

little difference in the proportion of Scholarship Type 5 and 6 students receiving the third-term enrollment payment.

The final panel of Table 3.2 summarizes the first three terms for the full program group and six scholarship types. Over 83 percent of all students received a scholarship in at least one of the program terms. The average amount received from the first term through the enrollment payment of the third term was just over $900 for all program group students.

Scholarship Type 6 students had the potential to receive the most scholarship money, and they did indeed receive the most money on average, at around $1,462. That is, Scholarship Type 6 students received an average of $1,462 over the first two terms and the enrollment payment of the third term. Given that Scholarship Type 6 students were eligible to receive $2,500 by the third-term enrollment payment, these students received around 58 percent of the maximum total scholarship available to them. Scholarship Type 3 students received the least money on average over the first two terms and the enrollment payment of the third term, at $560, or around 56 percent of the maximum total scholarship available ($1,000). Given that complete data for Scholarship Type 5 and 6 students are not analyzed in this report, it is too early to determine whether payment patterns among the different scholarship types are stable.

Student Perceptions and Experiences

MDRC conducted a follow-up survey, 13 focus groups, and a small number of individual student interviews to complement the study's quantitative data sources. Analysis of the qualitative data collected from CFC-PBS study participants allowed field researchers to capture the students' impressions of the program's significance. Additionally, these data provided a picture of student participation in the program as well as a glimpse into how students used their CFC-PBS awards.

This section provides a brief description of who participated in the focus groups and interviews and the external context that existed during students' participation in the program. This is followed by what was learned from CFC-PBS Program scholarship recipients about their experiences participating in the program and how they used their scholarship dollars.

Focus Group Participants

As noted in Chapter 2, MDRC field researchers conducted 13 student focus groups and 5 individual interviews. The focus groups involved 43 program and control students attending higher education institutions in the Far North, Central Valley, and Los Angeles regions and

San Francisco.[8] In addition, five students spoke with an MDRC field researcher in individual interviews.

Students who attended the focus groups and participated in individual interviews are not representative of the overall study sample. In fact, a few indicators suggest that this group may be more motivated than the average student in the sample. For example, sizable numbers of focus group participants took part in specialized programs, such as the Advanced Via Individual Determination (AVID) program, a college preparatory program that operates in many high schools. Students also took the initiative to attend the focus groups when asked by MDRC staff members, whom they had never met and to whom they had little connection through the operation of the program.

The Higher Education Landscape in California

These focus groups and interviews were conducted in the midst of an economic recession and during a period of severe budget cutbacks to higher education in California (as discussed in Chapter 1). Students in both the program group and control group shared that they were beginning to feel the effects of California's economic climate, especially as it related to the cutbacks in higher education. Across all institutions that focus group participants attended, students reported experiencing a reduction in class offerings (a direct result of budget cuts) and expressed having a harder time registering for the necessary classes to progress toward their educational goals in a timely manner. In addition, several community college students felt they would be more affected by the budget cuts when they were ready to transfer to a four-year university. Students attending San Francisco State University noted that they were already bracing for a 30 percent tuition increase, supporting the fears of the community college students on the transfer path.

Students also mentioned experiencing changes in registration policies, which they felt compounded the problem of registering for necessary classes. Students in two different focus groups cited college registration policies that prevented them from registering for a full-time course load during early registration; one institution had an eight-unit cap on early registration, while the other had a five-unit cap.[9] Students expressed frustration at being forced to scramble during colleges' add period at the beginning of the semester to register for the remaining classes they needed for a full-time course load or completion of their majors. Some students mentioned that certain classes needed by large numbers of students were already full by the time they tried

[8]The names of students invited to participate in focus groups and individual interviews were not selected at random from the full study sample. Students were selected from colleges that had high numbers of program and control group members attending them.

[9]The registration policies were cited by students attending a community college and students attending a state university.

to add them to their schedules. In some cases, students had to take unnecessary classes in order to continue to qualify for financial aid.

It is important to remember that both program group students and control group students experienced the same conditions described above. While program group students were eligible to receive extra money on top of their financial aid, this eligibility did not grant them any other special privileges during registration.

Meeting the PBS Academic Benchmark

As discussed in the first section of this chapter, in order for students to receive their scholarships, they had to submit a transcript for verification that showed they had met the "C" or better GPA benchmark in six credit hours or more. Overall, program group students who participated in focus groups or interviews indicated they were not concerned about meeting the academic criteria. Their lack of concern stemmed from the perception that the GPA benchmark set by the CFC-PBS Program was low. Data from the follow-up survey appear to be mixed on whether a larger proportion of program group students shared this lack of concern. These data are presented in Table 3.3. About 12 percent of 1,394 program group respondents reported that meeting the benchmarks was difficult or very difficult, and about 36 percent reported that meeting the benchmarks was "a little" difficult. An additional 36 percent reported no difficulty at all. It is worth noting that almost three-fourths of the program group felt that the benchmarks were not at all difficult or a little difficult, but only 60 percent of students submitted documentation that they had met the performance benchmark in the first term (not shown in the table).

When asked, "Did the scholarship encourage you to work harder?" almost 75 percent of 1,394 program group respondents from the follow-up survey indicated that it did, while 22 percent reported no effect, and slightly more than 3 percent reported that the scholarship pushed them to take easier classes. One student attending a community college in the California Central Valley reported that the scholarship helped him focus on keeping his grades up. Even when more difficult courses caused his grades to dip, he said, the requirements of the PBS scholarship prompted him to study more and work harder to meet the benchmarks.

When asked whether the program encouraged students to take more classes, around 43 percent of 1,394 program group respondents reported that it did, while 54 percent reported that the scholarship had no effect on the number of classes they took. About 3 percent of respondents reported taking fewer classes. About 11 percent of program group respondents reported that the program influenced class selection in some other way.

Overall, the survey suggests that the program may have had some positive effect on course taking and increased effort among program group members. However, the majority of focus group participants mentioned that while the extra money was beneficial, they did not feel

The Performance-Based Scholarship Demonstration

Table 3.3

PBS Survey Responses: Program Group Experiences

Cash for College Performance-Based Scholarship Study

Outcome (%)	Program Group
Understood conditions necessary to receive payment	87.4
CFC-PBS encouraged you to:	
Work harder	74.6
Take easier courses	3.4
No effect	21.9
Take more courses	42.6
Take fewer courses	3.1
No effect	54.4
CFC-PBS influenced course selection in some other way	11.2
Difficulty in meeting CFC-PBS academic benchmark	
Not difficult at all	36.4
A little difficult	36.2
Difficult	8.1
Very difficult	3.4
Missing	15.9
Payment schedule most preferred from CFC-PBS	
Half at the beginning and half at the end	46.3
One large sum at the end of the term	15.9
Smaller amounts each time, but paid more frequently	15.4
Some other schedule	6.4
Missing	15.9
Sample size	1,394

SOURCE: MDRC calculations using responses from the Performance-Based Scholarship 12-Month Survey.

NOTES: Missing values are included only in variable distributions for characteristics with more than 5 percent of the sample missing.

Distributions may not sum to 100 percent because of rounding.

the scholarship by itself made a significant difference in pushing them academically. As mentioned earlier, focus group participants were a more motivated group of students; thus, the perception that the scholarship did not influence academic behavior could reflect the types of students who self-selected to participate in the focus groups.

Communication with the Program

Program group students who were currently enrolled or had ever enrolled in a postsecondary institution were asked if they understood the conditions they needed to meet and the processes they needed to follow in order to receive their scholarship. Of 1,394 respondents, 87 percent responded affirmatively.[10] This finding appears to support the idea that the original limited communication strategy — a website with scholarship information, one reminder e-mail per verification point, and a contact phone number and e-mail — may have been sufficient to get large numbers of students to turn in the documents needed to receive their scholarships.

In contrast, information from the focus groups, interviews, and follow-up survey seems to indicate that the additional enhancements made to the various communication tools to keep students engaged — a resource-rich website embedded with motivational language, motivational e-mails, and texting — were not effective. For example, even though the Scholars website was embedded with motivational messaging and enhanced with additional resources beyond information related to the CFC-PBS Program verification and submission procedures, students reported that they did not take the time to explore other pages on the website. They primarily used the site for scholarship verification information, which was its original purpose.

Payments and Use of Scholarship Money

Large numbers of students in both the survey and focus groups reported using their scholarship money for college-related expenses; books were the most commonly purchased item. As shown in Table 3.4, the majority (over 89 percent) of fall 2010 cohort program group students who recalled receiving payments from CFC-PBS reported using the scholarship money to purchase books and supplies, with the next largest percentage (50 percent) reporting expenditures on tuition and fees. Other examples of college-related purchases and expenses cited by focus group participants include laptops, equipment fees, and parking permits. One student shared that the scholarship helped her in a significant way — she was able to pay her tuition by the payment deadline, which prevented her from being dropped from her classes. Additionally, she stated, "[The PBS scholarship money] makes me feel that I can go to school. It took away stress." She also recognized that the funds filled the gap "when [her] other money ran out." In addition to school-related expenses, a smaller percentage of students reported using scholarship money to cover basic necessities such as transportation, food, bills, child care, or other expenses.

[10]However, this does not necessarily imply that students truly understood the criteria. In Angrist, Oreopoulos, and Williams (2010), when researchers asked students to state the eligibility requirements in the initial survey, about one-third reported the criteria incorrectly.

The Performance-Based Scholarship Demonstration

Table 3.4

PBS Survey Responses: Scholarship Use Among the Program Group

Cash for College Performance-Based Scholarship Study

Outcome	Question Sample Size	Percentage of Respondents
Recall being a participant in performance-based scholarship study	1,393	84.2
Among those who recall being a participant in the performance-based scholarship study:		
Remember receiving payment from CFC-PBS[a]	*651*	*86.6*
Among those who remember receiving payment from CFC-PBS:		
Scholarship was used:[a, b]		
To purchase books and supplies	*564*	*89.5*
To help with tuition and fees	*564*	*49.5*
To pay for transportation	*564*	*39.0*
To buy food	*564*	*33.0*
To pay bills	*564*	*25.0*
To deposit into bank account	*564*	*26.2*
To buy clothes for self	*564*	*14.2*
For entertainment or to buy something not normally afforded	*564*	*8.0*
To work fewer hours at job	*564*	*3.5*
To help with child-care costs, buy clothes/shoes for children or other family members	*564*	*2.8*
For some other reason	*564*	*1.1*
Main use of scholarship:[a]		
To purchase books and supplies	*564*	*64.9*
To help with tuition and fees	*564*	*17.9*
To pay for transportation	*564*	*6.7*
To buy food	*564*	*1.8*
To pay bills	*564*	*4.8*
To deposit into bank account	*564*	*2.5*
To buy clothes for self	*564*	*0.2*
For entertainment or to buy something not normally afforded	*564*	*0.4*
To work fewer hours at job	*564*	*0.0*
To help with child-care costs, buy clothes/shoes for children or other family members	*564*	*0.0*
For some other reason	*564*	*0.9*
Sample size	1,394	

(continued)

Table 3.4 (continued)

SOURCE: MDRC calculations using responses from the Performance-Based Scholarship 12-Month Survey.

NOTES: Characteristics shown in italics are calculated for a portion of the program group respondents and indicate nonexperimental data.
Missing values are not included in individual variable distributions.
Distributions may not sum to 100 percent because of rounding.
[a]Question was asked of fall 2010 cohort students only.
[b]Distributions may not sum to 100 percent because categories are not mutually exclusive.

In addition to discussing what the scholarship money was used for, focus group students also raised the issue of the timing of the scholarship disbursements. Students in all focus groups reported on the inconvenient timing of financial aid disbursements, which typically occur a few weeks into the academic term. Students with scholarships lasting more than one academic term noted that the CFC-PBS payments were very timely, as the money helped cover some up-front costs until other sources of financial aid became available. This was especially true after the first academic term; money from an end-of-the-term performance payment could go toward expenses incurred at the beginning of the following semester.

The follow-up survey also asked students about the timing of the CFC-PBS disbursements, shown in Table 3.3. Of 1,394 survey respondents, 46 percent preferred receiving two equal payments per term (one at the beginning and one at the end), while 16 percent leaned toward receiving one lump sum at the end of the term.

Finally, for some students, the CFC-PBS scholarships meant much more than just money to cover college-related expenses. A student who received a Scholarship Type 6 ($4,000 over two years) took the time to send an e-mail in which he shared the impact the scholarship has had on his academic journey and beyond:

> You cannot believe how much help being a part of this study has been over the last two years. At times I was worried that my financial aid would not be enough to cover the cost of my books for the semester, but this scholarship was always there to alleviate the stress that comes with paying for college.... Thank you and your staff for all of your support. You all have definitely changed my life for the better.

Conclusion

In sum, the Cash for College program components provided a solid foundation for the overlay of the CFC-PBS Program. Data from qualitative interviews with the Cash for College partners,

the follow-up survey, and student focus groups support the conclusion that the CFC-PBS Program was largely carried out as envisioned.

Furthermore, survey and qualitative data shed light on some of the experiences of CFC-PBS scholarship recipients. Significant numbers of students mentioned not being worried about meeting the program's "C" or better GPA benchmark. However, while students did not appear concerned about the academic benchmark, they reported that the additional money did push them to work harder academically. Additionally, for many students, the supplemental financial aid provided by the performance-based scholarships allowed them to cover up-front college-related expenses, the cost of textbooks in particular.

More than 80 percent of students received at least one scholarship payment during the first two-and-a-half terms. Those students who did not receive a scholarship payment may have never enrolled or submitted verification documentation, dropped out, or been unable to receive a scholarship payment in any term. Scholarship payment patterns do seem to differ slightly among scholarship types, but because Scholarship Type 5 and 6 students are eligible for payment in the fourth term, it is not possible to interpret whether these differences in payment rates are meaningful using the early data presented in this report.

The next chapter examines the effects of the program on educational and socio-psychological outcomes for all students in the study.

Chapter 4

Overall Effects on Academic and Other Outcomes

While there are a handful of studies on the effectiveness of financial incentives for postsecondary students that have employed rigorous random assignment designs, the Cash for College Performance-Based Scholarship (CFC-PBS) Program is unique in that it compares the effectiveness of need-based aid with that of similar aid with performance criteria, and it also permits an examination of whether effectiveness varies by the amount and duration of the financial incentives.[1] This chapter analyzes the effect of the CFC-PBS Program on enrollment and other educational outcomes up to three terms after students enrolled in the study. The chapter focuses on three primary research questions:

- Does the CFC-PBS Program affect matriculation and enrollment?
- Does the program work better for a particular group of students?
- Does the intervention affect student behavior? For example, does the program induce students to exert greater effort in their studies or does it affect their motivation to do well academically?

The key findings are as follows:

- The CFC-PBS Program generated a modest positive impact on first-term enrollment of about 5 percentage points above the control group average enrollment rate of 84.4 percent. It produced somewhat smaller positive effects on second- and third-term enrollment. These effects extended to numerous subgroups, such as males, females, and students of Hispanic/Latino ethnicity. The program had stronger effects for those students who may not have been intrinsically motivated to apply for financial aid, meaning that some external factor (such as pressure from parents) was more responsible for a student's participation. There is strong evidence that the program affected students with lower high school grade point averages (GPAs) more than students with higher high school GPAs.
- Matriculation impacts were concentrated among students attending two-year colleges (specifically, California community colleges). This is reasonable

[1] See Chapter 6 for a summary of research on the effect of financial aid on academic achievement.

given the timing of notification of scholarship eligibility in June (the summer prior to fall matriculation). The program also induced students attending California community colleges to attempt and to earn a greater number of college-level credits. However, the increase in credits attempted and earned is relatively small in magnitude (about one-quarter of a course on average).

- The CFC-PBS Program seems to have increased the "good" types of extrinsic motivation. That is, the survey findings suggest that the money from the intervention likely motivated students to achieve academically, and the motivation may have remained when the stimulus of the money was removed.
- There is some evidence that the intervention changed academic effort, based on the proxy measures included in the survey, and there is also evidence that the intervention decreased employment.

The remainder of this chapter proceeds as follows: First, the effect of the program on early academic outcomes is provided and the findings by various subgroups are presented. Next, possible reasons for the findings are explored. The chapter concludes with a summary of the lessons learned.

Early Academic Outcomes

The CFC-PBS Program provides a need-based grant to sample members contingent on their enrolling and earning grades of a "C" or better in at least six credits. Each term starts anew, so payments are contingent on current academic performance and not previous performance. These rules, along with the time-limited nature of eligibility, provide a strong incentive for program group members to meet the academic benchmarks in the early terms of their eligibility. Thus, impacts on enrollment, credits attempted, and credits earned are expected to occur fairly early in the period after students were randomly assigned to different scholarship groups. If those receiving the performance-based scholarships persist and earn more credits than they would have in the absence of the program, the impacts could translate into graduation effects over time. On the other hand, if the main effect is to increase the number of credits earned for those who eventually would persist and earn additional credits anyway, then the program impacts will tend to dissipate over time as control group members "catch up." Prior research suggests that either effect can occur, but impacts on persistence, credits attempted, and credits earned are reasonable during the terms the program operates.[2] The main analyses examine ma-

[2]For example, Brock and Richburg-Hayes (2006), Cha and Patel (2010), and Patel and Rudd (2012) all find impacts on credits attempted and credits earned during the terms in which program group students remain eligible for performance-based scholarships. Only Brock and Richburg-Hayes (2006) find sizable impacts on

triculation and persistence rates for the Cash for College (CFC) program group eligible for the need-based scholarship (Scholarship Type 1, $1,000 without performance criteria) and the performance-based scholarships (PBS) program group (eligible for Scholarship Types 2 through 6) compared with the control group.[3] Additional sensitivity analyses are limited to the PBS program group and the control group.

Matriculation

The first panel in Table 4.1 shows impacts on enrollment in the first term after high school completion using administrative data from the National Student Clearinghouse (Clearinghouse).[4] The first column shows the CFC program group, or the group that was randomly assigned to receive the CFC $1,000 scholarship that is purely need-based (Scholarship Type 1). The second column of the table shows the PBS program group, or the larger group of students randomly assigned to receive one of the five performance-based scholarship types (Scholarship Types 2 through 6). About 88 percent of CFC program group students and 89 percent of PBS program group students enrolled in college, compared with about 84 percent of control group students, for a difference of 3.5 and 4.9 percentage points, respectively. This latter impact is statistically significant, indicating that the increase in matriculation is not likely to have occurred by chance.[5] These high rates of enrollment are not surprising given the target sample for the CFC-PBS Program — that is, high school seniors (most with their parents) who committed to spend a day to complete the Free Application for Federal Student Aid (FAFSA). The last set of columns shows the difference in matriculation rates for the two program groups. The difference in enrollment between the CFC program group and PBS program group is 1.4 percentage points. This difference is statistically insignificant, which implies that the impact estimates are not distinguishable from each other.

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persistence and Patel, Richburg-Hayes, de la Campa, and Rudd (2013) find impacts on graduation rates after the program ends. Taken together, there is mixed evidence on whether performance-based scholarships are more likely to accelerate the accumulation of academic outcomes faster than what would have occurred without the interventions. See Patel, Richburg-Hayes, de la Campa, and Rudd (2013) for a summary of the interim findings from performance-based scholarships.

[3]The distinction between these two groups is made here in order to more succinctly compare students eligible for Scholarship Type 1 with students eligible for Scholarship Types 2 through 6.

[4]While most of the students in the study were found in the Clearinghouse database, 320 students — or 6.5 percent of the observations — were not found. See Appendix A for details.

[5]The impact for the CFC program group of 3.5 is barely insignificant at the 10 percent level (p-value = 0.103). When including other covariates that may improve precision, such as high school GPA, gender, race/ethnicity, highest degree earned by parent, and so on, the impact on first-term enrollment becomes significant (p-value = 0.082). However, the standard errors of the remaining outcomes only marginally decrease, so the improvement in precision does not qualitatively change the story depicted in Table 4.1.

The Performance-Based Scholarship Demonstration

Table 4.1

Enrollment Outcomes: First Through Third Terms

Cash for College Performance-Based Scholarship Study

Outcome (%)	Average Outcome Levels: CFC Program Group	Average Outcome Levels: PBS Program Group	Average Outcome Levels: Control Group	CFC Program vs. Control: Difference	CFC Program vs. Control: Standard Error	PBS Program vs. Control: Difference	PBS Program vs. Control: Standard Error	PBS Program vs. CFC Program: Difference	PBS Program vs. CFC Program: Standard Error
First term									
Enrolled in any college[a]	87.9	89.3	84.4	3.5	2.1	4.9 ***	1.1	1.4	2.3
Enrolled in any 2-year college	48.3	47.9	43.2	5.2 *	3.1	4.7 ***	1.6	-0.5	3.2
Enrolled in a California community college	48.0	47.5	42.7	5.3 *	3.1	4.8 ***	1.6	-0.5	3.2
Enrolled in any 4-year college	39.9	42.8	42.8	-2.9	3.1	0.0	1.6	3.0	3.2
Enrolled in a California State University college	22.6	23.1	22.9	-0.3	2.6	0.2	1.4	0.5	2.8
Enrolled in a University of California college	11.2	13.3	12.9	-1.8	2.1	0.3	1.1	2.1	2.2
Second term									
Enrolled in any college[a]	87.5	88.4	84.7	2.8	2.2	3.7 ***	1.1	0.9	2.3
Enrolled in any 2-year college	51.6	51.4	47.0	4.5	3.1	4.4 ***	1.6	-0.1	3.3
Enrolled in a California community college	51.2	50.8	46.4	4.8	3.1	4.4 ***	1.6	-0.5	3.3
Enrolled in any 4-year college	38.1	41.7	42.1	-4.0	3.0	-0.4	1.6	3.6	3.2
Enrolled in a California State University college	22.2	22.3	22.2	0.0	2.6	0.1	1.3	0.0	2.7
Enrolled in a University of California college	9.7	13.2	12.7	-3.0	2.1	0.5	1.1	3.5	2.2

(continued)

Table 4.1 (continued)

Outcome (%)	Average Outcome Levels: CFC Program Group	Average Outcome Levels: PBS Program Group	Average Outcome Levels: Control Group	CFC Program vs. Control: Difference	CFC Program vs. Control: Standard Error	PBS Program vs. Control: Difference	PBS Program vs. Control: Standard Error	PBS Program vs. CFC Program: Difference	PBS Program vs. CFC Program: Standard Error
Third term									
Enrolled in any college[a]	80.0	81.4	79.0	1.0	2.5	2.4 *	1.3	1.4	2.6
Enrolled in any 2-year college	46.2	43.9	41.4	4.8	3.1	2.5	1.6	-2.3	3.2
Enrolled in a California community college	45.5	42.9	40.8	4.7	3.1	2.1	1.6	-2.6	3.2
Enrolled in any 4-year college	34.5	38.5	38.2	-3.7	3.0	0.3	1.6	4.0	3.2
Enrolled in a California State University college	19.7	20.5	19.9	-0.2	2.5	0.6	1.3	0.8	2.6
Enrolled in a University of California college	9.0	12.0	11.7	-2.7	2.0	0.2	1.0	3.0	2.1
Sample size (total = 4,921)	279	1,361	3,281						

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

National Student Clearinghouse data were not found for 320 students (6.5 percent of the sample).

[a]A small proportion of students were enrolled at more than one institution.

