

LONG TERM CONSEQUENCES OF SCHOLARSHIPS FOR PRIVATE SECONDARY SCHOOL IN COLOMBIA

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PACES scholarships

- During 1990s, Colombia's PACES program provided over 125,000 scholarships to private secondary schools.
- Only poor students eligible.
- Scholarships were renewable conditional on grade progression.
- Low scholarship value relative to government school costs:
 - \$244 vs. \$450 per student/year.
 - Scholarships could be topped up
- Scholarships randomly assigned when demand exceeded supply.

PACES scholarships

- Students were required to apply and be accepted at a private school before applying for the scholarship.
 - Students could apply to either academic or vocational private schools.
- Vocational schools were over-represented among participating private schools.
 - Vocational schools are less prestigious than academic schools.
 - Trade-focused: commercial and industrial are the most common trades.
- Among vocational school applicants, scholarship winners did not attend schools with better peers.

PACES scholarships

3 years after the lottery...	Vocational School Applicants		Academic School Applicants	
	Winners	Losers	Winners	Losers
Attending a vocational school	60%	43%	3.7%	6.3%
Attending an academic school	27%	43%	80%	75%
Attending a private school	70%	53%	69%	54%
Using PACES scholarship	48%	1.5%	53%	5%

Data

- Data from Bogotá 1995 scholarship lottery.
 - 4,044 applicants, 59% awarded a scholarship.
 - 43% of applicants applied to a vocational school.
- Link lottery data to various national administrative data sources to examine:
 - Long term secondary completion (on-time, ever).
 - Tertiary education access and persistence.
 - Labor market outcomes near age 30.
 - Family formation.
 - Welfare receipt.

Secondary education outcomes

	All Applicants		Applicants to Academic Secondary Schools		Applicants to Vocational Secondary Schools	
	Loser's Mean (s.d) (1)	Won a Scholarship (s.e) (2)	Loser's Mean (s.d) (3)	Won a Scholarship (s.e) (4)	Loser's Mean (s.d) (5)	Won a Scholarship (s.e) (6)
Applicant graduated on schedule	0.438 (0.496)	0.072 (0.015)***	0.440 (0.497)	0.062 (0.02)***	0.461 (0.499)	0.083 (0.024)***
Applicant graduated with up to a two-year delay	0.513 (0.500)	0.061 (0.015)***	0.502 (0.500)	0.059 (0.02)***	0.557 (0.497)	0.063 (0.023)***
Applicant graduated with up to a four-year delay	0.538 (0.499)	0.053 (0.014)***	0.528 (0.500)	0.048 (0.02)**	0.576 (0.495)	0.063 (0.023)***
Applicant graduated with up to a six-year delay	0.550 (0.498)	0.053 (0.014)***	0.537 (0.499)	0.052 (0.02)***	0.593 (0.492)	0.059 (0.023)***
N	1666	4044	887	2121	670	1652

Tertiary Education Outcomes

	All Applicants		Applicants to Academic Secondary Schools		Applicants to Vocational Secondary Schools	
	Loser's Mean (s.d)	Won a Scholarship (s.e)	Loser's Mean (s.d)	Won a Scholarship (s.e)	Loser's Mean (s.d)	Won a Scholarship (s.e)
	(1)	(2)	(3)	(4)	(5)	(6)
Ever enrolled in tertiary education	0.184 (0.387)	0.028 (0.012)**	0.187 (0.390)	-0.001 (0.016)	0.185 (0.389)	0.078 (0.02)***
Ever enrolled in a vocational college	0.062 (0.242)	0.017 (0.008)**	0.068 (0.251)	0.004 (0.011)	0.060 (0.237)	0.036 (0.013)***
Ever enrolled in a university	0.129 (0.335)	0.016 (0.011)	0.125 (0.331)	(0.001) (0.014)	0.137 (0.344)	0.047 (0.018)***
Enrolled in tertiary education as of 2012	0.036 (0.186)	0.021 (0.007)***	0.032 (0.175)	0.025 (0.009)***	0.039 (0.193)	0.024 (0.011)**
Enrolled in vocational college as of 2012	0.008 (0.091)	0.003 (0.003)	0.010 (0.100)	0.000 (0.004)	0.006 (0.077)	0.007 (0.005)
Enrolled in university as of 2012	0.028 (0.164)	0.018 (0.006)***	0.021 (0.145)	0.025 (0.008)***	0.033 (0.178)	0.016 (0.01)*
Enrolled in private institution as of 2012	0.030 (0.171)	0.016 (0.006)***	0.026 (0.159)	0.023 (0.008)***	0.036 (0.186)	0.012 (0.010)
Enrolled in a public institution as of 2012	0.006 (0.077)	0.006 (0.003)**	0.006 (0.075)	0.004 (0.004)	0.003 (0.055)	0.012 (0.004)***
Graduated from tertiary education as of 2012	0.048 (0.214)	0.009 (0.007)	0.051 (0.220)	(0.006) (0.009)	0.048 (0.213)	0.027 (0.012)**
Years of tertiary education	0.405 (1.175)	0.074 (0.038)*	0.409 (1.178)	(0.011) (0.050)	0.413 (1.197)	0.208 (0.064)***
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Earnings near age 30

