Performance-based aid, enhanced advising, and the income gap in college graduation: evidence from a randomized controlled trial

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Background

- This study was part of the nationwide Performance-Based Scholarship Demonstration, a series of financial aid experiments in the U.S. managed by MDRC
- 8 RCTs at different institutions involving approx. 12,000 students
- Interventions varied in duration, funding amounts, incentives tied to additional financial aid

Motivation

- There exists a large income gap in college graduation
- From Dynarski (2008)
  - 29% of 19-year-olds from the lowest income quartile enroll in college, but only 9% graduate by age 25
  - 80% of 19-year-olds from the highest income quartile enroll in college, and 54% graduate by age 25
- Income gaps in enrollment, persistence, and graduation raise concerns for equal opportunity in higher education

Motivation

- Can additional financial aid and enhanced academic advising lessen income gaps in higher education?
- We examine results from an RCT focusing on low-income students at the University of New Mexico:
  - Vision Inspired Scholarship through Academic Achievement (VISTA)
- Preview of findings:
  - Evidence the intervention decreased time to degree, with no meaningful overall increase in the likelihood of graduation

Motivation

- Preview of findings:
  - VISTA students indicated high satisfaction with the program's model of "enhanced" academic advising
  - Receiving VISTA significantly reduced student loan debt
  - Modest evidence that treatment effects were driven by students that were less academically prepared for college
    - i.e., had lower high school grades

Program Design

- 2008 and 2009 cohorts:
  - Random assignment of 1,081 low-income first-time, full-time, New Mexico state resident students
    - Low-income defined as Pell Grant-eligible
  - Letters were sent to students to encourage participation in VISTA
  - VISTA students attended an additional orientation to learn about the study and to provide informed consent to participate
  - All participants filled out baseline questionnaires during orientations

Program Design

- VISTA students could received up to $1,000 each semester by:
  - maintaining a certain grade point average (GPA)
  - meeting regularly with their “enhanced” academic advisor
  - Registering/earning the minimum number of credits
- Funding limited to the first two years of college; students were eligible in each semester they qualified
  - E.g., if a student did not qualify in their second semester, they still had a shot in their third and fourth semesters

Program Design

- Academic advising was "enhanced"
  - VISTA students were assigned to a *dedicated* adviser for the duration of the program
  - VISTA students were given priority in advising appointments
  - VISTA advisers were trained 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

Program Design

- Payment schedule:
  - Semester 1:
    - Start of term: meet with adviser and register for ≥ 12 credit hours ($250 USD)
    - Midterm: meet with advisor with GPA ≥ 2.0 ($250 USD)
    - End of term: meet with adviser after completing above requirements ($500 USD)
  - Semesters 2 - 4:
    - Start of term: meet with adviser and register for ≥ 15 credit hours ($250 USD)
    - Midterm: meet with advisor with GPA ≥ 2.0 ($250 USD)
    - End of term: meet with adviser after completing above requirements ($500 USD)
  - Payments were made directly to the students

Program Design

- Payment amounts were of meaningful size
  - Recall: low-income students
  - Resident tuition and fees in 2008 were $2,670.99 USD
- Academic requirements were relatively “low-bar”
  - VISTA requirements only slightly higher than general requirements for good progress: 1.7 GPA in first 30 hours, and 2.0 thereafter

Data

- Two primary sources:
  - baseline survey data (from orientations)
  - administrative transcript data
- Two secondary sources:
  - Follow-up online survey for 2009 cohort (65% response rate)
  - Observations from follow-up focus groups
- 536 treated students; 545 control students
- Randomization successfully balanced treatment and control group characteristics…

Table 1. Baseline characteristics of VISTA recipients and non-recipients

characteristic	treatment group	control group
female	.614	.602
age distribution		
17-18	.944	.930
19-20	.056	.070
one or more children	.017	.018
race/ethnicity		
Hispanic	.602	.610
white	.215	.222
black	.032	.022
Asian or Pacific Islander	.032	.039
American Indian	.069	.068
other	.050	.039
ACT English		
25^{th} percentile	16	17
75^{th} percentile	24	23
ACT math		
25^{th} percentile	16	17
75^{th} percentile	23	23
high school cumulative GPA	3.3	3.3
3.5-4.4	.397	.367
3 to less than 3.5	.326	.350
2 to less than 3	.244	.248
no GPA available	.032	.035

