Central Texas College Access and Persistence Program Evaluation

Outcomes and Impacts Summary Report

Tara Smith Greg Cumpton

January 2013



3001 Lake Austin Blvd., Suite 3.200 Austin, TX 78703 (512) 471-7891 www.raymarshallcenter.org

This report was prepared with funds provided from TG to the E3 Alliance and the Ray Marshall Center for the Study of Human Resources at the University of Texas at Austin. The views expressed here are those of the authors and do not represent the positions of the funding agency, E3 Alliance, or The University.

List of Tables	ii
List of Figures	iii
Acknowledgments	vi
Introduction to the Central Texas College Access and Persistence Program Evaluation Defining College Access and Persistence Programs Research Methodology Data This Report	1 2 4
Evaluation Findings for Program 1 Outcome Findings for Program 1 Impact of Program 1 2008-2010 Participation College Enrollment College Persistence Enrollment by Type of Postsecondary Institution Enrollment by Location of Institution Full-Time Enrollment	7 . 16 . 18 . 20 . 22 . 23
Evaluation Findings for Program 2 Outcome Findings for Program 2 Impact of Program 2 Participation for 2008-2010 High School Graduates College Enrollment College Persistence Enrollment by Type of Postsecondary Institution Enrollment by Location of Institution Full-time Enrollment	. 27 . 35 . 36 . 38 . 40 . 42
Evaluation Findings for Program 3 Outcome Findings for Program 3 Share of Program 3 Participants Enrolled in College Share of Program 3 Participants Persistently or Continuously Enrolled in College Program 3 Participant Enrollment by Type of Postsecondary Institution Program 3 Participant Enrollment by Location of Institution Full-Time Enrollment by Program 3 Participants College Graduation by Program 3 Participants Impact of Program 3 2008-2010 Participation College Enrollment College Persistence Enrollment by Type of Postsecondary Institution Enrollment by Location of Institution Full-Time Enrollment	. 46 . 47 . 49 . 51 . 52 . 53 . 53 . 55 . 57 . 59 . 60
Summary	. 62
References	. 64

TABLE OF CONTENTS

LIST OF TABLES

Table 1. Program 1 Participants Graduating from High School in 2008-2010
Table 2. Profile of Program 1 Participants and Their Matched Comparison Group
Table 3. Overview of Impact Findings for Program 1 Participation
Table 4. Program 2 Participants Graduating from High School in 2008-2010
Table 5. Profile of Program 2 Participants and Their Matched Comparison Group 35
Table 6. Overview of Impact Findings for Program 2 Participation
Table 7. Program 3 Participants Graduating from High School in 2008-2010
Table 8. Profile of Program 3 Participants and Their Matched Comparison Group
Table 9. Overview of Impact Findings for Program 3 Participation
Table 10. Summary of Outcomes for Participants in ACAN Member Programs

LIST OF FIGURES

Figure 1. Share of Program 1 Participants Ever Enrolled in College
Figure 2. Share of Program 1 Participants Enrolled in College by Semester
Figure 3. Share of Program 1's Participants Persistently Enrolled in College
Figure 4. Share of Program 1 Participants Continuously Enrolled in College
Figure 5. Share of Program 1 Participants Enrolled at a 4-Year University 12
Figure 6. Share of Program 1 Participants Enrolled at a 2-Year College
Figure 7. Share of Program 1 Participants Enrolled In-State
Figure 8. Share of Program 1 Participants Enrolled Out-of-State
Figure 9. Share of Program 1 Participants Enrolled Full-Time
Figure 10. Shares Ever Enrolled in College, Participants and Matched Comparison Group 19
Figure 11. Shares Enrolled by Semester, Participants and Matched Comparison Group 20
Figure 12. Shares Persisting in College, Participants and Matched Comparison Group 21
Figure 13. Share Continuously Enrolled, Participants and Matched Comparison Group 22
Figure 14. Share Enrolled at a 4-Year College or University, Participants and Matched Comparison Group
Figure 15. Share Enrolled at a 2-Year College, Participants and Matched Comparison Group 23
Figure 16. Share Enrolled at a Texas Postsecondary Institution, Participants and Matched Comparison Group
Figure 17. Share Enrolled Out-of-State, Participants and Matched Comparison Group 24
Figure 18. Share Enrolled Full-Time, Participants and Matched Comparison Group 25
Figure 19. Share of Program 2 Participants Ever Enrolled in College
Figure 20. Share of Program 2 Participants Enrolled in College by Semester
Figure 21. Share of Program 2 Participants Persistently Enrolled in College
Figure 22. Share of Program 2 Participants Continuously Enrolled in College
Figure 23. Share of Program 2 Participants Enrolled at a 4-Year College or University

Figure 24. Share of Program 2 Participants Enrolled at a 2-Year College
Figure 25. Share of Program 2 Participants Enrolled at a Texas Postsecondary Institution 32
Figure 26. Share of Program 2 Participants Enrolled Out-of-State
Figure 27. Share of Program 2 Participants Enrolled Full-Time
Figure 28. Shares Ever Enrolled in College, Participants and Matched Comparison Group 37
Figure 29. Shares Enrolled by Semester, Participants and Matched Comparison Group
Figure 30. Shares Persisting in College, Participants and Matched Comparison Group
Figure 31. Share Continuously Enrolled, Participants and Matched Comparison Group
Figure 32. Share Enrolled at a 4-Year College or University, Participants and Matched Comparison Group
Figure 33. Share Enrolled at a 2-Year College, Participants and Matched Comparison Group 42
Figure 34. Share Enrolled at a Texas Postsecondary Institution, Participants and Matched Comparison Group
Figure 35. Share Enrolled Out-of-State, Participants and Matched Comparison Group
Figure 36. Share Enrolled Full-time, Participants and Matched Comparison Group 44
Figure 37. Share of Program 3 Participants Ever Enrolled in College
Figure 38. Share of Program 3 Participants Enrolled in College by Semester
Figure 39. Share of Program 3 Participants Persistently Enrolled in College
Figure 40. Share of Program 3 Participants Continuously Enrolled in College
Figure 41. Share of Program 3 Participants Enrolled at a 4-Year College or University 50
Figure 42. Share of Program 3 Participants Enrolled at a 2-Year College
Figure 43. Share of Program 3 Participants Enrolled at a Texas Postsecondary Institution 51
Figure 44. Share of Program 3 Participants Enrolled Out-of-State
Figure 45. Share of Program 3 Participants Enrolled Full-Time
Figure 46. Shares Ever Enrolled in College, Participants and Matched Comparison Group 56
Figure 47. Shares Enrolled by Semester, Participants and Matched Comparison Group 57

Figure 48. Shares Persisting in College, Participants and Matched Comparison Group 58
Figure 49. Share Continuously Enrolled, Participants and Matched Comparison Group 59
Figure 50. Share Enrolled at a 4-Year College or University, Participants and Matched Comparison Group
Figure 51. Share Enrolled at a 2-Year College, Participants and Matched Comparison Group 60
Figure 52. Share Enrolled at a Texas Postsecondary Institution, Participants and Matched Comparison Group
Figure 53. Share Enrolled Out-of-State, Participants and Matched Comparison Group 61
Figure 54. Share Enrolled Full-Time, Participants and Matched Comparison Group

ACKNOWLEDGMENTS

The authors wish to thank Kristin Boyer and Jacob Fraire at TG; Hannah Gourgey, Ara Merjanian, and Susan Dawson at E3 Alliance; and the directors and staff of programs in the Austin College Access Network. The authors also wish to thank the Central Texas school districts—Austin ISD, Bastrop ISD, Del Valle ISD, Hays CISD, Manor ISD, Pflugerville ISD, and Round Rock ISD—which graciously agreed to share student data for the impacts evaluation. This research would not be possible without the generous contributions of time, information, and access from all of these sources.

Finally, the authors thank the staff at the Ray Marshall Center, Heath Prince, Karen White, Susie Riley, and Alanna Burney for their assistance with this project.

INTRODUCTION TO THE CENTRAL TEXAS COLLEGE ACCESS AND PERSISTENCE PROGRAM EVALUATION

In 2011, members of the Austin College Access Network (ACAN) approached the Ray Marshall Center for the Study of Human Resources at The University of Texas at Austin to conduct an outcomes and impacts evaluation of college access and persistence services in the Central Texas region. ACAN was formed in 2008 by a group of community-based non-profit service providers to broaden connections within and between college access programs in the region with the intent of better leveraging resources to meet the growing demand for their services. Under the leadership of the region's P-16 Council, E3 Alliance, the network has grown to include institutes of higher education as key partners in ACAN's work to improve the college enrollment and persistence of area high school graduates. A student loan service company based in Central Texas, TG, has been a core funder of ACAN's work including the Central Texas College Access and Persistence Program Evaluation.

The members of the Austin College Access Network incorporate a number of best practices in college access and persistence services: they have strong relationships with their students; they actively work to involve parents and maintain good communications with families; they partner with schools at the secondary and postsecondary level; they take students to visit colleges; and they emphasize college readiness, including academic preparation, financial aid applications, and the transmission of "college knowledge" – the cultural and social norms of postsecondary education. The challenge for the ACAN organizations and the Central Texas region is how to expand and improve these services to get more students through college, as well as to identify approaches that work for a larger segment of students. The evaluation presented here is a key component of ACAN's strategy to address that challenge.

Defining College Access and Persistence Programs

Building on a scan of definitions from the National College Access Network, the Texas Higher Education Coordinating Board, TG, and others, the ACAN members collaborated on the development of the following terminology for the evaluation effort (Smith and Cumpton, 2012).

1

College Access is a focus on motivating and preparing middle/high school students and families to enter postsecondary education by addressing a range of academic, financial, social, and informational skills necessary to participate in college.

College Access Programs typically represent a range of goals and strategies customized for students based on their needs and interests. Program components commonly include regular meetings, test preparation, application assistance, financial aid assistance, counseling and mentoring, college visits, information on college readiness, academic advising, and tutoring.

College Persistence is a collection of behaviors and motivations students exhibit for continuing their education until completion of a degree, certificate, or other credential.

College Persistence Programs provide support to college students across a range of academic, financial, social, and informational needs to improve student engagement and completion. Persistence programs help students to address cultural and socio-economic barriers and needs, develop self-advocacy skills, and empower students to succeed.

Research Methodology

The evaluation is examining performance across multiple performance measures for three ACAN member programs. In terms of college access, these measures were:

1. Enrollment in the fall following high school graduation (direct-to-college enrollment)

2. Enrollment within a year of high school graduation.

The evaluation also includes three measures of college persistence:

- 1. Enrollment in successive Fall semesters (persisting in college)
- 2. Enrollment in each semester since entering college (continuous enrollment)
- 3. Attainment of a degree, certificate, or credential (completion)

Additional measures examined in this report include the share of participants enrolling full-time in postsecondary education, the share enrolling in-state versus out-of-state, and the share enrolled at 4-Year versus 2-Year postsecondary institutions.

