Investigating the Causal Impacts of the Gates Millennium Scholars & Washington State Achievers Programs

Stephen L. DesJardins
&
Brian P. McCall

University of Michigan
Center for the Study of Higher and Postsecondary Education

Presented at the Texas Schools Project Luncheon

November 20, 2009
Dallas, TX

The Gates Millennium Scholarship (GMS) Program

- Established in 1999 by Bill & Melinda Gates Foundation
- Will Provide $1 Billion in Scholarships Over 20 Year Period
- Goals
  - Improve Access for High Achieving, Low-Income Students of Color
  - Create a Cadre of Future Leaders

The GMS Program (cont'd)

- Covers Full Tuition at Any Institution of Higher Learning in the U.S.
  - GMS is a "last dollar" award. On average, scholars get approximately $6,000 more than non-scholars in grants and scholarships
- NORC (at U of Chicago) Surveys and Tracks GMS Scholars & Non-Recipients

GMS Selection Criteria

- High school GPA (3.3 minimum)
- Pell eligible, citizens, must complete app
- Score on Non-Cognitive Test
  - Apps answer questions developed to measure non-cognitive abilities
  - Answers scored by trained raters score assigned to each applicant
  - For info on development/use of measures see Sedlacek (1998, 2003, 2004)

GMS Selection Criteria (cont'd)

- Applicants unlikely to be aware of cut pts. because unaware of # apps at test time
- Raters unlikely to know the cut pts. as they are unaware of the # of qualified apps
- If raters aware of # of apps at review time many apps are later disqualified because don't meet other criteria
- Of 3,000-4,000 apps in year about 1,000 are selected

The Surveys

- Prepared by RAC & NORC
- Admin. to all Scholars & Random Sample of Non-Recipients
- Very extensive surveys in spring of freshman (baseline) & junior years (F1), then 2 yrs. later (F2)
  - Track demographic, HS/college academics, enrollment/graduation, student/parent finance, family, extra-curricular, perceptions of school & self, racial issues, issues about GMS administration, post-collegiate occupation

Data

- Had Info on Colleges Attended So Merged to IPEDS to Get IHE Characteristics
- F2 Asked Info About Undergrad Degree, Post-Grad Study & Labor Market Experience
  - But these were only measured at 5 years after entry

Possible Impacts of Scholarship

- Increase Chances of Attendance/Completion
- Lower Debt Levels of Recipients
  - Increased debt may reduce likelihood of attending graduate school (Millett, 2003)
- Change Aspirations for Graduate School
- Change Parental Contributions
- Reduce Work Hours While Enrolled
  - May increase time for studying, taking more credits, leisure, extra-curricular activities
  - Work may increase dropout & time to degree (Ehrenberg and Sherman, 1987)

Determining Causal Effects of Program

- Difficult Because Classic Selection Problem
  - Students not randomly assigned to program
- Overcome by Employing Regression Discontinuity (RD) Method
  - Originally used to study effects of National Merit Scholarship award (Thistlethwaite & Campbell, 1960)
  - Also used to study effects of financial aid on college acceptance and enrollment (van der Klaauw, W. , 2002; Kane, 2003)

Outcomes Analyzed

- Variety of Them by Race/Ethnicity
- Estimated Differences Among GMS & Non-Scholars at End of Frosh/Jr Years for:
  - Retention, debt levels, hours worked/earnings, parents' contributions, community involvement
  - Time spent studying, leisure activities frosh year only
  - Differences in 4 yr graduation rates & grad school aspirations
- Will Only Report on Selected Results

GMS Sample

- Two Cohorts Used (2001 & 2002)
- 3,200 Undergrads Who Matriculated in Fall
- Evenly Split Between GMS & Non-GMS
  - 42% African American
  - 35% Latino
  - 23% Asian American
    - Note: American Indians not included because score on non-cognitive tests not a factor in selection (they accepted all who met the other criteria)

Observable Differences

- Overall sample includes more (fewer) Latino/a (Asian American) students receiving (not receiving) scholarships than in the non-recipient group
- Parents of GMS recipients have lower incomes and lower levels of education compared to non-recipients
- SAT scores and % with < 4 yrs of HS math about equal
- Nearly all students still enrolled at F1
  - Recipients enrollment rate is 3 percentage points higher than for non-scholars (98% vs. 95%)

Loan Amount Differences

- Avg. loan in frosh yr. is $2,140 for full sample
  - Recipients $975; $3,200 for non-recipients
- Full sample cumulative loan thru junior year about $6,800
  - GMS recipients $3,300; non-recipients about $10,000

Hours Worked

- Avg. number hours worked in frosh yr smaller (=13.5) than national averages
- GMS participants work 11 hours during work-week, non-recipients 15 hours
- Avg. number in junior year is 16 hours with difference between recipients/non-recipients about 4 hours

Estimation Strategy

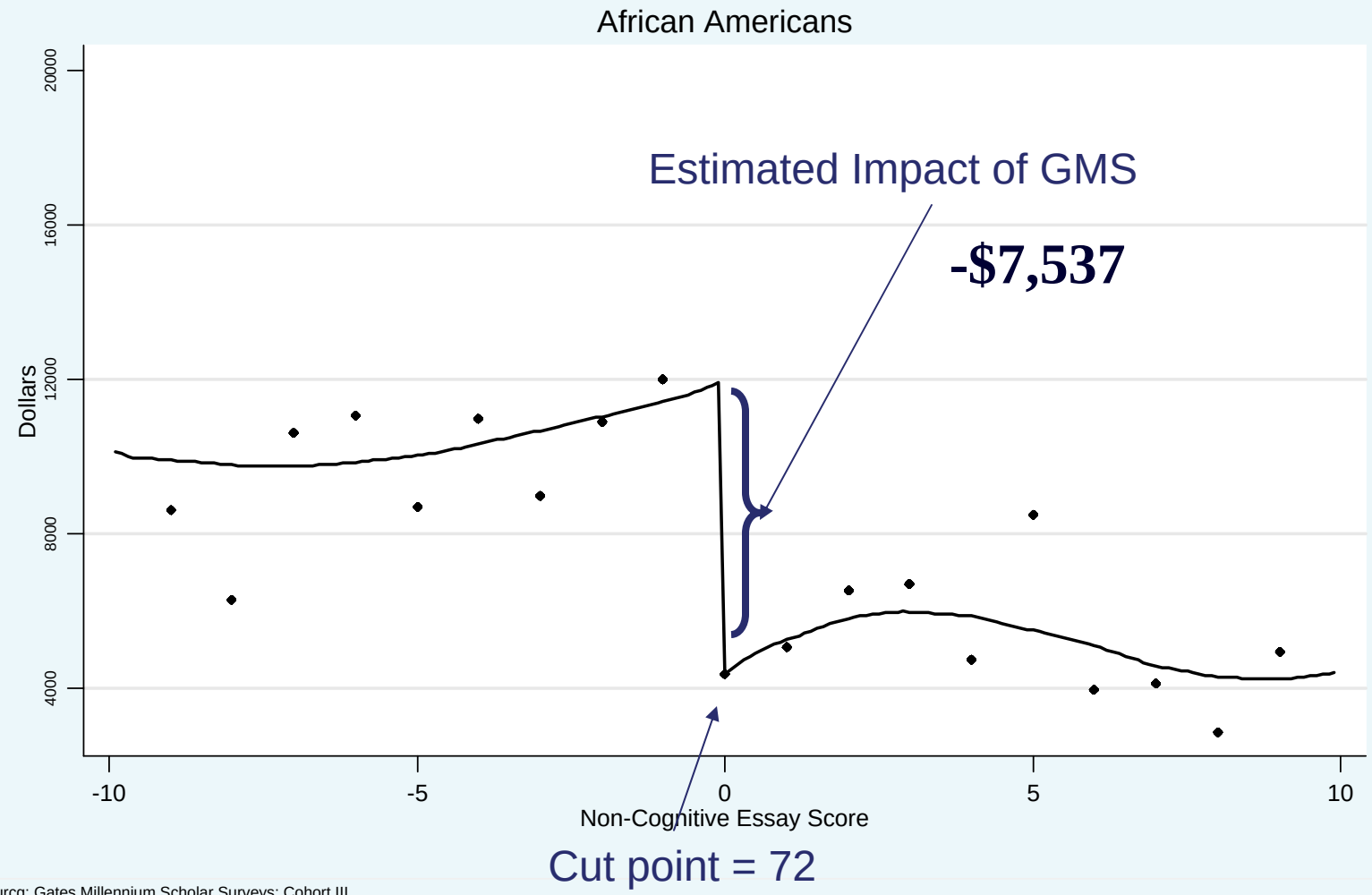
- Baseline Model: controls for race, cohort, test score & square, and all possible 2 and 3 way interactions between race and cohort and test score and its square
- Add. Controls Model: Include gender, mother/ father ed., family size, HS type, yrs of HS math & science, SAT, parental income
- Also estimated models with linear, quadratic, & cubic polynomial test score specifications
  - Results reported are from the quadratic model

Results

- Net impact of GMS on total scholarship money received is positive & sign. for all waves
- Impact on college enrollment is small & not statistically significant in any wave
  - App pool consists of higher ability minority students who would probably attend anyway
- Yearly loans reduced by 69%, 61%, and 44% of the estimated increase in scholarship money in the baseline, F1, and F2

