

MDRC Working Paper

**Providing Incentives for Timely Progress
Toward Earning a College Degree
Results from a Performance-Based
Scholarship Experiment**

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Abstract

This paper presents effects after five years of a performance-based scholarship offered to low-income entering freshmen at The University of New Mexico, a medium-sized public university. The program, which was evaluated using a randomized controlled trial, provided eligible students with up to \$1,000 in additional aid per semester for four semesters, conditional on enrolling for a minimum number of credit hours and maintaining a minimum GPA. The program also offered enhanced academic advising. The findings show that the program led to small increases in credit hour accumulation during the first two years, which translated into notable increases in graduation rates after five years — an increase of 4.5 percentage points, an effect that just misses the conventional statistical significance level of 10 percent. The enhanced academic advising may have contributed to the higher graduation rate by increasing awareness among students of the courses needed to graduate. The effects of VISTA are in the context of the state's generous lottery-funded scholarship, which paid tuition for students who maintained full-time enrollment and a minimum GPA.

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Introduction

A large amount of literature establishes that more generous financial aid is associated with increased college enrollment and improved retention in early semesters (Deming and Dynarski, 2009). Enrollment, however, does not guarantee eventual degree completion, and the six-year graduation rate for students from families in the lowest income quartile is only 32 percent, compared with 68 percent for those from families in the highest quartile.¹ In fact, very few studies provide credible evidence linking financial aid and eventual degree attainment, especially for need-based programs with minimal academic requirements.

This paper presents findings on five-year graduation rates for recipients of a performance-based scholarship targeting low-income first-year students at the University of New Mexico (UNM), a medium-sized public university. The program, Vision Inspired Scholarship through Academic Achievement (VISTA), provided cash payments for four semesters to students who enrolled in at least 12 credit hours in their first semester, and in at least 15 credit hours in subsequent semesters, and who earned a grade point average (GPA) of 2.0 or higher. VISTA also provided students with enhanced academic advising. Because students were randomly assigned to the program (VISTA) or control groups, the effects of the program can be estimated by comparing outcomes over time for the two groups.

VISTA was implemented in the context of the state's well-known lottery-funded scholarship, which paid tuition at any public college in the state, as long as students maintained a 2.5 cumulative GPA and earned at least 12 credit hours in all previous semesters. The majority of students in the study sample received the lottery scholarship during the time that VISTA was offered.

Although VISTA did not improve retention or grades, the findings show that it led to a large increase in the number of students taking 15 or more credits during the second through the fourth semesters, leading to a modest increase in average credits earned over this period. This modest advantage translated into a notable increase in the graduation rate of 5.1 percentage points after four and a half years (significant at the 5 percent level) and 4.5 percentage points after five years (an effect that just misses statistical significance at the conventional 10 percent level, with a significance level of 10.7 percent). In addition to the increased number of credit hours earned, the enhanced academic advising may have contributed to the higher graduation rate by raising awareness among VISTA students of the courses they needed to take to graduate.

¹Using data from the NLSY-1997, Bailey and Dynarski (2011) found that 29 percent of 19-year-olds from families in the lowest income quartile enroll in college, but only 9 percent complete a college degree by age 25. The comparable figures for those from families in the highest income quartile were 80 and 54 percent, respectively, for a graduation rate of 68 percent.

While other studies have found that students at the top of the high school GPA distribution tend to benefit most from financial aid programs with modest academic requirements (Leuven et al., 2010; Castleman and Long, 2013), VISTA group students in the lower half of the high school grade distribution improved their graduation rates by at least as much as their higher-performing peers. The graduation effects also appear to have been more pronounced for students from the lowest-income families.

Does Financial Aid Increase Degree Attainment?

The literature on financial aid and eventual graduation is surprisingly thin. As Castleman and Long (2013) point out, this gap in the literature results from the difficulty of separating student characteristics from the receipt of financial aid. Students receiving merit-based aid tend to have better academic preparation and are therefore more likely to graduate. Those receiving need-based aid have fewer financial resources and are more likely to have attended lower-quality high schools, and are therefore less likely to succeed in college. The long follow-up period required to track students through graduation also limits the number of studies that report on college completion.

The lottery-funded, merit-based aid programs adopted by several states over the last 25 years provide quasi-experimental evidence on the effects of aid. Dynarski (2008) studied whether the lottery-funded scholarship programs in Georgia and Arkansas raised college degree attainment before and after program implementation and found large increases in graduation rates, compared with neighboring states without lottery-funded programs. However, two follow-up studies (Sjoquist and Winter, 2012a and 2012b), which estimated standard errors accounting for clustering and included a larger sample of students in states with lottery-funded programs, found no difference in college attainment, compared with students in states without such programs.

Bruce and Carruthers (2011) also found no program effect for Tennessee's lottery-funded scholarship. Using a similar strategy, Scott-Clayton (2011) in contrast found graduation effects as high as 9 percentage points for students just above an ACT cut-off for West Virginia's lottery-funded PROMISE scholarship program, compared with those just below. The discrepancy between these two studies may arise from differences in student characteristics. Because of each state's specific program requirements, all students in the Bruce and Carruthers study sample had high school GPAs below 3.0 and all students in the Scott-Clayton study sample had high school GPAs of 3.0 or higher.² It may be that only stronger students are able to respond to

²Because Scott-Clayton did not limit the sample to students who took the ACT only once, program students who took the ACT more than once may have been able to manipulate their test scores, meaning that they differed from the rest of the study sample in unobserved characteristics, such as ambition. But even though

the merit-based requirements. A high rate of scholarship loss supports this supposition. For example, only 55 percent of students who initially earned West Virginia's PROMISE scholarship were still earning it in their fourth year of college (Anderson 2012).

It is also worth noting that Scott-Clayton's 9 percentage point graduation effect at four years declines to 4.5 percentage points at five years. It is therefore possible that the scholarship program decreased the time it took students to earn a degree without changing the graduation rate. This hypothesis would help explain why Sjoquist and Winter (2012a and 2012b) found no graduation effect. Such a finding, however, would not diminish the importance of decreasing the time students take to complete a degree, since delayed graduation, by some accounts, is extremely costly to both students and higher education institutions (see, for example, Abel and Dietz, 2014).

Lottery-funded scholarships generally target students with above average academic achievement who have relatively high probabilities of college graduation and therefore do not have large effects on graduation rates. Programs designed to benefit average- or low-performing students, on the other hand, might have a significant impact on overall graduation rates. Two studies (Mayer et al., 2015 and Castleman and Long, 2013) consider graduation effects for programs with minimal academic requirements.