The analysis included both outcomes of program participants and impact estimates based on a comparison of participant outcomes to the outcomes of similar students who graduated in the Central Texas region. Impacts estimates used a nearest-neighbor match comparison group based on the propensity of students to participate in a given ACAN member program estimated separately for each year, a recognized and well-established method of estimating the effects of programs (Heinrich et. al., 2010). Using the propensity score effectively reduces the difficulty of finding comparable individuals across many characteristics (Rosenbaum and Rubin, 1983).

Researchers used a logistic equation to predict this propensity to participate in a program considering students' demographics, home language, classification (gifted, special education or at risk), free or reduced lunch status, math and reading scores on their 11th grade Texas Assessment of Knowledge and Skills (TAKS) test, and their graduation class rank. These particular variables serve two purposes in determining the propensity of program participation. First, ACAN member programs target services to particular students with many of these characteristics. Second, these characteristics traditionally play a role in whether a high school graduate goes to college. Heinrich et. al. (2010) emphasizes the importance of including both types of these variables (both program predictive and outcome related) in the matching procedure so that "conditional on these measured variables, there are no unmeasured factors affecting either participation or the relevant nonparticipation outcome" (pg. 43).

Due to the relatively small number of program participants in any given year, researchers sought five comparison students for each participant to ensure the presence of enough statistical power to measure impacts. However, not all participants could be matched. Out of 965 participants across the three programs in 2008-2010, 165 were dropped from the full analysis for various reasons: 106 were included in the outcomes evaluation but *not* the impacts evaluation due to a lack of matching students or attendance at a private school or public school without data sharing agreements with the Ray Marshall Center; 59 participants lacked the information required to submit their data to the National Student Clearinghouse and so were excluded from all analyses. Thus, 800 program participants were matched with between one and five comparison students, for a total of 3,507 individuals in the comparison group.

3

Following the matching process, researchers conducted a balance test for each program where the means of relevant characteristics for the comparison group were compared to the means of relevant characteristics for participants. The results of these tests are presented in Table 2 (page 14), Table 5 (page 29), and Table 8 (page 44). The balance tests revealed one statistically significant difference between the comparison groups and participants in two of the three programs. In both cases, the comparison groups had a significantly larger share of students classified as special education than the participant groups.

Ideally, using a nearest-neighbor match to measure the impact of a program identifies comparison group members at the time of potential entry into the program programs (Heinrich et. al., 2010). Since this evaluation identified a comparison group at the time of high school graduation, program effects prior to high school completion are not measured. Researchers acknowledge that if a program does significantly improve high school graduation outcomes, a fact not testable using the data available for this report, impacts estimated in this document may be lower than estimates of impacts would be using a comparison group drawn at the time of potential entry into the program.

Data

Each program provided individual-level information on program participants to the Ray Marshall Center. Researchers, after receipt of district permission, then linked this information to individual-level district-reported data maintained at the RMC for the purposes of the Central Texas Student Futures Project.¹ Researchers used the district-provided data to create a comparison group as described above. Researchers submitted directory information from this combined dataset to the National Student Clearinghouse (NSC) to obtain college enrollment outcomes for all participants and for each comparison group. All enrollment outcomes in this report were obtained from NSC, which, according to their website, includes "more than 3,300 colleges and universities, enrolling over 96% of all students in public and private U.S. institutions."²

¹ More information available at: http://www.centexstudentfutures.org/

² National Student Clearinghouse: http://www.studentclearinghouse.org/about/ Last accessed: 01.21.2013

This Report

This report presents a summary of findings from the evaluation of college access and persistence services delivered by three ACAN member organizations. At the request of the programs, this summary does not identify programs by name. The second section of this report presents detailed outcome and evaluation findings for Program 1. The third section presents detailed findings for Program 2. The fourth section presents detailed findings for Program 3. The last section of the report summarizes the evaluation of Central Texas college access and persistence programs.

EVALUATION FINDINGS FOR PROGRAM 1

Table 1 below profiles Central Texas high school graduates who participated in college access and persistence services through Program 1 between 2008 and 2010. Note that because of 2010 changes in the way race/ethnicity is classified, those numbers are not directly comparable to prior years. Participants in Program 1 were primarily Hispanic, received a free or reduced lunch during high school, and came from homes where the primary language spoken is Spanish. Roughly six in ten participants were classified as "at-risk" by their school district. The average Program 1 participant ranked in the 58th percentile of their graduating class.

	All Years	2008	2009	2010
Race				
	10/	00/	00/	20/
Asian	1%	0%	0%	3%
Black	24%	33%	22%	20%
White	28%	4%	9%	57%
Ethnicity				
Hispanic	67%	58%	61%	77%
Home Language				
English	36%	38%	33%	37%
Spanish	63%	63%	62%	63%
Economic Status				
Free or Reduced Lunch	65%	71%	57%	66%
Classification				
Gifted	20%	8%	33%	20%
Special Education	1%	4%	0%	0%
At Risk	59%	63%	57%	57%
Exit TAKS Scores				
Math	2217	2175	2149	2295
Reading	2272	2281	2219	2302
Class Rank				
Percentile Rank	58%	52%	58%	61%

 Table 1. Program 1 Participants Graduating from High School in 2008-2010

Outcome Findings for Program 1

The Central Texas College Access and Persistence Program Evaluation examined multiple outcome measures related to college access and persistence. These include:

- Enrollment over time
- Enrollment by type of institution
- Enrollment by location of institution
- Enrollment as a full-time student

Share of Program 1 Participants Enrolled in College

Figure 1 below details the share of Program 1 participants who ever enrolled in college by semester. The share who enrolled in college in the fall immediately following high school graduation (Fall 1) is the program's direct-to-college rate. For 2008-2010 participants, 59-75% went directly to college after graduation. The share who enrolled in college within a year of high school graduation (by Spring 1) ranged from 66-79%. Over the full time period examined, 76-86% of 2008-2010 participants enrolled in at least one semester of college.

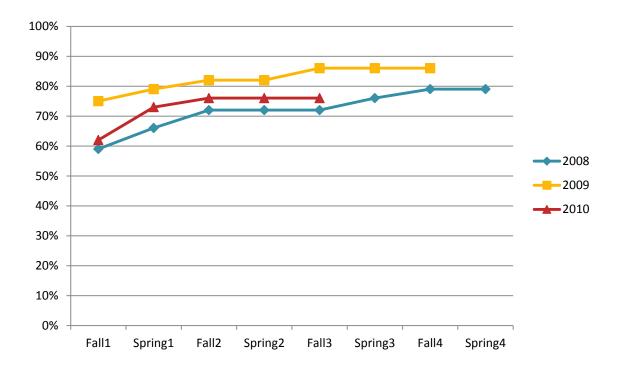


Figure 1. Share of Program 1 Participants Ever Enrolled in College

Figure 2 details the share of Program 1's participants enrolled in college by semester. This shows that across all semesters examined, 38% or more of 2008-2010 Program 1 participants were enrolled in college in any given semester.

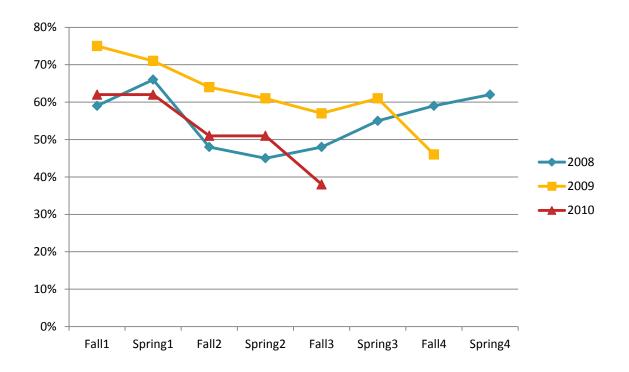


Figure 2. Share of Program 1 Participants Enrolled in College by Semester

Share of Program 1 Participants Persistently or Continuously Enrolled in College

The evaluation examined two different measures of college retention. The share of participants persistently enrolled looks at college enrollment in each Fall semester since high school graduation (Figure 3). The share of participants continuously enrolled looks at college enrollment in each Fall and Spring semester since high school graduation (Figure 4).

Persistent enrollment is a measure that is tracked by the U.S. Department of Education. For Program 1's 2008-2010 participants, Figure 3 shows that the share persistently enrolled declines over time. For the 2008 group, persistence levels off between Fall 3 and Fall 4.

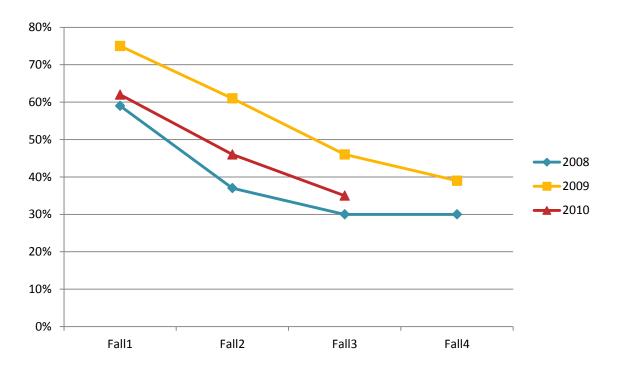


Figure 3. Share of Program 1's Participants Persistently Enrolled in College

Continuous enrollment includes Fall and Spring semesters for a more accurate measure of a student's engagement in postsecondary education. As shown in Figure 4 below, Program 1's 2008-2010 participants continuously enrolled in college declines over time. However, the 2008 and 2009 groups both exhibit several sequential semesters where the share continuously enrolled is steady.

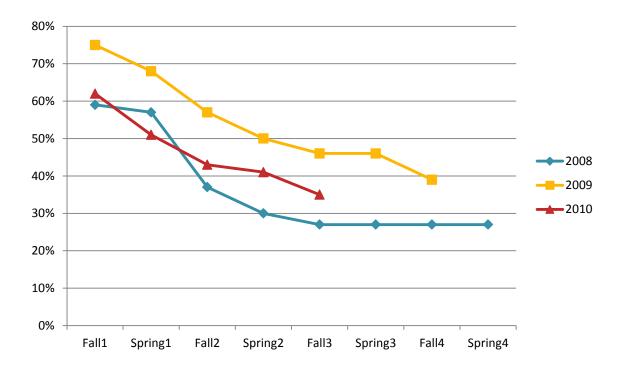


Figure 4. Share of Program 1 Participants Continuously Enrolled in College

Program 1 Participant Enrollment by Type of Postsecondary Institution

In general, there are two types of postsecondary institutions commonly referred to as "college." 4-Year colleges or universities typically offer programs of study leading to bachelor's or professional degrees. 2-Year colleges or technical schools typically offer programs of study leading to associate's degrees or transfer credits to 4-Year institutions, as well as workforce training leading to other credentials such as licensures or certifications.

Figures 5 and 6 show the shares of Program 1's 2008-2010 participants enrolled in 4-Year and 2-Year institutions, respectively. For most of the semesters examined, the share enrolled at a 4-Year institution ranged from 20-40% and the share enrolled at a 2-Year institution ranged from 15-30%.