Accumulated Debt from Student Loans: Junior Year

Cohort III



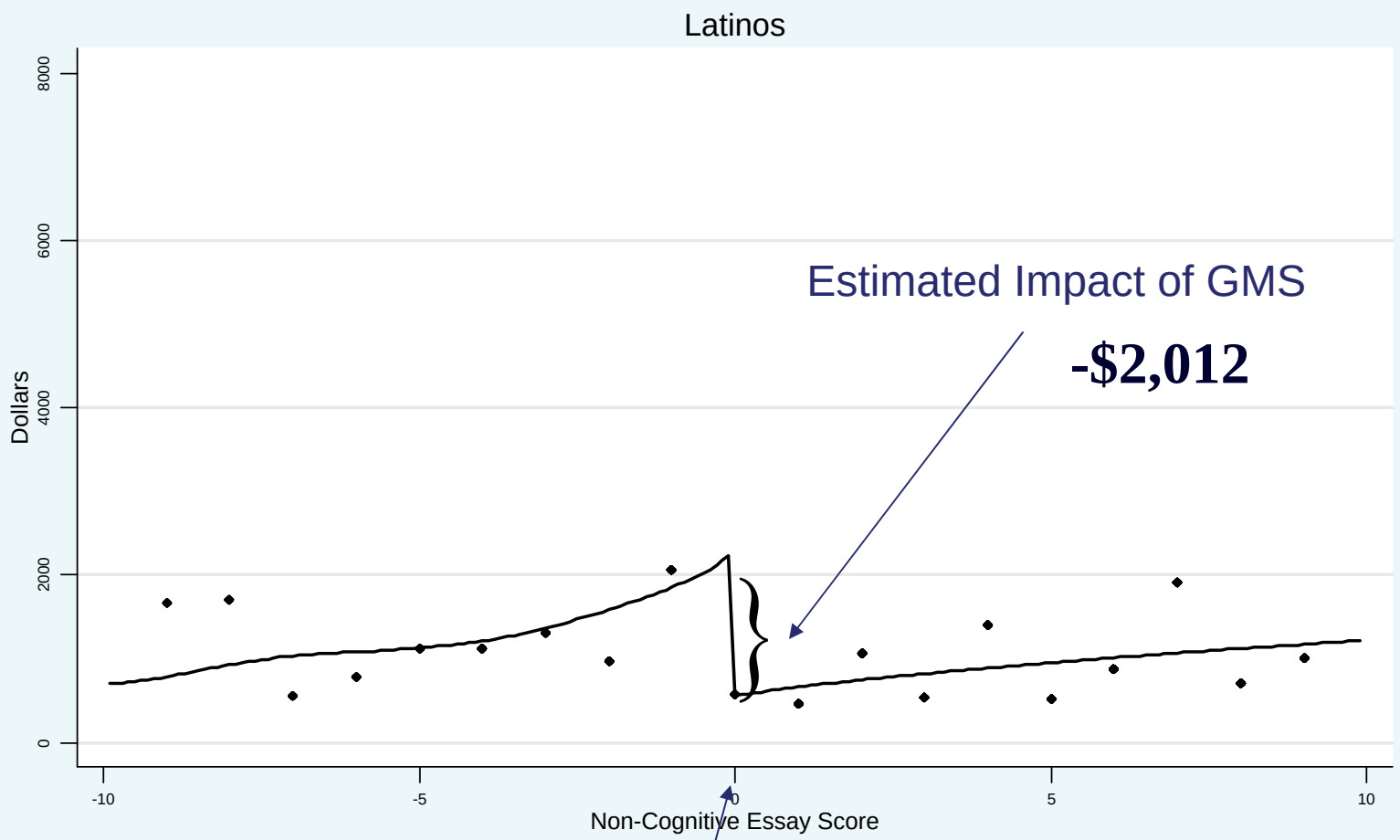
Sourcg: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

Results

- Overall, evidence parental support reduced, at least for jr. year (27%)
- GMS reduces hours worked/week & avg. weekly earnings for baseline and F1; F2 negative but not significant
- Probability of being Social Science, STEM, Humanities, Education, business or journalism major no different (at F1)

Parental Contribution: Junior Year

Cohort III



Source: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

Results

- Overall, evidence parental support reduced, at least for jr. year (27%)
- GMS reduces hours worked/week & avg. weekly earnings for baseline and F1; F2 negative but not significant
- Probability of being Social Science, STEM, Humanities, Education, business or journalism major no different (at F1)

Results

- No evidence of higher 4 yr. grad rates among GMS recipients
- Conditional on completing college by F2, no difference in grad school attendance
- Among F2 completers not already enrolled in grad school, GMS raised probability of applying to grad school
  - By about 30 percentage points or 150%

Results

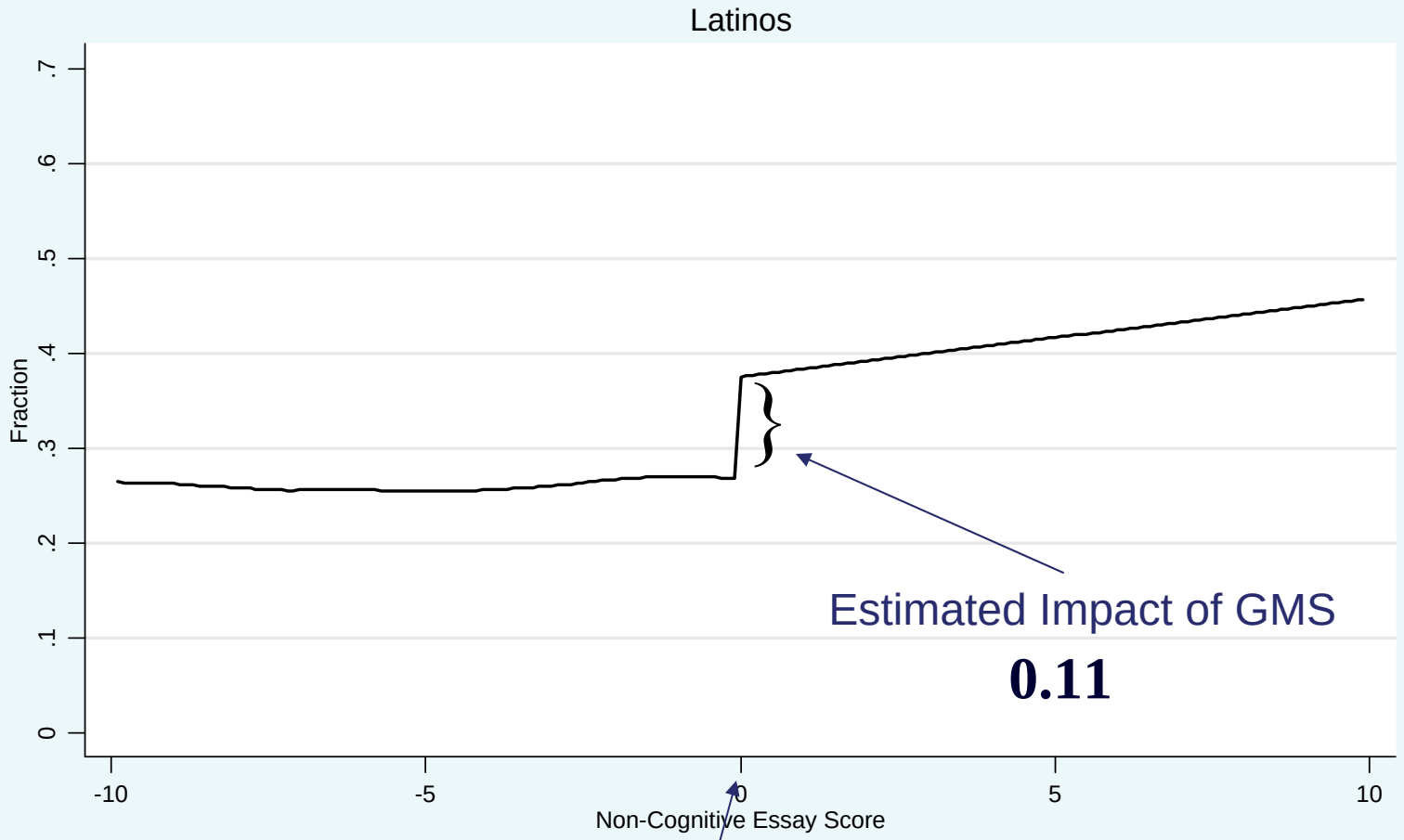
- Prob. of working in Educational Services industry was positive and statistically significant
  - Finding similar to results by Rothstein and Rouse (2007) for when lower student debt
- Among employed non-ed grads, 10% of GMS & 6% of non-recipients were teaching
  - Suggests GMS may induce some non-education majors to become teachers

Additional Results

- Evidence that PhD Aspirations of Asian Americans & Latinos raised
- Have Measures of Time Spent Studying, Relaxing, in Extracurricular Activities for Freshman Year
  - No effect of GMS on any of these variables
- Some Evidence of Increases in Community Service for Some Racial/Ethnic Groups in Frosh & Junior Years

Participates in Community Service Often or Very Often: Junior Year

Cohort III



Source: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

Subgroup Differences

- Also Examined Outcomes Differences by Gender, Parental Education, Type of Institution Attended
  - No differences in retention/work/parent contributions
- Loan Debt Reduced More for Private College Attendees Than Public College Attendees
- Scholarship Amts Higher for Men Than Women
- Some Evidence That "Treatment" (scholarship amount) Larger for Private College Attendees

Conclusions & Policy Implications

- Scholarship Has Little Effect on Retention Through the Junior Year
  - Ceiling effects?
- Scholarship Substantially Reduces Debt Load of Recipients
  - Remains to be seen how this change affects behavior with respect to career choice
- GMS Scholarship Lowers Time Spent Working & Increases Involvement in Community Service
  - No evidence that they spend more time studying or more time relaxing though

Conclusions & Policy Implications

- GMS Reduces Amount Parents Contribute to College Education (esp. for Asian Americans).
  - If parents expected this scholarship would they reduce their savings behavior?
  - Does the scholarship increase parental support for *other* children in the family?
- Aspirations for PhD's Increased for Recipients
- Bachelor's Degree Attainment
  - Some students get GMS in 5th year, may change incentives about 4 yr completion, lengthening time to degree

Initial Results of Washington State Achievers Scholarship Program

- Established in Washington in 2001 by Bill and Melinda Gates Foundation
- Part of initiative is to support 16 high schools as they redesign themselves
- In addition to school support, scholarships given to some students from each HS
  - 500 low-income students per year at each school
- Goals: Increase academic achievement for students thereby promoting college attendance and success

The WSA Program (cont'd)

- 1st students selected in spring 2001 & matriculated to college that fall
- Subsequent cohorts have/will begin college each fall through 2010
- Holistic program that involves, among other things, high school reform
  - For more info on reforms see: Ramsey J. (2008). Creating a High School Culture of College-Going: The Case of Washington State Achievers. Issue Brief, Institute for Higher Education Policy

Program Selection

- Students chosen in junior year of HS
- Must graduate, have need, & apply for need-based aid
- Family income < 35% of WA state average
  - Assets must be below a specified threshold
- Scholarships also (partially) allocated on basis of the score on non-cognitive test