In earlier MDRC studies of performance-based scholarships, impacts on enrollment during the first program term rarely occurred.[6] This is likely because students were recruited to participate after they were already registered, or similarly committed to register (such as through participation in an installment plan), leaving little to no opportunity for the program to affect enrollment in the first term. Given the notification of scholarship eligibility in June for the CFC-PBS Program, it is reasonable to expect a similar pattern among students selecting to attend four-year institutions, as such institutions typically require students to apply and accept an invitation to enroll several months prior to the start of the academic term (in other words, before June). As a result, the first-term impacts reported above will tend to be concentrated among students attending community colleges or other two-year private institutions, as students can decide to enroll in these at any time before the add/drop deadline (which may occur as late as September in such institutions).

The remaining rows in the panel divide enrollment into the types of institutions where students matriculated. As expected, these rows show that all of the impact in first-term enrollment is being driven by enrollment in two-year colleges, where about half of the students matriculated.

Second-Term Persistence

The second panel of Table 4.1 presents figures on continued enrollment in the second term, or spring term, after random assignment. The first row of the panel shows that all groups of students continued to be enrolled at high rates, but the PBS program group students were 3.7 percentage points more likely to be enrolled than control group students. There is no statistical difference in enrollment for CFC program group students and control group students. Again, the impacts are being driven by enrollment in two-year colleges.

Year-to-Year Persistence

The last panel shows persistence in the third term, or enrollment one full year after random assignment. The first row shows a slight drop in attendance among both program group and control group members. About 81 percent of PBS program group members were enrolled, compared with 80 percent of CFC program group members and 79 percent of control group members. While a drop in enrollment over a year is quite common, PBS program group students were about 2.4 percentage points more likely to return compared with control group stu-

[6]For more information, see Cha and Patel (2010); Miller, Binder, Harris, and Krause (2011); Patel and Rudd (2012); and Patel and Valenzuela (2013).

dents.[7] In short, the table suggests that the performance-based scholarships resulted in a small increase in year-to-year persistence.

Enrollment Impacts by Scholarship Type

Table 4.2 shows enrollment outcomes by scholarship type, where the six scholarship types are shown across the columns of the table (see Box 4.1 for how to read a six-way impact table). The first entry in the first-term panel shows the average enrollment rate for control group members of 84.4 percent, a figure that is identical to that shown in the first panel of Table 4.1. The entry in the second column shows no statistically significant difference in outcomes for program group members assigned to Scholarship Type 1 (the CFC program group, also shown in the first panel of Table 4.1) compared with the control group. The third column shows an increase in enrollment of 4.1 percentage points for PBS program group students assigned to Scholarship Type 2. This impact indicates that 88.5 percent (= 84.4 + 4.1) of PBS program group students assigned to the one-term, $1,000 scholarship type matriculated at an institution in the fall following random assignment.

The remaining entries in the first-term panel show the impact associated with enrollment by a PBS program group student assigned to a particular scholarship type compared with the control group mean. The entries are all modest, positive, and statistically significant, which suggests that the pooled PBS program group impact reported in the first panel of Table 4.1 is not driven by a particular scholarship type.[8]

The second-term panel shows impacts on enrollment in the spring term. The first column replicates the control group enrollment rate of 84.7 percent reported in Table 4.1. The remaining columns show the impact over the control group mean for each scholarship type. The table suggests that differences in enrollment impacts can be detected only for Scholarship Type 3 ($500 in each of two terms) and Scholarship Type 4 ($1,000 in each of two terms). These two scholarship types appear to drive the overall pooled impact reported in Table 4.1. The last panel reports on year-to-year persistence, and the entries reveal that only the impact of 4.4 percentage

[7]Drop-off after the summer term is typical and slightly larger on average than reported in the text. Horn and Weko (2009), using data from the 2003-2004 cohort of the Beginning Postsecondary Students Longitudinal Study that are limited to community college students, report that 22.9 percent of students depart in the first year, or 77.1 percent were retained (Table 10, p. 33).

[8]While the enrollment rates among the various PBS program groups differ from those of the control group, they are not statistically different from each other. See Appendix Tables D.1 and D.2 for the full matrix of comparisons and Box 4.1 for an explanation of how to read the table. As discussed in Chapter 2, to mitigate spurious findings, individual pairs of treatments are examined only when the F-test of whether the coefficients for the performance-based scholarship types are jointly equal to zero is significant. See Schochet (2008).

Box 4.1

How to Read the Six-Way Impact Tables in This Report

Some tables in this report use the format illustrated in the table excerpt below, which displays the first-semester enrollment outcome for the six program groups and the control group. The first column shows that 84.4 percent of control group students enrolled in the first term. The second column shows that students assigned to Scholarship Type 1 (or the one-semester, $1,000 scholarship without performance criteria) enrolled at a rate that was 3.5 percentage points higher than the control group. The second column also shows the standard error of the estimate, 2.1 percentage points, reported in parentheses below the impact. This difference is not statistically significant at conventional levels.

That is, 3.5 is the difference in the rate of enrollment between the Scholarship Type 1 group and the control group, or the estimated average *impact* of the opportunity to participate in the program. The program group for Scholarship Type 1 enrolled at a rate of 87.9 percent, which can be calculated by adding the impact of 3.5 percentage points to the outcome of 84.4 percent. Statistical significance is denoted in the same way as in other tables in this report, and the lack of any asterisks indicates that the estimated impact is not significant at the 1 percent, 5 percent, or 10 percent level.

Outcome (%)	Control Group Average	Impact by Scholarship Type 1	2	3
Performance-based scholarship		No	Yes	Yes
Amount of scholarship per semester ($)		1,000	1,000	500
Duration of scholarship		1 semester	1 semester	2 semesters
First term				
Enrolled in any college	84.4	3.5	4.1 *	3.9 *
		(2.1)	(2.2)	(2.2)

points for Scholarship Type 5 ($500 in each of four terms) is statistically different from the control group mean.

So what do these findings mean? Overall, the differences in enrollment caused by the program are positive, modest in size, and generally statistically significant as compared with what would have happened in the absence of the program (the status quo, as represented by the control group).

Increases in matriculation occurred almost uniformly across all scholarship types and appear to be concentrated among students enrolling in two-year institutions (not shown in the tables). The uniformity of impacts suggests that modest increases in matriculation can be accomplished with fairly low dollar amounts. In fact, the analyses suggest that scholarships of $500 to $1,000, independent of duration, perform equally well in affecting first-term enrollment.[9] These results are among the first to show conclusively that financial aid increases enrollment in postsecondary education and that modest scholarship amounts (typical of private scholarships such as those offered by small organizations like local town businesses) can have effects on matriculation.

The findings also suggest that $1,000 performance-based scholarships are equally as effective as $1,000 need-based grants in generating matriculation effects (and failing to generate persistence effects). Appendix Table D.3 suggests that the difference in impacts between Scholarship Type 1 (the original CFC program scholarship) and Scholarship Type 2 is statistically insignificant across each term.[10]

The early evidence on the effectiveness of one-year scholarships suggests such scholarships may affect enrollment while the scholarship is available. For example, Table 4.2 shows positive and statistically significant impacts for Scholarship Type 3 ($500 in each of two terms) and Scholarship Type 4 ($1,000 in each of two terms) over the control group mean during both the first term and second term. The impacts appear to fade in the third term when program group students were no longer eligible.

In short, performance-based scholarships appear to encourage matriculation and improve persistence. It is too early to interpret the patterns of enrollment for Scholarship Type 5 and Scholarship Type 6 students in this report as these scholarships are disbursed over two years and a stable pattern may emerge only once the scholarship disbursements are completed. As a result of this, it is premature to determine what amounts of aid matter based on the analyzed data.

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[9]Appendix Table D.1 shows no statistical differences in first-term enrollment between any pair of scholarship types. Appendix Tables D.4 and D.5 compare $1,000-per-term scholarships with $500-per-term scholarships and show no meaningful differences. While one could argue that the cross-comparisons shown in Appendix Table D.1 are insignificant as a result of the sample sizes for each comparison being underpowered, the point estimates shown in the table are sufficiently small to be irrelevant in both a policy sense and a practical sense. From a policy perspective, differences as small as 1.4 percentage points are not meaningful, as such increases are unlikely to move the long-term outcomes (such as graduation and employment) that are of ultimate concern. In a practical sense, in order to detect differences of the magnitude of 1.8 percentage points with 80 percent power, a sample size of roughly 5,000 observations would be required in each group.

[10]See Appendix Table D.3 for formal tests of equality of the two scholarship types across the three program terms.

The Performance-Based Scholarship Demonstration

Table 4.2

Enrollment Impact Over the Control Group, by Scholarship Type: First Through Third Terms

Cash for College Performance-Based Scholarship Study

Outcome (%)	Control Group Average	Impact by Scholarship Type 1	2	3	4	5	6
Performance-based scholarship		No	Yes	Yes	Yes	Yes	Yes
Amount of scholarship per semester ($)		1,000	1,000	500	1,000	500	1,000
Duration of scholarship		1 semester	1 semester	2 semesters	2 semesters	4 semesters	4 semesters
First term							
Enrolled in any college	84.4	3.5	4.1 *	3.9 *	5.1 **	5.3 **	5.9 ***
		(2.1)	(2.2)	(2.2)	(2.2)	(2.2)	(2.2)
Second term							
Enrolled in any college	84.7	2.8	3.5	5.6 **	3.8 *	2.7	3.0
		(2.2)	(2.2)	(2.2)	(2.2)	(2.2)	(2.2)
Third term							
Enrolled in any college	79.0	1.0	1.8	3.2	1.9	4.4 *	0.5
		(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)
Sample size (total = 4,921)	3,281	279	264	273	276	276	272

(continued)

Table 4.2 (continued)

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: To analyze whether the performance-based scholarship type predicted registration, a joint test was performed, adjusting for research cohort and workshop region. For the first program semester, this test yielded a p-value for the F-statistic of less than 0.01, which is significant at the 1 percent level. This suggests that the differences in first-semester registration between scholarship types and the control group are unlikely to have occurred by chance. For the second program semester, this test yielded a p-value for the F-statistic of 0.03, which is significant at the 5 percent level. For the third program semester, this test yielded a p-value for the F-statistic of 0.42, which is not significant at any level.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

Standard errors are reported in parentheses under impact estimates.

National Student Clearinghouse data were not found for 320 students (6.5 percent of the sample).

Subgroup Analyses of the Effect of Performance-Based Scholarships

Based on previous research, several subgroups were specified before the analysis began based on characteristics before random assignment: gender, race/ethnicity, high school preparedness (using high school GPA as a proxy), and motivation for applying for financial aid at baseline.[11] Table 4.3 shows matriculation impacts for the above subgroups. The first panel shows that males in the PBS program group registered at a higher rate (6.9 percentage points higher) than males in the control group.[12] The pattern of higher registration is also evident among women. However, the difference in first-term enrollment impacts between men and women is not statistically significant, indicating that performance-based scholarships work equally well for both groups.

The second panel shows matriculation rates by ethnicity. Both Latino and non-Latino PBS program group members registered at higher rates than their respective control group counterparts. Again, the difference in impacts between Latino students and non-Latino students is not statistically significant.

The third panel shows that the program did not affect students who may have been well prepared for college, as proxied by having a high school GPA of 3.0 or higher, but it did induce less-prepared students to matriculate at higher rates.[13] That is, the program had a differential effect on less-prepared students above what could be expected by chance because the difference in matriculation impacts between the two groups is statistically significant.

The last panel of Table 4.3 shows differences by whether students were intrinsically motivated to apply for financial aid — that is, whether the factor that motivated them to apply for financial aid was internally driven as opposed to their being externally coerced, such as through pressure from parents.[14] The table shows that program group students in both subgroups were induced to enroll at greater rates.

Table 4.4 shows enrollment impacts for the second term by the same subgroups. The above patterns are largely repeated, and the program continued to have a differential effect on

[11]AB 540 status was also prespecified, but that subgroup is excluded from all analyses in this report because data collected for these students were incomplete as a result of the absence of Social Security numbers and poor matches by name and date of birth. See Appendix A.

[12]All analyses in this section focus on the pooled performance-based scholarship program group; the CFC program group is omitted from all analyses.

[13]The sequence of courses taken is an alternative proxy of college preparedness, but that information is unavailable for the sample.

[14]Ryan and Deci (2000).

The Performance-Based Scholarship Demonstration

Table 4.3

Enrollment by Subgroups: First Term

Cash for College Performance-Based Scholarship Study

Subgroup (%)	Sample Size	PBS Program Group	Control Group	Difference	Standard Error	Difference Between Subgroups
Gender						
Male	1,848	89.5	82.6	6.9 ***	1.8	
Female	2,793	89.1	85.5	3.6 ***	1.4	
Total sample size	4,641					
Latino						
Yes	2,795	88.9	82.9	6.0 ***	1.5	
No	1,806	89.8	86.8	3.0 *	1.7	
Total sample size	4,601					
High school preparedness						†††
High school GPA 3.0 or above	2,222	93.6	92.6	1.0	1.2	
High school GPA below 3.0	2,389	85.3	76.9	8.4 ***	1.8	
Total sample size	4,611					
Motivation to apply for financial aid[a]						
Relative Autonomy Index 0 or above	3,834	89.3	85.0	4.3 ***	1.2	
Relative Autonomy Index below 0	782	89.5	81.5	8.1 ***	2.9	
Total sample size	4,616					

SOURCES: MDRC calculations using National Student Clearinghouse data, Exit Survey (Baseline Information Form) data, and Cal Grant data provided by the California Student Aid Commission.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

A two-tailed t-test was applied to differences in impacts between subgroups. Statistical significance levels are indicated as: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

[a]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

The Performance-Based Scholarship Demonstration

Table 4.4

Enrollment by Subgroups: Second Term

Cash for College Performance-Based Scholarship Study

Subgroup (%)	Sample Size	PBS Program Group	Control Group	Difference	Standard Error	Difference Between Subgroups
Gender						
Male	1,848	87.4	83.0	4.4 **	1.9	
Female	2,793	89.1	85.8	3.3 **	1.4	
Total sample size	4,641					
Latino						
Yes	2,795	88.6	84.0	4.6 ***	1.5	
No	1,806	88.2	86.0	2.2	1.7	
Total sample size	4,601					
High school preparedness						††
High school GPA 3.0 or above	2,222	93.1	92.1	1.0	1.2	
High school GPA below 3.0	2,389	83.7	78.0	5.8 ***	1.8	
Total sample size	4,611					
Motivation to apply for financial aid[a]						††
Relative Autonomy Index 0 or above	3,834	88.2	85.6	2.5 **	1.2	
Relative Autonomy Index below 0	782	90.3	80.4	9.9 ***	2.9	
Total sample size	4,616					

SOURCES: MDRC calculations using National Student Clearinghouse data, Exit Survey (Baseline Information Form) data, and Cal Grant data provided by the California Student Aid Commission.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

A two-tailed t-test was applied to differences in impacts between subgroups. Statistical significance levels are indicated as: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

[a]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

less-prepared students (proxied by their high school GPA), as the difference in persistence impacts between the two groups is statistically significant. The exception to the pattern shown in Table 4.3 is that a small enrollment impact appears for those students who were not intrinsically motivated to apply for financial aid in Table 4.4. That is, while both program groups continued to be induced to enroll at higher rates than the control group, the effects were larger for those who did not have a strong personal interest in applying for financial aid in their senior year of high school.

Finally, Table 4.5 shows enrollment impacts for the third term (showing year-to-year persistence), by the above subgroups. The impacts by gender fade over time, while those for Latino students are sustained, although smaller in magnitude. The differential effect for less-prepared students disappears for year-to-year persistence. Importantly, the program continued to have a large and persistent effect on students who were less intrinsically motivated to apply for financial aid at baseline. The table entries suggest that without the CFC-PBS Program, about 75 percent of such students would be enrolled one year after matriculation. In contrast, the CFC-PBS Program induced about 84 percent of students to persist, for an increase of 9 percentage points (or a 12 percent increase in enrollment). In short, there is evidence that the CFC-PBS Program may work better over multiple semesters for students who may not be intrinsically motivated to attend workshops like Cash for College.

Understanding the Effects of the Scholarship

Enrollment at California Community Colleges

The above analyses show that both matriculation and persistence impacts are largely driven by enrollment in two-year institutions. The tables also show that the vast majority of this enrollment in two-year institutions occurred at California community colleges. To further illuminate how the CFC-PBS Program affected program group students, an analysis of academic outcomes using data from the California Community College Chancellor's Office (CCCCO) was performed.[15] Table 4.6 shows that PBS program group students registered in California community colleges at higher rates than control group students, a finding that was reported in Table 4.1 using Clearinghouse data. There are some differences between Tables 4.1 and 4.6 due to a small number of discrepancies between the Clearinghouse and CCCCO data provided to MDRC.

[15]Since transcript information is available only for students who enrolled in a community college in California, assumptions about the enrollment of other students are needed to perform an intent-to-treat analysis. In this section, students not found in the data are assumed not to be enrolled.

The Performance-Based Scholarship Demonstration

Table 4.5

Enrollment by Subgroups: Third Term

Cash for College Performance-Based Scholarship Study

Subgroup (%)	Sample Size	PBS Program Group	Control Group	Difference	Standard Error	Difference Between Subgroups
Gender						
Male	1,848	79.2	76.4	2.8	2.1	
Female	2,793	82.8	80.8	2.0	1.6	
Total sample size	4,641					
Latino						
Yes	2,795	82.5	79.1	3.4 **	1.6	
No	1,806	79.9	78.9	1.0	2.0	
Total sample size	4,601					
High school preparedness						
High school GPA 3.0 or above	2,222	89.5	88.9	0.6	1.4	
High school GPA below 3.0	2,389	73.4	70.1	3.3 *	2.0	
Total sample size	4,611					
Motivation to apply for financial aid[a]						††
Relative Autonomy Index 0 or above	3,834	81.0	80.0	1.0	1.4	
Relative Autonomy Index below 0	782	83.9	74.9	9.0 ***	3.3	
Total sample size	4,616					

SOURCES: MDRC calculations using National Student Clearinghouse data, Exit Survey (Baseline Information Form) data, and Cal Grant data provided by the California Student Aid Commission.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

A two-tailed t-test was applied to differences in impacts between subgroups. Statistical significance levels are indicated as: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

[a]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

The Performance-Based Scholarship Demonstration

Table 4.6

Academic Outcomes in California Community Colleges: First Through Second Terms

Cash for College Performance-Based Scholarship Study

Outcome	PBS Program Group	Control Group	Difference	Standard Error
First term				
Enrolled for any courses (%)	48.0	42.8	5.3 ***	1.6
Full time[a]	31.4	29.0	2.4 *	1.4
Part time[b]	12.9	9.5	3.5 ***	1.0
Average number of credits attempted	5.7	5.0	0.7 ***	0.2
College-level credits	4.7	4.1	0.6 ***	0.2
Developmental credits	0.9	0.9	0.1	0.1
Average number of credits earned	4.5	3.9	0.6 ***	0.2
College-level credits	3.8	3.3	0.5 ***	0.2
Developmental credits	0.7	0.7	0.0	0.1
Number of credits earned (%)				
12 or more	21.2	18.4	2.8 **	1.3
6 to less than 12	15.8	13.9	1.9 *	1.1
Term GPA (%)				
3.0 to 4.0	16.9	15.0	1.9	1.2
2.0 to 2.9	15.1	13.7	1.4	1.1
Less than 2.0	14.0	12.1	2.0 *	1.1
No GPA[c]	54.0	59.3	-5.3 ***	1.6
Earned 6+ credits with a term GPA of 2.0 or greater in fall term (%)	29.2	25.8	3.4 **	1.4
Second term				
Enrolled for any courses (%)	49.4	45.7	3.7 **	1.6
Full time[a]	31.6	27.6	4.0 ***	1.4
Part time[b]	12.2	12.3	-0.1	1.1
Average number of credits attempted	6.0	5.3	0.6 ***	0.2
College-level credits	5.2	4.7	0.5 ***	0.2
Developmental credits	0.7	0.6	0.1	0.1
Average number of credits earned	4.5	4.0	0.4 **	0.2
College-level credits	4.0	3.6	0.4 **	0.2
Developmental credits	0.5	0.5	0.0	0.1

(continued)

Table 4.6 (continued)

Outcome	PBS Program Group	Control Group	Difference	Standard Error
Number of credits earned (%)				
12 or more	19.8	17.1	2.7 **	1.2
6 to less than 12	14.6	14.2	0.4	1.1
Term GPA (%)				
3.0 to 4.0	16.7	15.6	1.1	1.2
2.0 to 2.9	15.1	14.2	0.9	1.1
Less than 2.0	15.7	13.7	2.0 *	1.1
No GPA[c]	52.5	56.4	-3.9 **	1.6
Earned 6+ credits with a term GPA of 2.0 or greater in spring term (%)	25.9	23.8	2.1	1.4
Earned 6+ credits with a term GPA of 2.0 or greater in summer term (%)	3.4	2.6	0.8	0.5
Cumulative terms 1 through 2				
Average number of credits earned	8.9	7.9	1.0 ***	0.4
Sample size (total = 4,642)	1,361	3,281		

SOURCE: MDRC calculations using California Community College Chancellor's Office transcript data.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

[a]Full-time enrollment is defined as 12 or more credits attempted.

[b]Part-time enrollment is defined as 6 to 12 credits attempted.

[c]The "No GPA" category includes students who did not enroll for any courses at a California community college.

The greater detail provided by the data in Table 4.6 shows that the intervention increased both full-time and part-time enrollment in the first term. PBS program group students attempted and earned more college credits at California community colleges than control group students, although the impact is modest (less than one-quarter of a course). Interestingly, the gain in credits earned seems to be driven by college-level credits. While the average level of credits earned is low, any gain in degree-applicable credits is desirable as such gains may place students on a shorter trajectory to completing their degrees. The last row of the panel shows a slight increase (3.4 percentage points) in the proportion of PBS program group students who met the academic benchmarks of earning six or more credits with a term GPA of 2.0 or better.

The panel for the second program term shows similar patterns: increased enrollment (or second-term persistence), a greater number of credits attempted, and a higher number of credits earned (concentrated among college-level credits). Overall, PBS program group students accumulated an average of one credit more than control group students after two terms.

The detailed CCCCO data also provide more insight into the proportion of students who met the scholarship benchmarks but did not collect a payment. In the first term, 44.3 percent of program group students (603 students) enrolled at least part time at an eligible California community college. Of these students, around 9 percent did not receive their enrollment payments (not shown in the table). Similarly, 397 students were eligible for the performance award in the first term (that is, they were assigned to one of the Scholarship Types 2 through 6 and earned six or more credits with a term GPA of 2.0 or better), but around 17 percent of these students did not receive their performance payments (not shown in the table). This does imply that there is a subset of students who are meeting the criteria to earn the award but not submitting their documentation in order to receive payment.

How the CFC-PBS Program Interacts with State Financial Aid

A student's financial aid package contains all the various forms of aid that a student is scheduled to receive in a specific term or academic year. Its composition relies on many different factors, such as the processing of the U.S. Department of Education's FAFSA, levels of state aid generosity, student preferences, and institutional rules. In California, low-income students are eligible for a number of financial aid programs, but the Cal Grant program (described in Chapter 1) and the Board of Governors (BOG) Fee Waiver are among the most generous and well-known. Indeed, the eligibility criteria for the CFC-PBS Program targeted students who were likely to be eligible for at least one of the Cal Grant programs and required all students to submit the Cal Grant GPA Verification Form before the deadline.