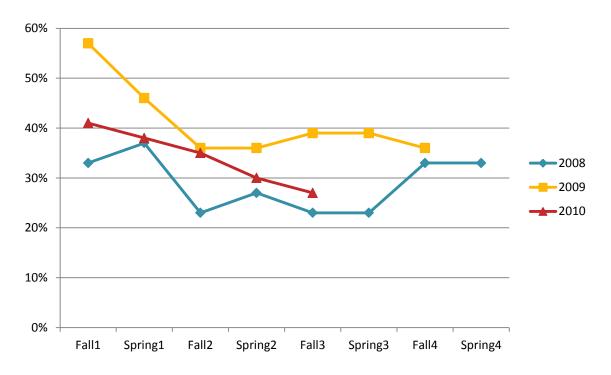
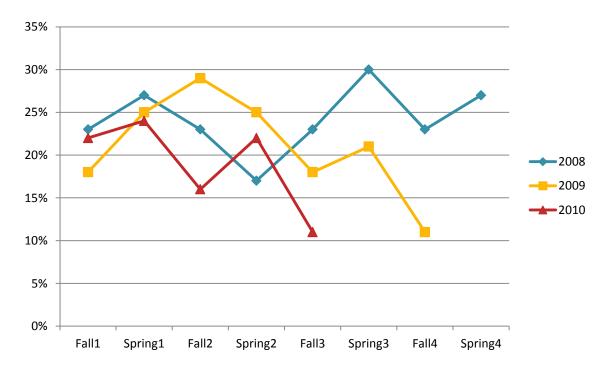


Figure 5. Share of Program 1 Participants Enrolled at a 4-Year University

Figure 6. Share of Program 1 Participants Enrolled at a 2-Year College



Program 1 Participant Enrollment by Location of Institution

Figures 7 and 8 detail college enrollment for Program 1's 2008-2010 participants by the location of the institution, whether in Texas or out-of-state. Note that while the share enrolled in-state is similar across the three graduating classes, the share enrolled out-of-state is strikingly different.

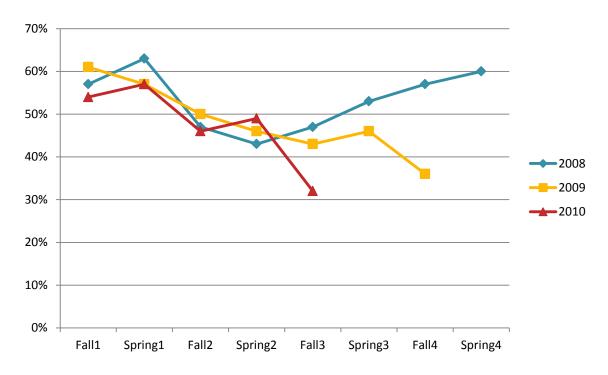


Figure 7. Share of Program 1 Participants Enrolled In-State

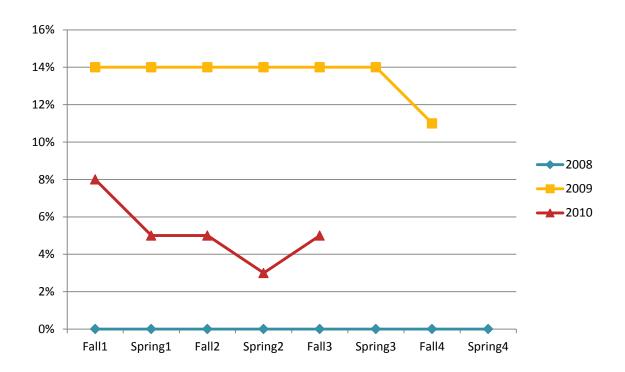


Figure 8. Share of Program 1 Participants Enrolled Out-of-State

Full-Time Enrollment by Program 1 Participants

Research suggests that students who enroll in college full-time are much more likely to persist through completion than students who enroll part-time. Unfortunately, full-time enrollment is not reported by all colleges or universities to the National Student Clearinghouse, the source for the outcome data presented in this report. In the records examined for this study, 65% of colleges consistently reported full- or part-time status of attending students, while 17% occasionally reported full- or part-time status of attending students. The information presented in Figure 9 only includes participants who attended a college that reported full-time status. While this measure is necessarily incomplete, it appears that the majority of Program 1 participants enrolled in college attend full-time.

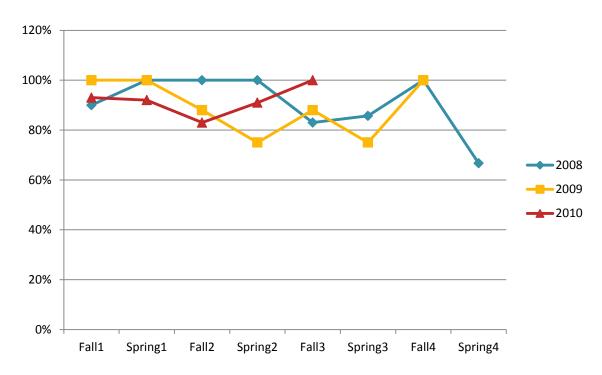


Figure 9. Share of Program 1 Participants Enrolled Full-Time

College Graduation by Program 1 Participants

Through Spring 2012, 13% of Program 1's 2008 participants earned a college credential; college credential attainment for 2009 and 2010 high school graduates are not reported because of the limited time available to complete a course of study.

Impact of Program 1 2008-2010 Participation

This section presents the findings of the impacts evaluation of Program 1 participation. Using the propensity score matching methodology described in the first section of this report, each Program 1 participant was matched to five similar individuals who graduated from a Central Texas high school in the same year. Outcomes for participants and the matched comparison group were compared to identify any differences—attributed as the impact of participating in the Program 1 program.

Table 2 provides a profile of Program 1 participants and the matched comparison group. Note that there is one statistically significant difference—Program 1 participants are significantly less likely than comparison group members to have been classified as a special education student in high school.

	Comparison Group	Program 1 Participants	
Race			
Asian	4%	1%	
Black	24%	26%	
White	24%	24%	
Ethnicity			
Hispanic	68%	68%	
Home Language			
English	32%	40%	
Spanish	66%	59%	
Economic Status			
Free or Reduced Lunch	56%	66%	
Classification			
Gifted	18%	21%	
Special Education	14%	1% ***	
At Risk	64%	62%	
Exit TAKS Scores			
Math	2233	2218	
Reading	2242	2265	
Class Rank			
Percentile Rank	54%	58%	

Table 2. Profile of Program 1 Participants and Their Matched Comparison Group

*** p<.01

Table 3 presents an overview of the impact findings for Program 1 participation across the measures detailed in the prior chapter. Program 1 participants' outcomes were significantly better than the matched comparison group on 9 of 20 measures. There were no other statistically significant differences.

	Comparison Group	Program 1 Participants
College Access		
Direct-to-College	51%	67% **
2-Year	24%	24%
4-Year	28%	43% **
Full-Time†	91%	96%
Within a Year	59%	75% **
2-Year	31%	34%
4-Year	29%	44% **
Full-Time†	96%	100% **
College Persistence		
Persisted (Fall to Fall)	32%	37%
Persisted Full-Time ⁺	17%	21%
Continuously Enrolled	27%	35%
Semester Enrollment		
Fall1	51%	67% **
Spring1	54%	69% **
Fall2	48%	52%
Spring2	46%	54%
Fall3	42%	52%
Spring3	43%	60% **
Fall4	44%	53%
Spring4	36%	59% **
Graduated College (2008)	8%	13%

Table 3. Overview of Impact Findings for Program 1 Participation

** p<.05, *** p<.01

+ For students attending colleges reporting this information.

College Enrollment

Figure 10 below presents the share of participants and comparison group members who were ever enrolled in college. Note that the share enrolled in Fall 1, the first fall semester following high school graduation, is the direct-to-college rate. The share enrolled within a year of high school graduation is shown in Spring 1. Program 1 participants out-performed the matched comparison group on both of these measures. The apparent decline in the share of students ever found enrolled in Spring 4 is due to that semester only containing high school graduates from 2008, who, in this instance, tended to have a lower ever enrollment rate than the cohorts of 2009 and 2010.

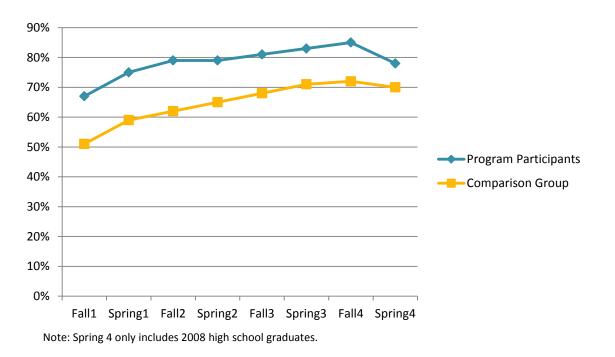




Figure 11 examines the shares enrolled by semester. Program 1 participants enrolled at higher rates than the comparison group for each semester examined.

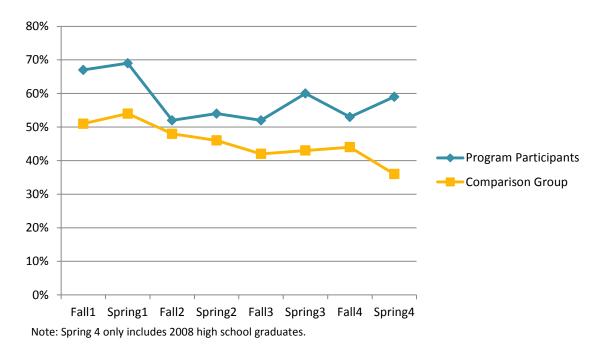


Figure 11. Shares Enrolled by Semester, Participants and Matched Comparison Group

College Persistence

Figure 12 examines college persistence, the share of students who enrolled in each fall semester since high school graduation. Program 1 participants persistently enrolled in college at a higher rate than the matched comparison group in three of four fall semesters examined.

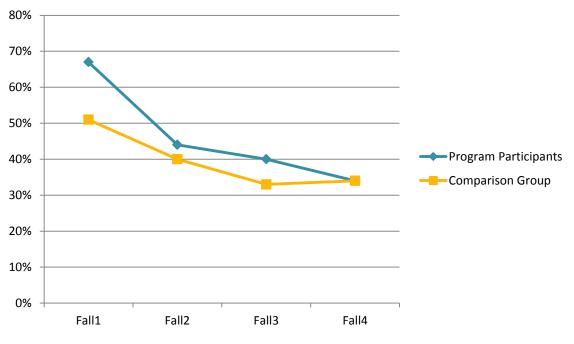


Figure 12. Shares Persisting in College, Participants and Matched Comparison Group

Figure 13 examines continuous enrollment, the share of students who enrolled in each fall and spring semester since high school graduation. While the trend exhibited by the two groups is similar, Program 1 participants continuously enrolled at higher rates than the comparison group in each semester examined.

Note: Spring 4 only includes 2008 high school graduates.