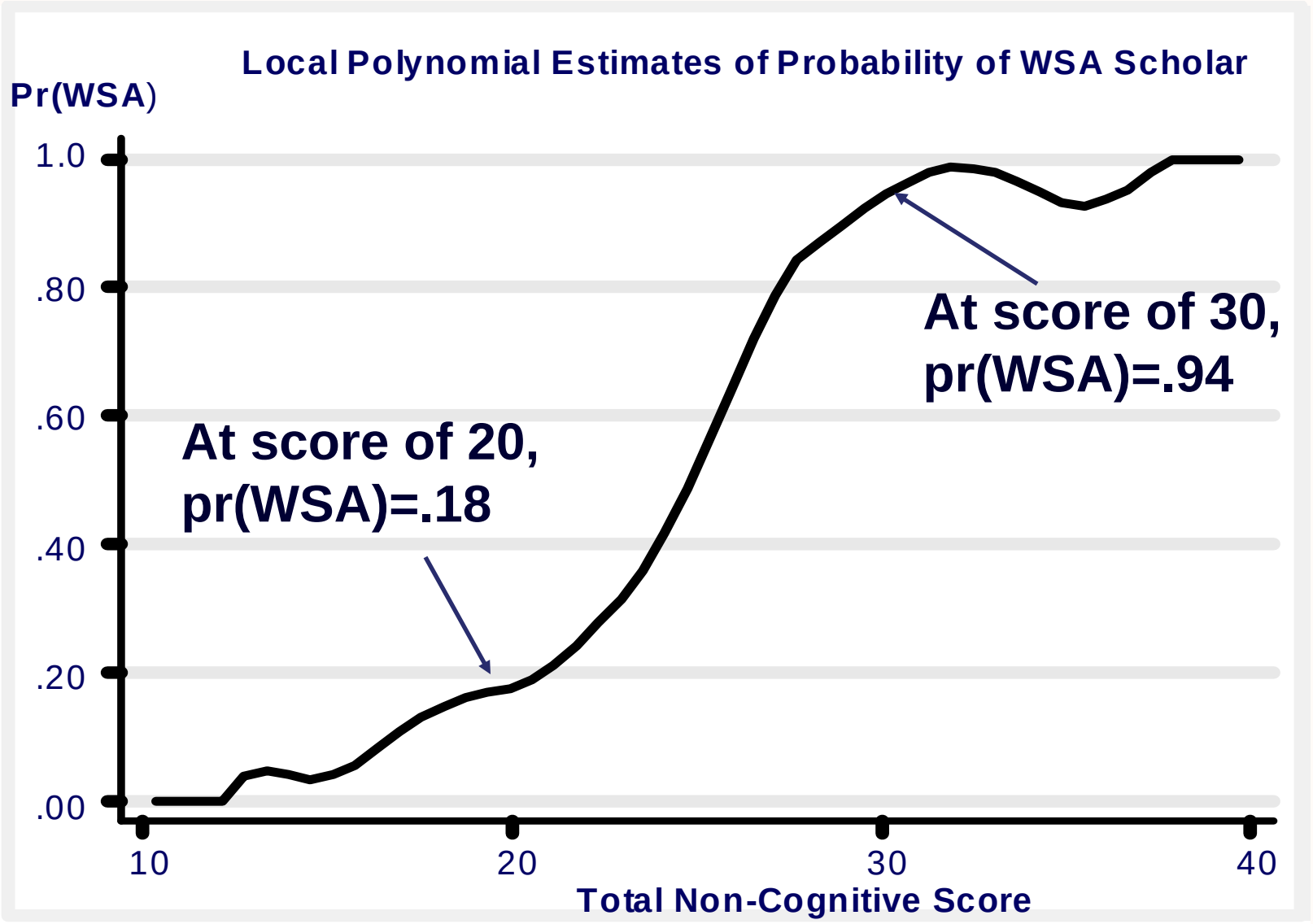
Scholarship Details

- Pay tuition/fees for set of IHEs in WA state for up to five years
- “Top up” program: Funds cover differences in COA after other aid taken into account
- Students also provided mentors in high school and for first two years of college
- NORC Tracks WSA Scholars & Non-Recipients

Outcomes Analyzed

- Estimate differences in outcomes of scholars/non-scholars during freshman year
  - College enrollment, loan amounts, credits taken, hours worked, and weekly earnings while enrolled in college
  - Also time spent in extra-curricular activities, relaxing, and sleeping
- In the interest of time we will only report on selected results

Evidence of Discontinuity



Regressions

- Controls include: Demographic & student characteristics, characteristics of HS, non-cognitive test score
- TSLS when outcome is continuous (credits, work); probit w/endogenous regressor when outcome is dichotomous (enrollment)
- “Treatment” dummy provides evidence of net effect of WSA on outcome of interest
- Conducted many robustness checks; results qualitatively similar

WSA Sample

- WSA scholarship average is $5,853 in frosh year of college
- Total aid received by WSA scholars is $11,369, avg. for non-WSA is $2,419
- However, WSA scholars attend colleges with tuition costs about $5,800 higher than non-scholars ($13,398 vs. $7,602)

WSA Sample

- Total sample with applicable cut point is 498; 231 received scholarships ("treated")
- HS give 55-65% of apps scholarship, fractions not different across schools
- Scholars take more AP/IB courses, more likely to take Algebra II & physics
- Observable characteristics do not differ substantially just above/below cut point

Compared to Non-Scholars, Receipt of WSA Award…

- …increases college enrollment by as much as .42 (in probability points); large effect
- …lowers average loan amounts in freshman year by $4,500 compared to non-WSA
- …overall, no differences in hours worked or weekly earnings during freshman year
  - Does increase *probability* of working while in college, but *decreases* average hours worked among those who work

Subgroup Differences

- Asian & Blacks higher enrollment rates (14 and 13 pct. points) vs. Whites
- Asian American students work less and earn less than white students
- Students taking AP/IB courses in HS less likely to attend 2-year colleges
- Black, Asian, & Latinos get fewer hours of sleep/week than white students
- Males report more hours per week relaxing than females

Limitations

- Only Cohort IV could be used as no evidence of discontinuity in prob(scholarship) for Cohort III
  - Relatively small sample size results in more imprecise estimates than would otherwise be
- Effect of WSA on enrollment is probably picking up effect of other services scholars receive (mentoring while in high school, and for their first two years of college)
  - Nearly 70% stated that hometown mentor was helpful/very helpful during college choice process, so assistance also related to college outcomes (e.g., enrollment, credits taken, etc.) we examined

Conclusions

- Large positive impact on the probability of college enrollment in the year after high school
- Scholarship lowers student debt; sub-group differences in the effect of the program on multiple outcomes
- Increases chances that recipient will work while in college, but average hours worked per week < non-recipients who work

A Final Word…

DISCLAIMER: The Views Contained Herein are Not Necessarily Those of the Bill & Melinda Gates Foundation

- For More Information About the GMS Program visit: www.gatesfoundation.org/Education/ResearchAndEvaluation/
- Copy of our paper can be obtained at:
  - URL HERE

Background Material

Variables Used in Analysis

- Debt levels (totloans; loancury), hours worked (wkhrweek); earnings, parents' contributions (parcontr), community involvement (ucommuni)
- Time spent studying, leisure activities frosh year only

Non-Cognitive Questionnaire

- Developed by William Sedlacek (U of Maryland)
- 29 questions, eight scales
  - Self-concept
  - Realistic Self Appraisal
  - Understanding Racism
  - Long Range Goals
  - Leadership
  - Strong Support Person
  - Community Involvement
  - Non-traditional Knowledge

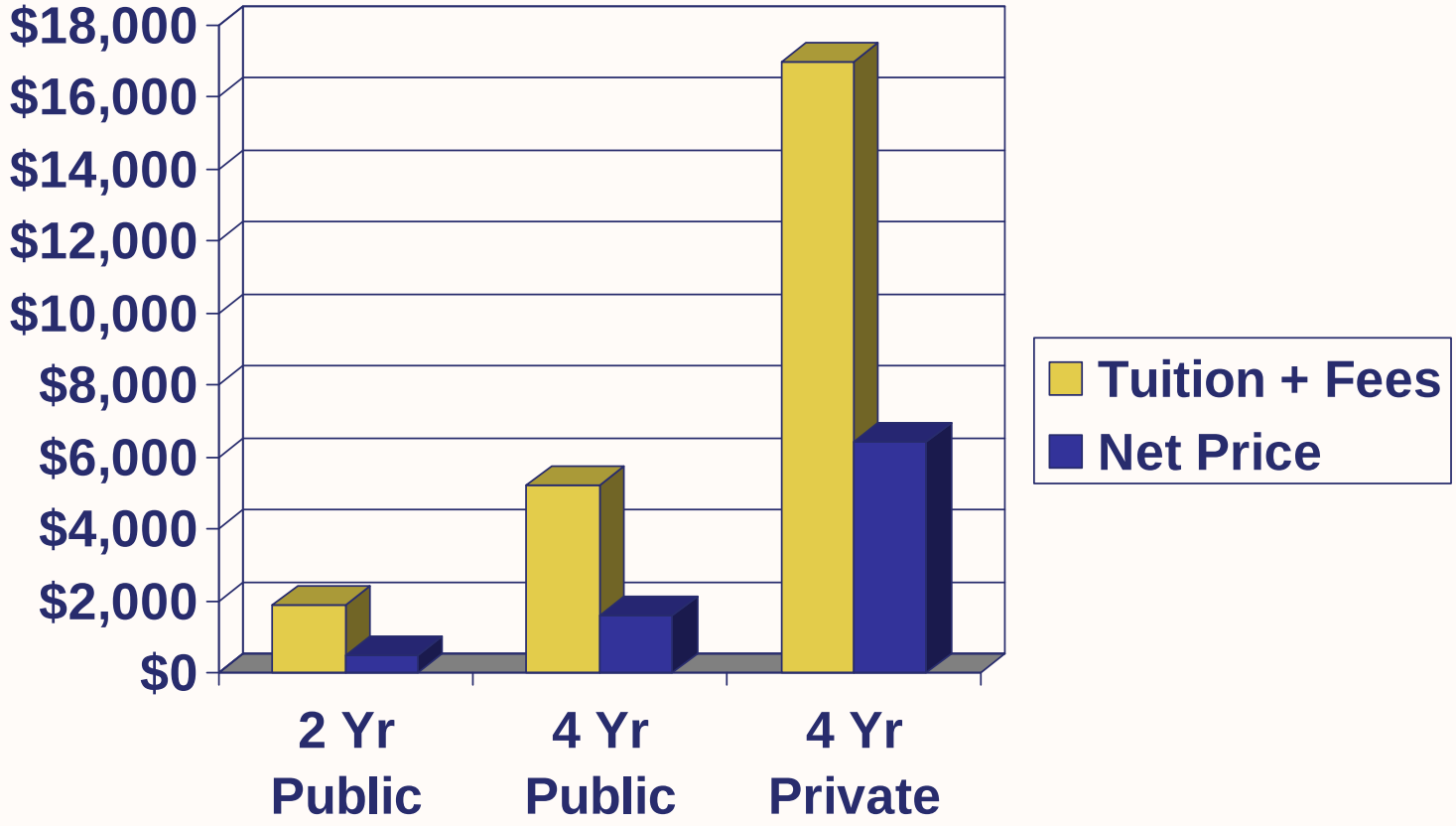
Response Rates

- Survey response rates 69% for Cohort II & 81% for Cohort III
- Higher for recipients than for non-recipients in both cohorts
  - 83% versus 58% in Cohort II and 90% versus 75% in Cohort III
- Among non-recipient responders in II 25% were apps who were disqualified because of low score; 74% of non-scholars in Cohort III were disqualified because of score below cut

Financial Aid

- Rationale for government intervention
  - Credit market constraints faced by students.
    - Keane & Wolpin (2001): Credit constraints are “tight” but no impact on enrollment behavior.
  - Public good aspect of education (spillover effects)
    - Moretti (2004) using NLSY found higher wages among those without college education in cities with larger fraction of college graduates.
    - Milligan, Moretti & Oreopoulos (2003) found evidence in the U.S. that increased education increased the likelihood of becoming politically involved.

