Long-term effects of a public school management program

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Motivation

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  - Grissom and Loeb (2011), Branch et al. (2012), Coelli and Green (2012), Bloom et al. (2015), Di Liberto et al. (2015), Grissom et al. (2021)
- More limited evidence on the causal effects of managerial practices, mostly focusing on short-term outcomes.
  - Rosa (2015), Fryer et al. (2017), Henriques et al. (2020), Cavalcanti and Puccioni (2025)

This paper

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- We leverage the randomized implementation of the Program "Jovem de Futuro" in Brazil
  - A school management program in public high schools
- Effects of the program on
  - School progression
  - ENEM take-up and scores
  - College enrollment and graduation
  - Labor market outcomes
- Leveraging several administrative datasets, yielding a 15-year long panel at the student level

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Institutional Setting

Educational System in Brazil

- Primary: 6–14 years old, 9 grades
- Secondary: 15–17 years old, 3 grades
- Post-secondary: Majors 3–6 years.

- Mix of public and private providers:
  - Primary and Secondary: majority of enrollment is public and private outperforms public
  - Post-secondary: majority of enrollment is private, public universities are more selective and prestigious

The Jovem de Futuro Program

- Launched in 2007 by Instituto Unibanco aiming at...

  "(..) strengthening the leadership and management skills of school principals and pedagogical coordinators, supporting them with data, indicators, goals, processes, training, guidance, and various materials. The objective has always been to increase the retention of all students in school and the high school completion rate, with higher levels of learning."

- Brazilian public high schools

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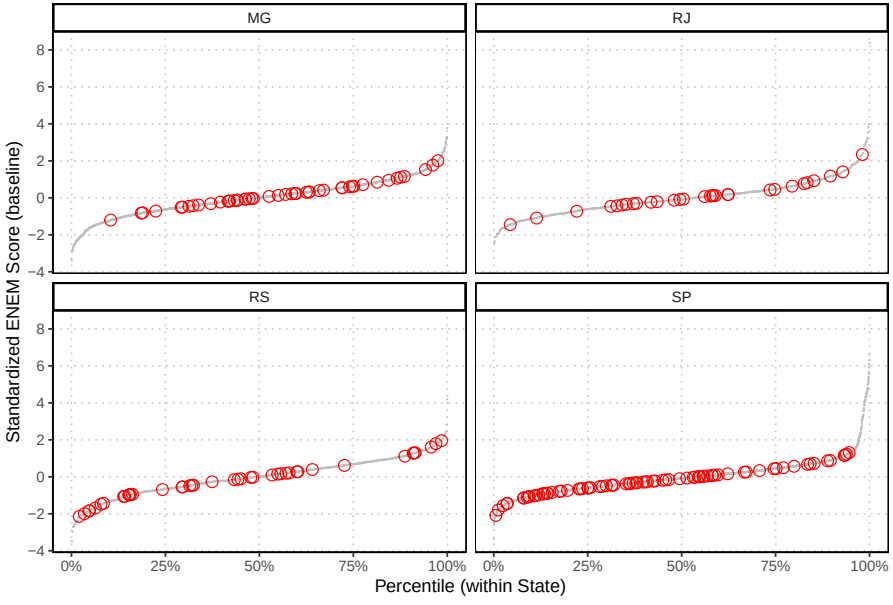
- Key components:
  - Assessment to identify main issues
  - Establish an action plan with goals and indicators
  - In-person training focused on management and monitoring
  - Visits of a supervisor + one intern (20 weekly hours)
  - Resources (R$ 100 per student/year): implementation of the action plan

The Jovem de Futuro Program III

Area	Start Year	# Strata	# Schools		
			Total	Treated	Control
MG	2008	4	48	20	28
RS	2008	25	50	25	25
RJ	2010	15	30	15	15
SP1	2010	20	40	20	20
SP2	2010	20	40	20	20
Total	-	84	208	100	108

- Experimental window: 3 years


MG
RJ
RS
SP
Standardized ENEM Score (baseline)
8
6
4
2
0
−2
−4
0%
25%
50%
75%
100%
Percentile (within State)
Not in Experiment
In Experiment