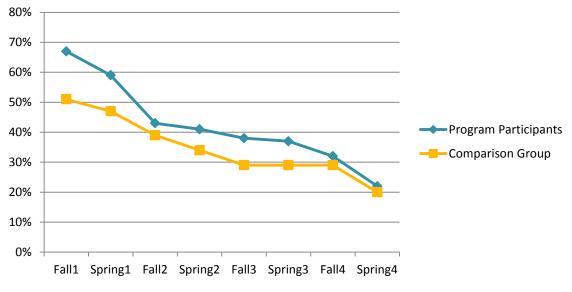


Figure 13. Share Continuously Enrolled, Participants and Matched Comparison Group

Note: Spring 4 only includes 2008 high school graduates.

Enrollment by Type of Postsecondary Institution

Figure 14 presents the share of students enrolled at a 4-Year college or university. For each semester examined, Program 1 participants enrolled at a 4-Year college or university at higher rates than the comparison group.

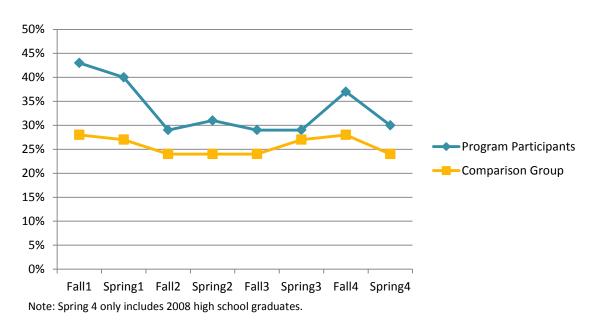


Figure 14. Share Enrolled at a 4-Year College or University, Participants and Matched Comparison Group

Figure 15 presents enrollment at a 2-Year college or technical school. In five of eight semesters examined, participants and comparison group members enrolled at 2-Year institutions at nearly equal rates.

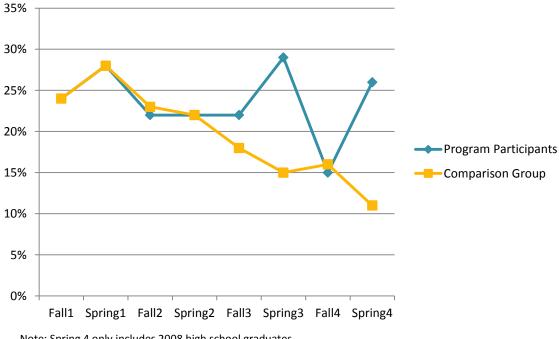


Figure 15. Share Enrolled at a 2-Year College, Participants and Matched Comparison Group

Note: Spring 4 only includes 2008 high school graduates.

Enrollment by Location of Institution

Figures 16 and 17 examine the share of students enrolled at postsecondary institutions in Texas and out-of-state. A larger share of Program 1 participants enrolled at a Texas postsecondary institution than did the matched comparison group for each semester examined. The share of participants enrolling out-of-state showed much more variability than for the comparison group.

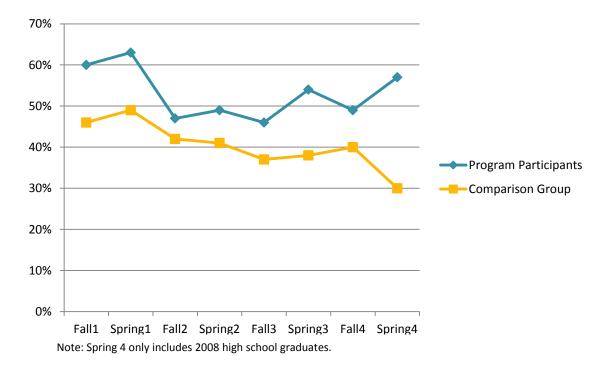
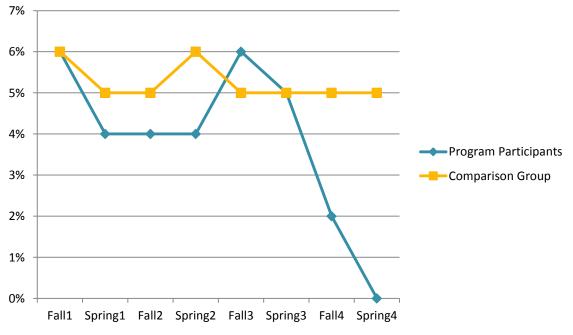


Figure 16. Share Enrolled at a Texas Postsecondary Institution, Participants and Matched Comparison Group

Figure 17. Share Enrolled Out-of-State, Participants and Matched Comparison Group



Note: Spring 4 only includes 2008 high school graduates.

Full-Time Enrollment

Figure 18 presents the share of students enrolled full-time. Only those students who attended an institution which reported full-time status to the National Student Clearinghouse are included in this figure. Of those attending a reporting institution, a roughly similar majority of each group attends college full-time.

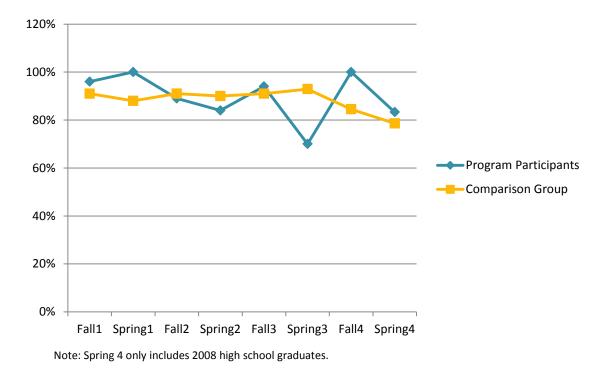


Figure 18. Share Enrolled Full-Time, Participants and Matched Comparison Group

EVALUATION FINDINGS FOR PROGRAM 2

High school graduates who participated in college access and persistence services through Program 2 between 2008 and 2010 are profiled in Table 4. Note that because of 2010 changes in the way race/ethnicity is classified, those numbers are not directly comparable to prior years. Participants in Program 2 were primarily Hispanic and come from homes where the primary language spoken is Spanish. Sixty percent of Program 2 participants qualified for a free or reduced price lunch in high school. Almost four in ten participants were classified as "at-risk" by their school district. The average Program 2 participant ranked in the 38th percentile of their graduating class.

	All Years	2008	2009	2010
Race				
Asian	4%	4%	5%	4%
Black	19%	18%	18%	19%
White	36%	17%	14%	59%
Ethnicity				
Hispanic	65%	61%	63%	68%
Home Language				
English	17%	17%	17%	17%
Spanish	81%	81%	80%	83%
Economic Status				
Free or Reduced Lunch	60%	62%	59%	60%
Classification				
Gifted	13%	13%	12%	13%
Special Education	3%	2%	4%	3%
At Risk	39%	43%	48%	31%
Exit TAKS Scores				
Math	2275	2247	2245	2308
Reading	2315	2324	2273	2337
Class Rank				
Percentile Rank	38%	25%	32%	47%

 Table 4. Program 2 Participants Graduating from High School in 2008-2010

Outcome Findings for Program 2

Share of Program 2 Participants Enrolled in College

Figure 1 below details the share of Program 2 participants who ever enrolled in college by semester. The share who enrolled in college in the fall immediately following high school graduation (Fall 1) is the program's direct-to-college rate. For 2008-2010 participants, the share of student who went directly to college after graduation ranged from 75-80%. The share who enrolled in college within a year of high school graduation (by Spring 1) ranged from 77-86%. Over the full time period examined, 88-90% of 2008-2010 participants enrolled in at least one semester of college.

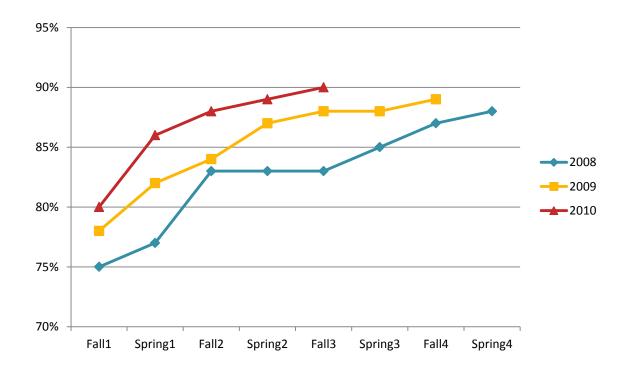




Figure 2 details the share of Program 2's participants enrolled in college by semester. This shows that across all semesters examined, more than half of 2008-2010 Program 2 participants were enrolled in college in any given semester.

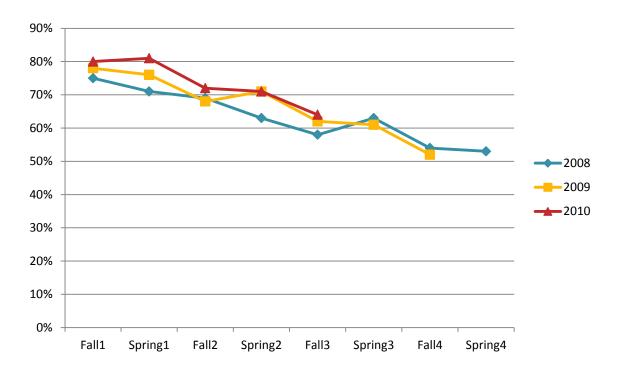


Figure 20. Share of Program 2 Participants Enrolled in College by Semester

Share of Program 2 Participants Persistently or Continuously Enrolled in College

The evaluation examined two different measures of college retention. The share of participants *persistently* enrolled looks at college enrollment in each Fall semester since high school graduation (Figure 3). The share of participants *continuously* enrolled looks at college enrollment in each Fall and Spring semester since high school graduation (Figure 4).

Persistent enrollment is a measure that is tracked by the U.S. Department of Education. For Program 2's 2008-2010 participants, Figure 3 shows that the share persistently enrolled declines by roughly 11-13% each fall semester.



Figure 21. Share of Program 2 Participants Persistently Enrolled in College

Continuous enrollment includes Fall and Spring semesters for a more accurate measure of a student's engagement in postsecondary education. As shown in Figure 4 below, the share of Program 2's 2008-2010 participants continuously enrolled in college declines over time. For all three groups, roughly half of participants were continuously enrolled through Fall 3 – the third fall semester following high school graduation.

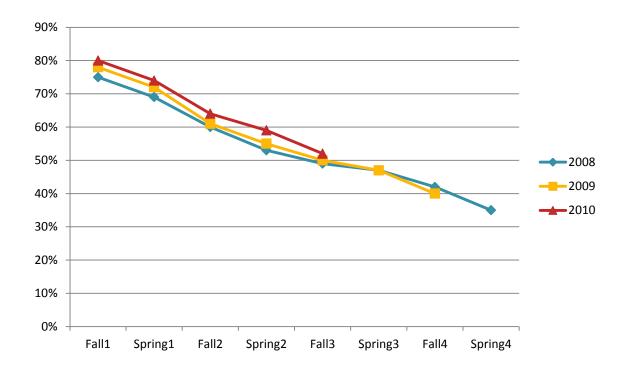


Figure 22. Share of Program 2 Participants Continuously Enrolled in College

Program 2 Participant Enrollment by Type of Postsecondary Institution

In general, there are two types of postsecondary institutions commonly referred to as "college." 4-Year colleges or universities typically offer programs of study leading to bachelor's or professional degrees. 2-Year colleges or technical schools typically offer programs of study leading to associate's degrees or transfer credits to 4-Year institutions, as well as workforce training leading to other credentials such as licensures or certifications. Program 2 emphasizes 4-Year degree attainment as a key measure of participant success.