In this way, the program was expected to increase the amount of additional financial aid provided to students while simultaneously providing an incentive for academic achievement. The scholarship amounts of $500 and $1,000 per term were selected to be supplemental to other aid. Yet a smaller number of students than expected were awarded Cal Grants (see Table 2.3). While virtually all CFC-PBS students applied for a Cal Grant, about 64 percent were awarded one. Around 8 percent of CFC-PBS students did not meet the high school GPA thresholds for Cal Grant A or Cal Grant B. In addition, around 13 percent of CFC-PBS students had a family income level that exceeded the Cal Grant B income limits, but the students failed to meet the Cal Grant A GPA requirement. Thus, about 21 percent of CFC-PBS students were not awarded

a Cal Grant award for reasons related to GPA and family income requirements.[16] The remaining 15 percent may not have been awarded a Cal Grant due to other factors such as differences in Cal Grant processing efficiency by institution type.[17]

A potential implication of students not being awarded all of the aid for which they are eligible is an increase in the relative importance of the performance-based scholarship in the financial aid package. However, the directionality of this increase on student behavior is unknown. That is, the effect of aid may be nonlinear such that a threshold, or foundational, amount of aid may induce a change in behavior that differs from that caused by aid that is simply added to the threshold amount.[18] Indeed, the various performance-based scholarship programs aim to have the scholarships enter the aid package as last-dollar aid, adding to other sources of aid rather than serving as the only source. Since it is unknown at what point the marginal effect of additional aid rises or falls as aid increases, the presence or absence of threshold aid (such as the Cal Grant in the CFC-PBS Program) could affect behavioral patterns. In other words, if CFC-PBS students are not awarded aid for which they are otherwise eligible, the impacts may reflect the effect of performance-based scholarships in lieu of other aid rather than as a last-dollar award, as designed.

To explore this, students who were eligible for Cal Grant A or B at baseline were compared with ineligible students, as shown in Table 4.7. The table shows higher levels of matriculation among students eligible for the two types of Cal Grants at baseline. Specifically, 92 percent of PBS program group members who were eligible for Cal Grant A and B matriculated, compared with 87 percent of control group members. These levels are higher than the 82 percent of Cal Grant-ineligible PBS program group members who matriculated and the approximately 76 percent of Cal Grant-ineligible control group members who matriculated. However, the impacts from these two groups are not statistically different, as indicated in the last column of the table.

In contrast to the above, enrollment patterns between two-year and four-year colleges differ dramatically between the groups. Slightly more than half of students who were eligible

[16]Given the income threshold requirements for the study, eligibility for Cal Grant A in this analysis is proxied solely by having a high school GPA of 3.0 or higher. Cal Grant B eligibility is calculated using dependency status, household size, and household income from the FAFSA in order to determine whether students are below the Cal Grant B income ceilings, which are lower than those required for Cal Grant A.

[17]For example, one reason for Cal Grant disqualification is that the student does not seem to have enough financial need based on the first California college listed on his or her FAFSA. (See the California Student Aid Commission website for more information: www.calgrants.org.) If such a student attends his or her lower-choice California college and that college does not seek to reconcile its eligibility list with that of the California Student Aid Commission (the fiscal agent for Cal Grants), then an otherwise eligible student will not receive an award. There are other scenarios that could similarly result in nonaward.

[18]Dynarski (2003); Long (2004).

The Performance-Based Scholarship Demonstration

Table 4.7

Enrollment Outcomes, by Cal Grant A or B Eligibility Prior to Random Assignment: First Through Third Terms

Cash for College Performance-Based Scholarship Study

Outcome (%)	Eligible for Cal Grant A or B				Not Eligible for Cal Grant A or B				Difference Between Subgroups
	PBS Program Group	Control Group	Difference	Standard Error	PBS Program Group	Control Group	Difference	Standard Error	
First term									
Enrolled in any college[a]	92.0	87.4	4.6 ***	1.2	82.2	75.7	6.4 **	3.0	
Enrolled in any 2-year college	41.6	38.9	2.7	1.8	68.4	59.4	9.0 **	3.5	
Enrolled in a California community college	41.1	38.5	2.6	1.8	68.4	58.8	9.6 ***	3.5	†
Enrolled in any 4-year college	52.2	50.5	1.7	1.8	14.1	16.8	-2.7	2.6	
Enrolled in a California State University college	27.3	26.0	1.3	1.6	10.4	11.5	-1.1	2.3	
Enrolled in a University of California college	17.2	16.6	0.6	1.4	1.1	1.3	-0.2	0.8	
Second term									
Enrolled in any college[a]	91.2	87.6	3.6 ***	1.2	80.1	76.7	3.4	3.0	
Enrolled in any 2-year college	46.2	43.4	2.8	1.8	68.2	61.6	6.6 *	3.5	
Enrolled in a California community college	45.6	42.8	2.8	1.8	67.4	60.8	6.6 *	3.5	
Enrolled in any 4-year college	50.6	49.6	1.0	1.8	13.8	16.8	-3.0	2.6	
Enrolled in a California State University college	26.3	25.3	1.0	1.6	10.0	11.2	-1.1	2.2	
Enrolled in a University of California college	17.0	16.3	0.7	1.4	1.1	1.3	-0.2	0.8	

(continued)

Table 4.7 (continued)

Outcome (%)	Eligible for Cal Grant A or B: PBS Program Group	Eligible for Cal Grant A or B: Control Group	Eligible for Cal Grant A or B: Difference	Eligible for Cal Grant A or B: Standard Error	Not Eligible for Cal Grant A or B: PBS Program Group	Not Eligible for Cal Grant A or B: Control Group	Not Eligible for Cal Grant A or B: Difference	Not Eligible for Cal Grant A or B: Standard Error	Difference Between Subgroups
Third term									
Enrolled in any college[a]	85.4	83.0	2.4 *	1.4	70.7	67.0	3.6	3.3	
Enrolled in any 2-year college	39.3	38.1	1.2	1.8	59.2	53.7	5.4	3.6	
Enrolled in a California community college	38.3	37.6	0.7	1.8	57.7	52.6	5.1	3.6	
Enrolled in any 4-year college	47.3	45.7	1.6	1.8	11.8	13.4	-1.6	2.4	
Enrolled in a California State University college	24.9	23.0	1.9	1.6	7.0	9.1	-2.1	2.0	
Enrolled in a University of California college	15.4	15.0	0.4	1.3	1.1	1.3	-0.2	0.8	
Sample size (total = 4,416)	1,025	2,503			273	615			

SOURCES: MDRC calculations using National Student Clearinghouse data and FAFSA and Cal Grant data provided by the California Student Aid Commission.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

A two-tailed t-test was applied to differences in impacts between subgroups. Statistical significance levels are indicated as: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

MDRC calculated Cal Grant A eligibility using high school GPA (minimum of 3.0); per the study's eligibility criteria, all students met the Cal Grant A/C financial need requirements. MDRC calculated Cal Grant B eligibility using high school GPA (minimum of 2.0), dependency status, household size, household income, and the Cal Grant B income ceilings for the 2009-2010 and 2010-2011 academic years.

National Student Clearinghouse data were not found for 278 students (6.3 percent of the sample).

[a]A small proportion of students were enrolled at more than one institution.

for Cal Grants matriculated at four-year institutions. Further, consistent with the earlier reported patterns, impacts on matriculation occurred only at two-year institutions. Students who were ineligible for Cal Grant A or B overwhelmingly enrolled at two-year colleges, and the impact on enrollment at California community colleges for this group (about 10 percentage points) is significantly larger than the impact on enrollment for Cal Grant-eligible students (2.6 percentage points).

Overall, the pattern of findings in Table 4.7 suggests that the CFC-PBS Program induced larger enrollment impacts at California community colleges among Cal Grant-ineligible students.

Other Behavioral Changes

The goal of this section is to try to reveal a bit more about how and why these patterns in impacts appear by exploring some of the causal mechanisms depicted in the theory of change illustrated in Figure 1.2. Specifically, the analysis explores whether the program affected stress, levels of effort, or student employment.

Stress

Table 4.8 reports on measures of social support, health, and motivation for the program group and control group. The first row of the table shows that there is little difference in receiving the educational support of friends between the program group and the control group. Similarly, both groups seem to have a low prevalence of depression and anxiety, based on K6 scores of around 7.0 (scores in excess of 12 are typically considered at high risk of psychological distress).[19] In fact, slightly more than 10 percent of students in both groups are at high risk of distress by this measure.

Motivation

The second panel of Table 4.8 reports on the effect of the CFC-PBS Program on motivation. The Relative Autonomy Index for completing course work — an overall measure of whether motivation to complete course work is internally driven — is fairly low (around a 2.5 on a scale of -18 to 18), indicating relatively low levels of intrinsic motivation. However, the levels are similar across the program group and the control group, indicating that the scholarship does not meaningfully affect relative autonomy.

However, that does not mean that the scholarship has no effect on motivation generally. Motivation can be divided into two broad types: autonomous (performed out of interest and

[19]Kessler et al. (2002).

The Performace-Based Scholarship Demonstration

Table 4.8

PBS Survey Responses: Social Support, Health, and Motivation

Cash for College Performance-Based Scholarship Study

Outcome	Sample Size	PBS Program Group	Control Group	Difference	Standard Error
Social support and health					
Friends value education[a] (average)	3,688	1.6	1.7	-0.1 **	0.0
K6 score for psychological distress[b] (average)	3,686	7.0	6.9	0.1	0.2
Indicator of high psychological distress[c] (%)	3,686	12.6	11.5	1.0	1.1
Motivation					
Motivation to complete course work[d] (average)					
Relative Autonomy Index	3,687	2.7	2.6	0.1	0.1
External regulation subscale	3,687	5.6	5.6	0.1 *	0.0
Introjected regulation subscale	3,688	4.0	3.8	0.1 **	0.1
Identified regulation subscale	3,687	6.2	6.1	0.1 ***	0.0
Integrated regulation subscale	3,687	5.9	5.7	0.1 ***	0.0
Sample size	3,689	1,163	2,526		

SOURCE: MDRC calculations using responses from the Performance-Based Scholarship 12-Month Survey.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Missing values are not included in individual variable distributions.

[a]A six-question scale measuring friends' opinions about college; response categories range from 1 = "extremely" to 4 = "not very." Questions are averaged.

[b]A six-question scale measuring nonspecific psychological distress; response categories range from 0 = "none of the time" to 4 = "all of the time." Responses are summed across all six questions, and the K6 score thus ranges from 0 to 24. Kessler et al. (2002).

[c]An indicator of the K6 screening scale measure of psychological distress exceeds 12.

[d]Motivation to complete course work is defined used the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

closely related to intrinsic motivation) and controlled (performed because of perceived external pressure and closely related to extrinsic motivation). For example, reading a book for pleasure is autonomously or intrinsically motivated, while reading a book only to avoid failing a course is a type of controlled motivation (or extrinsic motivation). The CFC-PBS Program seems to affect controlled regulation, or the latter type, as indicated by the subscale in Table 4.8. Some may consider this a negative outcome since previous research on children suggests that controlled motivation results in children not desiring to pursue an activity without a stimulus.[20] However, it is not clear whether such an interpretation is warranted for college students and adults, as many systems of daily life are configured in this way (such as receiving pay for work performed).

In fact, the table also shows that autonomous regulation — a proxy for intrinsic, or self-induced, motivation — is also slightly higher for the program group than the control group, as indicated by the subscale. While the intervention increases motivation in potentially contradictory ways, these indices suggest that the end result is an overall increase in motivation for course work (albeit a very small one).

Participation in Supplemental Learning Activities

Table 4.9 shows survey responses concerning students' participation in supplemental learning activities. Most of the table entries are conditional on enrollment and therefore represent nonexperimental estimates (hence, shown in italics). As a result, the findings should be regarded as descriptive and not causal. The table shows that about 40 percent of students in the program group and 37 percent of control group students attended a course with the intention of improving their study skills, and a much smaller number paid for tutoring services.

The table shows virtually identical patterns of seeking instructor assistance outside of class between the program group and the control group. In contrast, there was a small increase in the percentage of program group students participating in study groups.

Other evidence suggests that the CFC-PBS Program resulted in students devoting more of their time to educational activities and less time to leisure activities.[21] Specifically, students seemed to spend more time preparing for tests in the first term and more time studying or doing

[20]Understanding the type of motivation may matter because some research suggests that extrinsic motivation is difficult to maintain after the withdrawal of the externally motivating factor. In fact, the literature on incentives is populated with laboratory examples of possible negative consequences of increases in extrinsic motivation. However, other research suggests that is unclear whether increasing motivation this way is harmful in the long run and whether it is harmful for adults. See Deci, Koestner, and Ryan (2001). This strand of research suggests that the type of extrinsic motivation matters more than the mere presence of it. See Ryan and Connell (1989).

[21]Barrow and Rouse (2013).

The Performace-Based Scholarship Demonstration

Table 4.9

PBS Survey Responses: Educational Experiences

Cash for College Performance-Based Scholarship Study

Outcome (%)	Sample Size	Program Group	Control Group	Difference	Standard Error
Currently attending or ever enrolled in postsecondary institution beyond high school, after random assignment	3,689	96.6	94.9	1.7 **	0.7
Among those currently or ever enrolled in a postsecondary institution beyond high school: [a]					
Took a course to improve study skills	*3,497*	*40.0*	*37.0*		
Paid for tutoring services	*3,497*	*3.9*	*3.6*		
Sought assistance from instructor outside of class:					
Very often	*3,514*	*4.6*	*5.3*		
Often	*3,514*	*14.0*	*14.6*		
Sometimes	*3,514*	*59.4*	*58.7*		
Never	*3,514*	*21.4*	*19.7*		
Not applicable	*3,514*	*0.6*	*1.6*		
Used academic services outside of class:					
Very often	*3,497*	*8.6*	*9.3*		
Often	*3,497*	*19.6*	*20.1*		
Sometimes	*3,497*	*44.4*	*41.1*		
Never	*3,497*	*26.1*	*27.5*		
Not applicable	*3,497*	*1.3*	*1.9*		
Participated in study group with other students:					
Very often	*3,515*	*7.8*	*6.5*		
Often	*3,515*	*16.1*	*18.5*		
Sometimes	*3,515*	*48.4*	*42.2*		
Never	*3,515*	*25.5*	*30.1*		
Not applicable	*3,515*	*2.1*	*2.6*		
Sought assistance in choosing classes:					
Very often	*3,515*	*13.4*	*11.5*		
Often	*3,515*	*24.0*	*24.1*		
Sometimes	*3,515*	*42.7*	*42.3*		
Never	*3,515*	*18.7*	*20.2*		
Not applicable	*3,515*	*1.2*	*1.9*		
Sample size	3,689	1,163	2,526		

(continued)

Table 4.9 (continued)

SOURCE: MDRC calculations using responses from the Performance-Based Scholarship 12-Month Survey.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Characteristics shown in italics are calculated for a proportion of the survey respondent sample and indicate nonexperimental data.

Missing values are not included in individual variable distributions.

Distributions may not sum to 100 percent because of rounding.

[a]Responses given concern a student's current or most recent school.

homework in the second term. Finally, CFC-PBS students seemed to perform better than their control group counterparts on measures of learning strategies that are likely to help students perform better in class.

Employment

Table 4.10 shows employment outcomes for the program group and control group. About half of the sample members in each group had worked since random assignment, although PBS program group members were close to 5 percentage points less likely to work than control group members. However, about 40 percent of sample members in each group were working at the time of the survey fielding nine months later.

Conclusion

With any incentive program, there is a concern that students could respond to the incentives in ways that reasonably reflect the incentive structure but do not necessarily meet desirable outcomes from a policy perspective. Some unintended outcomes that could occur with the CFC-PBS Program are a reduction in credit hours through fewer credits attempted or an increased number of course withdrawals (which may increase the probability of meeting the benchmark but possibly delay degree attainment); the selection of easier courses or majors; a reduction in work effort for those able to perform above the academic benchmark in the absence of the intervention (resulting in program group members earning lower grades that cluster around the

The Performace-Based Scholarship Demonstration

Table 4.10

PBS Survey Responses: Employment

Cash for College Performance-Based Scholarship Study

Outcome	Sample Size	PBS Program Group	Control Group	Difference	Standard Error
Had any jobs since random assignment (%)	3,687	52.1	56.8	-4.7 ***	1.7
Number of jobs since random assignment	3,687	0.7	0.7	-0.1 **	0.0
Currently working for pay or profit (%)	3,687	39.4	40.9	-1.4	1.7
Worked in the last 7 days (%)	3,686	33.7	35.5	-1.8	1.7
Number of jobs in the last 7 days	3,686	0.4	0.4	0.0	0.0
Number of hours worked in the last 7 days	3,682	5.7	6.2	-0.5	0.4
Sample size	3,689	1,163	2,526		

SOURCE: MDRC calculations using responses from the Performance-Based Scholarship 12-Month Survey.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by research cohort and workshop region.
Missing values are not included in individual variable distributions.

benchmark); and an increase in work effort in counterproductive ways (such as cheating, petitioning for grade changes, delaying the taking of remedial courses, and so on).[22] While it is not

[22]Many of these unintended consequences have been reported in the literature on incentives. For example, Jacob and Levitt (2003) report increases in teacher cheating in response to high-stakes testing, and Cornwell, Lee, and Mustard (2005) report reduced full-time enrollment, increased course withdrawals, and concentration among "easier" majors in response to Georgia's HOPE program. Outside of postsecondary education, numerous negative income tax experiments — which provide income supplements to public assistance payments to "make work pay" — have found that such incentives increase work for some and reduce work hours for others, often resulting in a net reduction in work hours for eligible families; see Robins (1985) for a summary. There is a large literature in psychology that suggests external rewards can reduce intrinsic motivation such that once

possible to effectively rule out all of these scenarios, the data analyzed in this chapter largely suggest that the CFC-PBS Program induced students to respond in desired ways: by attending college at higher rates, attempting and earning more credits (at least among the sample for which there are transcript data), and exhibiting greater effort in academics.

While it is too early to claim that the CFC-PBS Program is a success based on the data period in this report, the analysis so far has produced a few notable findings. Specifically, the California program generated modest impacts on enrollment over the first three terms, and these impacts are concentrated among students attending two-year colleges. The findings extend across a number of at-risk subgroups. There is some evidence that the program had larger effects on enrollment for students with high school GPAs below 3.0 and students who were not intrinsically motivated to apply for financial aid at baseline. These groups may proxy students who are less likely to attend college, all else being equal. However, it is too early to draw conclusions on what amounts of scholarships are most effective because the complete data for Scholarship Type 5 ($2,000 over two years) and Scholarship Type 6 ($4,000 over two years) are not yet available.

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the rewards are removed, productivity declines. See Eisenberger and Cameron (1996) for a meta-analytic review that suggests the limited conditions under which these negative outcomes occur.

Chapter 5

Cost Analysis of the Cash for College Performance-Based Scholarship Program

The analysis in this chapter provides an early examination of the cost of the Cash for College Performance-Based Scholarship (CFC-PBS) Program. Since payments for Scholarship Type 5 ($2,000 over two years) and Scholarship Type 6 ($4,000 over two years) are spread across four terms, extending beyond the available data covered in this report, the analysis is limited to Scholarship Types 1 through 4. (See Box 5.1 for brief descriptions of the scholarship types included in the analysis.) Cost estimates will be updated in future Performance-Based Scholarship (PBS) Demonstration analyses. As a result of the current follow-up limitations, the analysis does not comment on the program's cost-effectiveness or draw conclusions as to whether the program's impacts justify its costs. Instead, the chapter examines the following research questions:

- How much did each scholarship cost? Specifically, how much was spent on scholarship payments and how much was spent on program administration?
- What percentage of scholarships offered to students were actually paid? Specifically, how did this vary across the different scholarship types and how did this vary based on payment characteristics?

Key Findings

- **Scholarship payments made up the majority of program costs.** Across the four scholarship types covered in this analysis, between 61 percent and 77 percent of CFC-PBS Program costs were paid directly to students in the form of scholarships. The remaining 23 percent to 39 percent of program costs paid for program administration.
- **The cost to administer scholarships increases as more performance requirements are added.** Administrative costs varied from $247 to $359 per program group member. Scholarship Type 1, with no performance requirements, had the lowest administrative cost, while Scholarship Types 3 and 4, with the most rigorous performance requirements, had the highest.
- **Students received a lower proportion of scholarships offered when payments were based on academic performance and spread over a longer**

Box 5.1

Scholarship Types Analyzed in Chapter 5

Chapter 5 analyzes the cost of the CFC-PBS Program. Because cost data are limited to the period of three program semesters, the analysis in the chapter is limited to Scholarship Types 1 through 4.

Enrollment payments are contingent upon a student enrolling at least half time in an accredited college or university. Performance payments are contingent upon a student maintaining a "C" or better grade point average and earning at least six credits.

Scholarship Types 1 through 4 have the following characteristics:

- **Scholarship Type 1:** This scholarship is not performance-based. Students can receive $1,000 as a lump sum upon verifying their enrollment in an accredited college or university in the fall after high school graduation.
- **Scholarship Type 2:** Students can receive up to $1,000 in two payments over the course of one semester. The first payment is contingent on enrollment, and the second is contingent on performance.
- **Scholarship Type 3:** Students can receive up to $1,000 in three payments over the course of two semesters. In the first semester, students can receive $250 for enrollment and $250 for performance. In the second semester, students can receive $500 for performance.
- **Scholarship Type 4:** Students can receive up to $2,000 in three payments over the course of two semesters. In the first semester, students can receive $500 for enrollment and $500 for performance. In the second semester, students can receive $1,000 for performance.

period of time than when payment was based on enrollment in the first semester. Across the four scholarship types analyzed, payments based on enrollment paid at least 80 percent of the amount offered. Payments based on academic performance in the first semester paid 55 percent to 62 percent of the amounts offered. Payments based on academic performance in the second semester paid only 40 percent to 44 percent of the amounts offered.

- **All else being equal, scholarships with more performance requirements cost less than scholarships with fewer performance requirements.** For example, Scholarship Types 1, 2, and 3 all offered $1,000 scholarships, but their costs ranged from $920 to $1,042. (These costs include scholarship payments and the cost of administration.) These cost differences are a prod-

uct of the unique payment requirements of each scholarship. For example, Scholarship Type 1 had the highest cost because it was paid based on enrollment in the first semester and did not include performance requirements. In comparison, Scholarship Type 3 had the lowest cost because fewer students received the performance payment.

Methodology

This chapter estimates the cost of the CFC-PBS Program in California. Cost estimates are based on actual scholarship payments and program expenditures over two-and-a-half years (from January 2009 to June 2011).[1] The CFC-PBS Program had six types of scholarships. However, this analysis estimates only the costs of Scholarship Types 1 through 4.