Table 1. Baseline characteristics of VISTA recipients and non-recipients (continued)

characteristic	treatment group	control group
non-English language spoke commonly at home	.208	.232
first person in family to attend college	.321	.335
diplomas/degrees earned		
high school diploma	.972	.983
GED certificate	.019	.007
other	.013	.011
currently working	.494	.485
average hourly wage ($)	8.2	8.3
plans to live on campus	.418	.440
parents adjusted gross income ($)	29,238	28,774
sample size	536	545

Source: data from MDRC calculations using the Baseline Information Form, UNM placement test and high school transcripts, and FAFSA filings. The *p*-value from a regression of research status on baseline characteristics was .185. Two-tailed t-tests indicated no significant differences between treatment and control means at the five percent-level. Distributions may not add up to 100 percent due to rounding. ACT outcomes reflect percentile scores—*t*-tests of significant differences are not conducted using these figures.

Empirical Model

- OLS and LPM models with covariates and binary treatment indicators:

$$y_i = \alpha + \tau VISTA_i + \boldsymbol{X}_i\boldsymbol{\beta} + \varepsilon_i$$

- where y_i is a registration, grade, or degree attainment outcome
- $\hat{\tau}$ is the treatment effect
- ε_{it} is the idiosyncratic error term

Empirical Model

- OLS and LPM models with covariates and a binary treatment indicator:

$$y_i = \alpha + \tau VISTA_i + \boldsymbol{X}_i\boldsymbol{\beta} + \varepsilon_i$$

- where $\boldsymbol{X}_i$ includes:
  - Gender
  - Race-ethnicity
  - Parents' highest education
  - Employment status at baseline
  - Language spoken at home
  - High school GPA
  - ACT composite score
  - Family income

Results

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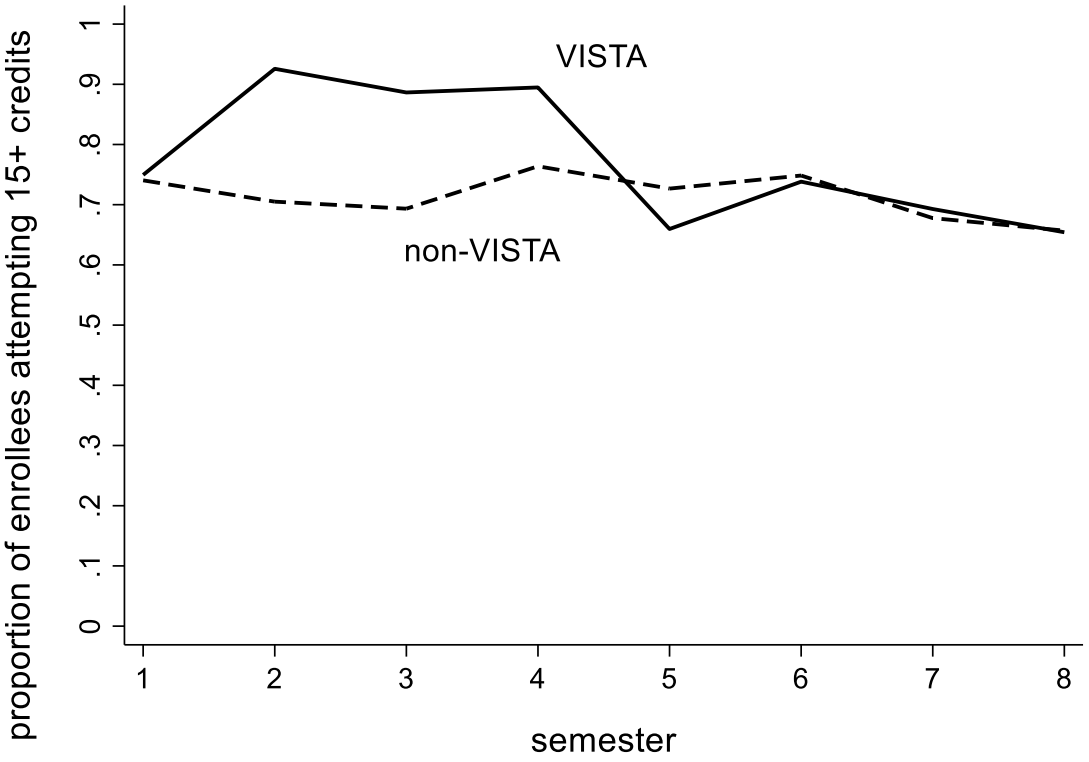
Table 2. Effects of VISTA on enrollment rates and credit attainment