Data

Data Sources

- **Education Census**: school and student characteristics, yearly, 2007–2022
- **ENEM**: student-level scores and enrollment, yearly, 2009–2022
- **Higher Education Census**: college enrollment and graduation, yearly, 2007–2022
- **RAIS**: formal labor market outcomes, yearly, 2007–2022

- Linkage across datasets using student identifiers (INEP ID and CPF)
  CPFs for 80% of the sample

Empirical Strategy

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We estimate:

$$Y_i = \alpha + \beta \text{Treat}_{s(i)} + \eta_{g(i)} + \gamma X_i + \delta Z_{s(i)} + \varepsilon_i$$

Where:

- Y_i: student outcome (HS progression, ENEM, college, labor market)
- $\text{Treat}_{s(i)}$: school-level treatment
- $\eta_{g(i)}$: randomization strata fixed effects
- X_i: student demographics (gender, race, age)
- $Z_{s(i)}$: baseline ENEM score + lagged outcomes
- SEs clustered at strata level

Results

School progression

	Passing 1st HS Expected Year	Passing 2nd HS Expected Year	Graduate HS Expected Year	Graduate HS Any Year	Graduate HS or EJA Any Year
	(1)	(2)	(3)	(4)	(5)
Treat	0.009	0.019	0.024	0.020	0.016
(s.e.)	(0.020)	(0.018)	(0.014)	(0.011)	(0.009)
[p-value]	[0.645]	[0.286]	[0.087]	[0.074]	[0.066]
N Obs	65,435	65,435	65,435	65,435	65,435
N Schools	207	207	207	207	207
N Strata	84	84	84	84	84
Control Mean	0.678	0.490	0.410	0.503	0.604

ENEM

Outcome:	Takeup	Takeup	Math	Language	Science	Humanities	Essay
Year:	Expected	Any	Expected	Expected	Expected	Expected	Expected
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treat	0.019	0.023	0.092	0.100	0.049	0.059	−0.001
(s.e.)	(0.011)	(0.011)	(0.039)	(0.032)	(0.030)	(0.026)	(0.020)
[p-value]	[0.092]	[0.039]	[0.020]	[0.002]	[0.100]	[0.027]	[0.964]
N Obs	52,545	52,545	15,986	15,986	16,365	16,365	15,991
N Schools	207	207	207	207	207	207	207
N Strata	84	84	84	84	84	84	84
Control Mean	0.299	0.499	-	-	-	-	-

College Access

	Ever Enrolled			
	in College	in Public Universities	in Private Universities	with Affirmative Action
	(1)	(2)	(3)	(4)
Treat	0.011	0.005	0.008	0.004
(s.e.)	(0.011)	(0.003)	(0.010)	(0.002)
[p-value]	[0.307]	[0.100]	[0.437]	[0.046]
N Obs	52,545	52,545	52,545	52,545
N Schools	207	207	207	207
N Strata	84	84	84	84
Control Mean	0.399	0.040	0.377	0.023

College Quality

	Ever Enrolled by percentile				
	Below median	Above median	Above 70th	Above 80th	Above 90th
	(1)	(2)	(3)	(4)	
Treat	0.008	0.006	0.006	0.009	0.004
(s.e.)	(0.007)	(0.009)	(0.007)	(0.005)	(0.002)
[p-value]	[0.294]	[0.516]	[0.378]	[0.075]	[0.128]
N Obs	52,545	52,545	52,545	52,545	52,545
N Schools	207	207	207	207	207
N Strata	84	84	84	84	84
Control Mean	0.298	0.210	0.113	0.062	0.025

College Graduation

	Graduated from college		
Years after expected HS graduation	6	8	10
	(1)	(2)	(3)
Treat	0.002	0.001	0.003
(s.e.)	(0.003)	(0.005)	(0.007)
[p-value]	[0.533]	[0.810]	[0.630]
N Obs	52,545	52,545	52,545
N Schools	207	207	207
N Strata	84	84	84
Control Mean	0.062	0.110	0.149