The analysis aims to exclude costs that are not part of the steady-state operation of the program, as it is believed that this provides the most informative estimate for policymakers, foundations, colleges, or others who may be interested in implementing such a program. As a result, all costs related to MDRC's evaluation have been excluded, as have start-up costs.[2] Additionally, all costs have been categorized as either scholarship payments or program administration costs. These categories are estimated using slightly different methodologies. The cost of scholarship payments is estimated using data provided by the California Student Aid Commission. These costs are tracked at the student level and can therefore be easily assigned to scholarship types, which allows for a precise estimate of how much was paid in scholarships for each scholarship type. The cost of program administration is estimated using program expenditure data as recorded by the Los Angeles Area Chamber of Commerce (L.A. Chamber). This information was tracked at the program level (that is, it was not tracked by scholarship type). Therefore, in order to estimate the cost of administration for each scholarship type, a number of

[1]The first cohort did not start until fall 2009, but expenses are considered as starting in January 2009 because a number of expenses related to the first cohort were incurred in the first two quarters of 2009. These expenses would occur each time a new cohort of students began the program and include the cost of staff time to recruit and enroll students in the program.

[2]For example, this analysis excludes costs related to the design and development of the PBS Scholars website but includes costs related to its maintenance over the analysis period. Start-up costs can be expected to vary widely from setting to setting, depending on the existing infrastructure and resources available. For example, the CFC-PBS Program was built on the preexisting payment infrastructure of the Cash for College program. If a similar program were implemented in a different setting, a payment system might have to be created wholesale, suggesting a much higher initial level of resource use. Alternatively, if a similar program were implemented by an institution that already had a robust tool for web-based communication with students, much less effort would need to be devoted to developing a website analogous to the PBS Scholars website. In each of these scenarios, start-up costs would be likely to be very different from those of the CFC-PBS Program. In contrast, the steady-state costs of operating the programs could be expected to be relatively comparable to the ongoing costs of the CFC-PBS Program.

marginal cost estimates were developed.[3] See Box 5.2 for a discussion of how marginal cost assumptions influence the estimates of the costs of individual scholarship types. In addition, Appendix E provides further details about the marginal cost methodology used in this analysis.

Cost Analysis

The structure of the CFC-PBS Program was different from the structure of other PBS Demonstration sites across the country. Specifically, the CFC-PBS Program was run by a central office at the state level and placed the burden of proof regarding performance on students. These design elements likely helped to control administrative costs.

Cost per Program Group Member

Figure 5.1 shows the cost per program group member by scholarship type, over the life of the scholarship. Overall, the program's total cost ranged from $920 (Scholarship Type 3 — $500 per term over two terms) to $1,537 (Scholarship Type 4 — $2,000 in three payments over two semesters). The largest component of cost for all four scholarship types was scholarship payments to students (ranging from a low of 61 percent for Scholarship Type 3 to a high of 77 percent for Scholarship Type 4).[4] The remaining 23 to 39 percent of the total spending was associated with program administration (on average, 28 percent). Scholarship Type 1, with no performance requirements, had the lowest administrative cost, at $247, while Scholarship Types 3 and 4, with the most rigorous performance requirements, had the highest, at $359.[5]

Though not shown in Figure 5.1, the most costly component of program administration was personnel, accounting for between 41 percent and 46 percent of administrative spending across the four scholarship types analyzed. It is worth noting that, as discussed in Chapter 3, Cash for College and L.A. Chamber staff members incorporated CFC-PBS-related work into their existing responsibilities, so this estimate represents the costs associated with the time they shifted to CFC-PBS as well as some spending on independent contractors, rather than the cost of bringing on additional people. Nonpersonnel spending related to student tracking represents the next most costly component of administrative expense, making up 20 percent to 22 percent

[3]The marginal cost assumptions are described in detail in Appendix Table E.1.

[4]The cost analysis uses data on actual payments that were made to students. It is worth noting that there may have been some students who met enrollment or performance benchmarks but did not receive payments because they did not submit the necessary verification.

[5]Because administrative costs were tracked for the program overall, rather than by scholarship type, the administrative cost for each scholarship type was estimated by creating a marginal cost per unit for each component of the program's administrative costs. See Appendix Table E.1 for the specific marginal cost assumptions used.

Box 5.2

Marginal Cost Methodology

This text box uses a hypothetical example to illustrate how marginal cost assumptions influence the estimated cost to administer a scholarship. Imagine that it costs $100 to administer two scholarships, Scholarship A and Scholarship B. The specific cost per scholarship is unknown, but information is available about the characteristics of both scholarships. Marginal cost assumptions based on what is known about each scholarship allow for a reasonable estimation of the cost of administration for both scholarships. The examples below show the different types of marginal cost assumptions that are used in this analysis. In these examples, the cost of Scholarship A and B will change, but the cost to administer the two scholarships (A and B) will always be $100.

- **Marginal cost per scholarship offered:** Assumes that the primary driver of cost is the number of scholarships offered. If Scholarship A is offered to one student and Scholarship B is offered to one student, then the marginal cost per scholarship offered would be $50 ($100 total cost divided by two scholarships). Since Scholarship A offered one scholarship, the cost of Scholarship A would be estimated at $50 (marginal cost multiplied by the number of units, or $50 × 1). Similarly, since Scholarship B also offered one scholarship, the cost of Scholarship B is also $50 ($50 × 1).
- **Marginal cost per scholarship semester:** Assumes that the primary driver of cost is the number of scholarship semesters. If Scholarship A lasts two semesters while Scholarship B lasts only one semester, then the marginal cost per scholarship semester would be approximately $33 ($100 total cost divided by three scholarship semesters). As a result, the cost of Scholarship A would be $66 ($33 × 2) and the cost of Scholarship B would be $33 ($33 × 1).
- **Marginal cost per potential payment:** Assumes that the primary driver of cost is the number of potential payments. If Scholarship A has three potential payments and Scholarship B has one potential payment, then the marginal cost per potential payment would be $25 ($100 total cost divided by four potential payments). As a result, the cost of Scholarship A would be $75 ($25 × 3) and the cost of Scholarship B would be $25 ($25 × 1).

These examples illustrate that assumptions about marginal costs can cause the cost of Scholarship A to change relative to the cost of Scholarship B. For example, if the number of scholarships offered is the key driver of cost, then Scholarships A and B have the same estimated cost ($50). On the other hand, if the number of potential payments is considered the key driver, Scholarship A would be estimated to cost three times more than Scholarship B ($75 compared with $25).

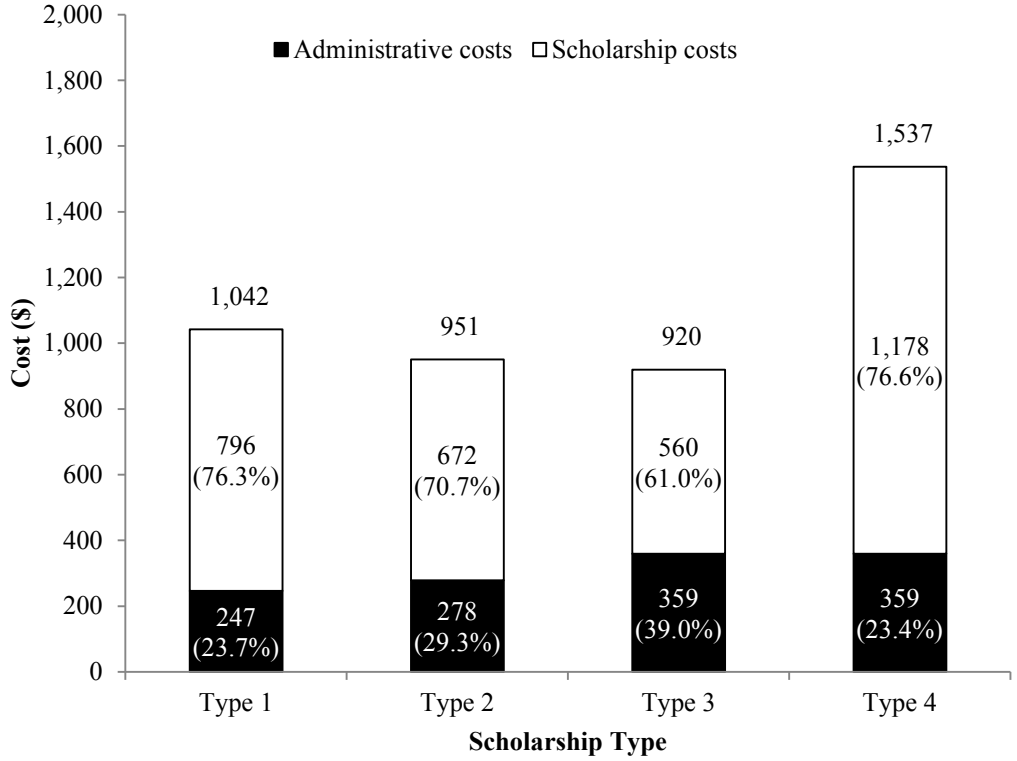
In the analysis of CFC-PBS administrative costs, some spending categories were best estimated using one of the above marginal cost types. For example, training expenses are believed to be driven by the number of scholarships offered. However, some administrative cost components seem to be driven by more than one factor. For example, personnel costs seem related to the number of scholarships offered, the number of scholarship semesters, and the number of potential payments. Therefore, a third of the amount spent on personnel is determined by the number of scholarships offered, another third is determined by the number of scholarship semesters, and the last third is determined by the number of potential payments. Additional details about the marginal cost assumptions used in this chapter are available in Appendix E.

The Performance-Based Scholarship Demonstration

Figure 5.1

Cost per Program Group Member, by Scholarship Type, Over the Life of the Scholarship

Cash for College Performance-Based Scholarship Study



SOURCES: MDRC calculations from expenditure data provided to MDRC by the Los Angeles Chamber Foundation and scholarship payment data provided by the California Student Aid Commission.

NOTES: Program costs are based on a steady state of operation that excludes research and start-up costs.

Rounding may cause slight discrepancies in sums and differences.

The expenditure information used to create this table covers the period of January 2009 through June 2011.

To estimate the cost of the components of program administration by scholarship type, a marginal cost per unit was created for each component. This marginal cost per unit is calculated based on three factors: the number of scholarships offered, the number of scholarship semesters (duration), and the number of potential payments. Marginal costs are allocated in a way that treats all schools as semester schools. See Appendix Table E.1 for the specific marginal cost assumptions used in this analysis.

of the total. Program administration also paid for communication with and outreach to students, including the maintenance of the PBS Scholars website (16 percent to 19 percent of administrative spending)[6] and support for regional Cash for College workshops (15 percent to 22 percent of administrative spending).[7]

At 28 percent on average, the portion of the CFC-PBS Program's total cost devoted to administration seems high compared with that of federal student aid programs. For example, in 2010 only about 0.1 percent of the federal Pell Grant program's expenditures was spent on Administrative Cost Allowances (ACAs) disbursed to schools. ACAs only partially offset institutions' spending on administration, but it seems unlikely that additional spending by schools would cause the ratio to increase much since the base of Pell Grants is so large (a total of over $32 billion was awarded in 2010).[8] Meanwhile, in the 2010-2011 award year, just less than 1 percent of the Federal Supplemental Educational Opportunity Grant program's cost went to ACAs, while the Federal Perkins Loan program spent just 5 percent of its total expenditures on ACAs.[9] However, because the CFC-PBS Program is much newer and smaller in scale than these long-established federal grant and loan programs, this may not be a fair comparison. Microfinance institutions (MFIs) may be a more appropriate comparison. Box 5.3 uses a comparison with MFIs to discuss the factors that might be influencing the administrative cost of the CFC-PBS Program.

Cost of Scholarships Paid and Offered, by Scholarship Type

Figure 5.2 shows the average amount of scholarship dollars paid per student as a proportion of the total dollars the student was offered, by scholarship type. Students eligible for Scholarship Type 1 received the highest proportion of scholarships offered (80 percent). Students eligible for Scholarship Type 2 received a lower proportion of scholarships offered (67 percent). Students eligible for Scholarship Types 3 and 4 received the lowest proportion of scholarships offered (56 percent and 59 percent, respectively).

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[6]While the PBS Scholars website was largely underused, it is included in the analysis because it is a part of the intervention that program group members received. However, it is worth noting that it represents an expenditure that would likely not be repeated if the program were replicated. If costs associated with the website were excluded from the analysis, the administrative cost per program group member would decrease to between $226 (Scholarship Type 1) and $317 (Scholarship Types 3 and 4).

[7]As Chapter 3 notes, for the purposes of the study, Cash for Colleges workshops were the vehicle to recruit the study sample and were not a direct part of the intervention being evaluated. However, even if the program had not been part of an evaluation, it would have been necessary to have a strategy to recruit participants, so the workshops have been included in this analysis as a program cost.

[8]U.S. Department of Education (2011).

[9]U.S. Department of Education (2012).

Box 5.3

Factors Influencing the Administrative Cost of Performance-Based Scholarship Programs

On average, approximately 28 percent of the total cost of the CFC-PBS Program went to administration. A comparison with microfinance institutions (MFIs), which provide small-scale financial services to otherwise underserved entrepreneurs and small businesses, suggests three factors that might influence the administrative costs of the CFC-PBS Program: (1) the average scholarship amount; (2) the total number of recipients, or scale; and (3) the length of time the program has been in operation. A 2009 study that looked at a sample of 555 sustainable MFIs found that the median ratio of these institutions' administrative costs to gross loan portfolio was just over 11 percent.* There was substantial variation in this ratio among the MFIs in the sample, which the authors attributed to the factors noted above. In particular, the following points are noted:

- Relative to their value, small loans cost more to administer than larger ones do. A similar dynamic is apparent in the CFC-PBS Program: 39 percent of expenditures associated with Scholarship Type 3, which offered $1,000 at three payment points over two semesters, were administrative, compared with 23 percent for Scholarship Type 4, which offered $2,000 over the same time frame.

- The scale of an MFI's client base appears to increase its loan-to-administrative cost ratio up until the MFI reaches about 2,000 clients, after which additional clients no longer seem to improve efficiency. The authors attribute this phenomenon to the labor-intensiveness of microcredit. The CFC-PBS Program was similarly labor-intensive, with personnel costs representing the most costly component of administrative spending.

- Finally, the efficiency of MFIs seemed to increase with their age, particularly for the first six years in operation, suggesting a learning curve that may be relevant to a performance-based scholarship program as well.

Though this analysis cannot draw any conclusions as to the effects of these factors, it is interesting to consider how the program's administrative costs might change in relation to these factors based on the comparison with MFIs. Assuming that the CFC-PBS Program responded to these factors in a manner similar to MFIs, imagine a hypothetical scenario in which (1) scholarship amounts were increased threefold (to be more comparable to the Pell Grant average of $3,865); (2) the number of students participating increased past the 2,000 threshold, lowering the administrative cost per participant by approximately 15 percent, which is comparable to observed MFI changes; and (3) the program was in operation long enough to lower administrative costs by 15 percent. In this scenario, the percentage of the program's costs associated with administration could be expected to drop from the current proportion of 28 percent to approximately 8 percent on average.

NOTES: The hypothetical example assumes that the Scholars website is no longer a component of the program.

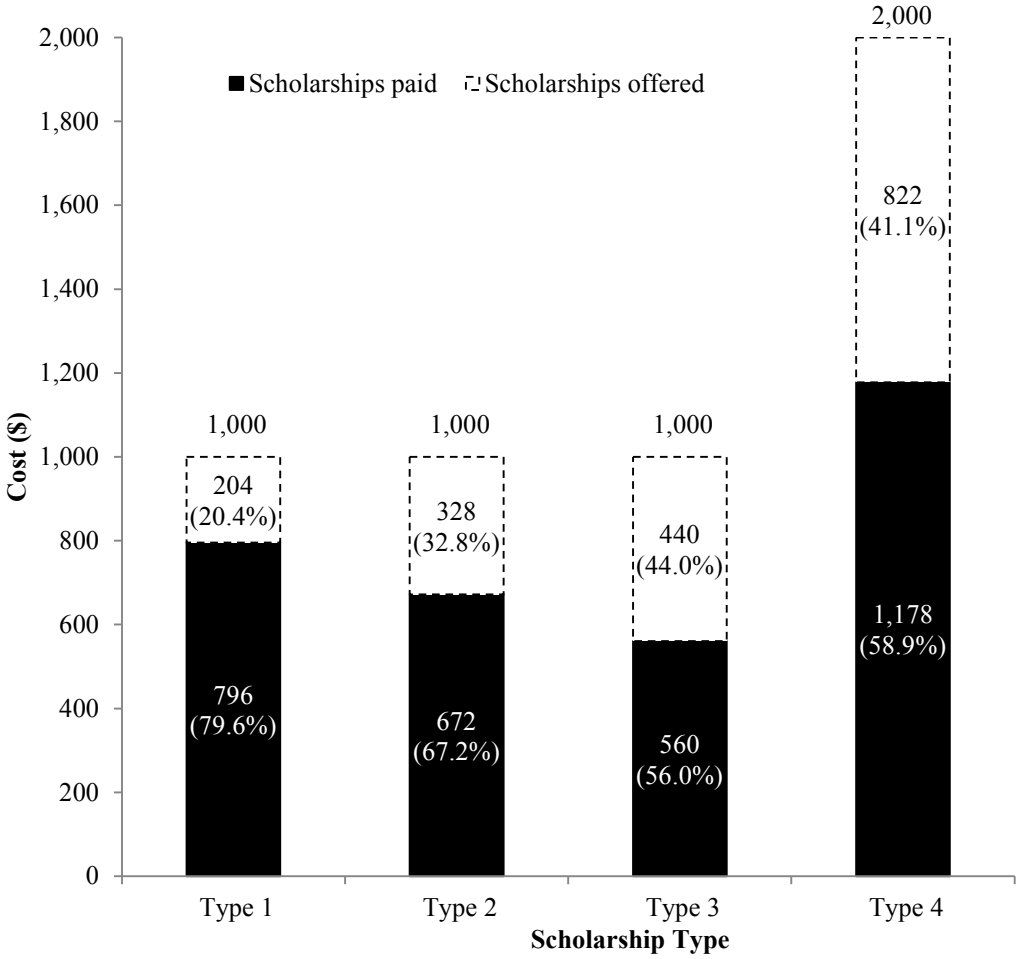
*Rosenberg, Gonzalez, and Narain (2009). MFIs are defined as sustainable if their return on their assets was positive during the study period.

The Performance-Based Scholarship Demonstration

Figure 5.2

Cost of Scholarships Paid and Offered, by Scholarship Type, Over the Life of the Scholarship

Cash for College Performance-Based Scholarship Study



SOURCES: MDRC calculations from expenditure data provided to MDRC by the Los Angeles Chamber Foundation and scholarship payment data provided by the California Student Aid Commission.

NOTES: Program costs are based on a steady state of operation that excludes research and start-up costs.

The expenditure information used to create this table covers the period of January 2009 through June 2011.

Cost of Scholarships Paid and Offered, by Payment Type

Figure 5.3 shows the proportion of scholarship dollars paid to scholarship dollars offered, by payment type. While all scholarship types included enrollment payments at the beginning of the first term, only Scholarship Types 2, 3, and 4 included performance payments, and only Scholarship Types 3 and 4 had performance payments in the second term. Figure 5.3 shows that across all four scholarship types, program group members received between 80 percent and 84 percent of the enrollment payments they were offered in the first term.[10] Program group members who were eligible for Scholarship Types 2, 3, and 4 received a much smaller proportion of the performance-based payments they were offered: between 55 percent and 62 percent of the performance payments offered in the first term. This number decreased even further in the second term, with students eligible for Scholarship Types 3 and 4 receiving 40 percent and 44 percent, respectively, of the amounts they had been offered as performance payments.[11]

Figure 5.3 shows that students tended to receive a smaller proportion of the performance payments they were offered compared with enrollment payments, and that students were likely to collect successively fewer scholarship dollars as more payment points were added and as those payment points were spread across longer time periods. Therefore, scholarship types that require students to meet performance benchmarks at a series of payment points over longer periods of time can be expected to pay out fewer scholarship dollars. However, because of the expenses associated with processing each scholarship payment, administrative expenses can be expected to increase as the number of payment points increases and as they are spread over longer time periods.

This competing dynamic is illustrated by a comparison of the costs of the three scholarships that offered $1,000 (Scholarship Types 1, 2, and 3). Each type had a different structure, which resulted in a different cost. For example, Scholarship Type 1 paid the entire $1,000 based on enrollment in the first semester. It had the highest total cost ($1,042), including the highest amount paid to students ($796); it also had the lowest cost of administration, at $247. Scholarship Type 2 spread the $1,000 across two payments: one for enrollment in the first semester and another for academic performance in the first semester. As a result, it had a lower total cost

[10] As Box 5.1 illustrates, program group members in the CFC-PBS study were eligible for two different types of scholarship payments: enrollment payments and performance payments. Enrollment payments were contingent on registration for at least six credits at the beginning of the term, and performance payments were contingent on meeting certain academic performance benchmarks.

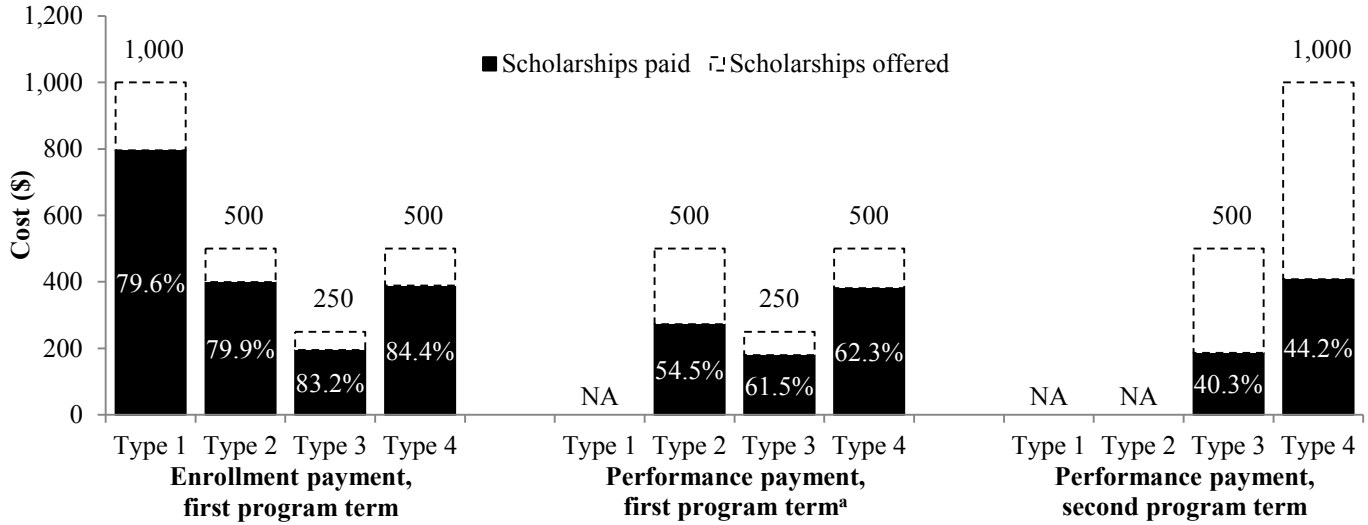
[11] As noted above, there may have been some students who met enrollment or performance benchmarks but did not receive a payment as a result of not submitting the necessary verification. It may be reasonable to expect that the portion of students who met benchmarks but did not submit verification increased over time.

The Performance-Based Scholarship Demonstration

Figure 5.3

Cost of Scholarships Paid and Offered, by Payment Type, Over the Life of the Scholarship

Cash for College Performance-Based Scholarship Study



SOURCE: MDRC calculations from scholarship payment data provided by the California Student Aid Commission.