Figures 5 and 6 show the shares of Program 2's 2008-2010 participants enrolled in 4-Year and 2-Year institutions, respectively. Note that while the share enrolled at a 4-Year institution is larger than the share enrolled a 2-Year institution for each semester examined, the patters of enrollment are very different. While 4-Year enrollments steadily decline over time, 2-Year enrollments varied with periods of growth and decline.

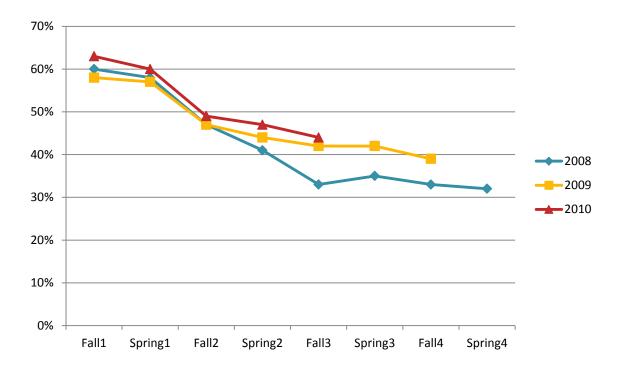
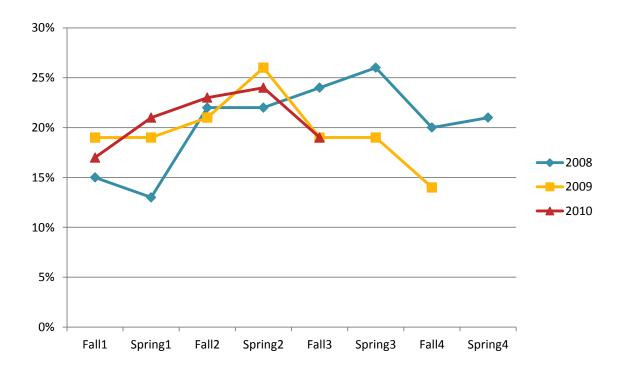


Figure 23. Share of Program 2 Participants Enrolled at a 4-Year College or University

Figure 24. Share of Program 2 Participants Enrolled at a 2-Year College



Program 2 Participant Enrollment by Location of Institution

Figures 7 and 8 detail college enrollment for Program 2's 2008-2010 participants by the location of the institution, whether in Texas or out-of-state. Note that while the share enrolled in-state is similar across the three graduating classes, the share enrolled out-of-state is strikingly different—particularly for the 2008 group.

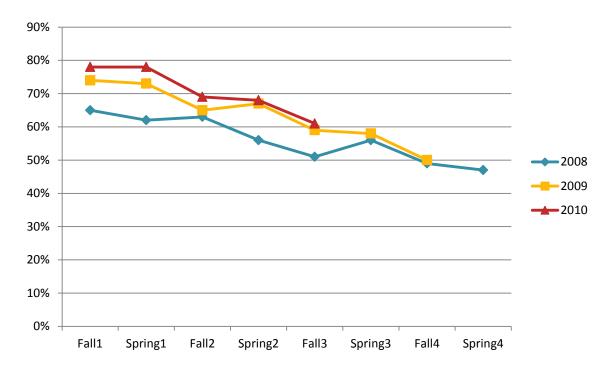


Figure 25. Share of Program 2 Participants Enrolled at a Texas Postsecondary Institution

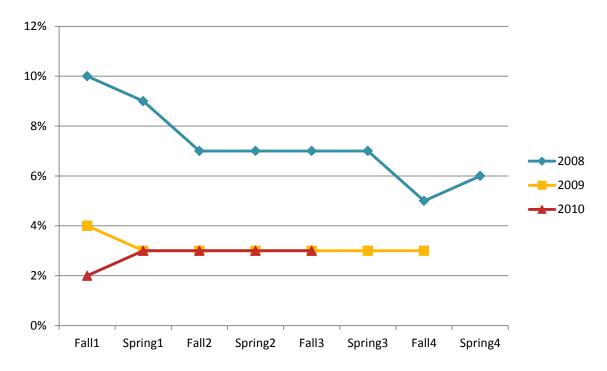


Figure 26. Share of Program 2 Participants Enrolled Out-of-State

Full-Time Enrollment by Program 2 Participants

Research suggests that students who enroll in college full-time are much more likely to persist through completion than students who enroll part-time. Unfortunately, full-time enrollment is not reported by all colleges or universities to the National Student Clearinghouse, the source for the outcome data presented in this report. In the records examined for this study, 65% of colleges consistently reported full- or part-time status of attending students, while 17% occasionally reported full- or part-time status of attending students. The information presented in Figure 9 only includes participants who attended a college that did report full-time status. While this measure is necessarily incomplete, it appears that the majority of Program 2 participants enrolled in college attend full-time.

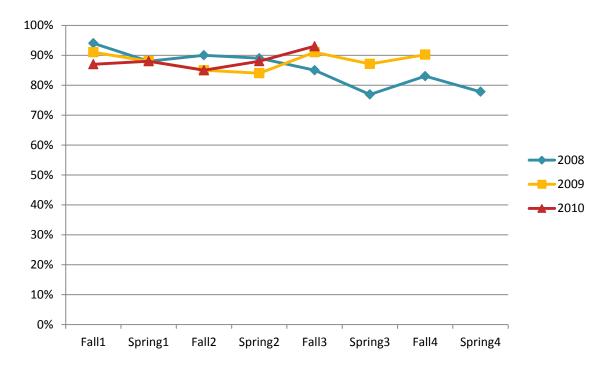


Figure 27. Share of Program 2 Participants Enrolled Full-Time

College Graduation by Program 2 Participants

Through Spring 2012, 16% of Program 2's 2008 participants earned a college credential; due to the short length of time examined, 2009 and 2010 Program 2 participants are note presented.

Impact of Program 2 Participation for 2008-2010 High School Graduates

This section presents the findings of the impacts evaluation of Program 2 participation. Using the propensity score matching methodology described in the first section of this report, each Program 2 participant was matched to up to five similar individuals who graduated from a Central Texas high school in the same year. Outcomes for participants and the matched comparison group were compared to identify any differences—attributed as the impact of participating in the Program 2 program.

Table 5 provides a profile of Program 2 participants and the matched comparison group. Note that there are no statistically significant differences between the two groups at the p<.01 level.

	Comparison Group	Program 2 Participants
Race		
Asian	5%	4%
Black	20%	18%
White	36%	37%
Ethnicity		
Hispanic	62%	65%
Home Language		
English	20%	17%
Spanish	77%	81%
Economic Status		
Free or Reduced Lunch	55%	60%
Classification		
Gifted	10%	13%
Special Education	5%	3%
At Risk	37%	39%
Exit TAKS Scores		
Math	2279	2275
Reading	2303	2315
Class Rank		
Percentile Rank	36%	38%

Table 5. Profile of Program 2 Participants and Their Matched Comparison Group

*** p<.01

Table 6 presents an overview of the impact findings for Program 2 participation across twenty measures. In 13 of 20 measures, Program 2 participants' outcomes were significantly

better than the matched comparison group. In two measures, both related to enrollment at a 2-Year college, the comparison group enrolled at a higher rate than participants. In five other measures, there was no statistically significant difference between the two groups.

	Comparison Group	Program 2
	Group	Participants
College Access		
Direct-to-College	63%	80% ***
2-Year	23%	18% **
4-Year	40%	62% ***
Full-Time†	93%	90%
Within a Year	69%	84% ***
2-Year	29%	23% ***
4-Year	41%	63% ***
Full-Time†	98%	97%
College Persistence		
Persisted (Fall to Fall)	41%	50% ***
Persisted Full-Time ⁺	25%	30% **
Continuously Enrolled	39%	46% ***
Semester Enrollment		
Fall1	63%	80% ***
Spring1	64%	79% ***
Fall2	59%	71% ***
Spring2	58%	71% ***
Fall3	53%	64% ***
Spring3	56%	62% **
Fall4	52%	54%
Spring4	50%	56%
Graduated College (2008)	18%	16%

Table 6. Overview of Impact Findings for Program 2 Participation

** p<.05, *** p<.01

⁺ For students attending colleges reporting this information.

College Enrollment

Figure 28 below presents the share of participants and comparison group members who were ever enrolled in college. Program 2 participants out-performed the matched comparison group on both direct-to-college enrollment (Fall 1) and enrollment within a year of graduating from high school (Spring 1). The apparent decline in the share of comparison students ever

found enrolled in Spring 4 is due to that semester only containing high school graduates from 2008, who, in this instance, tended to have a lower ever enrollment rate than the cohorts of 2009 and 2010.

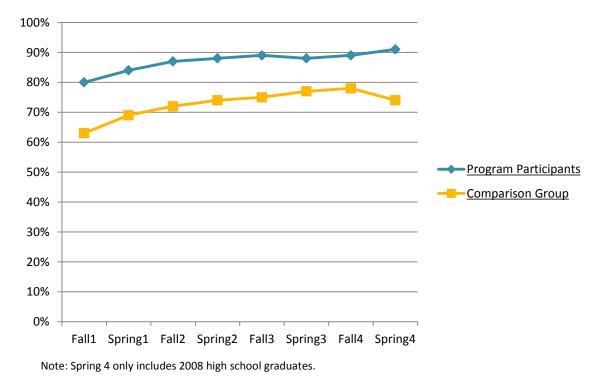


Figure 28. Shares Ever Enrolled in College, Participants and Matched Comparison Group

Figure 29 examines the shares enrolled by semester. While the trend exhibited by the two groups is roughly similar, Program 2 participants enrolled at a higher rate in each semester examined.

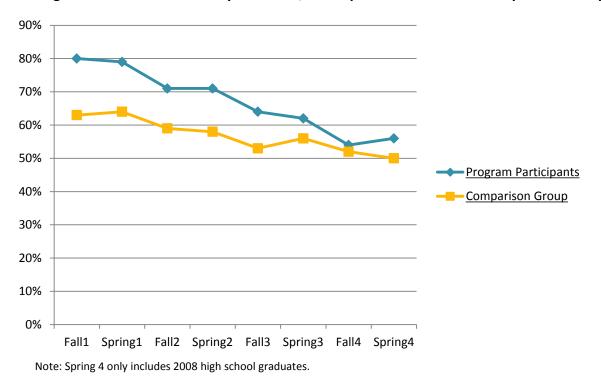


Figure 29. Shares Enrolled by Semester, Participants and Matched Comparison Group

College Persistence

Figure 30 examines college persistence, the share of students who enrolled in each fall semester since high school graduation. Program 2 participants persistently enrolled in college at a higher rate than the matched comparison group.

