



The effects of public high school subsidies on student test scores The case of a full-day high school in Pernambuco, Brazil

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ABSTRACT

Education in Brazil and Latin America is typically associated with a shorter school day than in most OECD countries. This paper assesses the impact of a Brazilian policy that extends the high school day on student test scores. The program lengthens the school day while adding resources for participating schools. The number of instructional hours for math and language classes increased by 50% and 20%, respectively. Our estimates show that over three years of high school (10th to 12th grades), the full-day school program increased math and language student test scores by 0.22 and 0.19 standard deviations respectively. Our results are robust to several specification checks that aim to mitigate potential selection bias concerns.

1. Introduction

Over the last three decades, a major change in education worldwide is the rapid expansion of post-primary schooling (Banerjee, Glewwe, Powers, & Wasserman, 2013). In most countries, a majority of youth attends secondary education. A second major change, thanks to more countries participating in international testing, is the increased awareness that the amount of learning taking place in how post-primary schooling varies greatly across national educational systems. Moreover, countries are increasingly aware of the difficulty in improving post-primary performance (OECD, 2016). These changes have led many countries to focus on reforms aimed at improving student achievement in secondary schools.

One popular reform, especially in Latin America, increases the amount of time students spend learning core subject matter, such as mathematics, reading, and sciences. This emphasis on increased instruction is logical since in most Latin American countries students attend school – even secondary school – only a few hours daily. Brazil is an important example of both the challenge in improving post-primary education and increasing time in school to improve educational quality.

In 2003, the average high school in Brazil delivered only 4.5 h of education per day, well below the average of about seven in most OECD countries (Bruns, Evans, & Luque, 2011). The cost of increasing the number of school hours creates challenges in Latin America. Moreover, there is no consensus that extending the school day is beneficial

for student achievement (Alfaro, Evans, & Holland, 2015). In Brazil, specifically, the available evidence shows that increasing school day hours without increasing time dedicated to math or language has null effects on student test scores (Almeida, Bresolin, Borges, Mendes, & Menezes-Filho, 2016).

This paper aims to provide new evidence by analyzing a full-day school program in Pernambuco, Brazil. The high school program combines longer school day hours with increased resources. The state government converted regular public schools (4.5 school-day hours) into full-day high schools (8 school-day hours).¹ The extended hours were prominent in core curriculum components (language, mathematics, and sciences). Hours of instruction increased by 40–80 percent, depending on the school and subject. While regular schools in Pernambuco have the fewest number of hours of mathematics per week across all 58 PISA countries listed, Pernambuco's full-day schools are among the top 25 countries in the number of hours of mathematics per week.² The state government promoted the expansion of the program as one of their central educational policies. During and after this expansion, national test rankings improved for Pernambuco. These results drew the attention of other state and federal authorities, eventually culminating in the federal government's launching of a national full-day school program.

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¹ As in many school systems in developing countries, Brazil relies on double-shift schools which have one set of students and faculty in the morning and a second set of students and faculty in the afternoon.

² See Figure A1 in the supplemental material online