Mayer et al. (2015) reported on the results of a performance-based scholarship program that targeted low-income parents enrolled at three community colleges in Ohio. All students who wish to receive federal financial aid must complete the Free Application for Federal Student Aid Federal Application (FAFSA), which designates an Expected Family Contribution (EFC) toward college costs based on reported income and assets. Ohio students with an EFC of \$0 and who were also parents were eligible for performance-based awards of \$900 per semester if they completed at least 12 credit hours with a GPA of 2.0 or higher, or \$600 per semester if they completed 6 to 11 credit hours with a GPA of 2.0 or higher. The program was available for two consecutive semesters. Payments were made directly to students, rather than through financial aid offices. Students received periodic e-mail and postcard reminders about the terms of the scholarship.

In the Mayer et al. study, over 2,000 students were randomly assigned to either a program group, eligible to earn the performance-based scholarship, or to a control group, not eligible for the scholarship. Because students were assigned at random to either group, a simple comparison of average outcomes for each group provided a valid estimate of the effect of the

Bruce and Carruthers limit their sample to students who took the ACT only once, they faced a similar situation: students just below the cutoff sample who did not retest might contain a higher proportion of students with low ambition, relative to those just above the cutoff who had less incentive to retest. Thus selection alone is unlikely to explain the discrepancy between the studies.

program. Mayer et al. found that students assigned to the program group completed 1.7 more credit hours during the program year and accumulated 2.5 more credit hours over the next three years than did control group students. Despite this modest response, program group students had higher graduation rates — between 3 and 4 percentage points higher — in the second and third years of the study. By the fourth year, however, the difference in graduation rates more than halved and was no longer statistically significant. Similar to the Scott-Clayton results, the program decreased the time it took students to earn a degree without changing eventual graduation outcomes.

Castleman and Long (2013) examined the effect of the need-based Florida Student Access Grant (FSAG), which awarded \$1,300 annual grants to students whose family's EFC fell below an annually determined cutoff, with no additional academic restrictions for grant receipt in the first year. Since the EFC was generated from data provided by students on the FAFSA and according to an unknown algorithm, and because administrators determined the cutoff each year and did not publicize it,³ it was unlikely that students manipulated their FAFSA responses to become eligible. Students just above and just below this cutoff were therefore likely to have differed only by grant receipt, which provided an opportunity to test the effect of need-based financial aid on college outcomes. Castleman and Long found that students just below the cutoff for the FSAG in the 2000-2001 school year were 4.6 percentage points (22 percent) more likely to earn a bachelor's degree in six years than those just above the cutoff. The effect on graduation appeared to grow over time: 3.2 percentage points higher after five years and 5.2 percentage points higher after seven years, the longest period reported. The effect on graduation was more pronounced for students with a higher high school GPA and for those who were eligible for Florida's lottery-funded scholarship program (which required a 3.0 high school GPA and an SAT score of at least 970) as entering freshmen. For this latter group, FSAG receipt was associated with a 9 percentage point increase in the six-year graduation rate. Attrition rates for students just below the eligibility cutoff were no different from those just above, but those who received FSAG had accumulated 4.4 more credit hours by the end of four years since high school graduation than did those who did not receive the grant.

In both the Mayer et al. and Castleman and Long studies, modest improvements in credit accumulation were associated with significantly higher graduation rates, although only in the short run for the Ohio program. For FSAG, the effect on graduation rates grew over time, suggesting an effect on eventual college completion and not just on time to earning a degree. One significant difference between the programs is that whereas the Ohio program lasted for

³The research team was unable to find any reference to the cutoff online, except as reported in Castleman and Long, and that figure is more than 10 years old.

only two semesters, the FSAG is renewable indefinitely, so long as students continue to fall below the EFC cutoff and maintain a 2.0 GPA.⁴

The evaluation of the VISTA program presented in this paper adds to the literature on whether performance-based financial aid programs can increase college degree attainment. While VISTA shares with FSAG a focus on low-income students and a relatively low GPA requirement of 2.0, in other ways, the programs are quite distinct. First, VISTA was intentionally limited to the students' first four semesters at the institution, in order to test whether financial incentives provided early on in college improve graduation rates. Second, and unlike in FSAG, ineligibility for VISTA in one semester did not make students ineligible in the next. Rather, students received the full award in any of the four semesters in which they earned the necessary number of credit hours with a 2.0 GPA or higher.

A third and potentially critical difference between VISTA and FSAG (and the Ohio program as well) was VISTA's advising component. Disbursement of the VISTA scholarship was contingent upon students meeting with their advisers at least two times per semester. Administrators and faculty at UNM had identified advising as a key component to motivating students to graduate on time. Just prior to the study, the average graduate at UNM had accumulated 140 credit hours, 12 more than required for a bachelor's degree.⁵ Administrators and faculty believed that enhanced advising would help students reduce or eliminate these "unnecessary" credit hours. Another goal of the advising component was to connect students to available on-campus support for nonacademic challenges, including financial setbacks and other emergencies.

Although enhanced advising is widely recognized as a way to improve college outcomes for students, the lack of experimental evidence poses a challenge to establishing a robust body of evidence (Karp, 2011). Similar to financial aid, students who receive enhanced advising may differ in many ways from those who receive little or no advising. Advising services are also likely to vary with the type and selectivity of the college; for example, colleges with more instructional resources or those with higher achieving students may have more intensive advising. Thus, outcomes associated with advising may be attributed to these other factors and not necessarily to advising *per se*. In addition, students who seek out advising are likely to be more committed to college completion, and are also more likely to take advantage of other available resources, such as tutoring. It is therefore difficult to separate advising from other services and from individual characteristics. In their review of programs that aimed to improve

⁴Castleman and Long (2013) point out that only 21 percent of initially eligible students continued to receive the FSAG four years after high school graduation. It is likely that a large percentage of the sample graduated after four years, although the authors do not report this statistic.

⁵This figure applies to students who entered UNM without any advanced placement credits and who earned at least 128 credit hours in residence.

student success in high school and college, Laveccia et al. (2014) concluded that the availability of services is not enough: students must also be required to use them.

The VISTA program combined three elements that were expected to improve student progress toward a degree: financial aid, incentives to take more course credits and increase credit accumulation, and required enhanced advising to help students accumulate the right credit hours to earn a timely degree.

Research Design

VISTA was implemented at UNM, a medium-sized four-year public research university⁶ that enrolled over 18,000 undergraduate and 5,000 graduate students on its main campus during the program period of 2008-2010. Reflecting the region's population, the majority of students belong to minority groups, and the university is a United States Department of Education-designated Hispanic-Serving Institution.⁷ Generous admissions policies result in very high rates of acceptance and low graduation rates compared with other research universities. Most students commute to campus: According to the Director of Residence Life, fewer than 15 percent of undergraduates lived in on-campus housing during the study period.