Tuition + Fees and Net Price for Low Income Students 2003-2004



Source: CollegeBoard Trends in College Pricing 2006
Notes: Net Price = Tuition + Fees – Grants – Education Tax Benefits.
Low income defined as family income less than $35,000.

GMS Scholars by Ethnic Group: Cohorts II & III Sample (Population)

Ethnic Group	Non-scholar	GMS Scholar
African Americans	699 (2,164)	625 (710)
American Indians	128 (237)	192 (258)
Asian Pacific Islander	453 (1,425)	289 (312)
Hispanic Americans	495 (1,241)	621 (718)
Total	1,775 (5,067)	1,727 (1,999)

Table 1

Sample Means and Means Just Above and Below the "Cut Points" for Background Variables

Variable Name	Full Sample	All Applicants with Total Non-Cognitive Scores Equal to the… Cut Score or Cut Score + 1	Cut Score - 1 or Cut Score - 2	p-value
ACT Composite Score	23.7	23.58	24.12	0.28
SAT Verbal + Math Score	1123.92	1110.76	1124.86	0.35
Attended Religious High School	0.06	0.06	0.04	0.25
Attended Private High School	0.07	0.08	0.04	0.12
Years of High School Math	3.87	3.88	3.86	0.37
Years of High School Science	3.66	3.63	3.69	0.22
Family Size	3.69	3.65	3.66	0.96
Born in U.S.	0.61	0.61	0.58	0.57
Family Owns Home	0.51	0.47	0.50	0.47
Female	0.61	0.66	0.61	0.24
Father's education				0.50
Less Than High school	0.20	0.19	0.22	
High School	0.27	0.27	0.25	
Some College	0.21	0.20	0.23	
BA/BS Degree		0.15	0.09	
Post BA/BS Degree	0.10	0.10	0.12	
Mother's education				0.97
Less Than High School	0.19	0.21	0.18	
High School	0.25	0.26	0.27	
Some College	0.28	0.26	0.29	
BA/BS Degree	0.18	0.18	0.17	
Post BA/BS Degree	0.07	0.07	0.06	

Minimum Total Non-cognitive Score Necessary to Qualify for GMS Scholar (Cut scores)		
Ethnic Group	Cohort II	Cohort III
African Americans	71	72
Asian Americans	72	75
Latinos	68	69

Scholar /Non-Scholar Mean Differences in Outcome Variables at End of Freshman Year of College

	Enrollment	Total Loans	Hours of Work	Weekly Earnings	Parental Contribution
Combined	0.013	-$2,201	-4.14	-$18	-$1,902
	(0.004)	(0.000)	(0.000)	(0.349)	(0.000)
African Americans	0.018	-$1,936	-5.42	-$5	-$1,668
	(0.040)	(0.000)	(0.000)	(0.891)	(0.000)
Asian Americans	0.011	-$2,166	-5.93	-$25	$-2,127
	(0.256)	(0.000)	(0.000)	(0.279)	(0.000)
Latinos	0.007	-$2,577	-2.55	-$30	-$1,941
	(0.243)	(0.000)	(0.004)	(0.245)	(0.000)

* Controls for total non-cognitive score using a quadratic function. Standard errors in parentheses

Scholar /Non-Scholar Mean Differences in Outcome Variables at End of Junior Year of College

	Enrollment	Total Loans	Hours of Work	Weekly Earnings	Parental Contribution
Combined	0.013	-$6,915	-5.28	-$25	-$1,404
	(0.030)	(0.000)	(0.000)	(0.004)	(0.000)
African Americans	0.014	-$6,833	-5.08	-$28	-$1,084
	(0.165)	(0.000)	(0.000)	(0.021)	(0.000)
Asian Americans	0.023	-$7,436	-4.98	-$45	$-1,998
	(0.077)	(0.000)	(0.000)	(0.009)	(0.000)
Latinos	0.006	-$6,444	-6.07	-$14	-$1,182
	(0.656)	(0.000)	(0.000)	(0.416)	(0.000)

* Controls for total non-cognitive score using a quadratic function. Standard errors in parentheses

RD Estimated Impact of GMS on Outcome Variables at End of Freshman Year of College

Table 3(a) No Additional Controls

	Enrollment	Total Loans	Hours of Work	Weekly Earnings	Parental Contribution
Combined	-0.003	-$1,916	-4.07	-$62	-$957
	(0.010)	($567)	(1.85)	($26)	($333)
African Americans	-0.013	-$1,256	-3.62	-$53	-$726
	(0.022)	($425)	(1.86)	($43)	($374)
Asian Americans	0.019	-$1,585	-12.00	-$149	-$2,139
	(0.028)	($1,246)	(3.71)	($53)	($1,025)
Latinos	-0.005	-$2,839	-0.28	-$24	-$575
	(0.012)	($1,379)	(2.89)	($28)	($495)

* Controls for total non-cognitive score using a quadratic function. Standard errors in parentheses

Table 3(b) Additional Controls: Parents' Education, Family Size, SAT score, Parents' Income, High School Type & Gender

Estimated Impact of GMS on Outcome Variables at End of Freshman Year of College

	Enrollment	Total Loans	Hours of Work	Weekly Earnings	Parental Contribution
Combined	0.003	-$1,842	-5.28	-$71	-$653
	(0.012)	($648)	(1.90)	($30)	($383)
African Americans	-0.005	-$1,524	-5.10	-$83	-$796
	(0.025)	($514)	(2.30)	($63)	($365)
Asian Americans	0.025	-$1,199	-11.44	-$171	-$2,179
	(0.028)	($1,279)	(3.48)	($63)	($1,191)
Latinos	0.000	-$2,766	-1.64	-$27	$377
	(0.013)	($1,726)	(2.98)	($23)	($670)

* Controls for total non-cognitive score using a quadratic function. Standard errors in parentheses

RD Estimated Impact of GMS on Outcome Variables at End of Junior Year of College

Table 4(a) No Additional Controls

	Enrollment	Total Loans	Hours of Work	Weekly Earnings	Parental Contribution
Combined	0.006	-$6,915	-5.36	-$53	-$1,554
	(0.017)	($994)	(1.52)	($20)	($356)
African Americans	0.000	-$6,231	-6.61	-$67	-$435
	(0.029)	($1,466)	(2.49)	($30)	($292)
Asian Americans	0.083	-$7,270	-8.70	-$92	-$5,167
	(0.043)	($2,710)	(3.56)	($40)	($1,356)
Latinos	-0.032	-$7,480	-1.79	-13	-$721
	(0.017)	($1,299)	(2.76)	($35)	($448)

* Controls for total non-cognitive score using a quadratic function. Standard errors in parentheses

Table 4(b) Additional Controls: Parents' Education, Family Size, SAT score, Parents' Income, High School Type & Gender

Estimated Impact of GMS on Outcome Variables at End of Junior Year of College

	Enrollment	Total Loans	Hours of Work	Weekly Earnings	Parental Contribution
Combined	0.004	-$6,376	-5.18	-$47	-$1386
	(0.018)	($1,218)	(1.82)	($23)	($411)
African Americans	0.015	-$5,606	-6.48	-$51	$117
	(0.042)	($1,579)	(2.92)	($30)	($387)
Asian Americans	0.050	-$7,373	-7.56	-$87	-$5,545
	(0.037)	($2,751)	(3.92)	($43)	($1,602)
Latinos	-0.023	-$6,949	-3.12	-$30	-$551
	(0.018)	($1,899)	(3.16)	($45)	($438)

* Controls for total non-cognitive score using a quadratic function. Standard errors in parentheses

RD Estimated Impact of GMS on Participation in Community Service

	End of Freshman Year		End of Junior Year	
	No Controls (1)	Controls (2)	No Controls (3)	Controls (4)
Combined	0.122	0.095	0.131	0.118
	(0.041)	(0.040)	(0.045)	(0.048)
African Americans	0.146	0.126	0.103	0.070
	(0.052)	(0.057)	(0.074)	(0.075)
Asian Americans	0.082	-0.010	0.207	0.169
	(0.095)	(0.119)	(0.120)	(0.133)
Latinos	0.117	0.093	0.128	0.142
	(0.073)	(0.079)	(0.054)	(0.067)

* Controls for total non-cognitive score using a quadratic function. Standard errors in parentheses. In columns (2) and (4) controls for Parent's Education, Family Size, SAT score, Parents Income, High School Type & Gender are added.