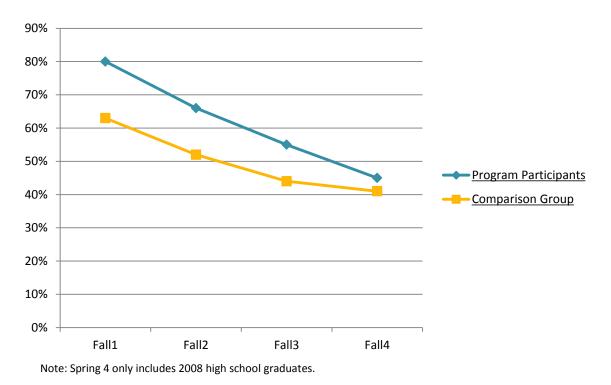


Figure 30. Shares Persisting in College, Participants and Matched Comparison Group

Figure 31 examines continuous enrollment, the share of students who enrolled in each fall and spring semester since high school graduation. From Fall 1 through Fall 4, Program 2 participants were continuously enrolled at a higher rate than the matched comparison group. In Spring 4, the share continuously enrolled was the same.

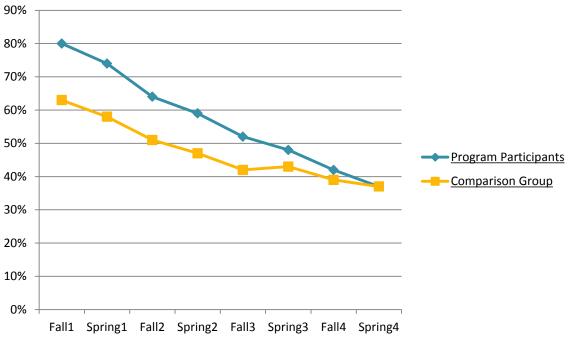


Figure 31. Share Continuously Enrolled, Participants and Matched Comparison Group

Note: Spring 4 only includes 2008 high school graduates.

Enrollment by Type of Postsecondary Institution

Figure 32 presents the share of students enrolled at a 4-Year college or university. From Fall 1 through Fall 3, a larger share of Program 2 participants enrolled at a 4-Year institution than did the matched comparison group. From Spring 3 through Fall 4, the comparison group matched or exceeded the share of Program 2 participants at 4-Year institutions.

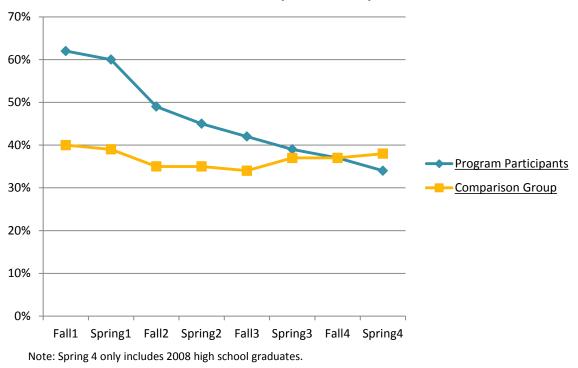


Figure 32. Share Enrolled at a 4-Year College or University, Participants and Matched Comparison Group

Figure 33 presents enrollment at a 2-Year college or technical school. A larger share of comparison group members directly enrolled or enrolled within a year of high school graduation at a 2-Year institution than did Program 2 participants. That changed in Fall 2, when the share of Program 2 participants enrolled at a 2-Year institution exceeded that of the matched comparison group. This trend has continued through Spring 4.

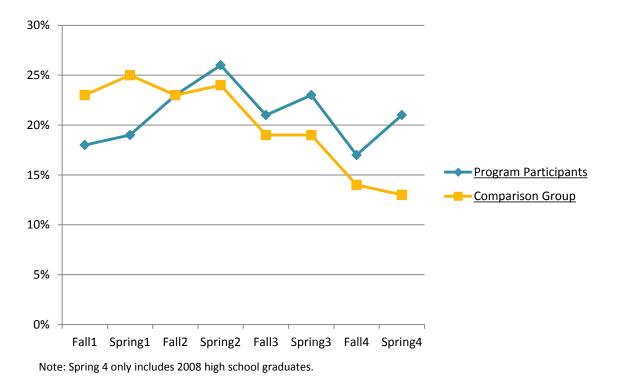


Figure 33. Share Enrolled at a 2-Year College, Participants and Matched Comparison Group

Enrollment by Location of Institution

Figures 34 and 35 examine the share of students enrolled at postsecondary institutions in Texas and out-of-state. A larger share of Program 2 participants enrolled at a Texas postsecondary institution than did the matched comparison group for each semester examined. The trend is reversed for out-of-state enrollments, with a larger share of the matched comparison group attending out-of-state institutions in seven of eight semesters examined.

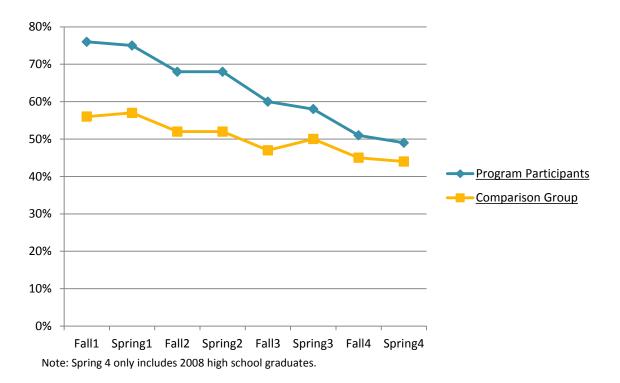
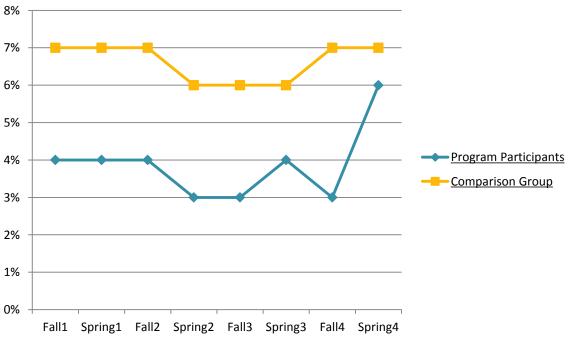


Figure 34. Share Enrolled at a Texas Postsecondary Institution, Participants and Matched Comparison Group

Figure 35. Share Enrolled Out-of-State, Participants and Matched Comparison Group



Note: Spring 4 only includes 2008 high school graduates.

Full-time Enrollment

Figure 36 presents the share of students enrolled full-time. Only those students who attended an institution which reported full-time status to the National Student Clearinghouse are included in this figure. Of those attending a reporting institution, a similar majority of each group attended college full-time.

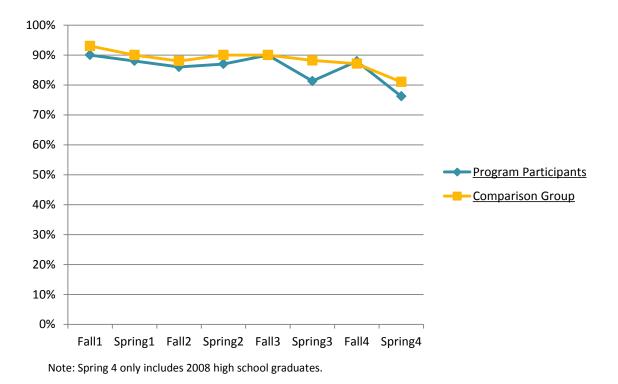


Figure 36. Share Enrolled Full-time, Participants and Matched Comparison Group

EVALUATION FINDINGS FOR PROGRAM 3

Central Texas high school graduates who participated in college access and persistence services through Program 3 between 2008 and 2010 are profiled in Table 7 below. Note that because of 2010 changes in the way race/ethnicity is classified, those numbers are not directly comparable to prior years. Participants in Program 3 were primarily Hispanic, with just over half coming from homes where the primary language spoken is Spanish, and just over half receiving a free or reduced cost lunch during high school. The average Program 3 participant ranked in the 38th percentile of their graduating class.

	All Years	2008	2009	2010
Race				
Asian	0%	0%	0%	0%
Black	1%	0%	2%	0%
White	15%	0%	2%	51%
Ethnicity				
Hispanic	97%	98%	95%	100%
Home Language				
English	43%	40%	52%	35%
Spanish	57%	60%	48%	65%
Economic Status				
Free or Reduced Lunch	51%	56%	54%	43%
Classification				
Gifted	11%	9%	9%	16%
Special Education	1%	2%	2%	0%
At Risk	35%	36%	43%	22%
Exit TAKS Scores				
Math	2227	2239	2159	2319
Reading	2246	2321	2123	2342
Class Rank				
Percentile Rank	38%	43%	36%	34%

 Table 7. Program 3 Participants Graduating from High School in 2008-2010

Outcome Findings for Program 3

Share of Program 3 Participants Enrolled in College

Figure 1 below details the share of Program 3 participants who ever enrolled in college by semester. The share who enrolled in college in the fall immediately following high school graduation (Fall 1) is the program's direct-to-college rate. For 2008-2010 participants, roughly 66-75% went directly to college after graduation. The share who enrolled in college within a year of high school graduation (by Spring 1) ranged from 68-80%. Over the full time period examined, 77-87% of 2008-2010 participants enrolled in at least one semester of college.

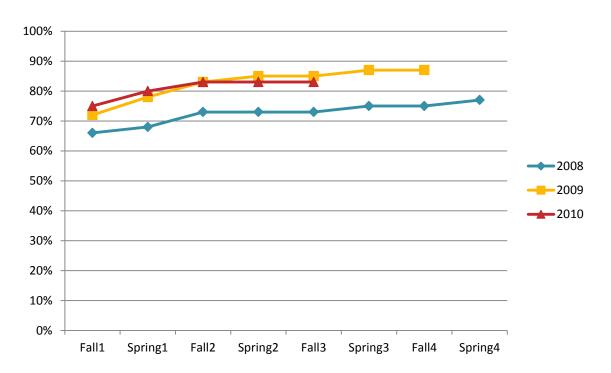


Figure 37. Share of Program 3 Participants Ever Enrolled in College

Figure 2 details the share of Program 3's participants enrolled in college by semester. This shows that across all semesters examined, 41% or more of 2008-2010 Program 3 participants were enrolled in college in any given semester.

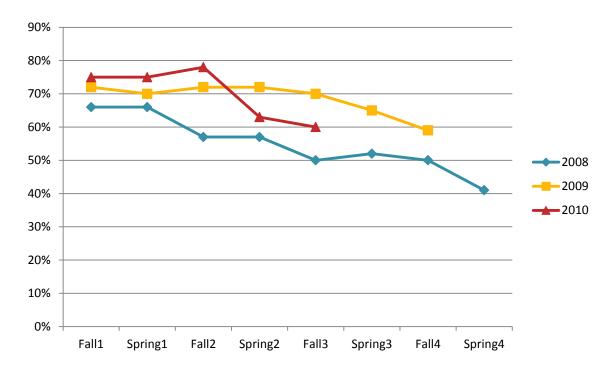


Figure 38. Share of Program 3 Participants Enrolled in College by Semester

Share of Program 3 Participants Persistently or Continuously Enrolled in College

The evaluation examined two different measures of college retention. The share of participants *persistently* enrolled looks at college enrollment in each Fall semester since high school graduation (Figure 3). The share of participants *continuously* enrolled looks at college enrollment in each Fall and Spring semester since high school graduation (Figure 4).