Table 1 provides a demographic and academic comparison of all first-year students at UNM, those first-year students eligible for a federal need-based Pell Grant, and four-year public college students nationally just before the study began. UNM is clearly distinguished by its high enrollment of minority students. Hispanic students constituted 38.4 percent of entering freshmen, compared with the national average of 9.4 percent for four-year colleges. American Indians constituted 4.6 percent of entering freshmen, compared with 0.1 percent nationally. Nevertheless, students at UNM were typical among public college students nationally in terms of ACT scores and second-year retention.

Pell-eligible students at UNM trailed their more affluent peers on all academic measures except high school GPA. For students who remained enrolled, a smaller proportion of Pell-eligible students took enough credit hours to make timely progress toward earning a degree; Pell-eligible students overall trailed all students on this measure by 8 to 10 percentage points in the first four semesters. Not surprisingly, the six-year graduation rate for Pell-eligible students is 8 percentage points lower than the graduation rate for all students. This finding

⁶UNM's Carnegie Classification is RU/VH, which indicates "very high research activity."

⁷This designation, according to which Hispanic students comprise 25 percent or more of the undergraduate student body, means that the institution is eligible for federal grants that aim to expand educational opportunities for Hispanic students.

The Performance-Based Scholarship Demonstration

Table 1

Characteristics of Incoming Freshmen at the University of New Mexico and Students in Four-Year Public Colleges

Characteristic	Freshmen Entering UNM in 2006 and 2007	Pell-Eligible Freshmen Entering UNM in 2006 and 2007	All Students in 4-year Public Colleges Nationally in 2004
Family income \$40,000 or less (Pell-eligible) (%)	20.5	100.0	35.5
Female (%)	56.1	59.5	57.5
Age (years)	18.6	18.5	NA
Race/ethnicity ^a (%)			
Hispanic	38.4	52.2	9.4
White	45.8	28.0	66.8
Black	2.8	3.6	11.4
Asian or Pacific Islander	3.9	5.0	6.6
Native American	4.6	7.2	0.1
ACT English ^b			
25th percentile score	18	16	18
75th percentile score	25	23	24
ACT Math ^b			
25th percentile score	18	17	18
75th percentile score	24	23	24
High school cumulative GPA ^c	3.3	3.3	NA
High school cumulative GPA (%)			
3.5 to 4.4	39.1	38.5	NA
3 to less than 3.5	33.2	34.7	NA
2 to less than 3	24.1	24.8	NA
0 to less than 2	0	0	NA
No GPA available	3.6	1.8	NA
Placed in remedial English, reading, or math (%)	43.1	56.4	NA
Retention to fall semester, year 2 (%)	74.3	70.2	72.6
Retention to fall semester, year 3 ^d (%)	58.3	54.3	NA
Progress toward degree (for those still registered) ^e (%)			
Semester 1	67.0	58.2	NA
Semester 2	51.5	41.7	NA
Semester 3	50.0	41.0	NA
Semester 4	42.8	35.0	NA
Six-year graduation rate ^f (%)	42.5	34.5	44.6

(continued)

Table 1 (continued)

SOURCE: University of New Mexico's Office of Institutional Research Freshman Cohort Tracking Database; National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS) for 2004 national data.

NOTES: Entering freshmen numbered 3,026 in 2006 and 2,910 in 2007.

Distributions may not add to 100 percent because of rounding.

^aEthnic distribution is for 2005 entering freshmen. Distributions do not add to 100 percent because some students declined to provide their ethnicity.

^bACT scores range from 1 to 36. The median test taker who graduated from high school between 2008 and 2010 earned a 20 in both the English and Math sections. The 25th percentile score was 15 for English and 16 for Math and the 75th percentile score was 24 for both subjects. See <http://www.actstudent.org/scores/norms1.html>.

^cHigh school GPA ranges from 1.95 to 4.4.

^dThis indicator is for 2006 entering freshmen.

^eProgress toward degree indicates that the student completed 12 or more credits in the first semester and 15 or more credits every semester thereafter with a cumulative GPA of 2.0 or higher.

^fFor 2000-2002 entering freshmen.

suggests that the 4 to 5 percentage point improvement generated by VISTA made a substantial contribution to closing the income achievement gap.

In terms of affordability, UNM's tuition and fees, at \$5,101 for the 2009-2010 academic year, were considerably lower than the \$7,020 average for four-year public colleges nationwide.⁸ In addition, a large majority of students benefited from the state's lottery-funded scholarship. During the study period, this scholarship paid tuition at any public college in the state beginning in the second semester and continuing for up to seven additional semesters. To qualify in a given semester, students needed to maintain a 2.5 cumulative GPA and earn at least 12 credit hours in all previous semesters. UNM offered incoming freshmen with high school GPAs of 2.5 or higher a bridge scholarship, which covered most of the first semester tuition. Seventy-five percent of entering freshmen in 2006 and 2007 received bridge scholarships. Nevertheless, the average cost of attendance, which included room and board, books, supplies, and personal expenses, exceeded \$15,000 for those same cohorts, and the average unmet need (cost of attendance less financial aid) for Pell-eligible students exceeded \$5,000.

The VISTA scholarship program aimed to address the lagging college outcomes and substantial unmet need for low-income students by providing up to \$1,000 in additional financial aid in each of the four consecutive semesters, in increments tied to academic milestones and with payments made directly to students. Students received \$250 for registering for 12 or more credit hours in the first semester and for 15 or more credit hours in the second

⁸College Board, accessed at <http://www.collegeboard.com/student/pay/add-it-up/4494.html>.

through fourth semesters; \$250 for earning a 2.0 or higher GPA at mid-term; and \$500 for successfully completing the required hours with a 2.0 or higher GPA. A student received the registration and mid-term payments only after meeting with an adviser who confirmed that the student met the milestones. VISTA program students could thus receive up to \$1,000 per term, depending on how many milestones they met.

These requirements were more stringent than those for the Pell Grant, which only requires that students make “satisfactory academic progress.” At the time of the study, the university defined satisfactory academic progress as a 1.7 GPA for the first 30 credit hours earned, and a 2.0 GPA thereafter. Moreover, full-time status for federal financial aid purposes required only 12 credit hours per semester. Yet a student who registered for 12 credit hours per semester needed 11 semesters (five and a half years) to earn the 128 credit hours required for graduation.⁹ VISTA thus rewarded students for making timely progress toward graduation. Students who accumulated 12 credit hours in the first semester and 15 credit hours in each additional semester graduated in nine semesters (four and a half years).