NOTES: Rounding may cause slight discrepancies in sums and differences. NA = not applicable.

The value of each payment offered may have varied slightly across the three payments due to differences in scholarship offers between semester and quarter schools.

Students assigned to Scholarship Type 1 are eligible for an enrollment scholarship payment only in the first program term, so they are excluded from the performance payment in the first term and all measures in other terms. Students assigned to Scholarship Type 2 are eligible for scholarship payments only in the first program term, so they are excluded from all measures from the second program term onward.

[a]Includes performance payments made at quarter institutions during the winter term, which represent a small portion of the sample.

($951) because it paid less to students ($672), even though it paid slightly more for administration ($278). Scholarship Type 3 spread the $1,000 across three payments: one for enrollment in the first semester, one for academic performance in the first semester, and one for academic performance in the second semester. As a result, it had the lowest total cost ($920) because it paid the least to students ($560), even though it spent the most on program administration ($359). Overall, it appears that despite increased administrative costs, scholarships with more performance requirements cost less than scholarships with fewer performance requirements. This means that fewer students receive funding when scholarships are based on performance than when they are based on enrollment. The possible implications of this reduction in funding are discussed in greater detail in Chapter 6.

Conclusion

The early analysis of Scholarship Types 1 through 4 indicates that the CFC-PBS Program cost between $920 and $1,537 per student. Scholarship payments accounted for the majority of program costs, while administrative costs made up between 23 percent and 39 percent of program expenditures. Administrative costs varied across the scholarship types and increased as performance requirements became more stringent. Meanwhile, on the whole, students received only a portion of the scholarship amount they were offered. Students in the CFC-PBS Program tended to collect a smaller portion of the performance payments they were offered compared with enrollment payments, and they received successively less money the more payment points a scholarship had and the greater period of time the payment points were spread across. As a result, when all else is equal, scholarships with more performance requirements cost less overall than scholarships with fewer requirements.

Chapter 6

Policy Implications and Conclusions

This report discusses findings from a unique experimental study of scholarships issued through a statewide program. The Cash for College program, an initiative sponsored by the California Student Aid Commission (the agency responsible for administering the state's financial aid programs), provided distinctive features conducive to a large-scale experimental study. First, the goal of Cash for College — to inform California high school seniors and their parents about financial aid opportunities and to help them complete the federal Free Application for Federal Student Aid (FAFSA) and state Cal Grant application — enabled the evaluation of the effect of additional financial aid for a very large group of students. Second, the concentration of Cash for College workshops in schools and communities that are low-income or have low college-going rates (or both) ensured that scholarships were aimed toward students at the highest risk of not matriculating. Finally, Cash for College's practice of randomly selecting at least one attendee at every workshop who completes the FAFSA to receive a $1,000 scholarship (which is not performance-based), as a way to boost workshop attendance, provided a platform for offering additional scholarships (which are performance-based), to which students would be similarly randomly assigned.

While the strong Cash for College partnership may be distinctive, similar approaches may be possible for state agencies or large and private scholarship providers. In this way, the results of the study speak both to the ability to implement such a program on a large scale and to the efficacy of the strategy in helping students persist and be academically successful in college.

Overall, this report finds the following:

- **The Cash for College Performance-Based Scholarship (CFC-PBS) Program was largely implemented as designed.**

Despite the complexity of the evaluation and potentially large burden on students, there were very few instances of erroneous disbursements, and students largely submitted documents as required.

- **The CFC-PBS Program generates a modest, positive impact on first-term enrollment of about 5 percentage points above the control group average enrollment rate of 84.4 percent.**

This effect extends to numerous subgroups, such as males, females, and students of Hispanic/Latino ethnicity. The program has stronger effects for those students with lower high

school grade point averages (GPAs) and those students who may not be intrinsically motivated to apply for financial aid.

- **Positive impacts of the program are concentrated among students attending two-year colleges (specifically, California community colleges).**

This finding is reasonable given the timing of the notification of scholarship eligibility in June (during the summer before fall matriculation, after the application deadline for most four-year institutions has passed).

- **Scholarship payments made up the majority of program costs.**

Across the four scholarship types covered in this analysis, between 61 percent and 77 percent of CFC-PBS Program costs were paid directly to students in the form of scholarships. As a result of the conditional nature of performance-based scholarships, the cost of scholarship payments is noticeably lower than the dollar amount of the scholarships offered to students. All else being equal, the cost of scholarship payments decreases as more performance requirements are added.

The remainder of this chapter places these findings in the context of those from other studies in the Performance-Based Scholarship (PBS) Demonstration and research in the literature on incentives in postsecondary education. It then presents some implications of the findings for national policy and for the innovation of financial aid in California specifically.

Placing the Findings in the Context of the Research on Incentives

The CFC-PBS Program clearly affected matriculation rates, and those positive effects are concentrated among students attending California community colleges. The early findings also suggest small but positive effects on persistence in the second and third terms. Given that the CFC-PBS Program operates very much like an external (to the institution) scholarship program, it is interesting to see how the findings compare with others in the literature, as such a comparison can provide a context for understanding the magnitude of the effects of the CFC-PBS Program.

Over the last 12 years, there have been at least nine randomized controlled trials of incentive-based grants (including the studies in the PBS Demonstration), each attempting to evaluate the impact of the grants on student outcomes after high school such as credits earned, GPA, and persistence. There have also been a growing number of studies that use strong quasi-experimental designs. This section reviews a selection of eight external studies, four studies from the PBS Demonstration, and findings from Opening Doors Louisiana, a program that targeted student-parents who were eligible for Temporary Assistance for Needy Families. While

these studies do not cover exhaustively all of the research conducted in the literature, they are fairly representative of the findings in the field. Appendix Table F.1 presents a summary of the intervention design in each of the studies. While the studies vary in the targeted student populations, most evaluate outcomes for traditionally aged students and students who are eligible for additional financial aid for at least two semesters. The maximum total additional grant amount ranges from a low of $215 to a high of $17,500 per student. Collectively, the studies represent over 16,400 randomly assigned students and over 54,800 students matched through a quasi-experimental design. Table 6.1 reports means by treatment group, impact estimates, and standardized impacts adjusted for inflation (that is, differences generated per $1,000 in funds, in 2013 dollars) for these studies.

Findings on Matriculation

The first panel of Table 6.1 presents findings on matriculation. The findings from the CFC-PBS Program are shown in the first three rows for ease of comparison. Since the program group represents the pooled performance-based scholarship groups, the last column of the table standardizes the estimates into a difference per $1,000 of scholarship offered to facilitate the comparison with other estimates. For example, the CFC-PBS Program resulted in a 4.9 percentage point increase in matriculation, and the average eligible scholarship amount of the five performance-based scholarships, Scholarship Types 2 through 6, is $1,400 (or $1,421 in 2013 dollars). This translates into an impact on matriculation of 3.4 percentage points per $1,000 in 2013 dollars.

Recall that the CFC-PBS Program is one of the only random assignment evaluations to affect matriculation that the authors are aware of. The remaining studies reported in the table employ quasi-experimental designs. One study uses changes in the provision of the generous Social Security Student Benefit (SSSB) Program for college students to explore the effect of aid on attending college before age 23.[1] The study finds that students who were eligible for the SSSB Program were 18.2 percentage points more likely to enroll in college than students who were not eligible for the additional aid.[2] The last column shows that $1,000 in aid results in a

[1]Dynarski (2003).

[2]Dynarski (2003) uses the elimination of the SSSB Program in a difference-in-differences approach (a quasi-experimental statistical method) to study the effect of additional aid on college enrollment. Table 6.1 shows that students who may be eligible for the SSSB Program funds (the program group) had much higher rates of college attendance when the program was in effect compared with enrollment rates after the SSSB Program was eliminated (as shown by the 20.8 percentage point increase in enrollment in the last line of the second panel). Enrollment patterns exhibited a small change (a 2.6 percentage point increase) for those students who were not eligible for the program. Thus, the impact of the SSSB Program is 18.2 percentage points (equal to 20.8 minus 2.6).

The Performance-Based Scholarship Demonstration

Table 6.1

Postsecondary Outcomes Across Prior Research on Financial Incentives

Cash for College Performance-Based Scholarship Study

Outcome	Sample Size	Program Group	Control Group	Difference	Standard Error	Percentage Change	Difference per $1,000
Matriculation (%)							
PBS California							
Enrolled in any college	4,642	89.3	84.4	4.9 ***	1.1	5.8	3.4
Enrolled in any 2-year college	4,642	47.9	43.2	4.7 ***	1.6	10.9	3.3
Enrolled in any 4-year college	4,642	42.8	42.8	0.0	1.6	0.1	0.0
Social Security Student Benefit Program[a]							
Enrolled in any college (SSI student benefits)	2,882	56.0	50.2	5.8	--	11.6	--
Enrolled in any college (no SSI student benefits)	1,104	35.2	47.6	-12.4	--	-26.1	--
Difference-in-differences	--	20.8	2.6	18.2 *	9.6	--	2.0
Cal Grant Program[b]							
Enrolled in any college (GPA just above Cal Grant A cutoff)	--	87.5	90.1	-2.6	--	-2.9	--
Enrolled in any college (GPA just below cutoff)	--	84.0	90.3	-6.3	--	-7.0	--
Difference-in-differences	--	3.5	-0.2	3.7	3.0	--	0.8
Average credits earned in first year							
Project STAR[c]							
Student Support Program (SSP)	1,418	2.4	2.4	0.1	0.1	2.3	--
Student Fellowship Program (SFP)	1,418	2.4	2.4	0.0	0.1	-0.5	0.0
Combined program (SFSP)	1,418	2.5	2.4	0.1	0.1	3.9	0.0
University of Amsterdam[d]							
Low incentive	166	31.6	33.2	-1.5	3.4	-4.6	-5.5
High incentive	165	32.7	33.2	-0.4	3.4	-1.3	-0.5

(continued)

Table 6.1 (continued)

Outcome	Sample Size	Program Group	Control Group	Difference	Standard Error	Percentage Change	Difference per $1,000
Average credits earned in first year (continued)							
Opening Doors Louisiana[e]	537	11.0	7.7	3.3 ***	0.8	43.7	1.4
PBS California[f]	4,642	8.9	7.9	1.0 ***	0.4	12.9	0.7
PBS New Mexico	1,081	25.7	24.8	0.9	0.6	3.7	0.4
PBS New York	1,502	16.3	15.5	0.9 *	0.5	5.6	0.2
PBS Ohio	2,285	15.6	13.9	1.7 ***	0.4	12.1	0.9
West Virginia PROMISE[g]	12,911	27.8	26.2	1.6 ***	0.1	6.0	0.4
Wisconsin Scholars[h]	1,147	26.4	26.0	0.5	0.4	1.9	0.1
Average GPA in first year							
Project STAR[c]							
Student Support Program (SSP)	1,399	1.81	1.79	0.01	0.1	0.6	--
Student Fellowship Program (SFP)	1,399	1.75	1.79	-0.04	0.1	-2.2	-0.01
Combined program (SFSP)	1,399	1.96	1.79	0.17 *	0.1	9.4	0.03
Opportunity Knocks[i]	1,203	2.54	2.52	0.02	0.0	0.8	0.00
Foundations for Success[j]							
Service group	2,078	1.90	1.88	0.02	NA	1.1	--
Service Plus group	2,086	2.00	1.88	0.12 **	NA	6.4	0.07
Opening Doors Louisiana[e]	391	2.11	1.81	0.30 ***	0.1	16.8	0.13
PBS California[f]	2,324	2.31	2.27	0.04	0.0	1.8	0.03
PBS New Mexico	1,050	2.78	2.75	0.03	0.1	1.2	0.02
PBS New York	1,390	2.57	2.57	0.00	0.1	0.2	0.00
West Virginia PROMISE[g]	12,911	2.92	2.85	0.07 ***	0.0	2.32	0.02
Wisconsin Scholars[h]	1,147	2.60	2.50	0.00	0.1	0.0	0.00

(continued)

Table 6.1 (continued)

Outcome	Sample Size	Program Group	Control Group	Difference	Standard Error	Percentage Change	Difference per $1,000
Second-year persistence[k] (%)							
Foundations for Success[j]							
Service group	2,078	62.9	61.0	1.9	NA	3.1	--
Service Plus group	2,086	66.3	61.0	5.3 ***	NA	8.7	3.3
Opening Doors Louisiana[e]	537	30.1	22.9	7.2 **	3.6	31.6	3.0
PBS California[f]	4,642	81.4	79.0	2.4 *	1.3	3.0	1.7
PBS New Mexico	1,081	77.6	78.5	-0.9	2.5	-1.2	-0.4
PBS New York	1,502	61.9	60.7	1.2	2.5	2.0	0.4
PBS Ohio	2,285	60.5	59.2	1.3	2.1	2.2	0.7
Wisconsin Scholars[h]	1,500	90.8	89.1	1.7	1.6	1.9	0.4
Average credits earned in second year[l]							
University of Amsterdam[d]							
Low incentive	166	23.9	26.1	-2.2	3.6	-8.4	-7.9
High incentive	165	25.0	26.1	-1.1	3.7	-4.2	-1.3
Opening Doors Louisiana[e]	537	13.7	10.0	3.7 ***	1.2	36.9	1.5
PBS New Mexico	1,081	46.5	44.3	2.2 *	1.3	5.1	1.1
PBS New York	1,502	26.7	25.6	1.1	0.9	4.3	0.3
PBS Ohio	2,285	24.8	22.4	2.4 ***	0.8	10.6	1.2
Earned any degree or certificate by third year (%)							
PBS Ohio	2,285	26.9	23.3	3.5 *	1.8	15.1	1.8
Wisconsin Scholars[h]	1,500	3.2	2.9	0.3	0.9	10.3	0.1

(continued)

Table 6.1 (continued)

SOURCES: MDRC calculations using enrollment data from Social Security Student Benefit Program (Dynarski, 2003); enrollment data from Cal Grant Program (Kane, 2003); credits earned and GPA data from Project STAR (Angrist, Lang, and Oreopoulos, 2009); credits earned data from University of Amsterdam (Leuven, Oosterbeek, and van der Klaauw, 2010); credits earned and GPA from West Virginia PROMISE (Scott-Clayton, 2011); credits earned, GPA, enrollment, and degree attainment data from Wisconsin Scholars (Goldrick-Rab, Harris, Benson, and Kelchen, 2011); GPA data from Opportunity Knocks (Angrist, Oreopoulos, and Williams, 2010); GPA and enrollment data from Foundations for Success (MacDonald et al., 2009); National Student Clearinghouse data; and transcript data from Delgado Community College, Louisiana Technical College, the California Community College Chancellor's Office, the University of New Mexico, Borough of Manhattan Community College, Hostos Community College, and the Ohio Board of Regents.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Rounding may cause slight discrepancies in sums and differences.

The last column shows the impact per $1,000 in 2013 dollars. NA = not applicable.

MDRC estimates are adjusted by research cohort and campus.

[a]SSI is Supplemental Security Income.The "SSI student benefits" row represents the period in which additional financial support was available through the Social Security Student Benefit Program (SSSBP). SSSBP provided up to $6,700 (in 2000 dollars) of aid to students whose parents were Social Security beneficiaries and were deceased, disabled, or retired. The "no SSI student benefits" row represents the period after the program was eliminated. The "program group" column represents the estimates for students with deceased parents (those eligible for SSSBP), while "control group" column estimates are for students whose parents were not deceased. Estimates represent attendance in college before age 23 and are based on the difference-in-differences analysis presented in Table 1 and Table 2 in Dynarski (2003).

[b]The "GPA just above Cal Grant A cutoff" row represents the group of students with high school GPAs that just exceed the thresholds for the Cal Grant A program in 1999. The "GPA just below cutoff" represents the group of students with high school GPAs that are just below the thresholds for the Cal Grant A program in 1999. The program group represents the group of students who were financially eligible for Cal Grant A, while the control group represents students who did not meet the income and asset limits required by the Cal Grant A program in 1999. The difference between the program group estimates and the control group estimates therefore represents the effect of Cal Grant A financial eligibility. Estimates are taken from the 1999 panel in Table 5 in Kane (2003).

[c]SSP is a student service program only, without a financial incentive component. SFP is a financial incentive without student services. The SFSP program combined student services with a financial incentive. The control group and program group means may be estimates, and not the true means, based on the impact estimate and other information provided in the research paper. Differences were detected by gender, with impacts being significant at the 5 percent level for women in the combined group for both average credits earned in the first year and average GPA in the first year. Sample size represents the analysis sample used to analyze treatment effects on second-year outcomes. Estimates are taken from Table 6 in Angrist, Lang, and Oreopoulos (2009).

[d]Estimates are taken from Table 4 and Table 8 in Leuven, Oosterbeek, and van der Klaauw (2010).

[e]Only the first two cohorts are shown for Opening Doors Louisiana.

(continued)

Table 6.1 (continued)

NOTES (continued): [f]Credits earned and GPA are based on intent-to-treat averages using data for California community colleges. The PBS California program group consists of performance-based scholarships only (Scholarship Types 2 through 6).

[g]Estimates are based on ordinary least squares difference-in-differences estimates from Table 3 in Scott-Clayton (2011).

[h]The Wisconsin Scholars report uses analytic subsample 1 estimates for credits earned and full sample estimates for second-year persistence and associate degree attainment. All entries are taken from Table 4 in Goldrick-Rab, Harris, Benson, and Kelchen (2011).

[i]The control group and program group means may be estimates, and not the true means, based on the impact estimate and other information provided in the research paper. Estimates are taken from Table 4b in Angrist, Oreopoulos, and Williams (2010).

[j]For the Foundations for Success report, only students in the Service Plus group were eligible for the incentive grant. GPA shown is for the second semester of the first year only. Estimates are taken from Table 6-2 and Table 7-4 in MacDonald et al. (2009).

[k]Figures for Foundations for Success represent retention rates from semester 2 to semester 3, while the remaining entries reflect registration in the third semester, or fall-to-fall persistence.

[l]Figures for the University of Amsterdam represent credits earned in the second year, while the remaining entries reflect cumulative credits over the first two years.

2.0 percentage point increase in enrollment.[3] Further, another study using a quasi-experimental design does not find that eligibility for Cal Grant A results in a statistically significant impact on enrollment.[4]

Overall, the estimates from the CFC-PBS Program appear to be largest for inducing enrollment at community colleges when the impact per $1,000 in additional aid is examined. This finding indicates that relatively small scholarship amounts could be effective in increasing matriculation at community colleges if the scholarships were well designed, targeted effectively, and disbursed early enough to affect students' decisions about going to college. As noted earlier, the June disbursement for the CFC-PBS Program was likely too late to affect decisions to matriculate at four-year institutions, as such institutions often require acceptances by April.

Findings on Credits Earned

The second panel of Table 6.1 examines credits earned in the first year of college. The first set of rows reports findings from Project STAR and the University of Amsterdam. Project STAR offered student services (specifically, peer advising), an incentive, or a combination of both to entering college freshmen of a large Canadian university. Students who did not perform well in high school were eligible for the largest incentive amount if they managed to become top students in college.[5] The University of Amsterdam program sought to encourage college students in economics and business to pass their first-year classes by offering them an incentive. The incentive, paid at the end of the year, was provided in a high amount (around $834 in 2013 dollars) and a low amount (around $278 in 2013 dollars) and was randomly assigned to two

[3]Dynarski's (2003) preferred specification, which controls for covariates and adjusts for classification error, results in an impact estimate of a 2.7 percentage point increase in enrollment per $1,000 (in 2013 dollars) in grant aid.

[4]Kane (2003) uses a difference-in-differences approach to study the effect of Cal Grant A eligibility on college enrollment. Cal Grant A can be used at four-year institutions in California. Students who met the income and asset limits for Cal Grant A in 1999 (the program group) — enrolled at higher rates when they had high school GPAs just above the cutoff compared with similar students who had high school GPAs just below the cutoff (as shown by the 3.5 percentage point difference in the last line of the third panel of Table 6.1). High school GPAs matter less for enrollment patterns when students' income or assets exceeded the Cal Grant A limits (as shown by the -0.2 percentage point difference in enrollment for these students in the last line of the third panel of Table 6.1). The impact of being eligible for the Cal Grant A program is a statistically insignificant increase in enrollment of 3.7 percentage points.

[5]Incentives were paid based on high school quartiles, so that students received the highest pay relative to their improvement in GPA from their high school performance. That is, students who graduated high school in the lowest quartile could receive $5,000 for a B average or $1,000 for a C+ average, while students in the third quartile were offered $5,000 for A-s and $1,000 for Bs.

separate program groups. The entries in Table 6.1 show that neither program had much effect on credit accumulation in the first year.[6]

The next set of entries shows findings from the Opening Doors Louisiana study and a number of studies that are part of the PBS Demonstration. The entries show that all of the programs (with the exception of New Mexico's, which is the only four-year institution in the PBS Demonstration) resulted in increases in credits earned in the first year (ranging from 0.9 to 3.3 credits, for increases of 6 percent to 44 percent). Opening Doors Louisiana yielded the largest impact, of 1.4 credits per $1,000.

The West Virginia PROMISE program is a merit-based state aid program that offers free tuition and fees at any state public institution for eligible students who maintain a minimum GPA of 3.0 and a full-time course load.[7] This program resulted in an increase of 1.6 credits earned after one year (an increase of 6 percent, or about one-half credit per $1,000). The Wisconsin Scholars program randomly offered an extremely generous need-based grant (worth $3,500 per year for up to five years) to freshmen Pell Grant recipients attending public universities in Wisconsin.[8] This program did not materially change credit accumulation in the first year.

GPA in First Year and Second-Year Outcomes

The next panel of the table reports on GPA in the first year. Overall, large changes in GPA have not been observed in various studies. This may not be surprising, as GPA represents the cumulative experience of students and their decisions, which may be difficult to alter with modest interventions. Opening Doors Louisiana induced the largest change in GPA — 0.30 points, or an increase of 0.13 points per $1,000. The next largest impact was generated by the combined incentive program under Project STAR, which induced a change of 0.17 points, or 0.03 points per $1,000.[9] The merit program in West Virginia improved GPA by 0.07 points.[10]

The next two panels examine second-year persistence (or persistence to the third term) and average credits earned in the second year. Only Foundations for Success's combined group,

[6]Separate analyses (not shown in the table) suggest that effects exist for women assigned to the combined group of services in Project STAR. See Angrist, Lang, and Oreopoulos (2009).

[7]Students were allowed a slightly lower GPA benchmark of 2.75 in their first year. The average award was $3,755 (in 2013 dollars) for the first year, and students received an average of about $12,950 (in 2013 dollars) over four years. See Scott-Clayton (2011).

[8]Goldrick-Rab, Harris, Benson, and Kelchen (2011). While program group members needed to meet satisfactory academic progress measures that included a 2.0 GPA (the requirements for continued eligibility for the federal Pell Grant), the program did not include additional activities or requirements to make the academic benchmarks (satisfactory academic progress) salient.

[9]Angrist, Lang, and Oreopoulos (2009).

[10]Scott-Clayton (2011).