Persistent enrollment is a measure that is tracked by the U.S. Department of Education. For Program 3's 2008-2010 participants, Figure 3 shows that the share persistently enrolled declines gradually over time.

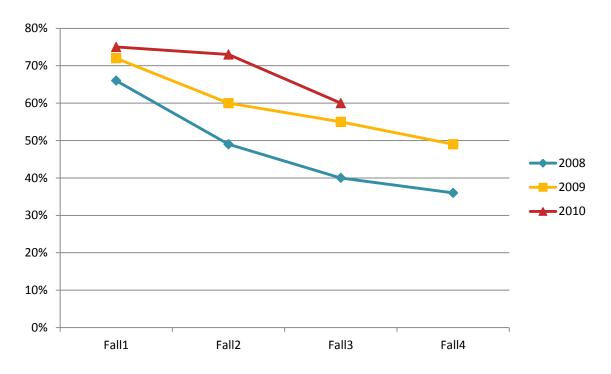


Figure 39. Share of Program 3 Participants Persistently Enrolled in College

Continuous enrollment includes Fall and Spring semesters for a more accurate measure of a student's engagement in postsecondary education. As shown in Figure 4 below, the share of Program 3's 2008-2010 participants continuously enrolled in college declines over time. For the 2009 and 2010 groups, more than half of participants were continuously enrolled through Fall 3.

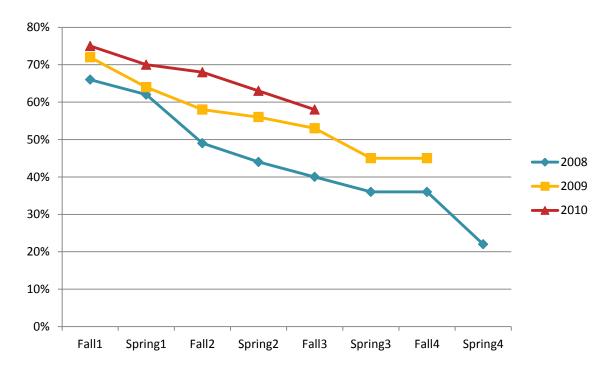


Figure 40. Share of Program 3 Participants Continuously Enrolled in College

Program 3 Participant Enrollment by Type of Postsecondary Institution

In general, there are two types of postsecondary institutions commonly referred to as "college." 4-Year colleges or universities typically offer programs of study leading to bachelor's or professional degrees. 2-Year colleges or technical schools typically offer programs of study leading to associate's degrees or transfer credits to 4-Year institutions, as well as workforce training leading to other credentials such as licensures or certifications.

Figures 5 and 6 show the shares of Program 3's 2008-2010 participants enrolled in 4-Year and 2-Year institutions, respectively. For most of the semesters examined, the share enrolled at a 4-Year institution ranged from 25-50% and the share enrolled at a 2-Year institution ranged from 20-35%.

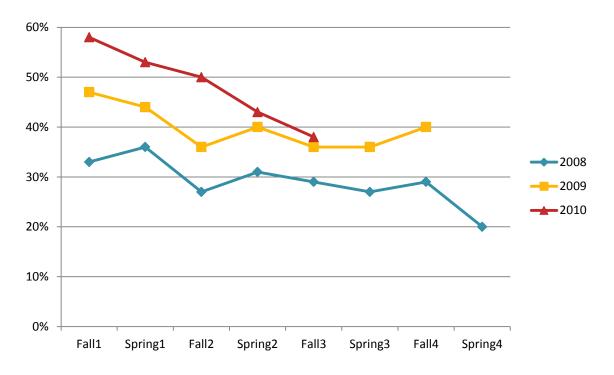
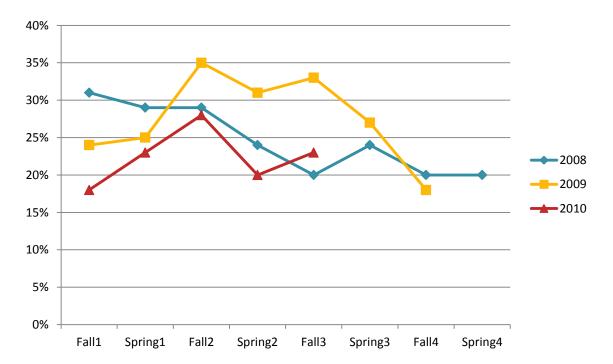


Figure 41. Share of Program 3 Participants Enrolled at a 4-Year College or University

Figure 42. Share of Program 3 Participants Enrolled at a 2-Year College



Program 3 Participant Enrollment by Location of Institution

Figures 7 and 8 detail college enrollment for Program 3's 2008-2010 participants by the location of the institution, whether in Texas or out-of-state. The share enrolled in Texas follows a roughly similar trend across all three groups of students. The share enrolled out-of-state, however, is quite different for each group.

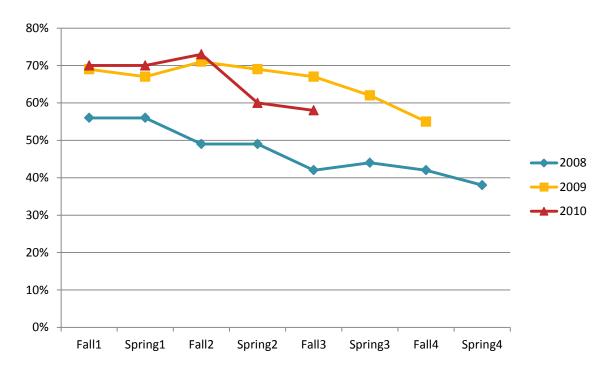


Figure 43. Share of Program 3 Participants Enrolled at a Texas Postsecondary Institution

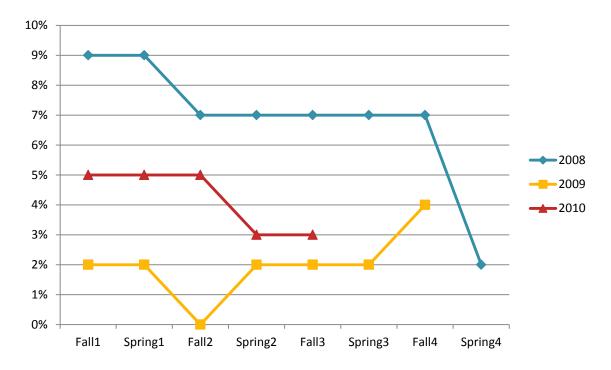


Figure 44. Share of Program 3 Participants Enrolled Out-of-State

Full-Time Enrollment by Program 3 Participants

Research suggests that students who enroll in college full-time are much more likely to persist through completion than students who enroll part-time. Unfortunately, full-time enrollment is not reported by all colleges or universities to the National Student Clearinghouse, the source for the outcome data presented in this report. In the records examined for this study, 65% of colleges consistently reported full- or part-time status of attending students, while 17% occasionally reported full- or part-time status of attending students. The information presented in Figure 9 only includes participants who attended a college that did report full-time status. While this measure is necessarily incomplete, it appears that the 80% or more of Program 3 participants enrolled in college attended full-time.

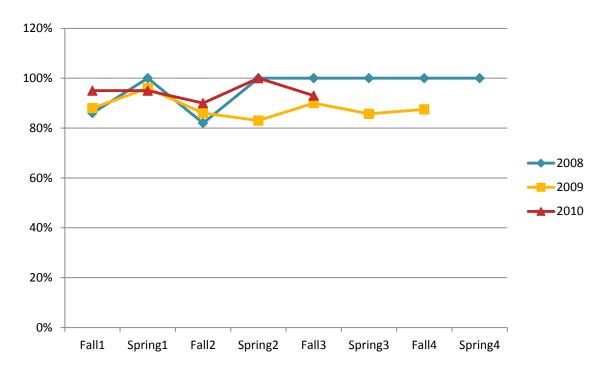


Figure 45. Share of Program 3 Participants Enrolled Full-Time

College Graduation by Program 3 Participants

Through Spring 2012, 24% of Program 3's 2008 participants earned a college credential; college credential attainment for 2009 and 2010 high school graduates are not reported because of the limited time available to complete a course of study.

Impact of Program 3 2008-2010 Participation

This section presents the findings of the impacts evaluation of Program 3 participation. Using the propensity score matching methodology described in the first section of this report, each Program 3 participant was matched to five similar individuals who graduated from a Central Texas high school in the same year. Outcomes for participants and the matched comparison group were compared to identify any differences—attributed as the impact of participating in the Program 3 program.

A profile of Program 3 participants and the matched comparison group is provided in Table 8. Note that there is one statistically significant difference between the two groups. The share of comparison group members classified as special education students in high school is significantly larger than that share of participants.

	Comparison Group	Program 3 Participants		
Race				
Asian	1%	0%		
Black	1%	1%		
White	14%	13%		
Ethnicity				
Hispanic	100%	97%		
Home Language				
English	45%	45%		
Spanish	54%	55%		
Economic Status				
Free or Reduced Lunch	53%	52%		
Classification				
Gifted	13%	11%		
Special Education	6%	2%	***	
At Risk	44%	34%		
Exit TAKS Scores				
Math	2191	2222		
Reading	2202	2241		
Class Rank				
Percentile Rank	44%	38%		

Table 8. Profile of Program 3 Participants and Their Matched Comparison Group

*** p<.01

An overview of the impact findings for Program 3 participation across twenty measures is presented in Table 9. In 13 of 20 measures, Program 3 participants' outcomes were significantly better than the matched comparison group. There was no statistically significant difference between the two groups on the other seven measures.

	Comparison Group	Program 3 Participants		
College Access				
Direct-to-College	53%	71% ***		
2-Year	27%	24%		
4-Year	27%	46% ***		
Full-Time†	92%	91%		
Within a Year	60%	74% ***		
2-Year	33%	29%		
4-Year	28%	47% ***		
Full-Time ⁺	98%	100%		
College Persistence				
Persisted (Fall to Fall)	36%	48% ***		
Persisted Full-Time [†]	19%	29% **		
Continuously Enrolled	31%	42% **		
Semester Enrollment				
Fall1	53%	71% ***		
Spring1	55%	71% ***		
Fall2	55%	67% **		
Spring2	53%	65% **		
Fall3	48%	61% ***		
Spring3	47%	61% **		
Fall4	45%	55%		
Spring4	46%	40%		
Graduated College (2008)	13%	24%		

Table 9. Overview of Impact Findings for Program 3 Participation

** p<.05, *** p<.01

+ For students attending colleges reporting this information.