The advising services offered to VISTA students differed from those offered to the general student population (including the control group) in three ways. First, VISTA students were assigned to one adviser for the duration of the program. Control group and other students could request to see a particular adviser, but during the study period they typically saw whomever was first available, much as a bank customer receives services from the first available teller. Although VISTA advisers did not have smaller caseloads *per se* (since no adviser had any particular caseload), VISTA students were given priority to see their assigned advisers when they came into the advising office. Moreover, the advisers were much more likely to get to know their VISTA advisees, since they saw them consistently and more frequently. Second, because advisers got to know the VISTA students better, they were more likely to provide “holistic” advising, which involves learning about — and potentially providing referrals for — nonacademic aspects of a student’s life, such as health, work, and family issues. Finally, VISTA students were encouraged (indeed, given incentive) to meet with their advisers two or three times during the semester: twice to confirm eligibility for payment and, as freshmen, at the end of the first semester to register for the second semester. Control group and other students typically only met with an adviser at the end of the semester to register for the next semester. During this period, advisers met with hundreds of students, and thus sessions were shorter than usual and much less likely to include holistic advising.

⁹This number was the credit requirement for graduation at the time of the study. The credit requirement was reduced to 120 credit hours for several majors in the 2014-2015 academic year. However, students who had been admitted to their degree-granting major and college before the change remained bound to the credit requirements in place at the time the major was declared.

The VISTA program was expected to especially benefit students who fell below the 2.5 GPA required for the state's lottery-funded scholarship. VISTA also provided incentives for students who had a rough start at school to keep trying, providing them payments in any of the four semesters that they met the requirements. This structure contrasts with the more stringent rules of the lottery-funded scholarship, which once lost cannot be regained.

Random assignment of 1,081 eligible students took place at the first-year student orientation sessions for incoming freshmen in 2008 and 2009. All entering students attended these two-day sessions, which took place weekly over the summer. Students were eligible for the study if they were state residents, had completed the FAFSA, and were eligible for a Pell Grant. A financial aid officer identified these students and sent them letters prior to their scheduled orientation session. They attended a separate VISTA scholarship session during their orientation. In the VISTA session, students learned about the study, signed an informed consent form if they were willing to participate, and filled out a baseline survey. Once the surveys were completed and submitted, students were randomly assigned to either research group based on a computer algorithm. The program and control groups consisted of 536 and 545 students, respectively.

This analysis relies primarily on two sources of data: (1) the baseline survey, which included student-provided information on parental education, employment status, marital status, and primary language, and (2) registration and financial data from the institution's administrative records. The research team also examined data from an internet survey of the second study cohort (those who entered college in 2009), fielded in the spring of the first academic year. The survey asked about student experiences in the first semester of college, including participation in extracurricular activities, employment, study habits, and academic advising. Of the 594 students invited to participate in the survey, 388 responded, for a response rate of 65 percent. There were no measureable differences in baseline characteristics between the VISTA group and control group survey respondents, but because the overall response rate creates the potential for sample selection bias, survey findings should be interpreted with caution.

Finally, the research team used a qualitative evaluation of program implementation, which included interviews with VISTA program coordinators and academic advisers and data from three focus group interviews with 19 students in the VISTA group and 12 students in the control group. Interviews with program coordinators and advisers indicated that key components of VISTA were implemented successfully — in particular, recruiting and signing up eligible students for the program, deploying academic advisers to regularly communicate with their assigned VISTA advisees, and distributing scholarship payments to students who met program milestones. Once the VISTA program coordinators enrolled eligible students in the program, advisers reached out to their advisees multiple times via e-mail, phone, or social

media sites to remind them of their upcoming milestone deadlines and to schedule their required advising appointments.

Table 2 presents data for each research group, drawn from the baseline survey and administrative records. Just over 60 percent of the sample was female, which reflects the Pell-eligible population in general at UNM. Since the program targeted first-time entering freshmen, nearly all of the students were 17 to 18 years of age. A majority of the students were Hispanic (60 percent) and 7 percent of students were Native American. Average parental income was below \$30,000.

In terms of academic performance, the students appeared to be relatively well prepared. Nearly 40 percent had a high school GPA of 3.5 or higher and an average ACT composite score of 21, which matches the average among all test takers nationally.¹⁰ About a third of the students reported that they were the first in their family to attend college. Finally, half of the students were working at the time they entered the study.

Statistical tests confirm that the two research groups cannot be distinguished by any measured characteristic. Taken as a whole, the characteristics listed in the table do not jointly predict assignment to the VISTA group (p -value=0.185), suggesting that a simple comparison of means provides a valid estimate of the program's effect. Nevertheless, in order to improve precision, program effects are estimated in a regression framework that also controls for students' gender, race and Hispanic origin, mother's and father's education levels, employment status at baseline, language spoken at home, high school GPA, ACT composite score, and family income.

Effects of VISTA on Academic Progress

Table 3 presents effects on enrollment and credit hours earned for each of the five years after study entry.¹¹ Means were calculated over the full program and control groups, so credit hours attempted and earned were counted as zeros for students who were no longer enrolled. Enrollment rates revealed the familiar decline over time, with only 83 percent of students enrolled during the second year and 71 percent during the third year. The scholarship was offered for four semesters, with the idea that it would help stem the drop in enrollment that typically occurs between the first and second year of college. However, it had no effect on this measure of

¹⁰ACT, <http://www.act.org/news/data/08/states.html>.

¹¹Effects on academic progress were estimated using transcript data from the university, which includes data on credit hours and grades from classes taken on the main campus as well as from classes taken at affiliated community colleges that counted toward a degree.

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Table 2

Baseline Characteristics and Equivalence

Characteristic	Program Group	Control Group
Female (%)	61.4	60.2
Age (%)		
17-18 years old	94.4	93.0
19-20 years old	5.6	7.0
Has one or more children (%)	1.7	1.8
Race/ethnicity ^a (%)		
Hispanic	60.2	61.0
White	21.5	22.2
Black	3.2	2.2
Asian or Pacific Islander	3.2	3.9
Native American	6.9	6.8
Other ^b	5.0	3.9
Language other than English spoken regularly in home (%)	20.8	23.2
Diplomas/degrees earned ^c (%)		
High school diploma	97.2	98.3
GED certificate	1.9	0.7
Other	1.3	1.1
First person in family to attend college (%)	32.1	33.5
ACT English ^d		
25th percentile score	16	17
75th percentile score	24	23
ACT Math ^d		
25th percentile score	16	17
75th percentile score	23	23
High school cumulative GPA	3.3	3.3
High school cumulative GPA (%)		
No GPA available	3.2	3.5
0 to less than 2	0.0	0.0
2 to less than 3	24.4	24.8
3 to less than 3.5	32.6	35.0
3.5 to 4.4	39.7	36.7

(continued)

Table 2 (continued)

Characteristic	Program Group	Control Group
Currently working (%)	49.4	48.5
<i>Average hourly wage (\$)</i>	8.2	8.3
Plans to live on campus (%)	41.8	44.0
Parents adjusted gross income (\$)	29,238	28,744
Sample size	536	545

SOURCE: MDRC calculations using Baseline Information Form (BIF) data, University of New Mexico placement test and high school data, and FAFSA data.

NOTES: The p-value from a regression of research status on baseline characteristics yielded a p-value of 0.185.