characteristic	control mean	ATE
year 1		
enrolled in any term during the year (%)	.989	-.006 (.007)
cumulative credits attempted	30.0	.8* (.4)
cumulative credits earned	25.3	.6 (.5)
earned 27+ credits in year 1 (%)	.589	.086*** (.028)
year 2		
enrolled in any term during the year (%)	.823	-.031 (.024)
cumulative credits attempted	54.9	1.4 (1.1)
cumulative credits earned	45.5	1.6 (1.2)
earned 30+ credits in year 2 (%)	.353	.131*** (.028)
year 3		
enrolled in any term during the year (%)	.701	-.002 (.028)
cumulative credits attempted	76.7	1.2 (1.9)
cumulative credits earned	63.7	1.5 (1.9)
earned 30+ credits in year 3 (%)	.361	-.010 (.028)
year 4		
enrolled in any term during the year (%)	.640	-.019 (.029)
cumulative credits attempted	96.3	.8 (2.7)
cumulative credits earned	80.2	1.4 (2.7)
earned 30+ credits in year 4 (%)	.306	.008 (.028)
year 5		
enrolled in any term during the year (%)	.517	-.023 (.031)
cumulative credits attempted	109.5	-.4 (3.3)
cumulative credits earned	91.2	.4 (3.2)
earned 30+ credits in year 5 (%)	.148	-.001 (.021)

Source: UNM transcript data.



Source: University of New Mexico transcript data.

Figure 1. Proportion of enrollees attempting 15 or more credits, by semester and treatment status

Table 3. Effects of VISTA on degree attainment

outcome (%)	control mean	ATE
earned degree by end of semester:		
7	.018	.002 (.008)
8	.125	.025 (.021)
9	.225	.054** (.025)
10	.332	.051* (.029)
11	.375	.042 (.030)
12	.432	.034 (.030)
13	.448	.036 (.030)
14	.470	.034 (.031)
sample size (total = 1,081)	545	

Source: UNM Office of Institutional Research. Average treatment effects (ATE) are the covariate-adjusted difference between treatment and control groups. 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.

Table 4. Effects of VISTA on cumulative credits by income and GPA

characteristic	control mean	ATE	control mean	ATE
	HS GPA: Top 50%		HS GPA: Bottom 50%	
credits attempted				
year 1	31.4	0.0 (.6)	28.6	1.5** (.7)
year 2	60.2	-.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 (.7)	21.8	1.5* (.9)
year 2	53.3	.3 (1.6)	37.3	3.7** (1.9)
year 3	76.0	-.1 (2.7)	50.8	4.2 (2.9)
year 4	96.0	.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	.468	.041 (.044)	.189	.064* (.037)

Source: University of New Mexico transcript data. Average treatment effects (ATE) are the covariate-adjusted difference between treatment and control groups. Two-tailed t-tests were applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Table 4. Effects of VISTA on cumulative credits by income and GPA (continued)

characteristic	control mean	ATE	control mean	ATE
	Family Income: Top 50%		Family Income: Bottom 50%	
credits attempted				
year 1	30.7	-.1 (.7)	29.9	1.1* (.6)
year 2	56.7	-.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	-.2 (5.0)
credits earned				
year 1	26.3	0.0 (.8)	25.1	.9 (.8)
year 2	47.7	-.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	.379	.07 (.042)	31.3	6.4 (4.1)

