

Effects of a Private Foundation's Work to Support Long-term School Improvement in Public Schools in Vulnerable Territories: The Case of Fundación Arauco

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WHAT FUNDACION ARAUCO DOES?

Mission: Promote educational initiatives with teachers and leaders to give more development opportunities for all students enrolled in public schools in those territories where the company (which supported the Foundation) is located

Regions (4/16): Maule, Ñuble, Biobio & Los Lagos



COVERAGE

- Fundación Arauco has supported >5,000 teachers (5%) –mostly primary- during last 30 years: Reading-writing programs; Math; schooling leadership; books access for isolated zones; support of cultural activities.
- Supported public schools from 33 municipalities (10%) in a long run relationship, but with different initiatives.



HOW DO THEY WORK? : Main attributes

TARGET: SCHOOL

Support **teachers and administrators** in school improvement processes, strengthening practices and capacities to achieve greater quality and equity for all students

TERRITORIAL APPROACH

Promote a territorial vision and work, guaranteeing the articulation and relevance of actions **with the needs** of the territories where Arauco is present

SISTEMIC VIEW

Generate impact by working with the different levels and actores of the educational ecosystem, putting the development of all students at the center

RESOURCES

Most of financial costs of programs are funded by the Foundation

INNOVATION

Promote improvement and transformation processes based on evidence and practice, learning together with the different educational actors.

SUSTAINABILITY

Promote processes that enhance the development of capacities and the autonomy of educational communities, with a long-term commitment

COLLABORATION

Promote alliances and networking, favoring a culture of learning and relationships based on participation and trust

Focus of this research

Study: Quantitative effects of support from Fundación Educacional Arauco on schools and students outcomes

Purpose: Analyze if support from FUNDAR is positively related with better opportunities for schools and students

Main Variables:

The **Index of School Support (IAE)** aggregates indicators about frequency and intensity of the support given by the Foundation to every treated school, through its educational and cultural initiatives and programs.

The Performance School Index (**IDE**) aggregates diverse indicators at the school level, which permits identifying if a school is improving or not over time.

Scores at the standardized test **SIMCE for Reading and Maths** for 4th grade students.

Analyses: Econometric estimation of Dif---Dif with Matching Propensity Score (schools) on indicators at schools and student levels (2005-2018)

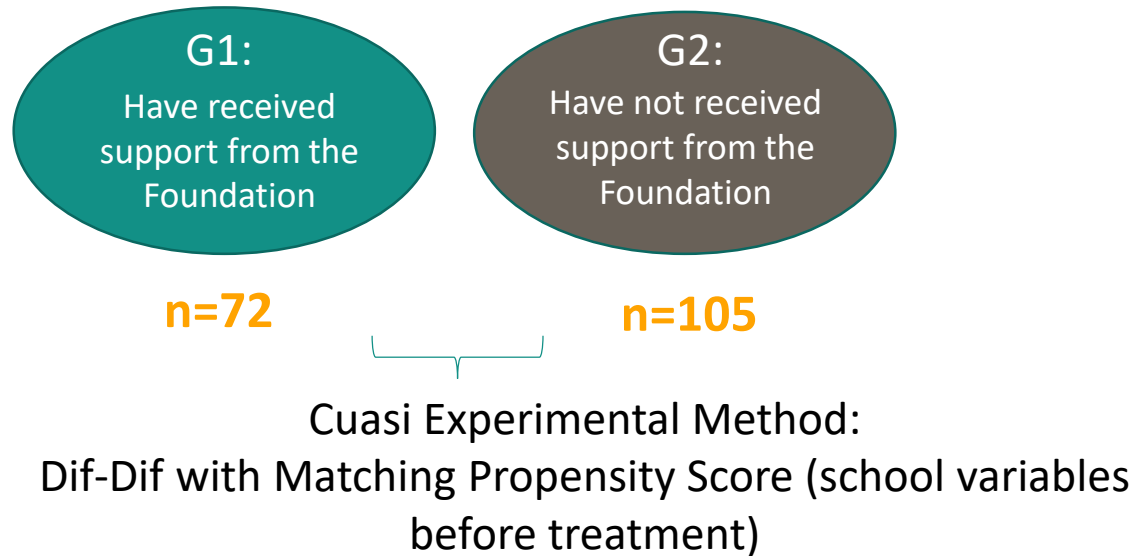
Study 1: Comparison **between school groups** in Performance School Index (IDE) between 2005-2018

Study 2: Comparison **between school groups** in schooling outcomes.