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

Italics indicate statistics calculated from a subset of the full sample.

Missing values are not included in individual variable distributions.

Distributions may not add to 100 percent because of rounding.

^aRespondents who said they are Hispanic and chose a race are included only in the Hispanic category. Respondents who said they are not Hispanic and chose more than one race are included in the Other category.

^bOther includes multiracial and other races/ethnicities.

^cDistributions may not add to 100 percent because categories are not mutually exclusive.

^d ACT outcomes reflect percentile scores. No statistical tests of significance are conducted. ACT scores range from 1 to 36. The median test taker who graduated from high school between 2008 and 2010 earned a 20 in both the English and Math sections. The 25th percentile score was 15 for English and 16 for Math, and the 75th percentile score was 24 for both subjects. See <http://www.actstudent.org/scores/norms1.html>.

persistence. By the fifth year, students had begun to graduate, which partly explains the large drop in enrollment between the fourth and fifth years.

The main effect of the program was to increase credit hours attempted and earned during the first two years, although it does not typically show up in the averages. For example, students in the program group attempted on average 0.8 credit hours more than those in the control group during the first year, but the difference in credit hours earned is not statistically significant. Despite these small differences, the program led to large differences in the measure of progress toward earning a degree of having earned 27 or more credit hours in the first year and 30 or more credit hours in the second year. The effect on average credit hours earned is small because most students who took 15 or more credit hours to meet VISTA's requirements would have otherwise only taken 12 credit hours.

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Table 3

Effects on Enrollment and Credits

	Control Mean	Difference	Standard Error
<u>Year 1</u>			
Enrolled in any term during the year (%)	99.4	-1.3 *	(0.7)
Cumulative credits attempted	30.0	0.8 *	(0.4)
Cumulative credits earned	25.3	0.6	(0.5)
Earned 27+ credits in year 1 (%)	58.9	8.6 ***	(2.8)
<u>Year 2</u>			
Enrolled in any term during the year (%)	82.8	-2.4	(2.4)
Cumulative credits attempted	54.9	1.4	(1.1)
Cumulative credits earned	45.5	1.6	(1.2)
Earned 30+ credits in year 2 (%)	35.3	13.1 ***	(2.8)
<u>Year 3</u>			
Enrolled in any term during the year (%)	70.7	0.1	(2.7)
Cumulative credits attempted	76.7	1.2	(1.9)
Cumulative credits earned	63.7	1.5	(1.9)
Earned 30+ credits in year 3 (%)	36.1	-1.0	(2.8)
<u>Year 4</u>			
Enrolled in any term during the year (%)	65.5	-2.2	(2.9)
Cumulative credits attempted	96.3	0.8	(2.7)
Cumulative credits earned	80.2	1.4	(2.7)
Earned 30+ credits in year 4 (%)	30.6	0.8	(2.8)
<u>Year 5</u>			
Enrolled in any term during the year (%)	52.9	-3.3	(3.1)
Cumulative credits attempted	109.5	-0.4	(3.3)
Cumulative credits earned	91.2	0.4	(3.2)
Earned 30+ credits in year 5 (%)	14.8	-1.0	(2.1)
Sample size (total = 1,081)	545		

SOURCE: Calculations from University of New Mexico transcript data.

NOTES: Rounding may cause slight discrepancies in sums and differences.

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

Effects are estimated using a regression model that controls for the following student characteristics: gender, race/ethnicity, mother's and father's education levels, current employment, language spoken at home, high school GPA, ACT composite score, and family income.

Cumulative credits attempted and earned include those transferred from other institutions, the most common being from nearby community colleges.

Figure 1 presents the percentage of enrolled students in each semester who attempted 15 or more credit hours. Although the data are non-experimental, since they are presented only for enrolled students, they are still informative because there were negligible differences in enrollment rates between the VISTA and control groups. Although most enrolled students (90 percent) took at least 12 credit hours per semester, only about 70 percent of students (as shown by the control group) enrolled in 15 or more credit hours in the second and third semesters. In contrast, about 90 percent of the VISTA group students enrolled in 15 or more credit hours in the second through fourth semesters, most likely because the VISTA scholarship required students to carry this heavier load in those semesters. The difference is about 20 percentage points in the second and third semesters and 13 percentage points in the fourth semester. The difference disappeared once the program ended, after the fourth semester.

Since students in the VISTA group took a heavier course load, it was possible that their grades might have suffered or that they might have withdrawn from courses at a higher rate. The transcript data shows no differences in the rate of passing classes or in GPA (not shown) between program and control groups, suggesting that the increase in credit hours earned was due largely to an increase in credit hours attempted. Nonetheless, focus group data suggest that taking additional credit hours was a burden for students. Some students interviewed said that it was difficult managing the time needed to meet the 15 credit hour requirement in the second semester. This extra work led to additional pressure and stress, particularly for students who had jobs. The VISTA advisers corroborated the students' sentiments about transitioning from 12 to 15 credit hours; according to one adviser, adding an additional class to an already busy schedule — that for many included work — was a challenge.