Estimated Impact of GMS on Outcome Variables at End of Junior Year in College by Subgroup on Educational Aspirations

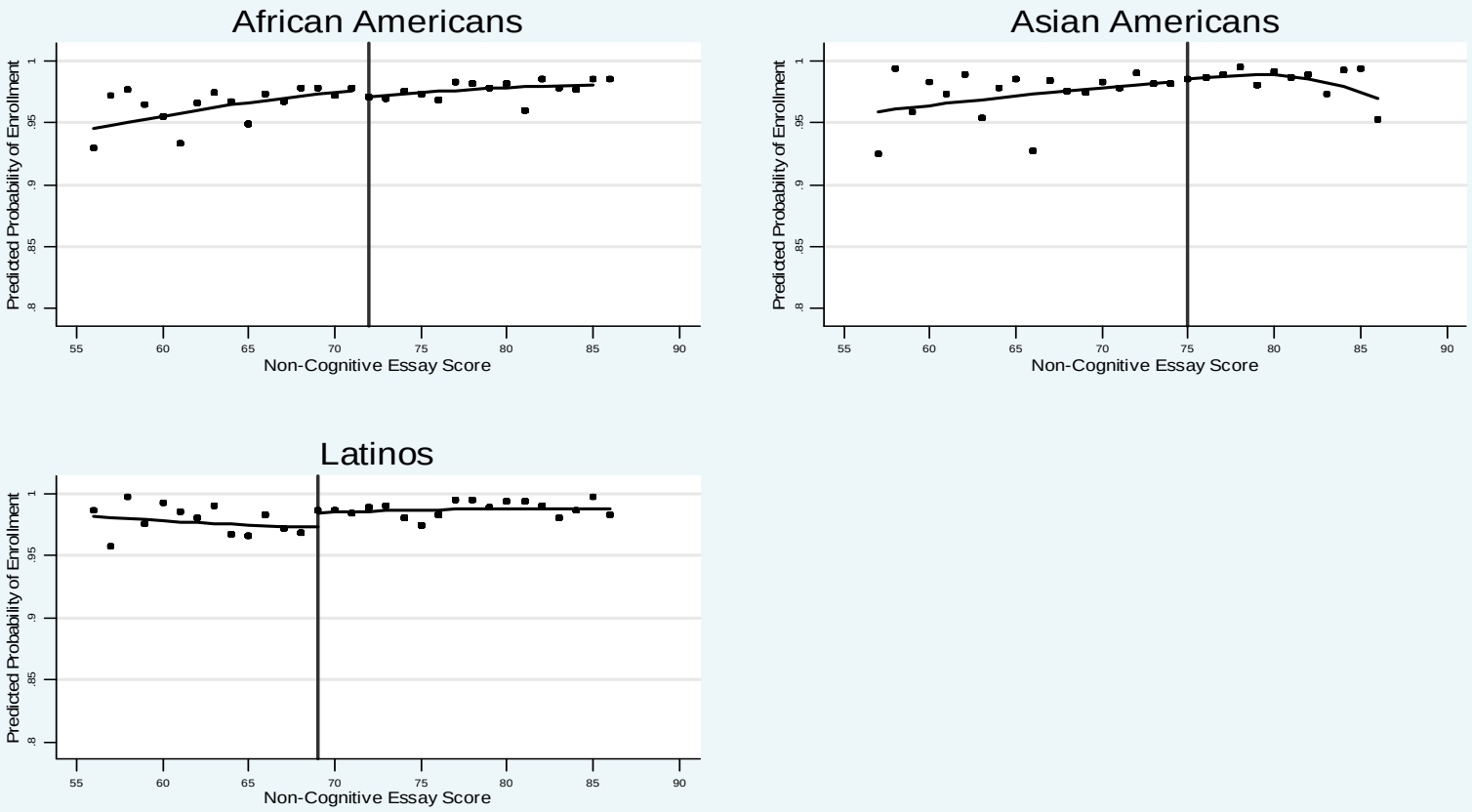
	Combined	African Americans	Asian Americans	Latinos
MA/Professional Degree	0.055	0.053	0.035	0.058
	(0.046)	(0.068)	(0.11)	(0.084)
PhD	0.123	0.009	0.264	0.175
	(0.039)	(0.06)	(0.088)	(0.045)

End of Jr Yr Results by Sub Group

Sub Group	Retention	Scholarship Support	Total Loans	Hours of Work	Earnings	Parental Contribution
	(1)	(2)	(3)	(4)	(5)	(6)
Men	-0.014	$11,955	-$8,812	-3.88	-$45.71	-$1,254
	(0.023)	(691)	(1866)	(2.78)	(19.53)	(691)
Women	0.015	$5,093	-$6,081	-5.65	-$54.12	-$1,632
	(0.021)	(1082)	(1051)	(1.72)	(23.31)	(512)
College Degreed Parent	-0.007	$9,274	-$9,827	-4.16	-$29.47	-$3,451
	(0.022)	(1930)	(1997)	(2.99)	(39.79)	(952)
No College Degreed Parent	0.020	$6,897	-$5,430	-6.22	-$63.48	-$722
	0.021	(1083)	(1300)	(2.17)	(18.85)	(1959)
Public 4-year	0.004	$5,818	-$4,002	-4.64	-$34.13	-$794
	(0.018)	(832)	(898)	(2.00)	(23.34)	(373)
Private 4-Year	0.043	$8,633	-$12,609	-6.08	-$68.04	-$2,749
	(0.027)	(1794)	(2253)	(3.04)	36.18	(1169)

Predicted Probability of Enrollment by Total Non-cognitive Score

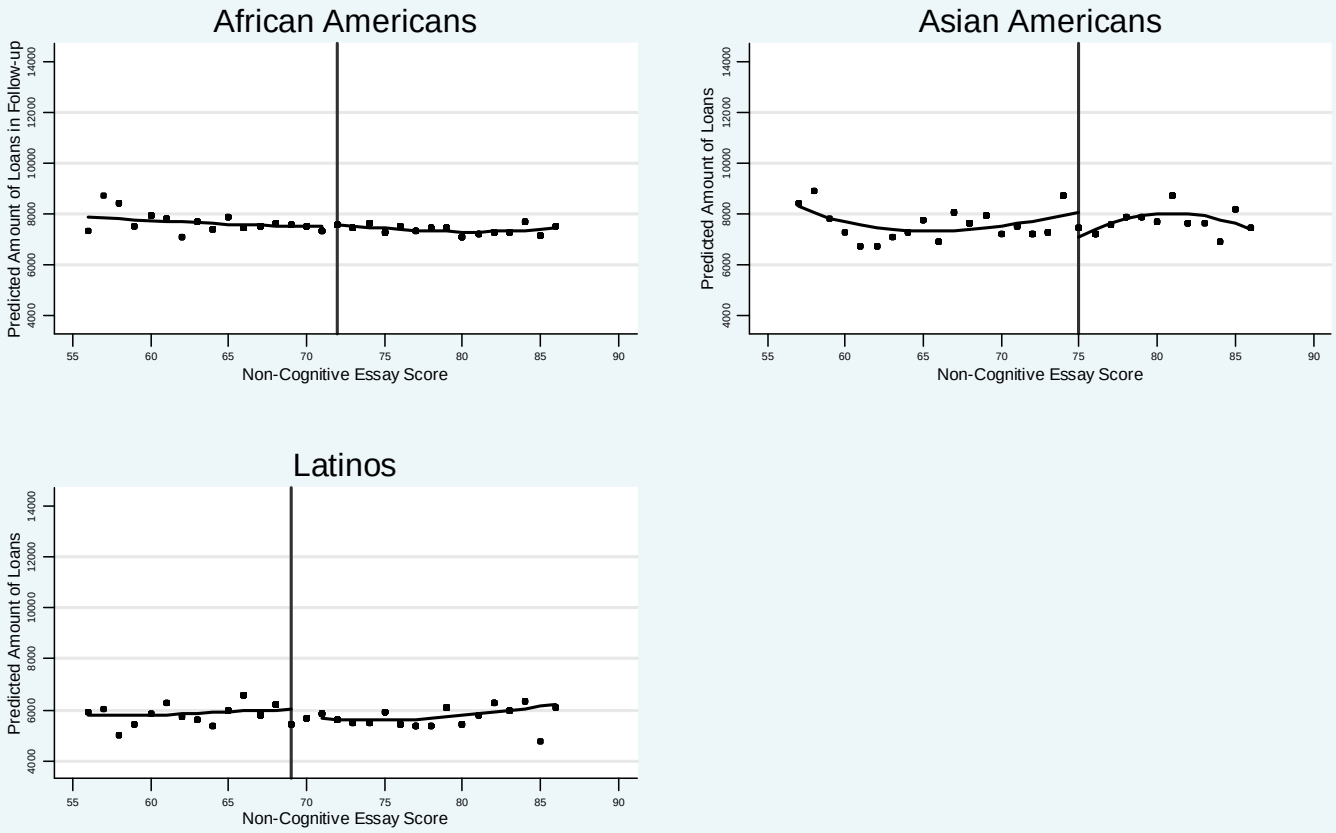
Figure 3
Predicted Probability of Enrollment in Follow-up Survey by Total Non-Cognitive Score
Cohort III



Source: Gates Millennium Scholar Surveys: Cohort III.
Notes: The vertical lines indicate the respective cut points for each ethnic group for the Gates Millennim Scholarship program

Predicted Total Loans by Total Non-Cognitive Score

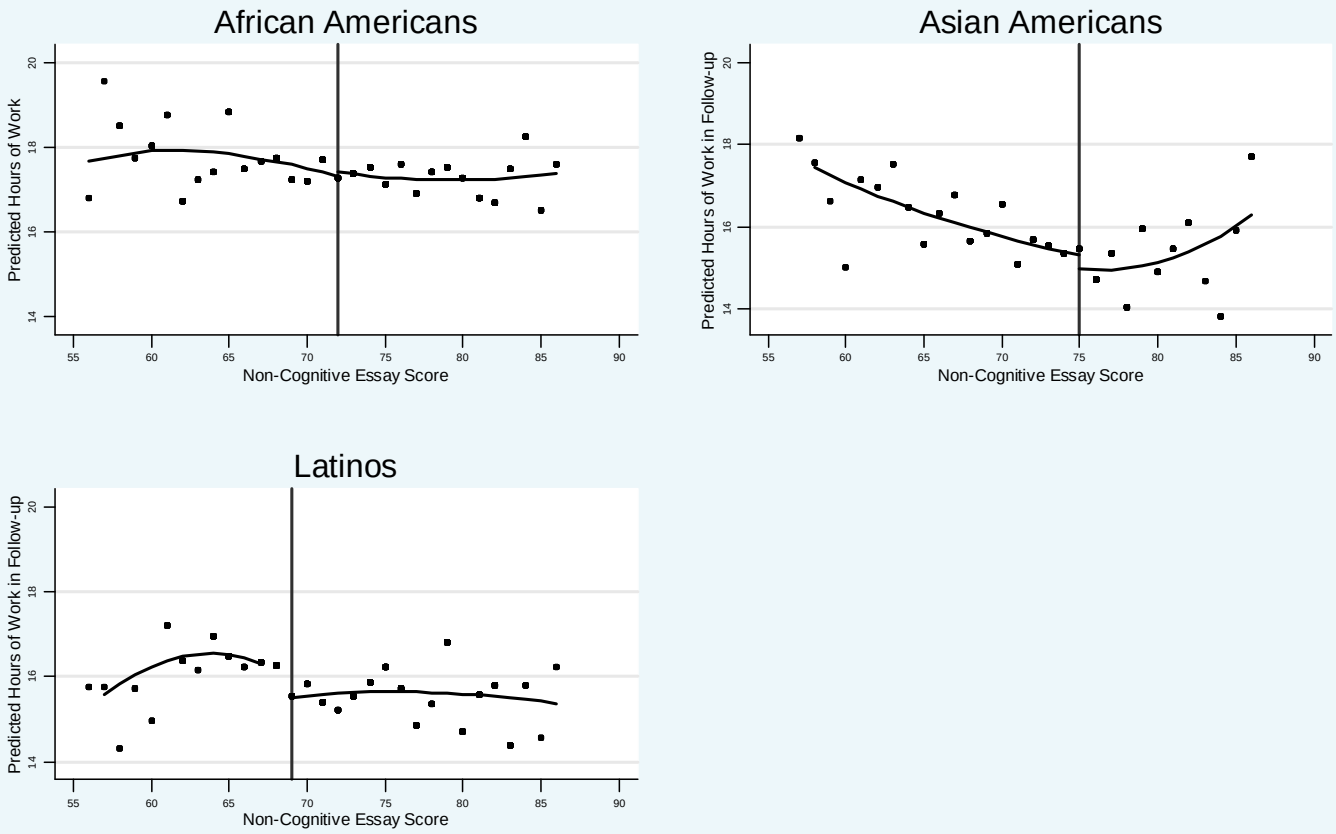
Figure 4
Predicted Total Amount of Loans in Follow-up Survey by Total Non-Cognitive Score
Cohort III