	All Applicants		Applicants to Academic Secondary Schools		Applicants to Vocational Secondary Schools	
	Loser's Mean (s.d)	Won a Scholarship (s.e)	Loser's Mean (s.d)	Won a Scholarship, (s.e)	Loser's Mean (s.d)	Won a Scholarship (s.e)
All values in US Dollars	(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound on Annual Informal Earnings (observed earnings from SISBEN 2010)	2,481.17 (5,888.27)	-159.16 (200.48)	2,632.29 (7,794.76)	-294.24 (362.00)	2,347.71 (2,418.83)	-22.19 (155.85)
Extreme Upper Bound on Annual Informal Earnings (SISBEN earnings trimming top 5% of loser earners)	1,992.21 (1,580.35)	315.34 (75.792)***	2,010.55 (1,615.70)	309.85 (106.39)***	2,078.82 (1,606.33)	254.82 (119.34)**
Mean Annual Formal Sector Earnings 2008-2014	2,439.16 (3,014.49)	166.02 (98.91)*	2,383.02 (2,933.56)	56.99 (125.08)	2,594.06 (3,199.26)	346.64 (174.89)**
Mean Annual Payroll Taxes 2008-2014	687.01 (876.43)	46.84 (28.76)	670.82 (861.84)	11.67 (36.45)	731.54 (920.51)	102.67 (50.70)**
N	1622	3926	865	2053	652	1612

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Fertility

	All female applicants		Female Applicants to Academic Schools		Female Applicants to Vocational Schools	
	Loser's Mean	Won a Scholarship	Loser's Mean	Won a Scholarship	Loser's Mean	Won a Scholarship
	(1)	(2)	(3)	(4)	(5)	(6)
<i>SISBEN 2010 data</i>						
Had any child as a teen	0.375	-0.061 (0.03)**	0.405	-0.094 (0.042)**	0.33	-0.027 (0.044)
Total number of children	1.355 (1.030)	0.009 (0.061)	1.378 (1.025)	0.054 (0.086)	1.250 (0.991)	0.038 (0.093)
One or more children	0.776	-0.002 (0.025)	0.784	0.020 (0.036)	0.755	-0.012 (0.040)
Two or more children	0.435	-0.014 (0.030)	0.446	0.000 (0.043)	0.385	-0.008 (0.045)
Three or more children	0.109	0.011 (0.019)	0.113	0.015 (0.028)	0.085	0.034 (0.027)
<i>N</i>	451	1053	222	514	200	464

Welfare analysis (in progress)

- Benefits to recipient \approx \$250.
- Likely negative net fiscal cost to taxpayers:
 - NPV of future tax revenue likely outweighs program costs to government.
- Externalities would have to be negative and sizeable for the program not to be welfare enhancing:
 - About 20% of extra NPV of extra earnings for winners (\sim \$1,100).
 - E.g. signaling, peer effects, job rationing.
- Prior evidence that peer effects don't drive results (BKS 2010).
- No evidence of rationing into formal sector jobs.
- Positive externalities likely (reduced teen fertility, social impact of intergenerational mobility).

Key results

- Winning a scholarship:
 - Increases on-time secondary school graduation by 20%.
 - Increases secondary school graduation by 10%.
 - Increases tertiary education access by 16% and completion/persistence by 40%.
 - Decreases female teen fertility by 20%.
 - Increases formal labor market earnings by 5-15%.
- Educational and labor market estimates are strongest among vocational school applicants.
- Female teen fertility estimates driven by girls who applied to academic schools.

Conclusions

- Important to conduct further evaluations in other contexts since institutional details may matter (e.g. contrasting U.S. results on vouchers).

END

Potential channels of impact

- On winners
 - Allow children to attend private school.
 - For those pre-disposed to attend private schools, wider choice of schools, income transfer.
 - Increased incentives to pass grades, for students (effort), schools (effort, lowering the bar).
 - Student-school match quality.
- Potential externalities?
 - Changing student peers (but see BKS).
 - Labor market signaling, job rationing.
 - Lucas effects, effects on kids.
 - Social impact of increased mobility.

Comment

- Some features of PACES scholarship program made it more likely to generate an expenditure Laffer effect.
 - Households invested more total resources in education.
 - Scholarships reduced grade repetition.
 - These two effects generate positive fiscal externalities if the additional human capital increases long-run earnings.
 - There is no offsetting reduction on short-run labor supply (and hence short run tax collection).