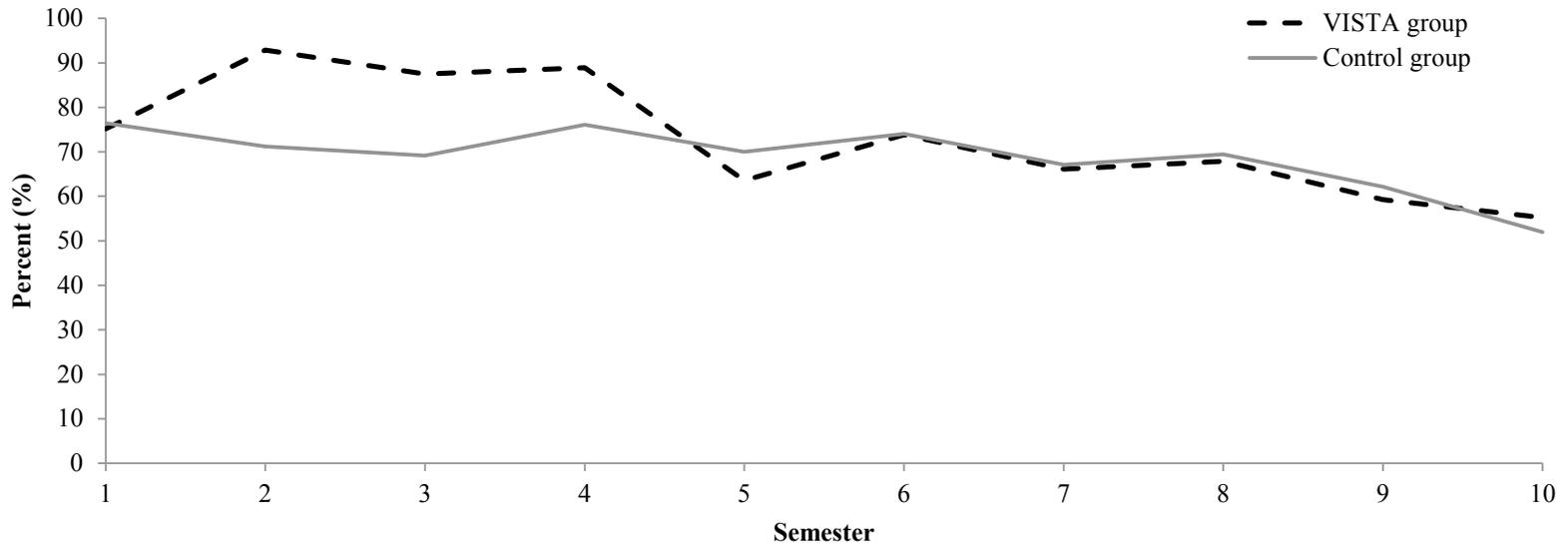
Table 4 presents data on degree attainment. After four years of college (eight semesters), 12.4 percent of control group students and 15 percent of program group students had earned a degree, with a statistically insignificant difference of 2.5 percentage points.¹² After four and a half years (nine semesters), 22.4 percent of the control group and 27.5 percent of the VISTA group had earned a degree, an increase of 5.1 percentage points (or 23 percent) for the VISTA group relative to the control group. And after five years (10 semesters), the respective graduation rates were 33.2 and 37.7 percent, an increase of 4.5 percentage points (or 14 percent) for the VISTA group relative to the control group. This difference of 4.5 percentage points is statistically significant at the 11 percent level. The differences of 4.5 percentage points to 5.1 percentage points are very similar to the 4.6 percentage point increase in six-year graduation rates reported by Castleman and Long (2013). The overall tenth-semester graduation rates at UNM for the entering classes of 2008 and 2009 were 37.6 and 39.8, respectively. The VISTA

¹²The p-value is 0.21.

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Figure 1

Enrollment in 15 or More Credits, by Semester: Among Students Enrolled



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SOURCE: Calculations from University of New Mexico transcript data.

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Table 4

Effects on Degree Attainment

Outcome (%)	Control Mean	Difference	Standard Error
Earned degree by end of:			
Semester 7	1.9	0.1	(0.8)
Semester 8	12.4	2.5	(2.0)
Semester 9	22.4	5.1 **	(2.5)
Semester 10	33.2	4.5	(2.8)
<hr/>			
Sample size (total = 1,081)	545		

SOURCES: Calculations from University of New Mexico degree data.

NOTES: Rounding may cause slight discrepancies in sums and differences.

A two-tailed t-test was applied to differences between the research groups.

Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, and * = 10 percent.

Effects are estimated using a regression model that controls for the following student characteristics: gender, race/ethnicity, mother's and father's education levels, current employment, language spoken at home, high school GPA, ACT composite score, and family income.

group's tenth-semester graduation rate of 37.7 is similar to that of the general student body despite the well-documented hurdles that Pell-eligible students face.

Effects by Family Income and High School GPA

Effects were also examined for students according to their family income and high school GPA. Lower-income, Pell-eligible students might be responsive to the scholarship program if, for example, they were responsive to incentives to progress in schools, or if the effects of additional aid were larger for those with lower incomes. Academic preparation at college entry might also affect responsiveness to the program, although it is not obvious which students would respond more. While more-prepared students might find it easier to respond to the program's incentives by taking and passing more credit hours (as appears to be the case in Scott-Clayton, 2011; Castleman and Long, 2013; and Leuven et al., 2010), less-prepared students might benefit more from the enhanced, personalized advising offered by the program.

Table 5 shows program effects for students above and below the median high school GPA, and above and below the median family income. In no case do the differences between the top and bottom of the distributions reach statistical significance. However, the larger program

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Table 5

Effects on Cumulative Credits by Income and GPA

	Control Mean	Difference	Standard Error	Control Mean	Difference	Standard Error
	HS GPA in Top 50%^a			HS GPA in Bottom 50%^a		
Credits attempted						
Year 1	31.4	0.0	(0.6)	28.6	1.5 **	(0.7)
Year 2	60.2	-0.2	(1.5)	49.6	3.3 *	(1.8)
Year 3	86.4	-1.0	(2.6)	66.7	4.0	(2.9)
Year 4	109.3	-1.3	(3.7)	82.6	4.0	(4.1)
Year 5	123.9	-2.9	(4.5)	94.2	3.4	(5.1)
Credits earned						
Year 1	28.6	0.0	(0.7)	21.8	1.5 *	(0.9)
Year 2	53.3	0.3	(1.6)	37.3	3.7 **	(1.9)
Year 3	76.0	-0.1	(2.7)	50.8	4.2	(2.9)
Year 4	96.0	0.1	(3.7)	63.5	4.4	(4.0)
Year 5	108.9	-1.5	(4.4)	72.5	4.0	(4.7)
Earned degree by year 5 (%)	46.8	4.1	(4.4)	18.9	6.4 *	(3.7)
	Family Income in Top 50%^b			Family Income in Bottom 50%^b		
Credit attempted						
Year 1	30.7	-0.1	(0.7)	29.9	1.1 *	(0.6)
Year 2	56.7	-0.5	(1.7)	54.6	2.2	(1.6)
Year 3	79.3	-1.4	(2.8)	76.5	1.7	(2.8)
Year 4	99.3	-2.0	(3.9)	96.2	1.4	(4.0)
Year 5	112.8	-3.1	(4.9)	109.8	-0.2	(5.0)
Credits earned						
Year 1	26.3	0.0	(0.8)	25.1	0.9	(0.8)
Year 2	47.7	-0.1	(1.8)	44.9	2.5	(1.7)
Year 3	67.2	-1.5	(2.8)	62.8	2.6	(2.8)
Year 4	84.3	-2.1	(3.9)	79.4	2.7	(3.9)
Year 5	95.8	-3.0	(4.7)	90.6	1.5	(4.7)
Earned degree by year 5 (%)	37.9	0.7	(4.2)	31.3	6.4	(4.1)

SOURCE: Calculations from University of New Mexico transcript data.

NOTES: Rounding may cause slight discrepancies in sums and differences.

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

Effects are estimated using a regression model that controls for the following student characteristics: gender, race/ethnicity, mother's and father's education levels, current employment, language spoken at home, high school GPA, ACT composite score, and family income.

(continued)

Table 5 (continued)

Cumulative credits attempted and earned include those transferred from other institutions, the most common being from nearby community colleges.

^a For the high school (HS) GPA analysis, the total sample size was 1,045, with 522 in the "HS GPA in Top 50%" subgroup, of which 257 belonged to the control group; there were 269 control group students in the "HS GPA in Bottom 50%" subgroup.