Opening Doors Louisiana, and the CFC-PBS Program affected second-year persistence, with the Foundations for Success program increasing persistence by the largest amount — 3.3 percentage points per $1,000.[11] Interestingly, this represents effects observed after the program ended for Opening Doors Louisiana (a one-year program) and possibly for the CFC-PBS Program as well. Chapter 4 in this report suggests that the CFC-PBS impact likely reflects Scholarship Type 3 ($500 per term over two terms) and Scholarship Type 4 ($2,000 in three payments over two semesters). For credits earned in the second year, Opening Doors Louisiana continues to generate the largest impact (1.5 credits per $1,000), followed by PBS Ohio and PBS New Mexico.

The final panel in Table 6.1 examines degree or certificate attainment by the third year. Only the studies of the PBS Ohio program and the Wisconsin Scholars program report on this metric. The PBS Ohio program increased degree or certificate attainment by 3.5 percentage points, or 1.8 percentage points per $1,000.[12]

Where Does the CFC-PBS Program Stand?

Overall, the analysis suggests that the findings from the CFC-PBS Program compare favorably with those from other studies in the PBS Demonstration and other studies in the literature. This finding is notable, as the CFC-PBS Program may have had the lightest interaction with students because the scholarship is completely portable and the program was implemented by a statewide partnership, while other programs in the PBS Demonstration are based at institutions. When compared with other statewide programs like West Virginia PROMISE and Wisconsin Scholars, the CFC-PBS program fares in the middle. Findings from the Opening Doors Louisiana study — the original study evaluating performance-based scholarships — seem to show the largest impacts to date.

In general, impacts for performance-based scholarship programs are more likely to be positive and statistically significant than those from other research on scholarships found in the literature. This may reflect the targeting of programs; on average, students in the PBS Demonstration have one or more risk factors for not completing college, such as being low-income, older, parents, and so on, which may contribute to the larger effect of the contingent

[11]MacDonald et al. (2009). The Foundations for Success project targeted incoming freshmen at three Canadian colleges. The program randomly assigned participants to two program groups: the Service Group (which provided case management where students were required to complete 12 hours of approved activities that could include tutoring and assessments such as the Myers-Briggs Type Indicator) or the Service Plus group (in which students were required to complete the same case management objectives but were also eligible for a fellowship after completing the 12-hour requirement). The fellowship, worth $750 per semester (or $2,250 total), was paid at the start of the following semester for three semesters.

[12]The Wisconsin Scholars entry represents associate's degree attainment for the first cohort.

grant on academic outcomes. In addition, the treatment contrast — what the intervention provides above and beyond the status quo — could be greater for these programs.

Implications for Innovations in Financial Aid Policy

The findings presented in Chapter 5 suggest that performance-based scholarships may be less costly than traditional grant programs because fewer dollars are disbursed than are offered as a result of the conditional nature of the scholarship. Given that the benchmarks for performance-based scholarships are similar to those required for most aid programs, some may wonder whether the strategy of tying such federal and state payments more closely to achievement would lead to lower costs. While it is unknown whether similar impacts could be generated by such changes, these changes have potential implications that do not arise in the performance-based scholarships studied in this report.

Implications for National Policy

There are a few considerations to keep in mind when considering alterations to the Pell Grant. First, the scholarships studied in the PBS Demonstration are all paid in addition to existing financial aid, including aid from the Pell Grant, ensuring that most students receive a net increase in funds.[13] In fact, the vast majority of students in the PBS Demonstration, including those in the CFC-PBS Program, are eligible for Pell Grants, which provides the foundation of most financial aid packages in the studies. As discussed in Chapter 4, changing the base foundation of aid can have unexpected effects, because the behavioral response to aid is likely nonlinear. That is, the behavior change in response to a change in Pell Grant disbursement criteria may be different from that observed in the PBS Demonstration because Pell is generally a much larger grant and one of the first components of financial aid in a low-income student's aid package. Second, altering the availability of the Pell Grant could have a chilling effect on enrollment, particularly for matriculation among at-risk groups. Perceiving that there is a substantial amount of aid to help pay for college at the beginning of the year likely helps relieve the stress of worrying about finances for low-income students. Removing this perception could result in fewer low-income students gaining access to the higher education system.

While the current report and past reports have not found evidence of unintended consequences, adding performance criteria and changing the disbursement policy to the Pell Grant program could result in undesirable behavior, as described above. The potential for these

[13] A small number of students in several PBS Demonstration studies had their financial aid packages altered in order to receive the performance-based scholarship. Most of these changes resulted in decreases in the loan amounts awarded. See Cha and Patel (2010); Miller, Binder, Harris, and Krause (2011); Patel and Valenzuela (2013).

unintended consequences would be exacerbated by the scale of the program. In addition to increasing the uncertainty of funding for students, changing this system could also create much upheaval for colleges themselves, as they are unlikely to have other funds to assist students who may need a stable source of aid.

Implications for State Policy in California

Budgetary shortfalls and the recent recession spanning 2007 to 2009 hurt California's community colleges and universities. The demand for postsecondary education increased at the same time that the state's support for the three college systems (community colleges, California State Universities, and the University of California) was reduced. Although the passage of California Proposition 30 during the 2012 election cycle helped to stabilize the financial situation in the state, public education funding has only returned to levels comparable with those before the economic collapse.[14]

In such a budgetary situation, accompanied by increased demand for financial aid, systematically studying the effect of randomly implementing performance-based aid or exploring alternative distribution patterns may be prudent policy. For example, policymakers may be able to experiment with performance criteria by lowering the high school GPA threshold and permitting students who would not otherwise be eligible to earn performance-based Cal Grants.[15] This could potentially increase the proportion of low-income students who matriculate. Alternatively, instead of raising the Cal Grant high school GPA threshold (as was proposed during the 2012-2013 budget discussions), the original GPA level could be maintained if the scholarship were made performance-based.[16] In this way, more students would be served despite restrictions to eligibility. As mentioned earlier in the discussion of scholarship take-up rates, program group students received a proportion of the total scholarship amount available to them. All else being equal, scholarships with more performance requirements cost less than scholarships with fewer performance requirements. While the addition of performance requirements means that students are likely to receive less money on average, it also means that the scholarship can be offered to more students in need.

Implications for Scholarship Providers

Private scholarship providers often give scholarships based on various eligibility criteria that may or may not include financial need. Indeed, some of these scholarships are administered

[14]Calefati and Richman (2013).

[15]While there are some performance criteria in the existing Cal Grant program, they vary, and their application can be delayed based on institutional requirements. Performance-based programs in this context imply a greater frequency and earlier checks on performance adherence.

[16]Taylor (2012).

somewhat haphazardly.[17] They often do not have specific goals or, as with merit-based scholarships, they go to students who already have a high chance of academic success.

Scholarship providers that are able to experiment with performance-based aid programs could help answer questions about how performance-based scholarships affect students and how these scholarships might help the providers to accomplish their goals. Performance-based scholarships could help traditional scholarship programs maximize the amount of money they are able to offer, because students are offered the opportunity to earn more scholarship dollars based on the demonstration of current performance, rather than relying on past performance as a predictor. But here, too, there could be trade-offs if dependable, non-performance-based money often makes it possible for students to enroll who otherwise would not. Further experimentation is necessary to understand the true effects.

Next Steps for Project

This report presents early findings of the CFC-PBS Program. A future report will discuss longer-term academic outcomes for all scholarship types and provide the final cross-site results on the performance-based scholarship programs over the duration of the project.

[17]Woo and Choy (2011).

Appendix A

Technical Appendix

Power

Minimum detectable effects were calculated for the study using one-year retention rates at both four-year universities (79 percent) and community colleges (68 percent). The proposed first-cohort sample (700 program group members and 1,400 control group members) was estimated to be able to detect a 5 percentage point difference at community colleges and a 4 percentage point difference at four-year universities. The proposed total sample of 4,620 (1,540 program group members and 3,080 control group members) was estimated to able to detect a 3.6 percentage point difference at community colleges and a 3.1 percentage point difference at four-year universities.

Analysis Sample

Figure A.1 presents a visual representation of how students were randomly assigned to the California Cash for College Performance-Based Scholarship (CFC-PBS) Program. It expands upon the discussion of the study intake in Chapter 2.[1]

A total of 15,420 students who attended Cash for College workshops in one of the Los Angeles, Far North, Kern County, or Capital regions expressed their interest in being a part of the CFC-PBS Program and were assessed for eligibility in the study. Nearly 6,000 of these students were excluded from the study because they did not meet the eligibility criteria.

Around 49 percent (or 2,820) of excluded students were not found in the California Student Aid Commission's financial aid database, either because they did not complete a FAFSA or AB 540 form or because they had some information on the informed consent form or Exit Survey that precluded them from being matched to the financial aid database.

An additional 41 percent of students were deemed ineligible because they were above the Cal Grant (state financial aid) income thresholds.[2] Over 550 students (around 10 percent of those excluded) were ineligible because they did not submit an informed consent form, did not complete the mandatory Exit Survey at their Cash for College workshop, or were not a high school senior under the age of 20 at the time of their workshop.

Around 40 students were excluded because they did not attend a sufficiently large Cash for College workshop. In 2009, workshops with fewer than 8 attendees were ineligible, and in 2010, workshops with fewer than 12 attendees were ineligible. MDRC worked with CSAC to

[1]The flow diagram adheres to the requirements of the Consolidated Standards of Reporting Trials (CONSORT) on displaying how the analysis sample was derived. See Schulz, Altman, and Moher (2010).

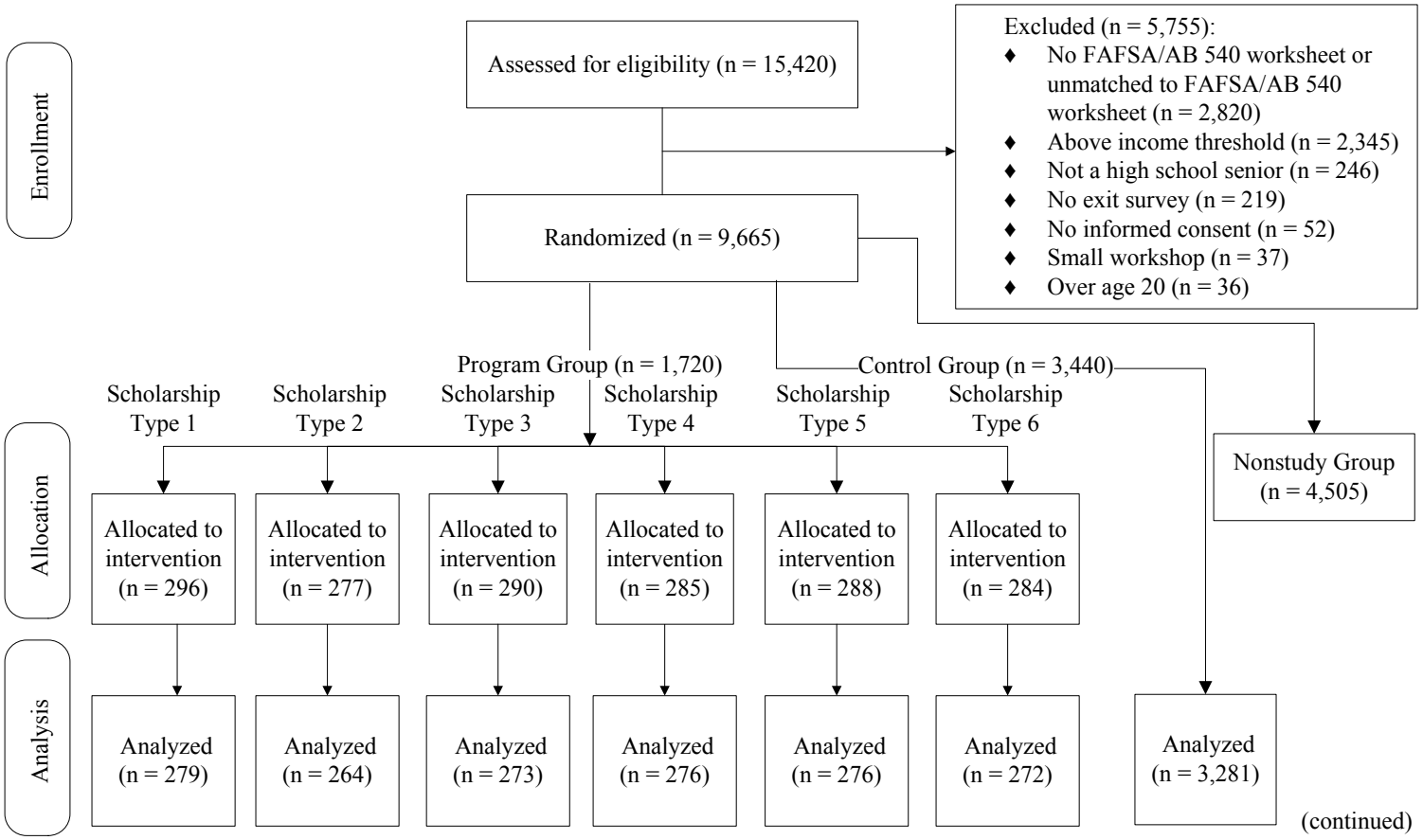
[2]See Chapter 2 for an example income ceiling for Cal Grant receipt for a family of four.

The Performance-Based Scholarship Demonstration

Appendix Figure A.1

CONSORT Statement Flow Diagram

Cash for College Performance-Based Scholarship Study



(continued)

Appendix Figure A.1 (continued)

NOTES: The flow diagram adheres to the requirements of the Consolidated Standards of Reporting Trials (CONSORT) on displaying how the analysis sample was derived (see Schulz, Altman, and Moher, 2010). No students in the study were lost to follow-up, so the analysis sample is identical to the allocated sample.

A total of 289 Cash for College workshops participated in the study.

Each scholarship group was randomized to have a corresponding control group, resulting in six control groups, where the size of the control group was two times that of the program group.

There were 239 undocumented, AB 540 students who participated in the study but were excluded from the analysis sample.

combine the smaller workshops of similar regions in an attempt to limit the number of students lost to this eligibility criterion.

By the end of the eligibility determination process, all students had signed an informed consent form, had completed the Exit Survey, had filled out a FAFSA or AB 540 worksheet, were high school seniors and under age 20, were below the Cal Grant income thresholds, and had attended a sufficiently large Cash for College workshop.

Finally, 239 undocumented, AB 540 students were excluded from the analysis sample because data collection for these students was incomplete as a result of the absence of Social Security numbers and poor matches by name and date of birth.

Random Assignment

The first step of the random assignment process was to separate the eligible 9,665 students by region and workshop and determine the number of scholarships to be disbursed in each of the regions (two regions in 2009 and four regions in 2010). The probability of scholarship receipt in a given region was then calculated based on the sample size of that region. Using this probability and the size of an individual workshop, a corresponding number of students were randomly assigned to the program group. Twice as many students were randomly assigned to the control group, while all remaining students were assigned to the nonstudy group. Program group and control group students were then randomized to one of six scholarship types, such that there were six program groups of around 285 students for each scholarship type and a pooled control group of 3,440 students. None of the 5,160 students assigned to either the program group or control group withdrew their participation in the study, and thus, no students were lost to follow-up. A total of 239 undocumented, AB 540 students who participated in the study were excluded from all analyses, leaving a total analysis sample of 4,921 students.

Matching to the National Student Clearinghouse

An analysis of baseline characteristics by found status suggests that students who are not found in the National Student Clearinghouse (Clearinghouse) are more likely to be Hispanic/Latino, to be the first person in their family to attend college, to have parents whose highest level of educational attainment is high school or a General Educational Development (GED) certificate, and to speak a language other than English regularly in their home — all characteristics that may be associated with lower college-going rates (see Appendix Table A.1).[3] In addition, program group members were more likely to be found than control group students, indicating

[3]Engle (2007); Choy (2001); Terenzini et al. (1996); Klein, Bugarin, Beltranena, and McArthur (2004).

The Performance-Based Scholarship Demonstration

Appendix Table A.1

Selected Characteristics of Sample Members at Baseline, Based on Whether Found by the Clearinghouse

Cash for College Performance-Based Scholarship Study

Characteristic	Analysis Sample	Found	Not Found	Difference	Standard Error
Gender (%)					
Male	39.8	39.6	43.0	-3.4	2.9
Female	60.2	60.4	57.0	3.4	2.9
Race/ethnicity[a] (%)					
Latino	60.9	60.5	66.3	-5.8 **	2.5
White	20.3	20.2	21.4	-1.2	1.8
Black	3.8	4.0	1.1	2.8 **	1.1
Asian or Pacific Islander	11.0	11.2	7.4	3.9 **	1.8
Other	4.0	4.0	3.7	0.3	1.1
High school senior (%)	100.0	100.0	100.0	0.0	0.0
First person in family to attend college (%)	53.7	53.1	62.6	-9.5 ***	2.9
Highest degree/diploma earned by either parent (%)					
Not a high school graduate	34.9	34.7	37.3	-2.6	2.7
High school diploma or GED certificate	31.1	30.7	37.4	-6.7 **	2.7
Some college or associate's degree	22.7	22.9	20.1	2.8	2.4
Bachelor's degree or higher	11.3	11.7	5.2	6.6 ***	1.8
Language other than English spoken regularly in home (%)	60.7	60.6	61.7	-1.1	2.4
High school cumulative GPA (average)	2.9	2.9	2.5	0.4 ***	0.0
Motivation to apply for financial aid[b] (average)					
Relative Autonomy Index	1.4	1.4	1.1	0.3	0.2
External regulation subscale	6.7	6.8	6.7	0.1 **	0.0
Introjected regulation subscale	4.2	4.1	4.5	-0.3 **	0.1
Identified regulation subscale	6.3	6.3	6.2	0.0	0.1
Integrated regulation subscale	6.4	6.4	6.3	0.1	0.1
Sample size	4,921	4,601	320		

(continued)

Appendix Table A.1 (continued)

SOURCES: MDRC calculations using Exit Survey (Baseline Information Form) data and National Student Clearinghouse data.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Missing values are not included in individual variable distributions.

Distributions may not sum to 100 percent because of rounding.

[a]Students who identify as Latino are shown only in the Latino category, even if they selected more than one race. Students who selected more than one race and are not Latino are considered multiracial. The "other" category comprises American Indian/Alaska Native or multiracial students, or students of some other race/ethnicity.

[b]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

higher enrollment among program group students at institutions reporting to the Clearinghouse. To rule out potential bias from the possibility that control group students enrolled in different types of institutions (types that do not report to the Clearinghouse), information on enrollment from the survey was analyzed. The analysis suggests that control group students were equally likely to register at institutions that do not report to the Clearinghouse as program group students, which suggests that control group students were less likely to be found by the Clearinghouse because they were truly not attached to an educational institution.

Estimation Equation

The primary analytic method used to determine program impacts is comparing average outcomes for the pooled program group and comparison group members, using standard statistical tests such as the t-test. More formally, estimates in the report are obtained using ordinary least squares (OLS) regressions of the form

$$E_i = \alpha + \sum_s \delta_s T_{is} + \beta T_{iCFC} + \gamma C_i + \sum_j \varphi_j R_j + \varepsilon_i$$

Where:

E_i = represents the educational attainment of individual *i*,

T_{is} = indicator equal to 1 if the individual *i* was randomly assigned to the performance-based scholarship type s and equal to 0 otherwise,

T_{iCFC} = indicator equal to 1 if the individual *i* was randomly assigned to the Cash for College scholarship type and equal to 0 otherwise,

C_i = indicator equal to 1 if the individual *i* was part of cohort II,

R_i = indicator representing the region *j* from which the student was randomly selected (while individuals were randomized at the workshop level, specifications at the region level are used to represent the randomization pool),

ε_i = a random error term, and

α, β, δ, γ, and φ = coefficients to be estimated.

The coefficients of interest are β, which represents the effect of assignment to the CFC-PBS program group on the outcome of interest, and δ_s, which represents the effect of assignment to one of the five performance-based scholarships groups (where one group is omitted). Because the students are randomly assigned to receive the treatment (or not), the background characteristics (including unobserved characteristics such as motivation and determination) of the two groups will be the same, on average. As a result, OLS estimation of β and δ_s will provide an unbiased estimate of the "intent-to-treat" effect, and it is not necessary to control for other student characteristics.

Survey Response Analysis

A follow-up survey was administered to all CFC-PBS sample members in the spring of the year following random assignment. The overall response rate for the analysis sample was 80 percent, which was equal to MDRC's prespecified target response rate. The response rate for the analysis sample of program group students was 85 percent, compared with 77 percent for the analysis sample of control group students.

Program Group Versus Control Group Representation Among Survey Respondents

An omnibus F-test was performed to examine whether statistically significant differences in baseline characteristics existed between the analysis sample program group and control group members who responded to the follow-up survey (see Appendix Table A.2). The p-value of this test was 0.69, indicating that background characteristics do not predict treatment status among survey respondents. Therefore, this report does not weigh survey responses, as the impacts are unlikely to be biased.

Nonresponse Bias

An omnibus F-test was performed to examine whether statistically significant differences in baseline characteristics existed between those analysis sample members who respond-

The Performance-Based Scholarship Demonstration

Appendix Table A.2

Selected Characteristics of PBS Survey Respondents at Baseline, by Research Group

Cash for College Performance-Based Scholarship Study

Characteristic	Analysis Sample Respondents	Program Group	Control Group		Standard Error
Gender (%)					
Male	38.4	38.0	38.6		1.6
Female	61.6	62.0	61.4		1.6
Race/ethnicity[a] (%)					
Latino	60.9	60.3	61.2		1.4
White	20.2	20.1	20.3		1.0
Black	3.8	3.7	3.8		0.6
Asian or Pacific Islander	11.0	10.9	11.1		1.0
Other	4.1	5.0	3.6	**	0.7
High school senior (%)	100.0	100.0	100.0		0.0
First person in family to attend college (%)	53.6	54.1	53.3		1.6
Highest degree/diploma earned by parent (%)					
Not a high school graduate	35.6	35.0	35.9		1.5
High school diploma or GED	30.5	29.8	30.9		1.5
Some college or associate's degree	22.3	23.7	21.5	*	1.4
Bachelor's degree or higher	11.7	11.5	11.7		1.1
Language other than English spoken regularly in home (%)	61.8	60.6	62.4		1.4
High school cumulative GPA (average)	2.9	2.9	2.9		0.0
Motivation to apply for financial aid[b] (average)					
Relative Autonomy Index	1.4	1.5	1.4		0.1
External regulation subscale	6.7	6.7	6.8	*	0.0
Introjected regulation subscale	4.1	4.2	4.1		0.1
Identified regulation subscale	6.3	6.3	6.3		0.0
Integrated regulation subscale	6.4	6.4	6.4		0.0
Sample size	3,920	1,394	2,526		

(continued)

Appendix Table A.2 (continued)

SOURCES: MDRC calculations using Exit Survey (Baseline Information Form) data, Cal Grant data provided by the California Student Aid Commission, and responses from the Performance-Based Scholarship 12-Month Survey.

NOTES: To analyze whether baseline characteristics and research group status predicted survey response, a likelihood ratio test was performed, which yielded a p-value of 0.69. This suggests that the differences in baseline characteristics between program group and control group survey respondents are likely to have occurred by chance.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Missing values are not included in individual variable distributions.

Distributions may not sum to 100 percent because of rounding.

Calculations for this table used all available data for the 3,920 analysis sample survey respondents.