Study 3: Comparison **between students groups** in educational outcomes.

Study 4: Comparison **between schools and students groups by Schooling Support Index.**

Methodology:



Sample:

- ✓ Schools supported by Foundation between 2005-2018 (with available information)
- ✓ Schools with 15 or more 4th grade students evaluated in SIMCE every year.

Characteristics of Control Schools

- ✓ Public primary schools
- ✓ Located in same provinces and regions than treated
- ✓ SES: Low – Middle Low – Middle Class

Index of School Support: Larger ISS should have larger positive impact....

This Index includes for every school: i) if it received support from Foundation in a particular year (1/0); ii) the intensity of this support (1-2-3); and iii) frequency during last 18 years.

Intensity

- 1: General support such as cultural initiatives or very sporadic activities
- 2: Educational programs with low intensity
- 3: Intense educational programs (years and/or grades)

Annual frequency

- 1: with presence of support
- 0: without

Performance School Index (IDE): Some features



What is it?

The **performance School Index (IDE)** aggregates diverse indicators (10) at school level, which allowing comparing a same school over time.

What indicators does it include?

- **Efectiveness** (Average SIMCE or Reading and Maths)
- **Eficacy** (Added value at school level for Reading and Maths)
- **Internal efficiency** (Retention rate and Promotion rate)
- **Absolut equity** (% of 4th grade students over Insufficient Level in Reading and Maths)
- **Relative equity** (inverse of variation coefficient for Reading and Maths)

Usefulness

It allows comparison or evolution of school performance across time and also as an indicator of public policies impact.

Means

It is elaborated in baseyear as a normal distribution (mean 0, SD 1), **evolution in the Index is in terms of SD over time.**

Example, if a school has an IDE=0, means it is equal to average national schools. If after 5 years reaches IDE=0,2 (means it raises 20% of one SD)

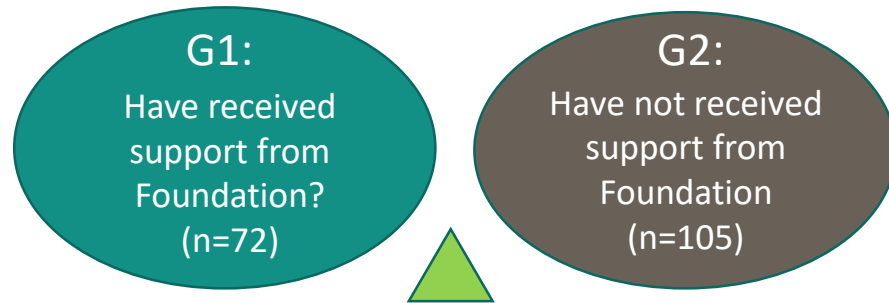
School sample

School with information for the whole period for 4th grade and enrollment larger than 15 students in that grade.

Results



Study 1: Trajectory on the IDE (Performance School Index) comparing both groups 2005-2018



Results G1: Evolution IDE 2005-2018

	Year 2018							
	Cluster of Performance							
Year 2005	2	3	4	5	6	7	8	Total
1	1	2	3	2	1	0	0	9
2	0	3	5	0	2	1	1	12
3	1	3	8	4	2	1	0	19
4	0	6	7	7	2	1	0	23
5	1	2	1	0	1	2	0	7
6	0	0	2	0	0	0	0	2
Total	3	16	26	13	8	5	1	72

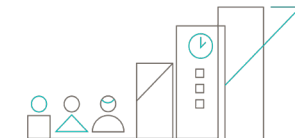
Question 1: Have schools from G1 better IDE trajectory than schools from G2?