^b For the family income analysis, the total sample size was 998, with 499 in the "Family Income in Top 50%" subgroup, of which 246 belonged to the control group; there were 253 control group students in the "Family Income in Bottom 50%" subgroup.

effects for students in the lower part of the distribution, particularly for family income, are clearly driving the overall effects shown in Tables 3 and 4. At a minimum, the findings indicate that the program worked equally well for students with very low income and with low GPAs.

Exploring Mechanisms for the Program Effect

In addition to requiring students to take 15 credit hours per semester, the VISTA program might have generated effects through several other mechanisms. First, a simple cost-benefit framework suggests that reducing the net cost of college should make college completion more likely, and a central idea behind the design of VISTA was that providing more financial aid would improve student persistence. One expected mechanism for this effect was that students who received more financial aid would reduce their labor market effort and thereby free up time and energy for studying. In the baseline survey, about half of the students reported working, and they earned an average wage of \$8.25 per hour. Thus the additional \$1,000 per semester offered by VISTA could have replaced 121 hours over the 16-week semester, or 7.5 hours per week. Other mechanisms related to the payment design included reduced debt burden and increased affinity for the institution, both of which would have encouraged persistence (Burdman, 2005; Field, 2009; Akerlof and Kranton, 2002). Finally, the advising component might also have helped students choose the right courses for completing their degrees and manage the heavier course load that VISTA required.

The evaluation includes two measures of labor market effort, and neither showed any reduction in the number of hours worked. The first was income through the federal work-study program. As shown in Table 6, program and control group students received a similar annual income through the work-study program, which suggests that program group students did not reduce their work hours, at least not in that program. The second was the number of hours worked per week in the first semester of freshman year, reported in the internet survey described earlier. As shown in Table 7, students in the VISTA group reported working 3.3 more hours per week than students in the control group.

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Table 6

Impact on Financial Assistance During the First Four Years

Outcome (\$)	Control Group	Difference	Standard Error
<u>Year 1</u>			
Total average financial assistance received	10,335	1,062 ***	(252.9)
Pell Grant	3,828	-12	(91.9)
State lottery scholarship ^a	2,209	19	(64.8)
VISTA scholarship ^b	0	1,498 ***	(28.0)
Other grants ^c	2,391	-83	(157.3)
Loans ^d	1,565	-329 **	(144.4)
Work-study ^e	338	-32	(61.5)
<u>Year 2</u>			
Total average financial assistance received	8,235	861 **	(379.3)
Pell Grant	3,006	82	(149.2)
State lottery scholarship ^a	2,197	116	(120.1)
VISTA scholarship ^b	0	1,077 ***	(36.7)
Other grants ^c	1,171	-85	(137.3)
Loans ^d	1,449	-265 *	(146.2)
Work-study ^e	406	-65	(74.2)
<u>Year 3</u>			
Total average financial assistance received	7,680	108	(412.6)
Pell Grant	2,546	-33	(152.0)
State lottery scholarship ^a	2,051	56	(137.9)
VISTA scholarship ^b	0	0	(0.0)
Other grants ^c	1,104	19	(147.5)
Loans ^d	1,651	112	(179.7)
Work-study ^e	327	-46	(67.7)
<u>Year 4</u>			
Total average financial assistance received	7,142	-129	(428.6)
Pell Grant	2,050	-68	(145.5)
State lottery scholarship ^a	1,840	113	(143.0)
VISTA scholarship ^b	0	0	(0.0)
Other grants ^c	970	67	(158.6)
Loans ^d	2,027	-211	(202.1)
Work-study ^e	255	-31	(61.0)

(continued)

Table 6 (continued)

Outcome (\$)	Control Group	Difference	Standard Error
Cumulative			
Total average financial assistance received	33,392	1,902	(1,257.1)
Pell Grant	11,430	-30	(443.1)
State lottery scholarship ^a	8,297	304	(410.6)
VISTA scholarship ^b	0	2,576 ***	(59.1)
Other grants ^c	5,636	-82	(502.9)
Loans ^d	6,693	-692	(538.8)
Work-study ^e	1,326	-174	(198.4)
Sample size (total = 1,081)	545		

SOURCES: MDRC calculations from University of New Mexico financial aid data.

NOTES: Rounding may cause slight discrepancies in sums and differences.

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

Effects are estimated using a regression model that controls for the following student characteristics: gender, race/ethnicity, mother's and father's education levels, current employment, language spoken at home, high school GPA, ACT composite score, and family income.

^a State Lottery grant includes all Lottery Success scholarships and all Bridge to Success scholarships and grants.

^b VISTA scholarship was available only for program group students in the first and second year.

^c This includes grants and scholarships such as the Presidential Scholarship, state incentive grants and tribal scholarships among others.

^d Loans category includes all subsidized and unsubsidized loans.

^e Work study includes the amount the student received in the semester from both Federal and University work study.

The study found evidence that VISTA group students carried less debt than students in the control group. Program students received an average of \$1,498 in VISTA payments during their first year, and their financial aid packages exceeded those of the control group by \$1,062. Most of the difference between the VISTA payment and amount of additional financial aid can be traced to less money borrowed.

This reduction in loans was, in a few cases, initiated by the financial aid office. In these cases, financial aid awards received by VISTA group students left less than \$1,000 per semester remaining in unmet need. The university was prohibited from offering financial aid in excess of a student's financial need, or the difference between the estimated cost of attendance and the

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Table 7

Differences in First Semester College Experiences

Outcome	Control Group Mean	Difference	Standard Error
<u>Student Engagement</u>			
Joined student organization or team (%)	39.9	-7.1	(5.5)
Number of student activity types joined	0.6	-0.2 *	(0.1)
Joined 2 or more student activity types (%)	16.5	-7.9 **	(3.9)
<u>Weekly Study Activities</u>			
Number of study activities with weekly participation	2.3	0.2	(0.2)
At least one study activity weekly (%)	85.6	-1.1	(4.1)
<u>Effort</u>			
Typical weekly hours studied	12.4	-0.7	(1.1)
Finals week hours studied	18.4	-1.6	(1.4)
Missed no more than a few classes ^a (%)	89.3	2.9	(3.4)
<u>Advising</u>			
Number of times saw adviser	3.1	1.7 ***	(0.4)
Never saw adviser (%)	4.3	-2.9 *	(1.7)
Usual time spent with adviser (minutes)	18.5	-3.3 **	(1.4)
<u>Student Reported Following Topics Somewhat or Very Important When Meeting with Adviser (%)</u>			
General academic requirements and college policies	91.1	2.7	(3.1)
Major/career counseling	82.2	6.4 *	(3.9)
Developing my academic plan for UNM	89.4	5.5 *	(2.9)

(continued)

Table 7 (continued)