Source: Gates Millennium Scholar Surveys: Cohort III.
Notes: The vertical lines indicate the respective cut points for each ethnic group for the Gates Millennim Scholarship program

Predicted Hours of Work by Total Non Cognitive Score

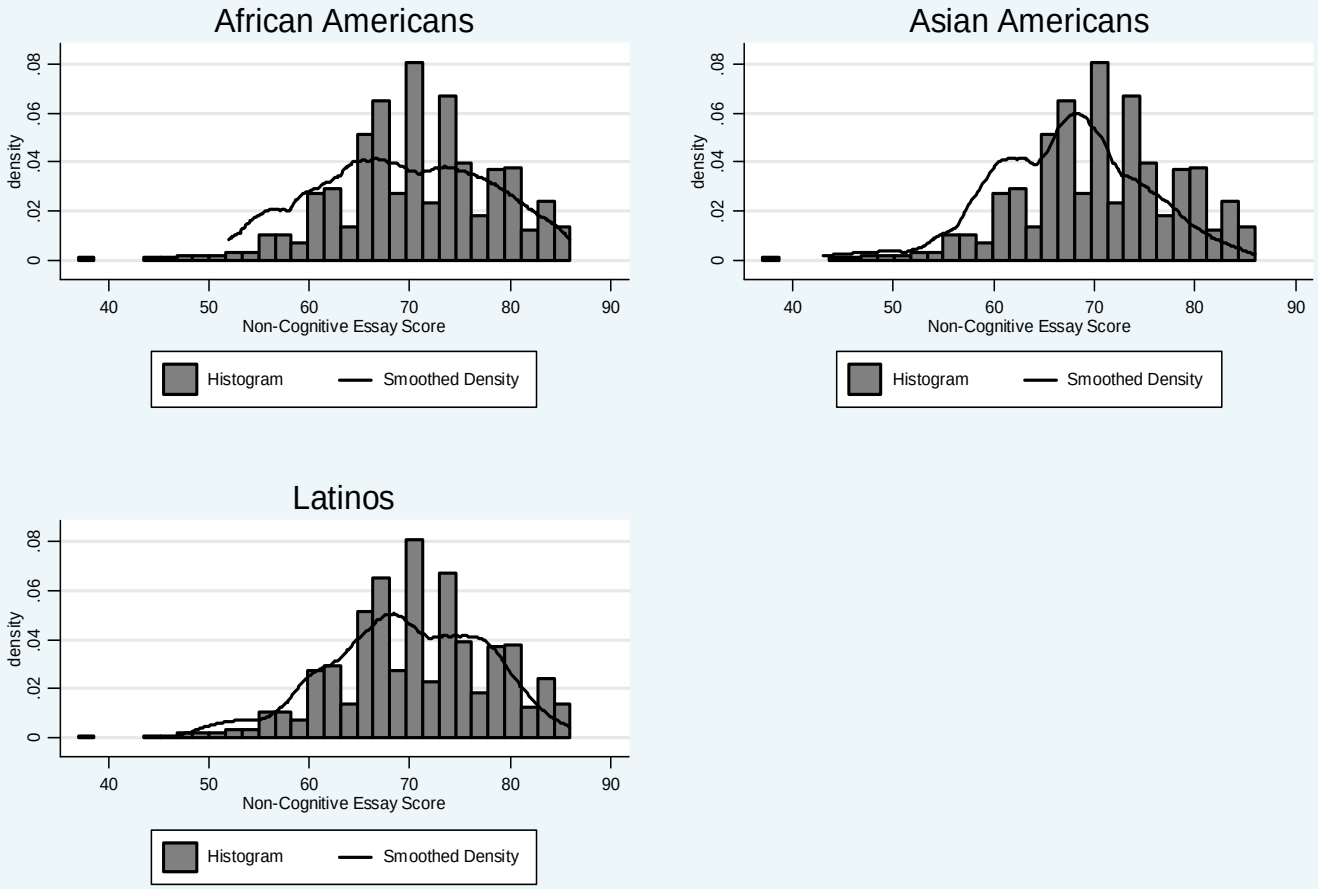
Figure 5
Predicted Hours of Work in Follow-up Survey by Total Non-Cognitive Score
Cohort III



Source: Gates Millennium Scholar Surveys Cohort III.
Notes: The vertical lines indicate the respective cut points for each ethnic group for the Gates Millennim Scholarship program

Test for Manipulation of Test Score: Expect Jump if So

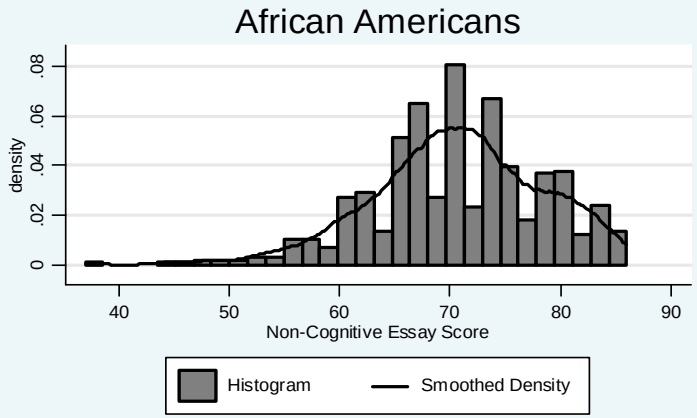
Figure 1
Distribution of Total Non-Cognitive Score by Race/Ethnicity: Cohort II

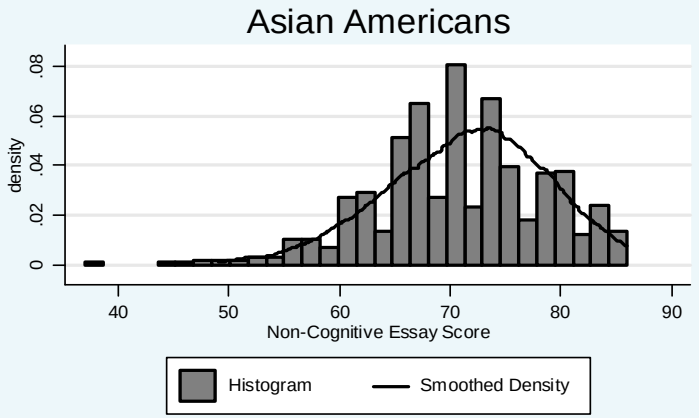


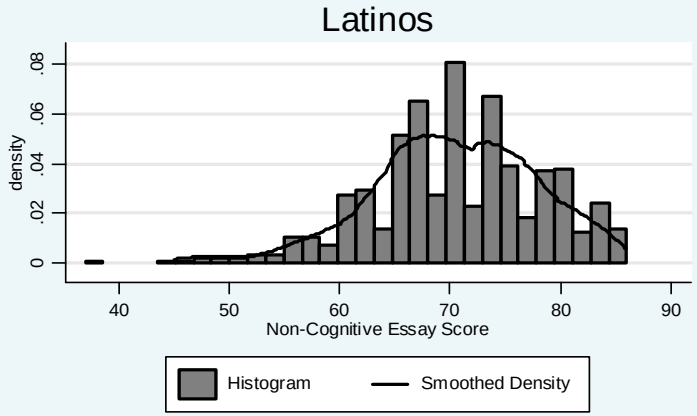
Source: Gates Millennium Scholar Surveys: Cohort II

