Improving Education in Brazil: Evidence for Policies That Work

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Three Lemann Center Studies This Past Year Evaluating Interventions that Worked

- Two of these studies are on very specific interventions that are now implemented Brazil-wide. They result in moderate to large effects on pupils' achievement scores.
- The first is the PAIC in Ceará, a very comprehensive early literacy intervention program introduced in 2007-2008 in grades 1-3 in all municipal schools in the state.
- The second is the new law in 2007 that changed the entrance age for pupils from 7 years-old to 6 years-old, resulting in an extra year of primary schooling, beginning with the 2007 cohort.
- The third study estimates state "fixed effects" across Brazilian states in 1999-2011, adjusting for student characteristics, type and location of school, and teacher inputs.

The PAIC Study (Leandro Costa, Martin Carnoy)

					Prova Brasil Wave	*Prova Brasil Wave*				*Prova Brasil Wave*
ar	*Ceará 1st grade*	*Ceará 2nd grade*	*Ceará 3rd grade*	*Ceará 4th grade*	*Ceará 5th grade*	*Bordering States 5th grade*	*Ceará 6th grade*	*Ceará 7th grade*	*Ceará 8th grade*	*Ceará 9th grade*
2006										
2007					**Control 1**	**Control 2**				**Control 3**
2008										
2009					One Year					
2010										
2011					**Treated**	**Control 2**				**Control 3**
2012										

Ceara: PAIC Effect on Portuguese and Math Achievement (Prova Brasil), DDD State-Level Fixed Effect Model

	Portuguese			***Mathematics***		
Dependent variable	(3)	(4)	(5)	(8)	(9)	(10)
Ceará × 5thgrade × 2011	**0.079**	**0.074**	**0.080**	**0.143**	**0.143**	**0.120**
	[0.024]* **	**[0.026]*** **	**[0.0351]*** **	**[0.0312]*** **	**[0.0327]*** **	**[0.0465]** **
Student characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Teacher characteristics	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sample	**Complete**	**ECD students**	**No ECD students**	**Complete**	**ECD students**	**No ECD students**
R-squared	0.398	0.394	0.372	0.323	0.315	0.302
Observations	274,845	192,113	74,234	181,806	134,810	46,954

Measuring the Effect of an Extra Year of Schooling

- Since not all municipalities agreed to begin to accept 6 year-olds, it was possible to compare the Prova Brasil scores of public school students in municipalities who entered at 6 in 2007 to those in municipalities that had continued to accept only 7 year-olds.
- The results show a robust 0.25 standard deviation increase in test scores in both math and Portuguese scores for the extra year of schooling.