Source: University of New Mexico transcript data. Average treatment effects (ATE) are the covariate-adjusted difference between treatment and control groups. Two-tailed t-tests were applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Table 5. Effects of VISTA on financial assistance during the first four years

outcome ($)	control mean	ATE
year 1		
total average financial assistance received	10,335	1,062*** (252.9)
Pell Grant	3,828	-12 (91.9)
state lottery scholarship	2,209	19 (64.8)
VISTA scholarship	0	1,498*** (28.0)
other grants	2,391	-83 (157.3)
loans	1,565	-329** (144.4)
work-study	338	-32 (61.5)
year 2		
total average financial assistance received	8,235	861** (379.3)
Pell Grant	3,006	82 (149.2)
state lottery scholarship	2,197	116 (120.1)
VISTA scholarship	0	1,077*** (36.7)
other grants	1,171	-85 (137.3)
loans	1,449	-265* (146.2)
work-study	406	-65 (74.2)
year 3		
total average financial assistance received	7,680	108 (412.6)
Pell Grant	2,546	-33 (152.0)
state lottery scholarship	2,051	56 (137.9)
VISTA scholarship	0	0 (0.0)
other grants	1,104	19 (147.5)
loans	1,651	112 (179.7)
work-study	327	-46 (67.7)
year 4		
total average financial assistance received	7,142	-129 (428.6)
Pell Grant	2,050	-68 (145.5)
state lottery scholarship	1,840	113 (143.0)
VISTA scholarship	0	0 (0.0)
other grants	970	67 (158.6)
loans	2,027	-211 (202.1)
work-study	255	-31 (61.0)

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

Table 6. Differences in first semester college experiences

outcome	control mean	ATE
student engagement		
joined student organization or team	.399	-.071 (.055)
number of student activity types joined	.6	-.2* (.1)
joined two or more student activity types	.165	-.079** (.039)
weekly study activities		
number of study activities with weekly participation	2.3	.2 (.2)
at least one study activity weekly	.856	-.011 (.041)
effort		
typical weekly hours studied	12.4	-.7 (1.1)
finals week hours studied	18.4	-1.6 (1.4)
missed no more than a few classes	.893	.029 (.034)
employment		
worked for pay	43.6	8.3 (5.7)
usual hours worked per week	9.4	3.3** (1.5)
advising		
number of times saw adviser	3.1	1.7*** (.4)
never saw adviser	.043	-.029* (.017)
usual time spent with adviser (minutes)	18.5	-3.3** (1.4)
student reported topic somewhat or very important when meeting with advisor		
general academic requirements and college policies	.911	.027 (.031)
major/career counseling	.822	.064* (.039)
developing my academic plan for UNM	.894	.055* (.029)

Source: calculations from online survey of second cohort study participants conducted by University of New Mexico.

Table 6. Differences in first semester college experiences (continued)

outcome	control	ATE
student agreed or strongly agreed with the following statements:		
My adviser provided accurate and reliable information.	.817	.033 (.041)
My advisor helped me take on more responsibility for my academic career.	.570	.133** (.053)
My adviser was approachable.	.833	.057 (.038)
My adviser helped me find the answers to my questions.	.760	.113** (.045)
My adviser considered my personal qualities (abilities, interests, strengths, weaknesses, etc.) when helping me plan my academic program.	.564	.108** (.054)
I am satisfied with the amount of time I spent meeting with my adviser during the past semester.	.689	.139*** (.048)
My adviser helped me connect with other offices and resources on campus.	.547	.012 (.057)
Interactions (meetings, phone calls, emails, etc.) with my adviser were helpful.	.578	.201*** (.053)
I was satisfied with my overall experience with	.726	.120** (.047)
sample size (total = 388)	188	

Source: calculations from online survey of second cohort study participants conducted by University of New Mexico.

Results

- Recap of main findings:
  - VISTA students more likely to meet renewal requirements compared to control group in first two years
  - This translated into shorter time to degree but no meaningful change in 6-year completion rates
  - Effects appear to be driven by students with the lowest academic preparation
  - Treated students took out fewer loans in the first two years of college
  - Students were significantly happier with VISTA's enhanced academic advising

Conclusions

- Reduced time to degree results in savings to both students and universities
  - Student costs include foregone wages and direct costs of tuition and fees
  - University costs include increased administrative costs due to increased crowding

Conclusions

- VISTA suggests that tying a heavier course load to financial aid and enhanced advising can make a difference in narrowing income gaps in college graduation

- Cannot know for sure what is driving treatment effects since enhanced advising and additional financial aid are paired together

    - students *may* respond to enhanced advising paired with smaller grant amounts

  – Results should encourage other universities to experiment with similar programs

Conclusions

- Thank you for your time
- Questions?
- Contact the author at:
  - christopher.erwin@aut.ac.nz