[a]Students who identify as Latino are shown only in the Latino category, even if they selected more than one race. Students who selected more than one race and are not Latino are considered multiracial. The "other" category comprises American Indian/Alaska Native or multiracial students, or students of some other race/ethnicity.

[b]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

ed to the follow-up survey and those who did not (see Appendix Table A.3). The p-value of this test was less than 0.01, which is significant at the 1 percent level. This indicates that analysis sample respondents differ from nonrespondents; specifically, respondents are more likely to be women, have parents who did not graduate from high school, and speak a language other than English regularly at home. Nonetheless, it is unlikely that this imbalance in response biases the findings because results for respondents using only administrative records are qualitatively similar to those of the full sample. This suggests that the patterns of academic outcomes are similar for respondents as for the full sample.

The Performance-Based Scholarship Demonstration

Appendix Table A.3

Selected Characteristics of Sample Members at Baseline, by PBS Survey Respondents and Nonrespondents

Cash for College Performance-Based Scholarship Study

Characteristic	Analysis Sample	Respondents	Non-respondents		Standard Error
Gender (%)					
Male	39.8	38.4	45.4	***	1.7
Female	60.2	61.6	54.6	***	1.7
Race/ethnicity[a] (%)					
Latino	60.9	61.0	60.4		1.5
White	20.3	20.2	21.0		1.1
Black	3.8	3.8	4.0		0.7
Asian or Pacific Islander	11.0	11.0	10.9		1.1
Other	4.0	4.1	3.7		0.7
High school senior (%)	100.0	100.0	100.0		0.0
First person in family to attend college (%)	53.7	53.6	54.0		1.7
Highest degree/diploma earned by parent (%)					
Not a high school graduate	34.9	35.6	31.8	**	1.6
High school diploma or GED	31.1	30.5	33.6	*	1.7
Some college or associate's degree	22.7	22.3	24.5		1.5
Bachelor's degree or higher	11.3	11.6	10.1		1.1
Language other than English spoken regularly in home (%)	60.7	61.8	56.0	***	1.5
High school cumulative GPA (average)	2.9	2.9	2.8	***	0.0
Motivation to apply for financial aid[b] (average)					
Relative Autonomy Index	1.4	1.4	1.3		0.1
External regulation subscale	6.7	6.7	6.7		0.0
Introjected regulation subscale	4.2	4.1	4.3	**	0.1
Identified regulation subscale	6.3	6.3	6.3		0.0
Integrated regulation subscale	6.4	6.4	6.4		0.0
Sample size	4,921	3,920	1,001		

(continued)

Appendix Table A.3 (continued)

SOURCES: MDRC calculations using Exit Survey (Baseline Information Form) data, Cal Grant data provided by the California Student Aid Commission, and responses from the Performance-Based Scholarship 12-Month Survey.

NOTES: To analyze whether baseline characteristics and research group status predicted survey response, a likelihood ratio test was performed, which yielded a p-value of less than 0.01. This suggests that the differences in baseline characteristics between respondents and nonrespondents are unlikely to have occurred by chance.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Missing values are not included in individual variable distributions.

Distributions may not sum to 100 percent because of rounding.

[a]Students who identify as Latino are shown only in the Latino category, even if they selected more than one race. Students who selected more than one race and are not Latino are considered multiracial. The "other" category comprises American Indian/Alaska Native or multiracial students, or students of some other race/ethnicity.

[b]Motivation to apply for financial aid is defined using the Relative Autonomy Index (RAI), which has a range of -18 to 18, where a higher value represents greater autonomous motivation. The RAI is calculated as a weighted average: RAI = [External×(-2)] + [Introjected×(-1)] + [Identified×(1)] + [Integrated×(2)]. See Deci, Koestner, and Ryan (2001).

Appendix B

Supplementary Exhibits for Chapter 2

The Performance-Based Scholarship Demonstration

Appendix Figure B.1

Sample CFC-PBS Scholarship Award Letter

Cash for College Performance-Based Scholarship Study

<Date>

<Student First Name> <Student Last Name>
<Street Address>
<City>, <State> <Zip Code>
Workshop ID#: <Workshop ID#>

Congratulations <Student First Name>, you've been awarded a $1,000.00 Cash for College Performance-based Scholarship for one semester and are now a Cash for College Scholar!

You have been selected to join a special group of Cash for College Scholars as part of the Cash for College Performance-based Scholarship (CFC-PBS) study. We are pleased to be investing $1,000.00 in you and your future, and we are confident you will succeed! In addition to the scholarship award, you will have access to a select online community of other scholars.

This Cash for College Performance-based Scholarship acknowledges that you took important steps to pursue higher education that will help you reach your personal and professional goals.

It's very easy to claim your scholarship. Beginning June 1st, visit www.calgrants.org/cashforcollegescholarship. The website will provide you with easy to follow instructions, including a short video, to claim your award. Because these awards are scarce and in such high demand, you must **claim your award no later than Tuesday, August 3, 2010.** You may lose your scholarship in whole or in part if it is not claimed by August 3rd. **The attached sheet contains specific instructions about claiming your scholarship**, the details of your specific scholarship, the steps you must take to receive your total award and the online community created specifically for Cash for College Scholars in the Cash for College Performance-based Scholarship study. Once you claim your award and provide proof of your enrollment, you will receive your first payment at the start of your fall term.

Save this letter and the attached information.

You will need the ID in the box below to claim your award.
SCHOLARSHIP CLAIM ID: <ID#>

If you have any questions about this scholarship, send an e-mail to our scholarship office at cashforcollege@lachamber.com.

If you have not already chosen the college you plan to attend in the fall, it's not too late! Visit www.californiacolleges.edu or www.icanaffordcollege.com to find a college near you.

Best wishes for your future success!

Sincerely,

California Cash for College

2010 CFC-PBS Study Claiming Instructions and Information

HOW TO CLAIM YOUR CASH FOR COLLEGE PERFORMANCE-BASED STUDY SCHOLARSHIP:

1) **Beginning June 1**, visit www.calgrants.org/cashforcollegescholarship to claim your Cash for College Performance-based Scholarship. On the website, you will be asked to enter your unique scholarship claiming identification number listed in your scholarship award letter, to update your contact information, to select the college or university you will attend this fall, and to list the date when you will enroll at your institution. You need to go the website to claim **your award beginning Tuesday, June 1, 2010.** You may lose your scholarships in whole or in part if it is not claimed by August 3rd. If you do not have your scholarship award letter with your scholarship claim ID, you can email our scholarship office to get your scholarship claiming identification number at cashforcollege@lachamber.com.

2) **To receive your first payment, please send in your fall 2010 class schedule within two weeks of the date you enroll at your selected college or university.** Your fall 2010 class schedule should include some obvious identification that it's from your campus (e.g. University name, logo or URL) and the number of units for which you are enrolled. You may either FAX or mail your schedule to Carmen Gomez, Scholarship Administrator, 213-482-0814 or 350 S. Bixel Street, Suite 200, Los Angeles, CA 90017.

3) If you do not plan to attend college in the fall term, please contact our scholarship office at cashforcollege@lachamber.com. You may still be eligible to receive a portion of your scholarship if you begin school later in the 2010-2011 academic year.

SCHOLARSHIP REQUIREMENTS

You must meet the following requirements to receive an initial scholarship award:

- Graduate from a California high school;
- Enroll half-time (6 units) or more at an accredited, degree-granting, 2-year or 4-year post-secondary institution in the fall of 2010. Your institution can be located anywhere in the United States.
- Pursue either an Associate's (2-year) Degree or a Bachelor's (4-year) Degree.
- Vocational schools or technical schools ***are not*** qualifying institutions for this scholarship.
- Vocational courses which lead to an Associate's degree at California Community Colleges do qualify for this scholarship.

If you have questions about these requirements, please e-mail cashforcollege@lachamber.com.
Note: 6 credit hours/units are based upon enrollment in a semester system. Equivalent requirements must be met for institutions on different calendars.

ABOUT YOUR AWARD

You have received a Cash for College **Performance-Based Scholarship**. Performance-based means that in order to receive your scholarship, you must maintain a 2.0 grade point average or better across all of your college courses for the semester/quarter; and complete at least 6 credit hours/units for the term.

Payment of your Performance Based scholarship will be as follows:

- Your scholarship will be sent to you in multiple payments. **You won't get the whole amount at once.**
- Your first payment is based on enrollment and will be sent to you at the start of the fall term, once verification of your enrollment in 6 credit hours/units for the term has been received. Once your enrollment verification is reviewed and approved, we will contact you to provide us with the necessary information to make an electronic funds transfer into your bank account.

- Future payments are based on achievement and will be made after the end of each term, once you have submitted verification that shows you have earned a 2.0 grade point average or better and completed at least 6 credit hours/units for the term.

This may seem a bit confusing at first and that is why we have set up an on-line community to provide you with specific information about your scholarship, the payments, and other information for your success.

THE CASH FOR COLLEGE PERFORMANCE-BASED SCHOLARSHIP STUDY ON-LINE COMMUNITY

When you claim your scholarship, you will be directed to the Cash for College on-line community created for Cash for College Scholars who are part of the Cash for College Performance-based Scholarship study. You are a select group of students who will be attending colleges and universities across the US and this website was created specifically for you, with your success in mind. An individual webpage will be created for you to provide you with detailed information on the amount of each scholarship check, based upon the institution you plan to attend. You will also be able to track how much you have earned and access a variety of other important information. **This website will be your primary source of information about your scholarship**. You should bookmark the website address when you visit and visit it frequently. Should you lose the address, contact our scholarship office at cashforcollege@lachamber.com.

ADDITIONAL INFORMATION

Notification to the Financial Aid Office
After you complete the online claim form, and your fall 2010 class schedule is received by the Cash for College Scholarship Office, notification of your award will be sent directly to your college or university's financial aid office. You may then see your scholarship included on your Financial Aid Award Letter. The Financial Aid office is being asked to consider this award as additional assistance above and beyond grant aid. Should you have specific questions related to your financial aid package, you should always visit the Financial Aid Office at your institution.

Providing Enrollment and Grade Verification
To receive your scholarship, you must submit verification of your enrollment and proof that you have met the performance criteria for each term. Official documents showing that you have met the enrollment and performance criteria are preferred, but unofficial documents will also be accepted.

We take the submission of these documents very seriously and a percentage of all unofficial documents will be selected for verification. Much like the Financial Aid process, if your documents are selected for verification, you will be asked to submit official documentation: an official transcript. Any student found to be submitting fraudulent documents may lose their scholarship. In addition, if we find there are an unusually high proportion of students misrepresenting their enrollment or grades, official transcripts may be required of all Cash for College Scholars in the Performance-based Scholarship study.

Congratulations on your award! We wish you continued success with your education!
Still have questions? If you have additional questions, please e-mail our scholarship office at cashforcollege@lachamber.com and don't forget to visit the Cash for College Scholars website at: www.cashforcollegescholars.com.

The California Cash for College Program is a partnership effort sponsored by the California Student Aid Commission, regional Cash for College coalitions, local high schools, community colleges, universities, outreach programs, community, local government and business groups. Visit www.californiacashforcollege.org for more information.

The Performance-Based Scholarship Demonstration

Appendix Figure B.2

Sample CFC-PBS Control Group Notification Letter

Cash for College Performance-Based Scholarship Study

<Date>

<Student First Name> <Student Last Name>
<Street Address>
<City>, <State> <Zip Code>

Dear <Student First Name>,

Thank you for attending a Cash for College Workshop earlier this year and for agreeing to participate in the Cash for College Performance Based Scholarship study being conducted by MDRC. As you may recall, there were a limited number of scholarships, and a lottery was used to select recipients. The lottery selection process has now been completed, and you were not one of those randomly chosen to receive a scholarship. However, by attending a Cash for College workshop and submitting your FAFSA and Cal Grant GPA Verification, you took important steps to pursue higher education that will help you reach your personal and professional goals. While you were not selected to receive a scholarship, you did take steps towards completing the financial aid process which may make you eligible to receive the Federal and State aid available to all students. In addition, you may be eligible for other scholarships that are not part of this study.

Although you were not selected to receive a scholarship, you still play an important role in the study as a member of the non-scholarship research group. Your continued participation in the study is critical to help us understand whether scholarships make a difference for students. Researchers will be in touch with you at some point in the future to ask you questions or administer a survey about your college experience. The answers you give may benefit others, and **you will be compensated for your participation.** Should you change your address during the next few years, please contact Michelle Ware at the phone number or email below, with your new contact information.

On behalf of MDRC, I wish you the very best in pursuing your college plans. If you have any questions, please feel free to contact Michelle Ware at 1-800-221-3165 or by email at michelle.ware@mdrc.org.

Thank you and best wishes for a successful college career.

Appendix C

Supplementary Exhibit for Chapter 3

The Performance-Based Scholarship Demonstration

Appendix Table C.1

Quarter Payment Schedule

Cash for College Performance-Based Scholarship Study

Characteristic	Scholarship Type 1	2	3	4	5	6
Performance-based scholarship	No	Yes	Yes	Yes	Yes	Yes
Amount of scholarship per quarter ($)	1,000	1,000	333	667	333	667
Duration of scholarship	1 quarter	1 quarter	3 quarters	3 quarters	6 quarters	6 quarters
First year						
Fall payments ($)						
Enrollment	1,000	500	167	333	167	333
Performance	--	500	167	333	167	333
Winter payment ($)						
Performance	--	--	333	667	333	667
Spring payment ($)						
Performance	--	--	333	667	333	667
Second year						
Fall payments ($)						
Enrollment	--	--	--	--	167	333
Performance	--	--	--	--	167	333
Winter payment ($)						
Performance	--	--	--	--	333	667
Spring payment ($)						
Performance	--	--	--	--	333	667
Total scholarship amount ($)	1,000	1,000	1,000	2,000	2,000	4,000

NOTE: Students who attended quarter institutions can earn the same dollar amount in aggregate as those who attended semester institutions, but payments were divided into three quarters of the academic year. The majority of the students in the CFC-PBS study attended semester-based institutions.

Appendix D

Supplementary Exhibits for Chapter 4

The Performance-Based Scholarship Demonstration

Appendix Table D.1

Impact Matrix of Enrollment in First Term, by Scholarship Type

Cash for College Performance-Based Scholarship Study

Characteristic (%)	Control Group Mean	$1,000 over 1 Term, No Performance Incentive	$1,000 over 1 Term, Performance Incentive	$1,000 over 1 Year, Performance Incentive	$2,000 over 1 Year, Performance Incentive	$2,000 over 2 Years, Performance Incentive	$4,000 over 2 Years, Performance Incentive
Control group	84.4	3.5	4.1 *	3.9 *	5.1 **	5.3 **	5.9 ***
		(2.1)	(2.2)	(2.2)	(2.2)	(2.2)	(2.2)
$1,000 over 1 term, no performance incentive	-	-	0.6	0.4	1.6	1.8	2.4
			(3.0)	(2.9)	(2.9)	(2.9)	(2.9)
$1,000 over 1 term, performance incentive	-	-	-	-0.2	1.0	1.2	1.8
				(3.0)	(3.0)	(3.0)	(3.0)
$1,000 over 1 year, performance incentive	-	-	-	-	1.2	1.3	2.0
					(2.9)	(2.9)	(3.0)
$2,000 over 1 year, performance incentive	-	-	-	-	-	0.2	0.8
						(2.9)	(2.9)
$2,000 over 2 years, performance incentive	-	-	-	-	-	-	0.6
							(2.9)
Sample size (total = 4,921)	3,281	279	264	273	276	276	272

(continued)

Appendix Table D.1 (continued)

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: To analyze whether scholarship type predicted first-semester registration, a joint test was performed. This test yielded a p-value for the F-statistic of less than 0.01, which is significant at the 1 percent level. This suggests that the differences in first-semester registration between scholarship types and the control group are unlikely to have occurred by chance.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

Standard errors are reported in parentheses under impact estimates.

National Student Clearinghouse data were not found for 320 students (6.5 percent of the sample).

The Performance-Based Scholarship Demonstration

Appendix Table D.2

Impact Matrix of Enrollment in Second Term, by Scholarship Type

Cash for College Performance-Based Scholarship Study

Characteristic (%)	Control Group Mean	$1,000 over 1 Term, No Performance Incentive	$1,000 over 1 Term, Performance Incentive	$1,000 over 1 Year, Performance Incentive	$2,000 over 1 Year, Performance Incentive	$2,000 over 2 Years, Performance Incentive	$4,000 over 2 Years, Performance Incentive
Control Group	84.7	2.8	3.5	5.6 **	3.8 *	2.7	3.0
		(2.2)	(2.2)	(2.2)	(2.2)	(2.2)	(2.2)
$1,000 over 1 term, no performance incentive	-	-	0.6	2.7	0.9	-0.1	0.2
			(3.0)	(2.9)	(2.9)	(2.9)	(2.9)
$1,000 over 1 term, performance incentive	-	-	-	2.1	0.3	-0.7	-0.4
				(3.0)	(3.0)	(3.0)	(3.0)
$1,000 over 1 year, performance incentive	-	-	-	-	-1.8	-2.8	-2.5
					(2.9)	(2.9)	(3.0)
$2,000 over 1 year, performance incentive	-	-	-	-	-	-1.1	-0.8
						(2.9)	(3.0)
$2,000 over 2 years, performance incentive	-	-	-	-	-	-	0.3
							(3.0)
Sample size (total = 4,921)	3,281	279	264	273	276	276	272

(continued)

Appendix Table D.2 (continued)

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: To analyze whether scholarship type predicted second-semester registration, a joint test was performed. This test yielded a p-value for the F-statistic of 0.03, which is significant at the 5 percent level. This suggests that the differences in second-semester registration between scholarship types and the control group are unlikely to have occurred by chance.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

Standard errors are reported in parentheses under impact estimates.

National Student Clearinghouse data were not found for 320 students (6.5 percent of the sample).

The Performance-Based Scholarship Demonstration

Appendix Table D.3

Enrollment Outcomes Among Students with One-Term Scholarships, Non-Performance-Based Versus Performance-Based: First Through Third Terms

Cash for College Performance-Based Scholarship Study

	Average Outcome Levels			Non-PBS vs. Control		PBS vs. Control		PBS vs. Non-PBS	
Outcome (%)	Non-PBS	PBS	Control Group	Difference	Standard Error	Difference	Standard Error	Difference	Standard Error
First term									
Enrolled in any college[a]	87.9	88.5	84.4	3.5	2.2	4.1 *	2.3	0.6	3.0
Enrolled in any 2-year college	48.3	47.4	43.2	5.2 *	3.1	4.2	3.1	-1.0	4.2
Enrolled in a California community college	48.0	46.6	42.7	5.3 *	3.1	3.9	3.1	-1.4	4.2
Enrolled in any 4-year college	39.9	42.3	42.8	-2.9	3.0	-0.6	3.1	2.4	4.2
Enrolled in a California State University college	22.6	21.2	22.9	-0.3	2.6	-1.7	2.7	-1.4	3.6
Enrolled in a University of California college	11.2	14.3	13.0	-1.8	2.1	1.3	2.1	3.1	2.9
Second term									
Enrolled in any college[a]	87.5	88.1	84.7	2.8	2.2	3.5	2.3	0.6	3.0
Enrolled in any 2-year college	51.6	51.9	47.0	4.5	3.1	4.9	3.2	0.4	4.3
Enrolled in a California community college	51.2	51.2	46.4	4.8	3.1	4.8	3.2	0.0	4.3
Enrolled in any 4-year college	38.1	41.1	42.1	-4.0	3.0	-1.0	3.1	3.0	4.2
Enrolled in a California State University college	22.2	20.8	22.2	0.0	2.6	-1.4	2.6	-1.5	3.6
Enrolled in a University of California college	9.7	14.3	12.7	-3.0	2.1	1.6	2.1	4.5	2.8

(continued)

Appendix Table D.3 (continued)

Outcome (%)	Average Outcome Levels: Non-PBS	Average Outcome Levels: PBS	Average Outcome Levels: Control Group	Non-PBS vs. Control: Difference	Non-PBS vs. Control: Standard Error	PBS vs. Control: Difference	PBS vs. Control: Standard Error	PBS vs. Non-PBS: Difference	PBS vs. Non-PBS: Standard Error
Third term									
Enrolled in any college[a]	80.0	80.9	79.0	1.0	2.5	1.8	2.6	0.8	3.4
Enrolled in any 2-year college	46.2	45.0	41.4	4.8	3.1	3.6	3.1	-1.2	4.2
Enrolled in a California community college	45.5	43.9	40.8	4.7	3.1	3.1	3.1	-1.6	4.2
Enrolled in any 4-year college	34.5	37.0	38.2	-3.7	3.0	-1.2	3.1	2.5	4.1
Enrolled in a California State University college	19.7	18.2	19.9	-0.2	2.5	-1.8	2.5	-1.6	3.4
Enrolled in a University of California college	9.0	13.1	11.7	-2.7	2.0	1.4	2.0	4.1	2.7
Sample size (total = 3,824)	279	264	3,281						

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

Calculations for this table used all available data for the 3,824 control group, Scholarship Type 1, and Scholarship Type 2 sample members in the California study.

National Student Clearinghouse data were not found for 268 students (7.0 percent of the sample).

[a]A small proportion of students were enrolled at more than one institution.

The Performance-Based Scholarship Demonstration

Appendix Table D.4

Enrollment Outcomes Among Students with One-Year Scholarships, $500 per Term Versus $1,000 per Term: First Through Third Terms

Cash for College Performance-Based Scholarship Study

	Average Outcome Levels			$500 per Term vs. Control		$1,000 per Term vs. Control		$1,000 per Term vs. $500 per Term	
Outcome (%)	$500 per Term	$1,000 per Term	Control Group	Difference	Standard Error	Difference	Standard Error	Difference	Standard Error
First term									
Enrolled in any college[a]	88.3	89.5	84.4	4.0 *	2.2	5.1 **	2.2	1.2	3.0
Enrolled in any 2-year college	49.0	49.5	43.2	5.8 *	3.1	6.3 **	3.1	0.6	4.2
Enrolled in a California community college	49.0	49.5	42.7	6.2 **	3.1	6.8 **	3.1	0.6	4.2
Enrolled in any 4-year college	40.8	41.4	42.8	-2.0	3.1	-1.4	3.1	0.6	4.2
Enrolled in a California State University college	21.7	21.1	22.8	-1.2	2.6	-1.8	2.6	-0.6	3.6
Enrolled in a University of California college	11.9	14.2	12.9	-1.1	2.1	1.3	2.1	2.3	2.8
Second term									
Enrolled in any college[a]	90.2	88.4	84.7	5.6 **	2.2	3.8 *	2.2	-1.8	3.0
Enrolled in any 2-year college	53.8	52.8	47.0	6.8 **	3.1	5.8 *	3.1	-1.0	4.2
Enrolled in a California community college	52.4	52.8	46.4	6.0 *	3.1	6.4 **	3.1	0.5	4.2
Enrolled in any 4-year college	41.2	40.3	42.1	-0.9	3.1	-1.7	3.1	-0.8	4.2
Enrolled in a California State University college	22.0	20.7	22.2	-0.2	2.6	-1.5	2.6	-1.3	3.5
Enrolled in a University of California college	11.9	14.2	12.7	-0.8	2.1	1.5	2.1	2.3	2.8

(continued)

Appendix Table D.4 (continued)

Outcome (%)	Average Outcome Levels: $500 per Term	Average Outcome Levels: $1,000 per Term	Average Outcome Levels: Control Group	$500 per Term vs. Control: Difference	$500 per Term vs. Control: Standard Error	$1,000 per Term vs. Control: Difference	$1,000 per Term vs. Control: Standard Error	$1,000 per Term vs. $500 per Term: Difference	$1,000 per Term vs. $500 per Term: Standard Error
Third term									
Enrolled in any college[a]	82.2	80.9	79.0	3.2	2.5	1.9	2.5	-1.4	3.4
Enrolled in any 2-year college	45.9	43.1	41.4	4.4	3.1	1.7	3.1	-2.8	4.2
Enrolled in a California community college	44.8	43.1	40.8	4.0	3.1	2.3	3.1	-1.7	4.2
Enrolled in any 4-year college	36.7	38.5	38.2	-1.4	3.0	0.3	3.0	1.8	4.1
Enrolled in a California State University college	19.1	19.3	19.9	-0.9	2.5	-0.7	2.5	0.2	3.4
Enrolled in a University of California college	10.4	13.1	11.7	-1.3	2.0	1.4	2.0	2.7	2.7
Sample size (total = 3,830)	273	276	3,281						

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

Calculations for this table used all available data for the 3,830 control group, Scholarship Type 3, and Scholarship Type 4 sample members in the California study.

