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Ticket to the middle class? Long term effects of Public Universities on Labor and Financial outcomes.

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This paper

- **First in college returns literature to measure credit market outcomes in a developing country setting.**
  - Annual earnings : Long term: over 18 years after college entry.
  - Borrowing indicators: housing loans, automobile loans, credit card usage.

- **Construct a novel dataset from administrative sources:**
  - universe of bank lending transactions 2004-2019.
  - social security records on earnings in the formal sector 2009-2010.
  - government records on educational enrollment and attainment 2012.

- **Employ a fuzzy regression discontinuity design**
  - Admission rules from a flagship Public University.
  - Following applicants cohorts 2000-2004 around the cutoff for admission.

Background

Large Selective University

- Most selective in the region
- Only admits 32.23\% of applicants.
- Public: flexible tuition-scheme subsidized

Certified Universities (27%)

- Less selective but still quality certified institutions
- Mostly private institutions with high tuition

Other higher education institutions (18%)

- Mostly two-year programs
- Non-certified institutions
- Mostly private institutions with high tuition

No higher education (55%)

Private vs.Public Shares | Cohort Income Distribution | Stats Higher Ed

Admission and running variable

- Selective university: only admits 32.23% of applicants
- Admission based on national high school exit examination.
  - Universal take-up of this examination
  - Five components: mathematics, reading, science, social science, foreign language
- Applicants choose one major per admission cycle.
- Weighted score: Departments assign a weight to each component of the test.
- We use the university weighted score as the running variable.

Data Sources

Admission records for Public University **1999-2004.**

Public records online Admission cutoff by program-cycle

N= 58,818 applications 46,858 unique names.

National Evaluation for Secondary Education

SABER 11

Universal take up for high school seniors

Individual scores from 1998-2019

Educational Outcomes

Ministry of Education information system for tertiary education (SPADIES).

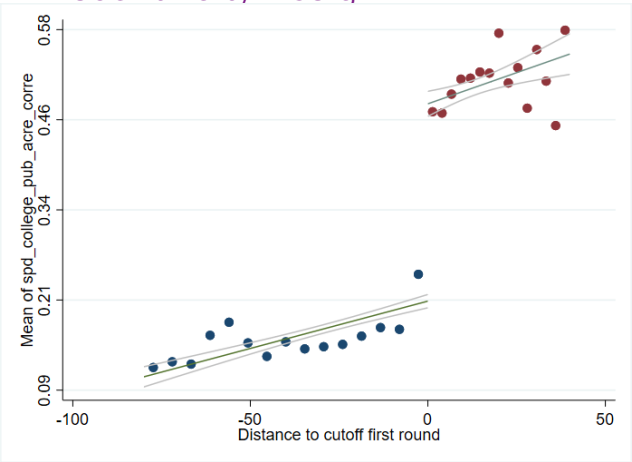
Earnings in the formal labor market

Ministry of Social Protection social security information (SISPRO)

Credit Market Services

Financial Supervisor, Banks' consolidated report on loans

Fuzzy Regression Discontinuity Design



- Clear discontinuity in enrollment to the public university
- Not perfect compliance with admission offer
- Exclusion restriction: Admission assignment $\rightarrow$ earnings only via attendance to college

Main Specification

$$Y_{ipc} = \beta_1 * A_{ipc} + \beta_2 * S_i + \beta_3 * A_{ipc} \times S_i + \theta_{pc} + \varepsilon_{ipc} \quad , i \in h$$

- A_{ipc} Admission dummy
- S_i Score assigned by the university, stacked and standardized around 0.
- p program, c admission cohort fixed effects
- linear weighted(kernel) local linear approximation
- h MSE-optimal selected bandwidth. Asymmetric
- Standard errors clustered at the individual level

RD Validity Test

Continuity of the Score | Continuity of the covariates | Placebo test and donut hole | Functional forms

Counterfactual and estimated returns

The return to a specific program p

$$Y_{ip} = \theta_p + \alpha_i$$

Y_{ip} is the mean annual earnings p, α_i individual component

θ_p is relative gain in earnings to program p to not getting degree.

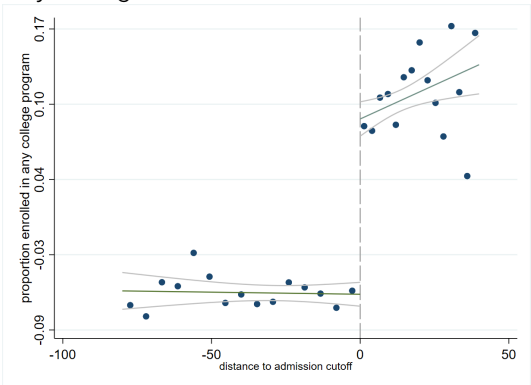
Next alternatives to program p:

- other program-university pair q , probability π_{pq}
- not going to college at all 0. , probability π_{p0}

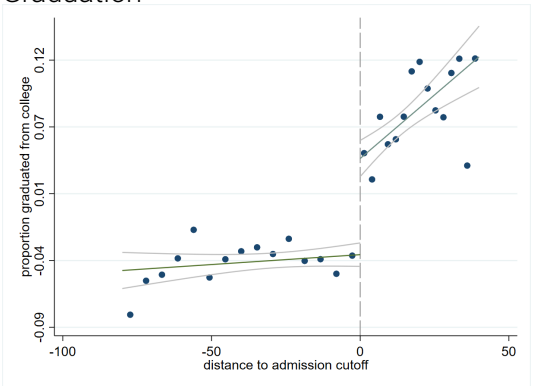
$$E(\delta_p) = \theta_p - \sum_q \pi_{pq}\theta_q - \pi_{p0}\theta_0$$