Test for Manipulation of Test Score: Expect Jump if So

Figure 2
Distribution of Total Non-Cognitive Score by Race/Ethnicity: Cohort III



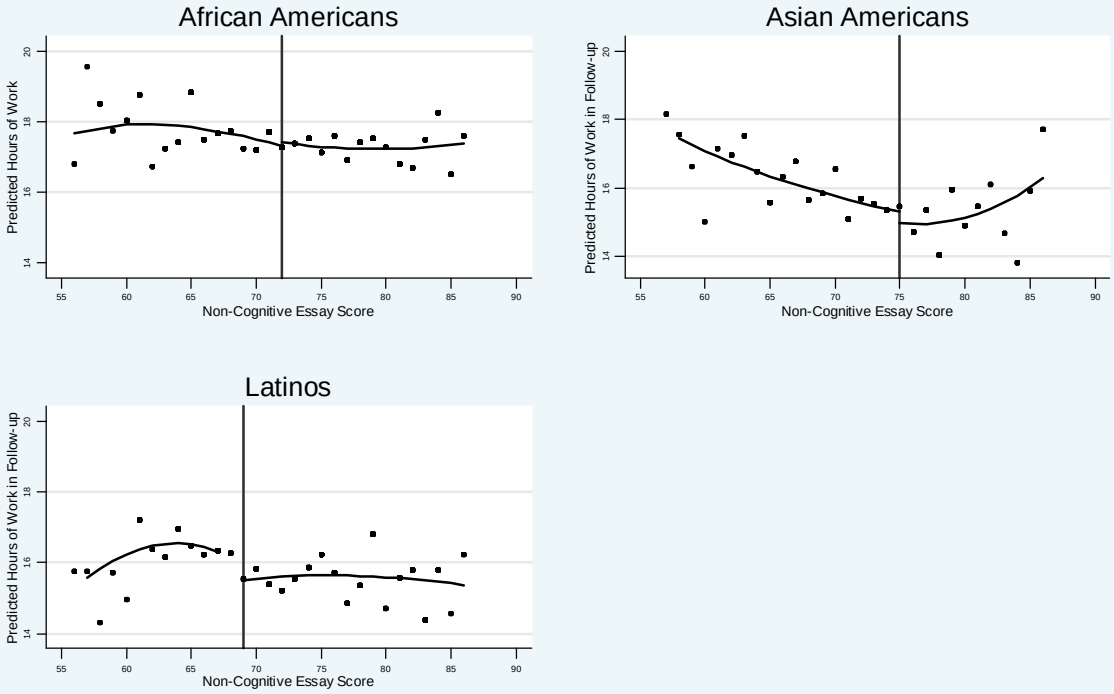




Source: Gates Millennium Scholar Surveys: Cohort III

Predicted Hours of Work by Total Non Cognitive Score

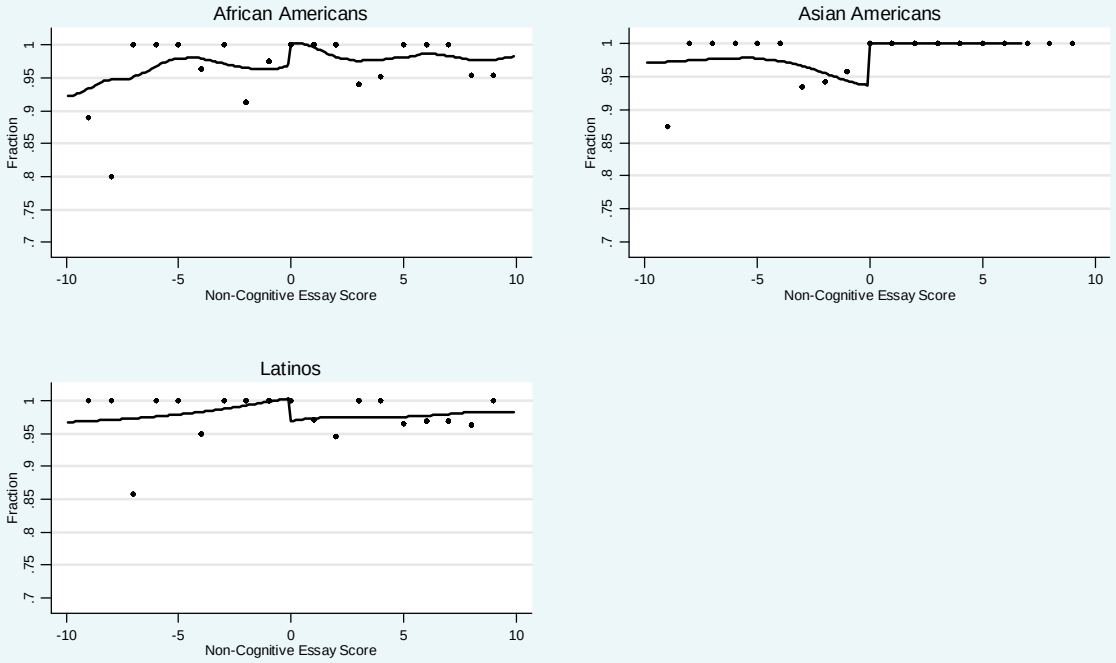
Figure 5
Predicted Hours of Work in Follow-up Survey by Total Non-Cognitive Score
Cohort III



Source: Gates Millennium Scholar Surveys Cohort III.
Notes: The vertical lines indicate the respective cut points for each ethnic group for the Gates Millennim Scholarship program

Retention through Junior Year

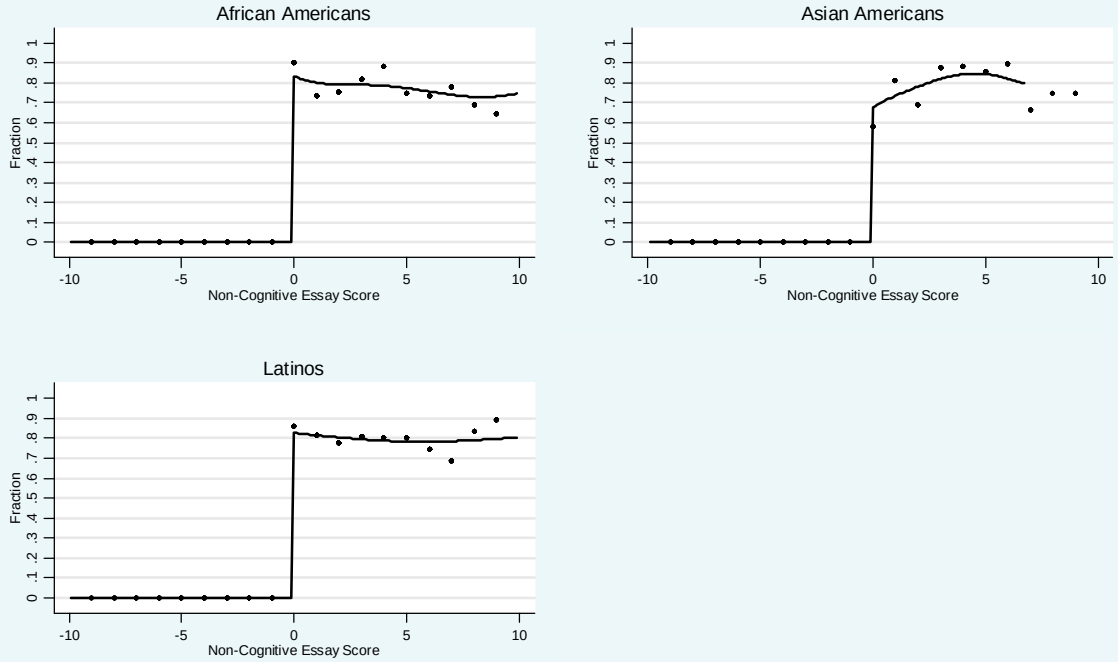
Figure 7
Fraction Enrolled in College: Fall 2004
Cohort III



Source: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

Fraction of Gates Millennium Scholars

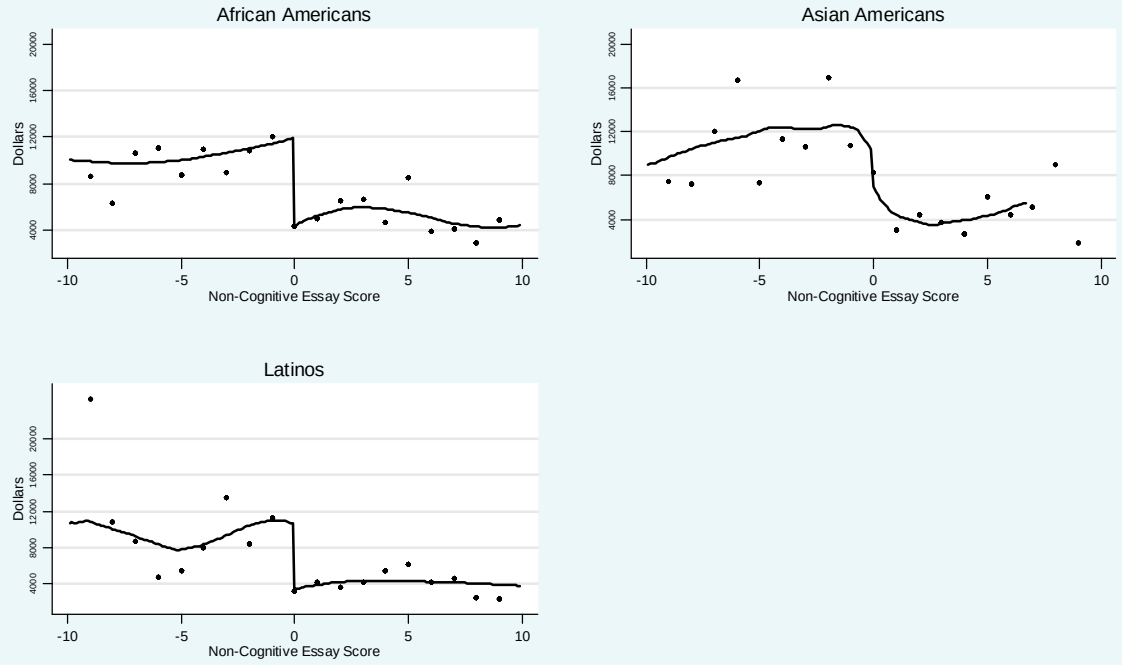
Figure 8
Fraction of Individuals who are Gates Millennium Scholars
Cohort III



Source: Gates Millennium Scholar Surveys: Cohort III
Note: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