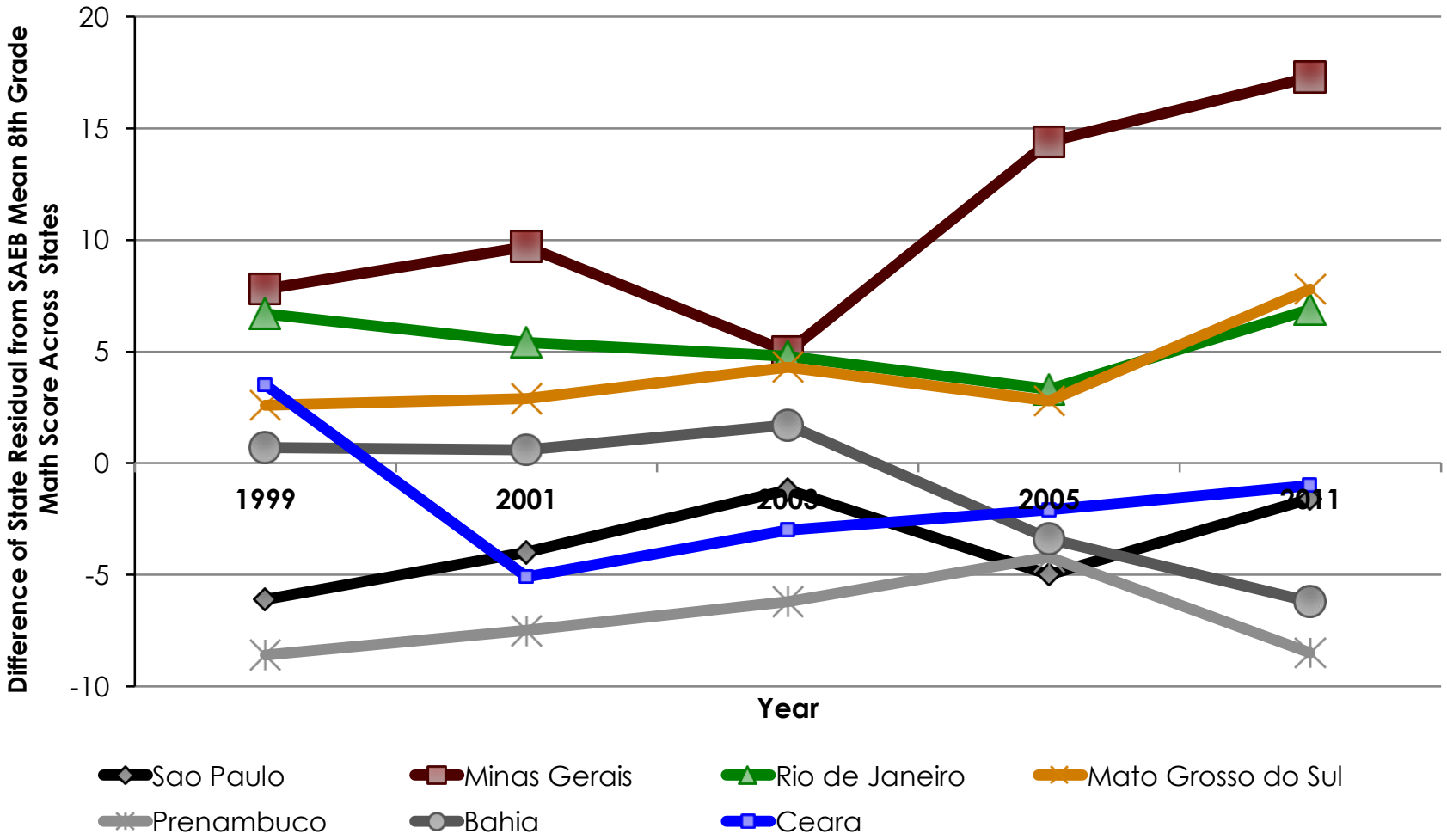
The Additional Year Study (Marcelo Martins)

	Mathematics				Portuguese			
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 1*	*Model 2*	*Model 3*	*Model 4*
Intercept	200.32***	374.13***	164.75***	155.42***	179.54***	327.17***	141.31***	134.08***
FIVE-YEAR *POST	**6.23*** **	**6.24*** **	**6.24*** **	**6.24*** **	**5.33*** **	**5.34*** **	**5.34*** **	**5.34*** **
Student Characteristics	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Student SES	No	No	Yes	Yes	No	No	Yes	Yes
State Fixed Effects	No	No	No	Yes	No	No	No	Yes

Differences in Gains on the SAEB, 1999-2011, Adjusted for Student Characteristics and Student SES

- We estimate the SAEB score of students in each state in each year compared to the average of students in all states, where the "effects" of students' gender, race, SES, etc. on the variation in SAEB scores have been already accounted for.
- Thus the state differences from the mean SAEB score for all states has been adjusted for differences in the student gender, race, and SES composition on students' SAEB performance in the states.
- Once we have made further adjustments, we can argue that if a state's residual is increasing, something probably happened in a state's schools or other institutions that has contributed to higher student performance.

Examples of Changing "State Effects" on 8th Grade SAEB Math Performance



Further Examples of Research on Brazilian Education at Sthe Lemann Center at Stanford

- Tonight, at the Lemann Center inauguaration, you will see five poster presentations of other research underway at Stanford by Lemann fellows current at the School of Education.