Educational outcomes: graphical RD

Any college enrollment

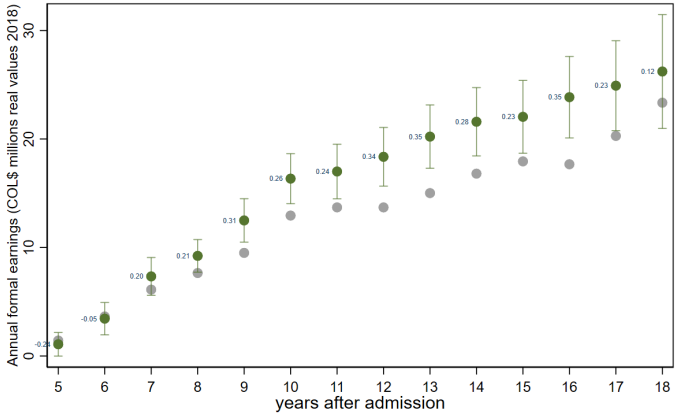


Graduation



- admission $\rightarrow$ 14 pp more likely to enroll in any college program
- admission $\rightarrow$ 9 pp more likely to earn a degree

Earnings year by year estimates

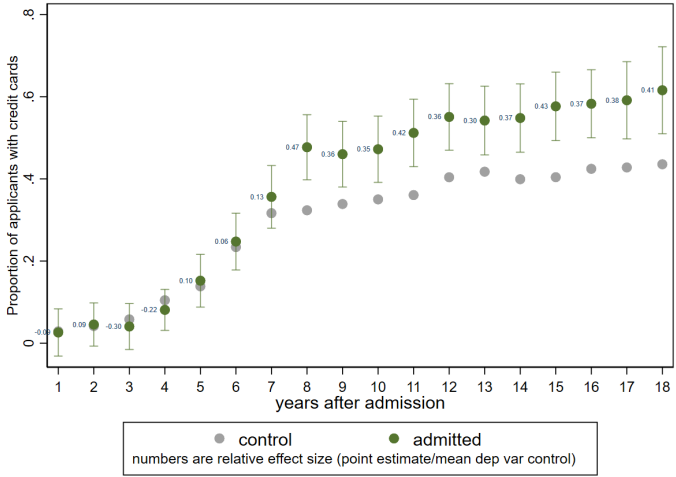


- No effects 5 to 7 years after admission.
- Attendance → 24% after 11-15 years and 35% earnings 16 years after college entry.

Access to Finance Outcomes

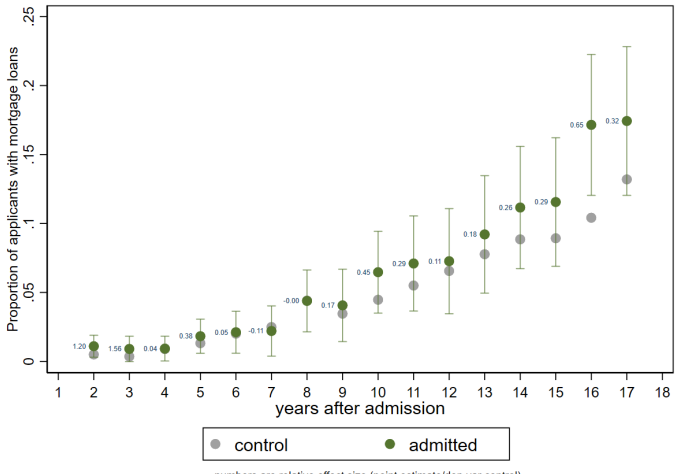
- Measures of middle-class consumption.
  - Mortgage and car loans are measures of vehicle and home ownership.
- Financial inclusion.
  - Remove barriers to long-term investments for the households like housing.
  - Insure against economic risk (health risk, natural disaster, unemployment)
  - Reduce reliance in higher cost credit such as (payday lending)

Credit card year by year estimates



- No effects 5 to 7 years after admission.
- Attendance → 40% after 8 years of college entry and remains constant.

Homeownership year by year estimates



- No effects in short and medium term
- Attendance → 40% after 16 years of college entry.

Discussion

	Reduced Form			
	Graduated from college (1)	Formal Job (2)	Days Worked (3)	Get Graduate degree (4)
Admitted	0.077***	0.021*	12.19**	0.13***
	(0.010)	(0.012)	(4.65)	(0.06)
Control mean	0.29	0.78	249.71	0.55
% of control	24.1	9.1	4.8	23.6
sample				Only Health field
N	24,147	21,028	21,028	7,123

What drives the short term pattern?

- higher probability of getting graduate degree $\rightarrow$ longer time to see results.

Discussion

- Large gains of college education on borrowing for consumption and housing.
  - Low baseline in Colombia only 16.5% housing loan vs 70.2% USA.

- Mixed evidence in literature of higher education and credit market outcomes.
  - Higher state appropriations by colleges in USA $\rightarrow$ housing loans (2.4-3.0 pp)
  - College access to Georgia State wide system $\rightarrow$ no effects on housing and consumer loans.
  - Student debt balances $\rightarrow$ mixed evidence.

Conclusion

Crossing the threshold for admission to this public selective university

- Increases college degree attainment for students who otherwise would have been financially constrained.
- Has no effect in the short term but gains are observed in the medium run.
- Positive and sizable earnings returns to selective college education.
- Increases usage of formal consumer credit services.
- Size of the effect of attendance in homeownership large due low baseline.

Thank you

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