College Enrollment

The share of participants and comparison group members who were ever enrolled in college is presented in Figure 46. Note that the share enrolled in Fall 1, the first fall semester following high school graduation, is the direct-to-college rate. The share enrolled within a year of high school graduation is shown in Spring 1. Program 3 participants enrolled at higher rates than the matched comparison group in both of these semesters. The apparent decline in the share of participants ever found enrolled in Spring 4 is due to that semester only containing high school graduates from 2008, who, in this instance, tended to have a lower ever enrollment rate

than the cohorts of 2009 and 2010.

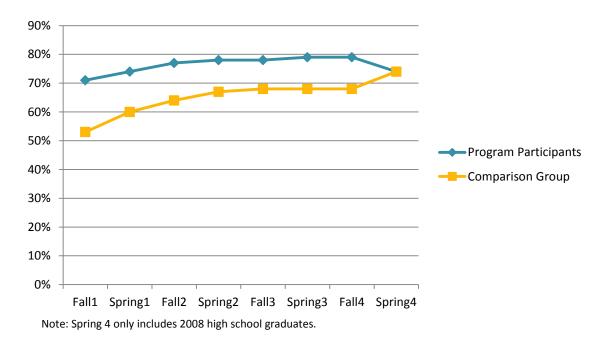


Figure 46. Shares Ever Enrolled in College, Participants and Matched Comparison Group

Figure 47 examines the shares enrolled by semester. While the trend exhibited by the two groups is roughly similar, Program 3 participants enrolled at a higher rate in seven of the eight semesters examined.

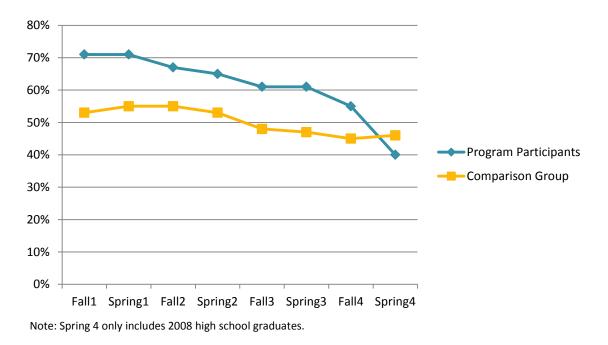


Figure 47. Shares Enrolled by Semester, Participants and Matched Comparison Group

College Persistence

College persistence, the share of students who enrolled in each fall semester since high school graduation, is detailed in Figure 48. Program 3 participants persistently enrolled in college at a higher rate than the matched comparison group.

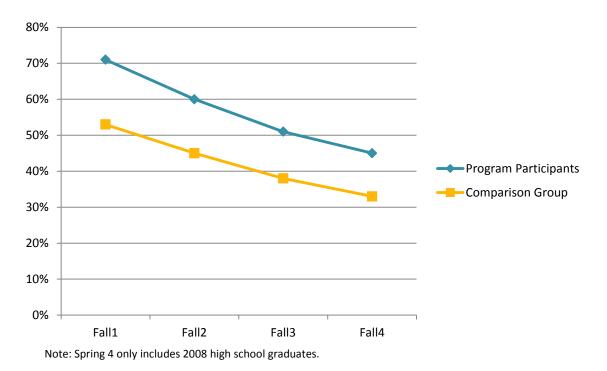


Figure 48. Shares Persisting in College, Participants and Matched Comparison Group

Figure 49 examines continuous enrollment, the share of students who enrolled in each fall and spring semester since high school graduation. In seven of the eight semesters examined, Program 3 participants were continuously enrolled at a higher rate than the matched comparison group.

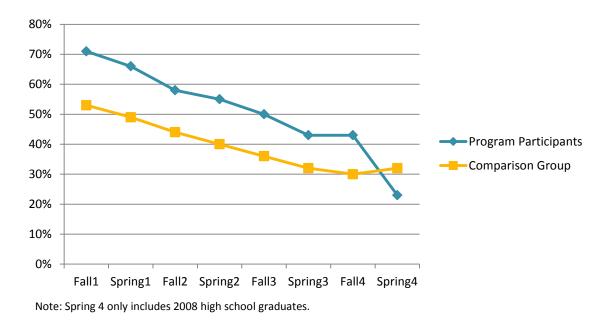


Figure 49. Share Continuously Enrolled, Participants and Matched Comparison Group

Enrollment by Type of Postsecondary Institution

The share of students enrolled at a 4-Year college or university is presented in Figure 50. From Fall 1 through Fall 4, a larger share of Program 3 participants enrolled at a 4-Year institution than did the matched comparison group.

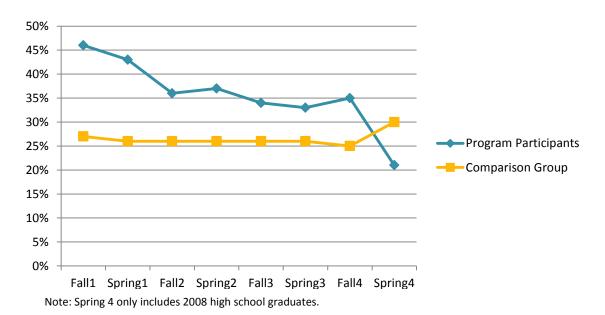


Figure 50. Share Enrolled at a 4-Year College or University, Participants and Matched Comparison Group

Figure 51 presents enrollment at a 2-Year college or technical school. A larger share of comparison group members directly enrolled or enrolled within a year of high school graduation at a 2-Year institution than did Program 3 participants.

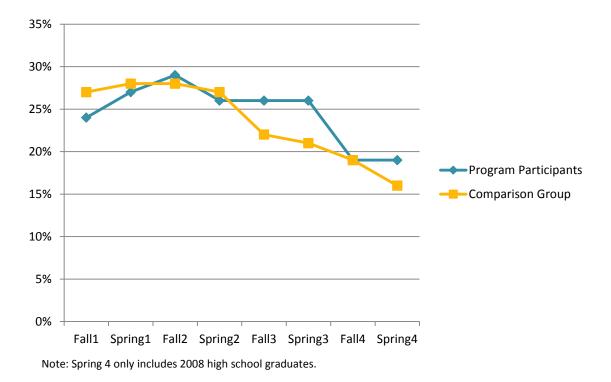


Figure 51. Share Enrolled at a 2-Year College, Participants and Matched Comparison Group

Enrollment by Location of Institution

Figures 52 and 53 examine the share of students enrolled at a postsecondary institution in Texas and out-of-state. A larger share of Program 3 participants enrolled at a Texas postsecondary institution than did the matched comparison group for seven of the eight semesters examined. The trend is largely reversed for out-of-state enrollments, with a larger share of matched comparison group members attending an out-of-state institution in six of eight semesters examined.

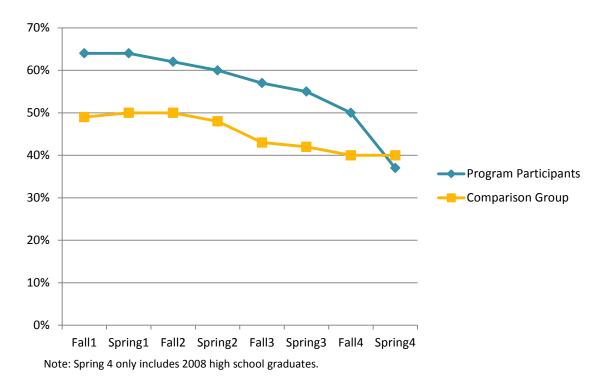
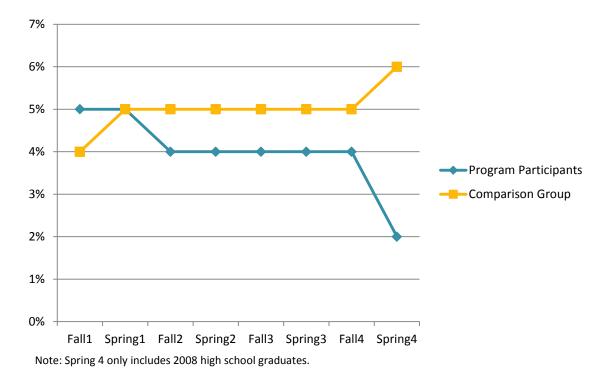


Figure 52. Share Enrolled at a Texas Postsecondary Institution, Participants and Matched Comparison Group

Figure 53. Share Enrolled Out-of-State, Participants and Matched Comparison Group



Full-Time Enrollment

The share of students enrolled full-time is detailed in Figure 54. Only those students who attended an institution which reported full-time status to the National Student Clearinghouse are included in this figure. Of those attending a reporting institution, a similar majority of each group attended college full-time.

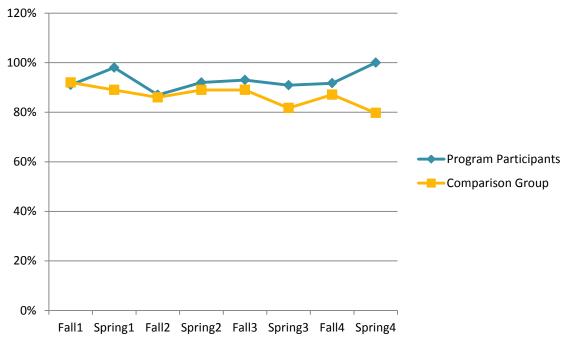


Figure 54. Share Enrolled Full-Time, Participants and Matched Comparison Group

Note: Spring 4 only includes 2008 high school graduates.

SUMMARY

All three ACAN member programs appear to have a significant, positive impact on participants' college access. Note that these programs target different populations of students and provide a different suite of services; no tests were performed to compare impacts across programs. The comparison detailed below is only meant to provide summary information on impacts and is not intended to in any way imply the efficacy of one program over another. Two programs appear to have a significant, positive impact on participants' college persistence. While graduation rates are relatively low, only the 2008 participants have been out of high school for a full four years.

	Pro	Program 1 Program		gram 2	Program 3	
Measure	All Years	Statistically Significant	All Years	Statistically Significant	All Years	Statistically Significant
Direct-to-college enrollment	67%	Yes	80%	Yes	71%	Yes
Enrollment within a year of HS graduation	75%	Yes	84%	Yes	74%	Yes
Persisting in college ⁺	37%	No	50%	Yes	48%	Yes
Continuous enrollment+	35%	No	46%	Yes	42%	Yes
College completion (2008)	13%	No	16%	No	24%	No

Table 10. Summary of Outcomes for Participants in ACAN Member Programs‡

+ Through latest semester available.

[‡] These shares represent the sample of program participants used for the impacts analysis.

REFERENCES

- Heinrich, C., A. Maffioli, and G. Vázquez. 2010. "A Primer for Applying Propensity-Score Matching." SPD Working Papers 1005. Inter-American Development Bank, Office of Strategic Planning and Development Effectiveness (SPD).
- Rosenbaum, P. and D. Rubin. 1983. "The Central Role of the Propensity Score in Observational Studies for Causal Effects." *Biometrika* 70(1).
- Smith, T. and G. Cumpton. 2012. *Initial Findings: Central Texas College Access and Persistence Programs.* Austin, TX: Ray Marshall Center for the Study of Human Resources, LBJ School of Public Affairs, The University of Texas at Austin. May.