Outcome	Control Group Mean	Difference	Standard Error
<u>Student Agreed or Strongly Agreed With Following Statements about Adviser (%)</u>			
My adviser provided accurate and reliable information.	81.7	3.3	(4.1)
My adviser helped me take on more responsibility for my academic career.	57.0	13.3 **	(5.3)
My adviser was approachable.	83.3	5.7	(3.8)
My adviser helped me find the answers to my questions.	76.0	11.3 **	(4.5)
My adviser considered my personal qualities (abilities, interest, strengths, weaknesses, etc.) when helping me plan my academic program.	56.4	10.8 *	(5.4)
I am satisfied with the amount of time I spent meeting with my adviser during the past semester.	68.9	13.9 ***	(4.8)
My adviser helped me connect with other offices and resources on campus.	54.7	1.2	(5.7)
Interactions (meetings, phone calls, e-mails, etc.) with my adviser were helpful.	57.8	20.1 ***	(5.3)
I was satisfied with my overall experience with my adviser.	72.6	12.0 **	(4.7)
<u>Employment</u>			
Worked for pay (%)	43.6	8.3	(5.7)
Usual hours worked per week	9.4	3.3 **	(1.5)
Sample size (total = 388)	188		

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SOURCES: Calculations from online survey of second cohort study participants conducted by University of New Mexico.

NOTES: Rounding may cause slight discrepancies in sums and differences.

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

Effects are estimated using a regression model that controls for the following student characteristics: gender, race/ethnicity, mother's and father's education levels, current employment, language spoken at home, high school GPA, ACT composite score, and family income.

^a Includes students who selected either "I never missed a class" or "I missed just a few classes" when asked to characterize attendance.

FAFSA-determined EFC. In those few cases, the students' loans were reduced so that the student could receive the full VISTA scholarship. However, other analyses (not shown) suggest that the loan reduction was not all "automatic" repackaging by the financial aid office. The VISTA program also led to a reduction in loans among students who entered the study with relatively high unmet need, and who had \$1,000 or more in unmet need even with the VISTA funds. Once the two-year eligibility period ended, the size and composition of the financial aid packages received by the VISTA students were indistinguishable from those received by the control group students.

In the survey, students reported on their extracurricular campus activities and study habits. Students in the VISTA group were somewhat less engaged in extracurricular activities than students in the control group, which suggests they did not have greater affinity for the university. And despite the heavier course load, students in the VISTA group did not report engaging in more study activities or studying more hours, compared with students in the control group.

Where the survey does indicate significant differences is in responses to questions about academic advising in the first semester. As shown in Table 7, program group students were more likely than control group students to report that advising about their majors and careers and developing academic plans were somewhat or very important when meeting with their advisers, and they reported more (although shorter) advising sessions and greater satisfaction with the advising services. In particular, program group students were 13 percentage points more likely than control group students to agree or strongly agree that "My adviser helped me take on more responsibility for my academic career" (70 percent versus 57 percent), 14 percentage points more likely than control group students to express satisfaction with the amount of time spent meeting with an adviser (83 percent versus 69 percent), and 20 percentage points more likely than control group students to agree or strongly agree that "Interactions (meetings, phone calls, e-mails, etc.) with my adviser were helpful" (79 percent versus 58 percent).

In interpreting the survey results, it is important to consider potential bias introduced by sample selection. As mentioned earlier, the overall response rate to the online survey was 65 percent. The response rate was higher for the VISTA group, at 68 percent, compared with the control group, at 63 percent. More engaged students are more likely to respond, and it would seem unsurprising that VISTA group students responded at a higher rate. However, the control group respondents are also more likely than program group respondents to be alert and engaged, consistent with their reported higher level of engagement in extracurricular activities. These potential biases make the large differences between the advising experiences of program and control group students all the more relevant.

Students in the program group who participated in the focus groups reported that the advising was the most valuable component of VISTA. Nearly all of these students expressed appreciation for the opportunity to develop sustained relationships with their advisers that continued throughout the two-year program. According to these students, VISTA advisers provided both academic and emotional support, support that would not have otherwise been available to them on campus.

Advisers also communicated the value of cultivating ongoing relationships with students in the VISTA program. One adviser noted that the program allowed her the time needed to convey the importance of taking more credit hours and persisting term to term to her students, many of whom would not have done so otherwise. Other advisers said that struggling VISTA students who took advantage of the advising services were able to transition off academic probation. Advisers also assisted students on probation by encouraging them to enroll in summer or winter intersession courses and reduce their work hours or extracurricular activities in order to spend more time in the tutoring centers or studying.

Staff also credited the program with helping students take advantage of other campus resources, such as the tutoring centers, the student health center, and the career center. Many students accessed these resources because their VISTA advisers had referred them. As one VISTA student shared, “being in VISTA helps us [students] get services and information all in one place.”

Conclusion

This evaluation’s findings suggest that tying additional aid to enhanced advising and a heavier course load can have notable effects on graduation rates. The combination of encouraging students to attempt 15 or more credit hours per semester and providing enhanced advising appears to have helped students make greater progress toward graduation. However, even with the program effect, graduation rates in general remain low, particularly for low-income students. Additional policies and programs are clearly needed to help students succeed.

It is unclear whether the main effect of the program is to increase graduation rates or simply help students obtain a degree faster. Even in the latter case, however, the savings to both students and the university from reducing the time to a degree are substantial: each additional year in school is expensive in terms of direct costs of attendance and foregone wages. Although a formal benefit-cost analysis is beyond the scope of this paper, a rough estimate of costs can be calculated using the average VISTA scholarship received per student (\$2,576 over four semesters) plus the additional costs of enhanced advising. If we assume a total cost per student of \$3,000, then the cost per additional degree earned is roughly \$67,000 (or \$3,000 divided by the 0.045 increase in degree receipt by the tenth semester). This amount should be compared with

the increase in expected lifetime earnings from obtaining a college degree versus only some college, and with the benefit of completing a degree in five rather than six years. For the former comparison, the program clearly passes the benefit-cost test. For the latter, the program cost is almost identical to at least one estimate of the cost of delaying graduation by a year (Abel and Dietz, 2014). It is possible that similar effects might occur for students offered smaller scholarships, but with similar requirements and enhanced advising. The promising outcome from VISTA should encourage colleges to experiment with similar programs.

In the semesters following the study, several changes were made at UNM. Noting the benefits of enhanced advising for the VISTA students, the usual advising services were changed so that all students were assigned to a particular adviser, and advising centers were restructured to reduce the student-to-adviser ratio. The number of credit hours needed to graduate was also reduced from 128 to 120 for many majors, making four-year graduation realistically possible for students taking 15 credit hours per semester. Concurrently, a new tuition structure was adopted, setting full-time status at 15 credit hours per semester. The price per credit is now lower for students enrolled in 15 credit hours than students taking fewer credit hours. The findings presented here suggest that these changes should help students make more timely progress toward earning a degree.

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