Yes, supported schools present a better trajectory than control schools (in average and in the number of clusters).

- 70% supported schools by FUNDAR improved during the period (20% higher than G2)
- Only 18% have deteriorating trajectory

		G1	G2
	Improving schools	68,1% (n=49)	50,5% (n=53)
	Hold schools	13,7% (n=10)	22,8% (n=24)
	Deteriorating schools	18,1% (n=13)	26,7% (n=28)

Results



Study 2:

Comparison between schools in educational outcomes.

Question 2: Does receive support from FUNDAR affect schools' outcomes?



Yes, all school indicators related with learning performance are better for the treated schools.

IDE	% students at the Insufficient Level in Reading	% students at the Insufficient Level in Maths
+0,40 DS**	-9% ***	-7%*

Example, is a school started in 2005 at the botón 40% of lowest performance at national level (IDE=-0,27), in 2018, with support of Foundation will end in average at (IDE=0,13).

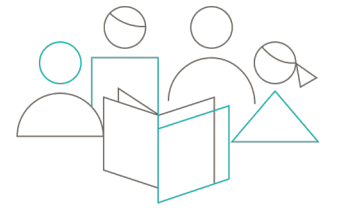
8 indicators at school level

- a) Evolution of IDE
- b) % of 4th grade students > Insufficient Level in SIMCE Reading
- c) % of 4th grade students > Insufficient Level in SIMCE Maths
- d) Attendance rate
- e) Repetition rate
- f) Abandon rate
- g) Dropped out rate
- h) Turnover rate

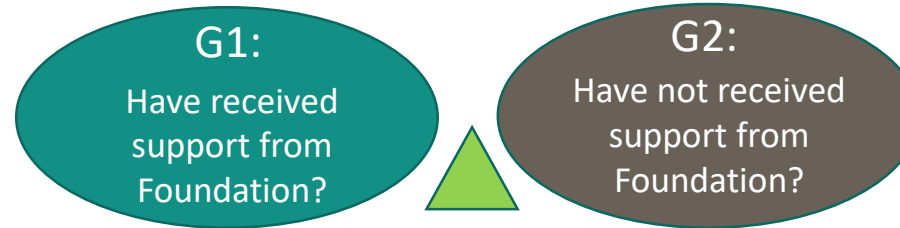
Results

Study 3:

Comparison between students on educational outcomes



Question 3: Have students in G1 better outcomes than those in G2 schools?



Yes, students from schools supported by FUNDAR obtain better results in learning outcomes (larger in Reading than in Maths). Support from Foundation not only reduces low performance students but also raises those in adequate levels.

	SIMCE Reading	SIMCE Maths	Prob.score > Insufficient level Reading	Prob.score > Insufficient level Maths	Prob.score in Adequated Level Reading	Prob. Score in Adequated Level in Maths
Coefficiente P.3	+8 puntos ***	+4 puntos	+31.4% **	+14%	+24,4%	+10,4%