(Formal) Labor Market Outcomes - I

Years after expected HS graduation	7	8	9	10
	(1)	(2)	(3)	(4)
Panel A. Outcome: Formal Employment				
Treat	−0.003	−0.006	0.000	0.001
(s.e.)	(0.006)	(0.006)	(0.005)	(0.005)
[p-value]	[0.651]	[0.321]	[0.985]	[0.858]
N Obs	52,545	52,545	52,545	52,545
N Schools	207	207	207	207
N Strata	84	84	84	84
Control Mean	0.465	0.458	0.460	0.473

(Formal) Labor Market Outcomes - II

Years after expected HS graduation	7	8	9	10
	(1)	(2)	(3)	(4)
Panel B. Outcome: Log-Wage				
Treat	−0.004	−0.001	−0.005	−0.017
(s.e.)	(0.005)	(0.006)	(0.006)	(0.008)
[p-value]	[0.413]	[0.916]	[0.419]	[0.043]
N Obs	22,993	22,585	22,805	23,297
N Schools	207	207	207	207
N Strata	84	84	84	84
Control Mean	7.396	7.352	7.370	7.430

Taking stock

- Some effects on high school progression
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- Hetoregeneity?
  - Suggestive evidence of larger effects for individuals from more afluent backgrounds and in better schools

Discussion

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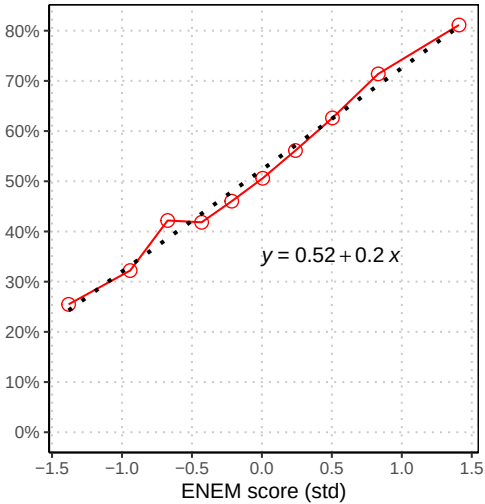
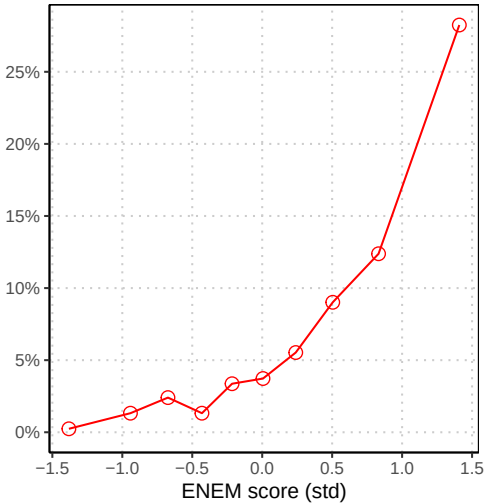


(a) Total



(b) Public universities

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  - Program increased ENEM proficiency by 7.5% sd
  - Using the control group relationship, increased the probability of college enrollment by 0.008pp

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- To get larger long-term effects: larger short-term gains!
- For selective outcomes, more convexity: more heterogeneity in terms of baseline proficiency.

Thank you!

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Appendix

Presentation

- Introduction
- Experiment
- Identification and Empirical Strategy
- Results
- Conclusion

Variable	Mean Treated	Mean Control	Diff	P-value
# PCs	14.662	15.419	-0.638	0.536
# Classrooms	18.280	18.694	-0.477	0.675
Has Internet	0.880	0.991	-0.118	0.005
# Staff	105.360	96.787	10.748	0.394
# Students	1577.450	1625.815	-40.944	0.519
# Students - High School	864.200	914.556	-32.547	0.454
# Students - 1st year High School	377.510	392.287	-9.071	0.665
# Classes	44.730	44.648	0.195	0.907
# Classes - High School	23.630	24.241	-0.189	0.874
# Classes - 1st year High School	10.100	9.981	0.268	0.637
Prop taking ENEM	0.474	0.463	0.019	0.312
ENEM score (std)	-0.123	-0.189	0.039	0.427