National Student Clearinghouse data were not found for 272 students (7.1 percent of the sample).

[a]A small proportion of students were enrolled at more than one institution.

The Performance-Based Scholarship Demonstration

Appendix Table D.5

Enrollment Outcomes Among Students with Two-Year Scholarships, $500 per Term Versus $1,000 per Term: First Through Third Terms

Cash for College Performance-Based Scholarship Study

	Average Outcome Levels			$500 per Term vs. Control		$1,000 per Term vs. Control		$1,000 per Term vs. $500 per Term	
Outcome (%)	$500 per Term	$1,000 per Term	Control Group	Difference	Standard Error	Difference	Standard Error	Difference	Standard Error
First term									
Enrolled in any college[a]	89.7	90.3	84.4	5.3 **	2.2	5.9 ***	2.2	0.6	3.0
Enrolled in any 2-year college	43.9	49.6	43.1	0.8	3.1	6.5 **	3.1	5.7	4.2
Enrolled in a California community college	43.2	49.3	42.7	0.5	3.1	6.5 **	3.1	6.0	4.2
Enrolled in any 4-year college	47.1	42.5	42.8	4.3	3.1	-0.3	3.1	-4.6	4.2
Enrolled in a California State University college	25.0	26.5	22.9	2.1	2.6	3.6	2.7	1.5	3.6
Enrolled in a University of California college	16.0	10.2	13.0	3.0	2.1	-2.8	2.1	-5.8 **	2.8
Second term									
Enrolled in any college[a]	87.4	87.7	84.7	2.7	2.2	3.0	2.2	0.3	3.0
Enrolled in any 2-year college	47.9	50.6	47.0	0.9	3.1	3.6	3.1	2.8	4.2
Enrolled in a California community college	47.2	50.3	46.4	0.8	3.1	3.9	3.1	3.1	4.2
Enrolled in any 4-year college	44.6	41.1	42.1	2.5	3.1	-1.0	3.1	-3.5	4.2
Enrolled in a California State University college	22.1	25.7	22.2	-0.1	2.6	3.5	2.6	3.6	3.6
Enrolled in a University of California college	16.0	9.8	12.7	3.2	2.1	-2.9	2.1	-6.2 **	2.8

(continued)

Appendix Table D.5 (continued)

Outcome (%)	Average Outcome Levels: $500 per Term	Average Outcome Levels: $1,000 per Term	Average Outcome Levels: Control Group	$500 per Term vs. Control: Difference	$500 per Term vs. Control: Standard Error	$1,000 per Term vs. Control: Difference	$1,000 per Term vs. Control: Standard Error	$1,000 per Term vs. $500 per Term: Difference	$1,000 per Term vs. $500 per Term: Standard Error
Third term									
Enrolled in any college[a]	83.4	79.5	79.0	4.4 *	2.5	0.5	2.5	-3.9	3.4
Enrolled in any 2-year college	42.8	42.9	41.4	1.4	3.1	1.4	3.1	0.1	4.2
Enrolled in a California community college	41.7	41.0	40.8	0.9	3.1	0.2	3.1	-0.7	4.2
Enrolled in any 4-year college	42.1	38.1	38.2	3.9	3.0	-0.1	3.0	-3.9	4.1
Enrolled in a California State University college	21.0	25.0	19.9	1.1	2.5	5.1 **	2.5	4.0	3.4
Enrolled in a University of California college	15.2	8.0	11.7	3.5 *	2.0	-3.8 *	2.0	-7.3 ***	2.7
Sample size (total = 3,829)	276	272	3,281						

SOURCE: MDRC calculations using National Student Clearinghouse data.

NOTES: A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Estimates are adjusted by research cohort and workshop region.

Rounding may cause slight discrepancies in sums and differences.

Calculations for this table used all available data for the 3,829 control group, Scholarship Type 5, and Scholarship Type 6 sample members in the California study.

National Student Clearinghouse data were not found for 270 students (7.1 percent) of the sample.

[a]A small proportion of students were enrolled at more than one institution.

Appendix E

Supplementary Information and Exhibits for Chapter 5

This appendix describes the marginal cost assumptions used in the analysis presented in Chapter 5 in more detail. As Chapter 5 notes, the cost of program administration for the California Cash for College Performance-Based Scholarship (CFC-PBS) Program was estimated using program expenditure data as recorded by the Los Angeles Area Chamber of Commerce. Because all scholarship types were administered together, program expenditures were not broken down by scholarship type. As a result, in order to estimate the cost of administration for each individual scholarship type, it was necessary to develop a set of marginal cost assumptions. As discussed in Box 5.2, three marginal cost types were used in this analysis:

- **Marginal cost per scholarship offered.** Assumes that the primary driver of cost is the number of scholarships offered, or the number of participants.
- **Marginal cost per scholarship semester.** Assumes that the primary driver of cost is the number of scholarship semesters, or the length of the scholarship.
- **Marginal cost per potential payment.** Assumes that the primary driver of cost is the number of potential payments, or the disbursement points.

Appendix Table E.1 shows the marginal cost assumptions that were used in this analysis. To estimate the administrative costs of each CFC-PBS scholarship type, the following steps were carried out:

1. **Assign a marginal cost type or types to each spending category.** Each spending category was assigned the most appropriate marginal cost type in consultation with program staff. For example, the first row of the second panel of Appendix Table E.1 shows that student tracking-related costs associated with the employment of a web developer were believed to be driven by the number of scholarships offered, or the number of students participating in the program. However, some administrative spending categories seemed to be driven by more than one factor. For instance, personnel costs were most likely related to the number of scholarships offered, the number of scholarship semesters, and the number of potential payments. Therefore, as shown in the first panel of Appendix Table E.1, one-third of the amount spent on personnel is determined by the number of scholarships offered, another third is determined by the number of scholarship semesters, and the last third is determined by the number of potential payments.
2. **Determine the number of units during the analysis period.** The expenditure information used to carry out this analysis covered the period of January 2009 through June 2011. For each marginal cost type listed above, the total number of units during that period was calculated. In particular, there were

The Performance-Based Scholarship Demonstration

Appendix Table E.1

Examining Marginal Cost Estimates

Cash for College Performance-Based Scholarship Study

Category	Total Cost ($) Over 2 Years	Marginal Cost Category	Units During 2-Year Period	Marginal Cost ($)	Units by Type Over Life of Scholarship				Cost Over Life of Scholarship ($)			
					Type 1	Type 2	Type 3	Type 4	Type 1	Type 2	Type 3	Type 4
Personnel												
Chamber of Commerce	94,002	Scholarship offer	1,720	54.65	296	277	290	285	16,177	15,139	15,849	15,576
Chamber of Commerce	94,002	Scholarship semester	3,365	27.94	296	277	580	570	8,269	7,738	16,202	15,923
Chamber of Commerce	94,002	Potential payment	5,038	18.66	296	554	870	855	5,523	10,337	16,233	15,953
Personnel subtotal									29,969	33,214	48,285	47,452
Student tracking												
Web developer	21,632	Scholarship offer	1,720	12.58	296	277	290	285	3,723	3,484	3,647	3,584
Data entry services	20,644	Scholarship offer	1,720	12.00	296	277	290	285	3,553	3,325	3,481	3,421
Data entry services	20,644	Potential payment	5,038	4.10	296	554	870	855	1,213	2,270	3,565	3,503
Research services	28,170	Scholarship offer	1,720	16.38	296	277	290	285	4,848	4,537	4,750	4,668
Research services	28,170	Potential payment	5,038	5.59	296	554	870	855	1,655	3,098	4,865	4,781
Student tracking subtotal									14,991	16,713	20,307	19,957
Communication and outreach												
General communication												
Statewide outreach	16,845	Scholarship offer	1,720	9.79	296	277	290	285	2,899	2,713	2,840	2,791
Statewide outreach	16,845	Potential payment	5,038	3.34	296	554	870	855	990	1,852	2,909	2,859
Website												
Maintenance costs	69,470	Scholarship semester	3,365	20.64	296	277	580	570	6,111	5,719	11,974	11,768
Web developer	1,139	Scholarship semester	3,365	0.34	296	277	580	570	100	94	196	193
Ceremonies[a]	11,313	Scholarship offer	1,720	6.58	296	277	290	285	1,947	1,822	1,907	1,875
Communication subtotal									12,047	12,200	19,827	19,485

(continued)

Appendix Table E.1 (continued)

Category	Total Cost ($) Over 2 Years	Marginal Cost Category	Units During 2-Year Period	Marginal Cost ($)	Units by Type Over Life of Scholarship				Cost Over Life of Scholarship ($)			
					Type 1	Type 2	Type 3	Type 4	Type 1	Type 2	Type 3	Type 4
Workshop and regional support												
L.A. CFC regional training												
Trainer fees	15,000	Scholarship offer	1,720	8.72	296	277	290	285	2,581	2,416	2,529	2,485
Materials/administrative fees support	10,778	Scholarship offer	1,720	6.27	296	277	290	285	1,855	1,736	1,817	1,786
Communication costs	3,415	Scholarship offer	1,720	1.99	296	277	290	285	588	550	576	566
Facility rental and equipment	2,250	Scholarship offer	1,720	1.31	296	277	290	285	387	362	379	373
Regional CFC program costs												
Region support administrative stipend	57,700	Scholarship offer	1,720	33.55	296	277	290	285	9,930	9,292	9,728	9,561
Regional workshops	4,038	Scholarship offer	1,720	2.35	296	277	290	285	695	650	681	669
Workshop and regional support subtotal									16,036	15,006	15,711	15,440
Total[b] ($)	610,061								73,043	77,133	104,130	102,334
Sample size[c]	1,720								296	277	290	285
Total per program group member (Types 1-6) ($)	355								247	278	359	359

(continued)

Appendix Table E.1 (continued)

SOURCE: MDRC calculations from expenditure data provided to MDRC by the Los Angeles Chamber Foundation.

NOTES: Program costs are based on a steady state of operation that excludes research and start-up costs.

The expenditure information used to create this table covers the period of January 2009 through June 2011. The "2-Year Period" column head refers to January 2009 through June 2011.

Marginal costs are allocated in a way that treats all schools as semester schools.

[a]The "ceremonies" cost category represents scholarship recognition ceremonies that were held in some regions for scholarship recipients.

[b]The total two-year cost includes spending associated with Scholarship Types 1 through 6. The units during the two-year period describe the number of units from Scholarship Types 1 through 6. Since Scholarship Types 5 and 6 had a longer duration, this two-year observation period does not include all the expenditures associated with those two scholarship types. As a result, Scholarship Types 5 and 6 have been excluded from this analysis.

[c]The sample size in the two-year cost column is the number of individuals receiving Scholarship Types 1 through 6. The cost of the individuals in Scholarship Types 5 and 6 will be estimated at a later date when complete expenditure data are available.

1,720 scholarships offered, 5,038 potential payments, and 3,365 scholarship semesters.[1] These totals include Scholarship Types 5 and 6, although they are not shown in Appendix Table E.1. Even though these two scholarship types are not included in the analysis discussed in Chapter 5 since they had not been fully paid out by the end of the analysis period, they were in operation during this period, and some of the total program cost was related to their administration.

3. **Calculate the marginal cost per unit.** After assigning the most appropriate marginal cost type for each spending category and identifying the total number of units during the analysis period for each marginal cost type, a marginal cost per unit was calculated for each spending category. As can be seen in Appendix Table E.1, the marginal cost per unit is equal to the total cost during the analysis period ("Two-Year Cost" shown in the second column) divided by the total number of units during the same period. For example, the marginal cost per scholarship offer of student tracking-related web developer costs (shown in the first row of the second panel) was \$12.58 (\$21,632 ÷ 1,720).

4. **Estimate the total cost for each scholarship type for every spending category.** The marginal cost per unit was used to estimate the total cost associated with each of Scholarship Types 1 through 4, by multiplying the cost per unit by the total number of the appropriate units during the analysis period for each scholarship type. Returning to the example of the student tracking-related web developer costs, to get the total cost over the two-year period for Scholarship Type 1, the marginal cost per scholarship offer was multiplied by the total number of scholarship offers, yielding \$3,723 (\$12.58 × 296).

5. **Calculate the cost per student for each scholarship type.** After estimating the total cost for each scholarship type for every spending category, the total cost for each scholarship type (the sum of the total cost for all spending categories) was divided by the number of program group members receiving that scholarship type to estimate the total administrative cost per program group

[1]For each scholarship type, the total number of potential payments is equal to the number of scholarship offers multiplied by the number of potential payments during the analysis period. For example, 277 students were offered Scholarship Type 2, which had two potential payments. As a result, the total number of potential payments for Scholarship Type 2 is 554 (277 × 2). Similarly, the number of scholarship semesters is the number of scholarship offers by the length of that individual scholarship type during the analysis period. For example, 290 students were offered Scholarship Type 3, which lasted for two semesters in total, both of which took place during the analysis period, while for the 164 students who began in fall 2010, only two of them did. Therefore, the number of scholarship semesters for that scholarship type is 580 (290 × 2).

member, by scholarship type. This is shown in the rightmost four columns of the final row of Appendix Table E.1.

Sample Size

The sample size used to calculate the administrative cost per student (1,720 across the six scholarship types) differs from the sample used in the analysis of the program's impacts (1,640 across the six scholarship types). This is due to the fact that 239 students who were randomly assigned to either the program or control group were excluded from the impact analysis as a result of incomplete data collection, as noted in Chapter 2. These students were included in the calculation of administrative cost per student because even though their outcomes were not analyzed, the program still incurred costs related to their participation. Therefore, excluding them would have made the cost per program group member look artificially high.

Appendix F

Supplementary Exhibits for Chapter 6

The Performance-Based Scholarship Demonstration

Appendix Table F.1

Descriptions of Prior External Incentive Research

Cash for College Performance-Based Scholarship Study

Study	Eligible Population	Need-Based	Number of Sites	Program Groups	Incentive Duration	Maximum Incentive Amount	Academic Benchmarks	Additional Service Criteria
Social Security Student Benefit Program (United States) 1979-1983	High school seniors with parent who is a Social Security beneficiary[a]	Yes	National	1	8 semesters	$6,700 per year[b]	Benefits based on family earnings and continued enrollment	None
Cal Grant program (United States) 1999-2000	1st-year college students who applied for financial aid	Yes	Statewide	2	2 semesters	Cal Grant A: $3,429 Cal Grant B: $1,409[c]	Cal Grant eligibility: income, assets, and high school GPA requirements	None
Project STAR (Canada) 2005-2006	Full-time, 1st-year college students with high school GPAs in 1st to 3rd quartile[d]	No	1	3	2 semesters	$5,000	Meet GPA benchmark depending on high school quartile Register for second year	Peer advising[e]

(continued)

Appendix Table F.1 (continued)

Study	Eligible Population	Need-Based	Number of Sites	Program Groups	Incentive Duration	Maximum Incentive Amount	Academic Benchmarks	Additional Service Criteria
University of Amsterdam (Netherlands) 2001-2002	1st-year college students in economics and business	No	1	2	3 terms	$215 or $644[f]	Complete all 1st-year requirements by start of next term	None
West Virginia PROMISE (United States) 2000-2004	Full-time college students with minimum high school GPA and ACT or SAT scores	No	Statewide	1	8 semesters	$10,000[g]	Meet 3.0 cumulative GPA benchmark Complete at least 30 credits per year	None
Wisconsin Scholars (United States) 2008-2011	1st-year college students who are Pell-eligible	Yes	13	1	10 semesters	$17,500	Maintain Pell eligibility[h] Register for at least 12 credits per term	None
Opportunity Knocks (Canada) 2008-2009	1st- and 2nd-year college students who applied for financial aid, have a high school GPA on file, and enrolled for half of a full load	No	1	1	2 semesters	$7,000[i]	Attain minimum grade of 70 (benchmark by course)	Peer advising

(continued)

Appendix Table F.1 (continued)

Study	Eligible Population	Need-Based	Number of Sites	Program Groups	Incentive Duration	Maximum Incentive Amount	Academic Benchmarks	Additional Service Criteria
Foundations for Success (Canada) 2007-2009	Full-time students who are Canadian citizens and identified as at risk based on Accuplacer and FastTrack surveys	No	3	2	3 semesters	$2,250	Meet 2.0 GPA benchmark Be eligible to continue at institution	12 hours of activity
Opening Doors Louisiana (United States) 2004-2005	Parents age 18 to 34 with family incomes below 200 percent of federal poverty level	Yes	2	1	2 semesters	$2,000	Complete 6 or more credits with a "C" average or better	Meet with adviser
PBS California (United States) 2009-2012	High school seniors age 16 to 19 applying for financial aid who are below Cal Grant A/C income threshold[j]	Yes	Portable	5	1 term to 2 years	$1,000 to $4,000	Complete 6 or more credits with a "C" average or better	None

(continued)

Appendix Table F.1 (continued)

Study	Eligible Population	Need-based	Number of sites	Program groups	Incentive Duration	Maximum Incentive Amount	Academic Benchmarks	Additional Service Criteria
PBS New Mexico (United States) 2008-2011	Freshmen age 17 to 20 who are Pell-eligible	Yes	1	1	4 semesters	$4,000	Complete 12 or more credits (1st semester) or 15 credits (subsequent semesters) with a "C" average or better	Meet with adviser
PBS New York (United States) 2008-2010	Students age 22 to 35 who are living away from parents, are in need of developmental education, and are Pell-eligible	Yes	2	2	2 full semesters and 1 summer semester[k]	$2,600 or $3,900	Complete 6 or more credits with "C" or better in each	None
PBS Ohio (United States) 2008-2010	Parents age 18+ with a zero EFC[l]	Yes	3	1	2 semesters or 3 quarters	$1,800	Part-time: Complete 6 to 11 credits with "C" or better in each Full-time: Complete 12 or more credits with "C" or better in each	None

(continued)

Appendix Table F.1 (continued)

SOURCES: Social Security Student Benefit Program (Dynarski, 2003); Cal Grant Program (Kane, 2003); Project STAR (Angrist, Lang, and Oreopoulos, 2009); University of Amsterdam (Leuven, Oosterbeek, and van der Klaauw, 2010); West Virginia PROMISE (Scott-Clayton, 2011); Wisconsin Scholars (Goldrick-Rab, Harris, Benson, and Kelchen, 2011); Opportunity Knocks (Angrist, Oreopoulos, and Williams, 2010); Foundations for Success (MacDonald et al., 2009); and MDRC Opening Doors Louisiana and PBS Demonstration studies.

NOTES: [a]The empirical analysis limits the analysis group to those potentially eligible for Social Security benefits due to the death of a parent.

[b]$6,700 is the average Social Security Student Benefit paid in 1980 to the children of deceased parents.

[c]For Cal Grant A, students were eligible for up to $3,429 per year in 1999-2000 for tuition and required fees at a University of California or California State University school, or up to $9,420 for a private, four-year institution. For Cal Grant B, students were eligible for $1,409 per year.

[d]Academic benchmark was conditional on high school grade quartiles. See Angrist, Lang, and Oreopoulos (2009) for description.

[e]There were three program groups: The Student Support Program (SSP) group was eligible for peer advising, the Student Fellowship Program (SFP) group was eligible for incentive grants, and the SFSP group was eligible for both peer advising and the incentive grant. SFSP students did not need to participate in peer advising in order to earn the incentive grant.

[f]The low-reward group was offered 227 euros ($215 in 2002 dollars); the high-reward group was offered 681 euros ($644 in 2002 dollars).

[g]The grant covers full tuition and required fees. Those who initially qualified received an average of about $10,000 over four years. As of 2010, the award was capped at $4,750 per student per year, but no maximum dollar amount was available for the study sample in the paper.

[h]The Pell Grant requires that students make satisfactory academic progress (SAP), which typically means a "C" average or equivalent and "academic standing consistent with the requirements for graduation" from the institution (see https://studentaid.ed.gov/eligibility/staying-eligible). Apart from SAP, there were no stated GPA requirements for the Wisconsin Scholars Grant.

[i]The incentive grant is $100 per course plus an additional $20 per percentage point. A full course load consists of 10 credits per year.

[j]To qualify for Cal Grant financial aid, students must fall below certain income and asset ceilings.

[k]The study in New York randomly assigned program group members to one of two scholarship types. One type was offered over two semesters only; the other was offered over two semesters plus one summer semester.

[l]EFC, or Expected Family Contribution, is the amount of money a student is expected to either pay out-of-pocket or procure in loans to cover the costs associated with postsecondary attendance. All else being equal, a lower EFC is associated with higher levels of need-based aid.

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MDRC is a nonprofit, nonpartisan social and education policy research organization dedicated to learning what works to improve the well-being of low-income people. Through its research and the active communication of its findings, MDRC seeks to enhance the effectiveness of social and education policies and programs.

Founded in 1974 and located in New York City and Oakland, California, MDRC is best known for mounting rigorous, large-scale, real-world tests of new and existing policies and programs. Its projects are a mix of demonstrations (field tests of promising new program approaches) and evaluations of ongoing government and community initiatives. MDRC's staff bring an unusual combination of research and organizational experience to their work, providing expertise on the latest in qualitative and quantitative methods and on program design, development, implementation, and management. MDRC seeks to learn not just whether a program is effective but also how and why the program's effects occur. In addition, it tries to place each project's findings in the broader context of related research — in order to build knowledge about what works across the social and education policy fields. MDRC's findings, lessons, and best practices are proactively shared with a broad audience in the policy and practitioner community as well as with the general public and the media.

Over the years, MDRC has brought its unique approach to an ever-growing range of policy areas and target populations. Once known primarily for evaluations of state welfare-to-work programs, today MDRC is also studying public school reforms, employment programs for ex-offenders and people with disabilities, and programs to help low-income students succeed in college. MDRC's projects are organized into five areas:

- Promoting Family Well-Being and Children's Development
- Improving Public Education
- Raising Academic Achievement and Persistence in College
- Supporting Low-Wage Workers and Communities
- Overcoming Barriers to Employment

Working in almost every state, all of the nation's largest cities, and Canada and the United Kingdom, MDRC conducts its projects in partnership with national, state, and local governments, public school systems, community organizations, and numerous private philanthropies.