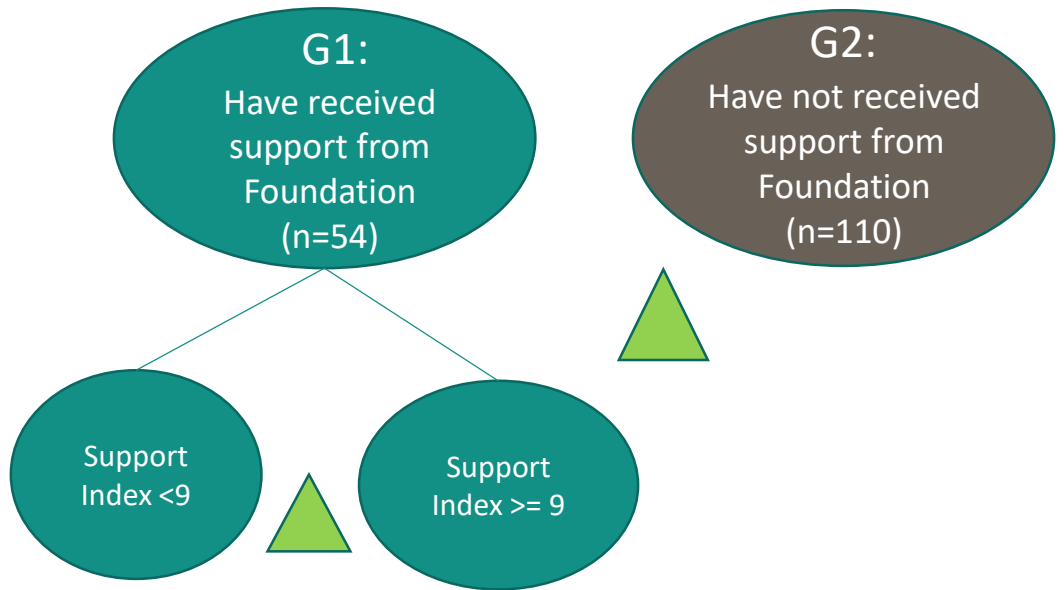
- a) SIMCE score in reading
- b) SIMCE score in maths
- c) % of 4th grade students > Level Insufficient in Reading
- d) % of 4th grade students > Level Insuficient in Maths
- e) % of 4th grade students > Adequate Level in Reading
- f) % of 4th grade students > Adequate Level in Maths

Results

Analysis 4 :

Comparison by level of supporting received (average supporting index was 9,6 for the 13 years analyzed).

Question 4: Students from schools with higher support did get better outcomes?



Yes, students from schools that have received more intense support (intensively for +3 years) from the Foundation are associated with obtaining an average of 11/7 additional points in both language and mathematics. While the probability of exceeding the Failing level in Reading as well as Math would be more than double compared to those of schools not supported by the Foundation. Additionally, **among the schools that received the most support, there is a potential increase of 0.46 SD in the IDE.** **Almost no effect among those with Index of School Support <9**



SIMCE reading	SIMCE maths	Rel. prob.of exceeding Insufficient Level in Reading	Rel. prob. Of exceeding Insufficient level in maths
+11 points**	+7 points***	+41%	+44% **



IDE	% students with Insufficient level in Reading	% students with insufficient level in maths
+0,46 DS**	-10,7% **	-10% **

Conclusions

- 1) There is very consistent evidence regarding the positive relationship between the support received by the Foundation and school improvement at the school and student level in the period 2005-2018 in all learning indicators. (70% of the schools that have received support have improved)
- 2) **This association is large.** While most of the schools that improve in Chile move by 1 performance cluster, most of the schools supported by the Foundation move by more than 1 cluster.
- 3) The link to educational improvement is not only among the students who can overcome the most critical levels of learning, but also among those who reach the expected levels of learning. Nevertheless, schools still require substantial improvements to ensure that the vast majority of students achieve the expected level.
- 4) **Improvements in learning are not accompanied by changes of the same magnitude in internal efficiency indicators,** such as the repetition and dropout rates, which are essential to ensure Positive School Trajectories for each of the boys and girls in the school system.
- 5) Although the association of improvement in educational performance is greater in Reading than in Mathematics, **the differences are not very high in 4th grade students.**
- 6) **Long-term and more intense support strategies are those that make it possible to increase the impact of support for vulnerable public schools.** The evidence shows that the more intensive the support, the greater the impact, but also that if the intensity is reduced, there will be no observable improvement.

Challenges

- 1) Which are the main levers for these positive effects?
- 2) Which is the adjusted theory of change to explain observed schooling outcomes?
- 3) Can be replicated these effects on 4th grade students on those from higher grades? (for 1st – 4th grades teachers are generalist, it means that same teacher teaches all subjects and mostly follow same students for some years. And for higher education?)
- 4) How to sustain innovations and better outcomes after the support of the public-private partnerships? A different PPP relationships for sustainability?