Accumulated Debt through Junior Year

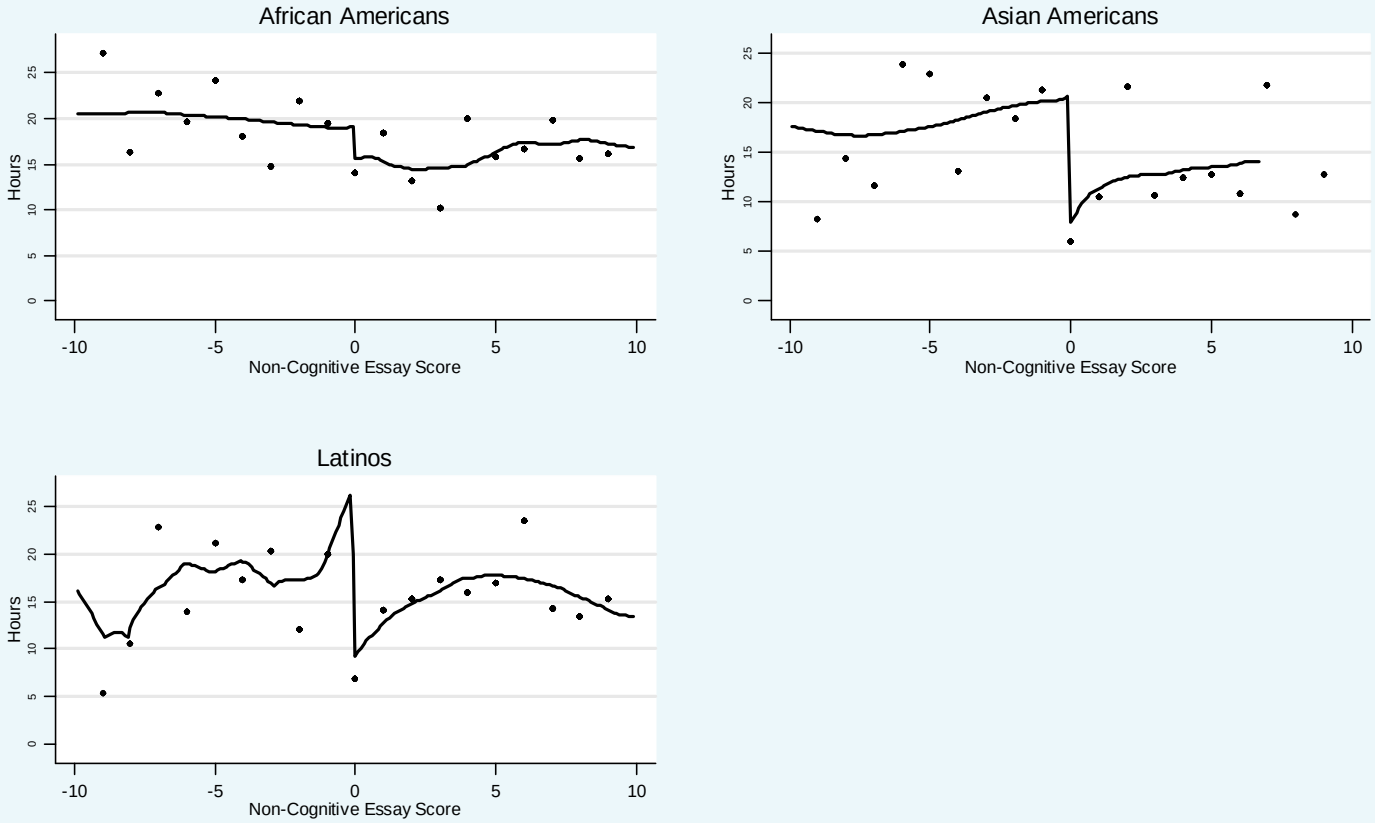
Figure 9
Accumulated Debt from Student Loans: Junior Year
Cohort III



Sourcg: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

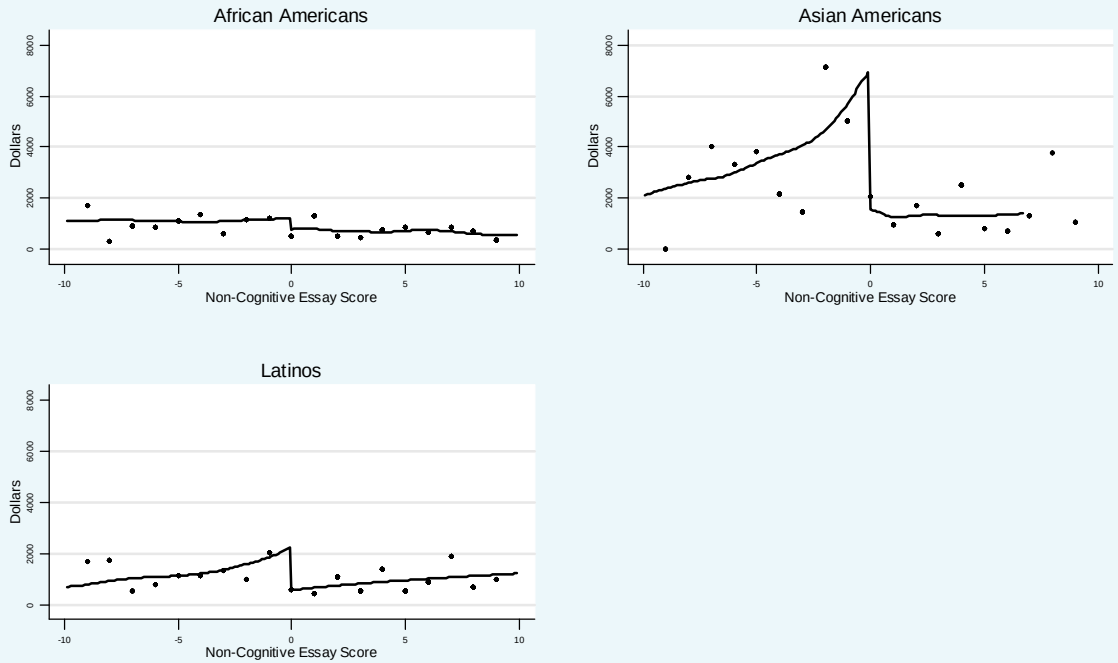
Hours Worked per Week: Junior Year

Figure 10
Hours Worked per Week : Junior Year
Cohort III



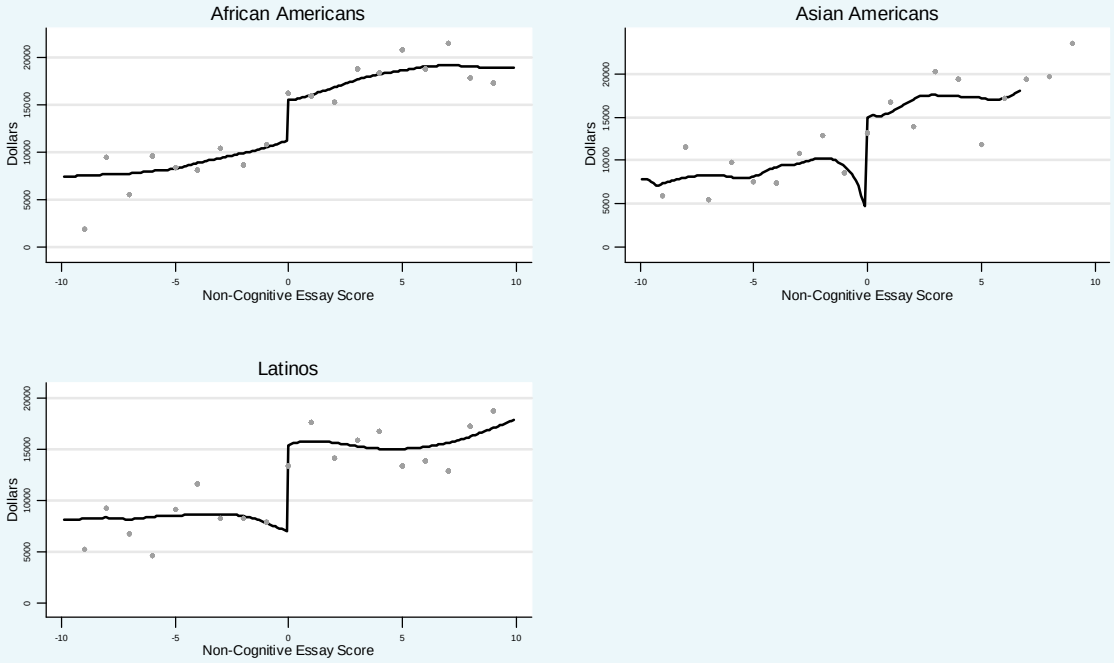
Sourcg: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

Figure 11
Parental Contribution: Junior Year
Cohort III



Source: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

Figure 12
Total Dollar Amount of Scholarships: Junior Year
Cohort III

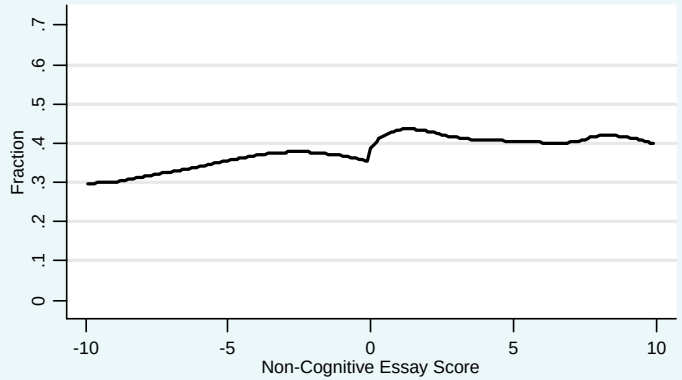


Source: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.

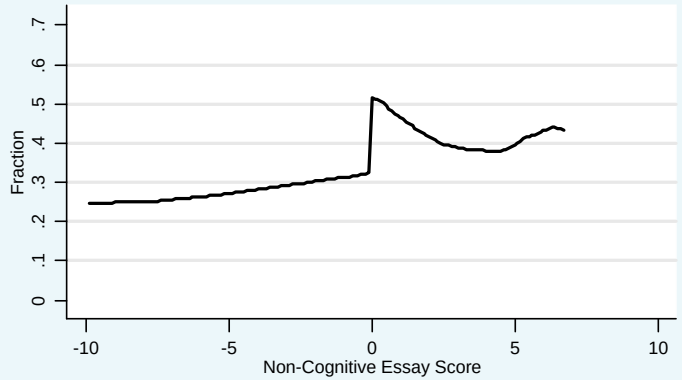
Participates in Community Service Often or Very Often: Junior Year

Cohort III

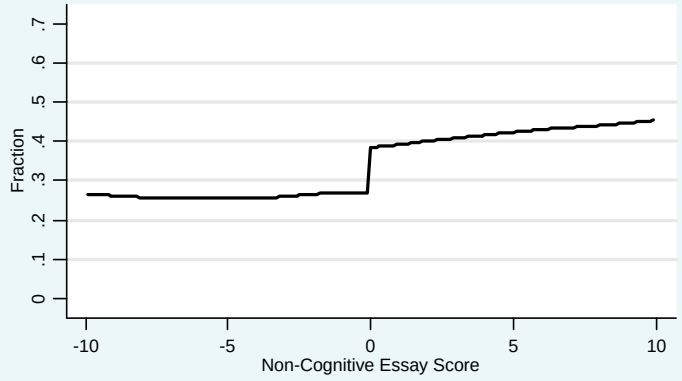
African Americans



Asian Americans



Latinos



Source: Gates Millennium Scholar Surveys: Cohort III
Notes: 1. Estimates based on local linear regression using optimal bandwidths.
2. Non-cognitive essay score measured as deviation from cut point.