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## Research Brief

### THE EFFECTS OF INSTRUCTION TIME ON STUDENT OUTCOMES

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# The Effects of Instruction Time on Student Outcomes

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## Highlights

- Instruction time policies have been popular tools in education policy.
- There is evidence in the literature that a positive, causal relationship exists between instruction time and student outcomes; yet, very little is known about the long-term effects of additional instruction time policies targeting low-performing schools and their unintended consequences.
- Additional instruction time policies could be an effective policy lever to improve the outcomes of students in disadvantaged schools, yet more research is needed to justify their costs.

## Executive Summary

In the last decade, several states and school districts have implemented policies reducing instruction time for students in public schools due to budgetary constraints. In contrast, additional instruction time policies (e.g., longer school days or years) have also been adopted, targeting schools that are identified as low-performing based on standardized tests. Additional instruction time policies have intuitive appeal for students in these schools—struggling students may simply need more time in school to catch up with high-achieving peers.

A number of studies have established a positive, causal link between instruction time and student test achievement. While this is promising, more research is needed in several areas to assess the benefits of mandatory requirements for supplemental instruction time that target low-performing schools or students. This is necessary because virtually nothing is known about whether the short-term test achievement benefits of additional instruction time persist over time or impact broader outcomes such as student attendance, teacher quality, or student health. Understanding the persistence of the short-term benefits is particularly important given the evidence in other contexts showing that early benefits of education interventions may fade over time.<sup>1</sup>

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<sup>1</sup> For example, in a recent study, Schwerdt, West, and Winters (2017) show that the large test score effects of the third-grade retention policy in Florida have diminished entirely by the end of middle school.

## What Is the Issue?

Instruction time is a fundamental education input, but it is also one of the first items on the chopping block when school districts and states consider cost-cutting measures. For example, in the wake of the Great Recession, several states (e.g., Montana) and school districts shortened school years, and a number of major school districts (e.g., Chicago Public Schools) are currently considering shorter school years to meet their budgetary goals. On the other hand, there are examples of states and school districts expanding instruction time to improve the achievement levels of students in low-performing schools. For example, since 2012, the state of Florida requires the lowest performing elementary schools to extend the school day by an hour to provide literacy instruction.<sup>2</sup> Similarly, District of Columbia Public Schools (DCPS) recently implemented a policy that restructures and extends the school year by almost a month in some of the most disadvantaged schools in the District.

Proponents of additional instruction time policies argue that these programs could be beneficial for low-performing students who may simply need more time to learn. Further, longer school years might improve student achievement by reducing summer learning loss, which has been shown to be a major issue for students from disadvantaged backgrounds (e.g., Alexander, Entwisle, & Olson, 2007).

On the other hand, increasing instruction time (by extending the school day or school year) is costly. For example, as described [Figlio, Holden, and Ozek \(2018\)](#), the annual costs of the Extended School Day program in Florida have been estimated by district superintendents to be around \$300,000–\$400,000 per school, corresponding to \$30 million to \$40 million per year in the first 2 years of the program, or \$800 per student annually. Similarly, DCPS has increased the allocations of schools selected for its extended school year program to cover the change from 10-month to 12-month schedules, which DCPS has estimated to cost around \$5 million for all 11 schools.

In addition to raising concerns about cost, opponents of additional instruction time policies also argue that the benefits of these policies may be small because they only provide students with more exposure to a low-performing school setting. Further, low-performing schools may have more difficulty implementing these policies relative to high-performing schools. For example, schools may require additional teachers to implement more ambitious additional instruction time programs, but low-performing schools may be unable to attract the additional staff necessary to implement the program. As a result, students may be placed in less productive “study halls” and not receive effective instruction. Finally, there is a concern that additional instruction time policies targeting low-performing schools might impose significant emotional burden on students because they are stigmatized as failing, which might in turn lead to student disengagement from schooling.

What we know about additional instruction time requirements suggests that this is a promising intervention for helping struggling students, at least in terms of test achievement. Still, there are key unanswered questions that should be addressed as we do not know whether the observed short-term test score benefits fade out over time or some of the potential unintended consequences of these programs.

## What Is Known?

The empirical research on the causal effects of instruction time falls into two categories. The first strand makes use of temporary and unexpected changes in instruction time that are naturally occurring due to, for example, snow days. The second strand, on the other hand, makes use of expected and permanent changes in instruction time driven by education policy. Overall, the weight of the evidence of both types of research indicates a positive *causal* relationship between instruction time and student outcomes.

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<sup>2</sup> For more information on Florida’s policy, see [Figlio et al. \(2018\)](#).

Examples of the first strand of research include Marcotte (2007), Marcotte and Hemelt (2008), and Goodman (2014). All of these studies find some evidence that weather-related closures cause decreases in achievement. Pischke (2007) uses the policy change in Germany in the 1960s that created a large, yet temporary, variation in the length of school year across locales and finds that longer school years leads to more grade repetition and fewer students attending higher secondary school tracks but no effect on earnings or employment. Parinduri (2014) uses a similar change in Indonesia that led to a temporary increase of 100 days in the length of school year and finds positive effects on educational attainment and earnings. Aucejo and Romano (2016) examine a policy in North Carolina that provides variation in the number of days prior to testing and find positive effects that are small relative to reducing absences. Similarly, Sims (2008) makes use of a policy change that restricted districts to start dates after September 1 and finds a small but positive effect of additional school days on math scores. While these studies have high internal validity, their results are less likely to be applicable to cases where the change in instruction time is known and, therefore, teachers can plan their instruction ahead of time. Further, most of these studies rely on small changes in instruction time, with the largest variation being 1 week.

There is an emerging literature looking at the effects of additional instruction time policies targeting low-performing schools. For instance, in [Figlio et al. \(2018\)](#), we examine the effects of the Extended School Day policy in Florida, which requires low-performing schools to provide an additional hour of literacy instruction every day, and find significant benefits on reading test scores. Similarly, Bellei (2009) uses a difference-in-differences approach to study a policy in Chile that selects high schools to transition from part time to full time; the analysis results suggest an improvement in language but less evidence on math achievement. Jensen (2013) uses a school fixed-effects model to estimate the effects of a Danish policy that narrowed gaps in classroom hours and finds positive effects for math but no significant effect for literacy. Battistin and Meroni (2016) use a difference-in-differences approach to study a reform in Southern Italy that extended the school day at selected low-performing schools, and they find positive effects for math but not for literacy. Another related question is studied by Anderson and Walker (2015), who estimate effects for schools that change to a 4-day school week and increase the length of the school day, and they find generally positive effects from this policy.

### **What Is Not Known?**

There are several questions yet to be addressed, especially on the effects of instruction time policies targeting low-performing schools, which have become increasingly popular in the United States over the past decade. For example, we are unaware of any quantitative evidence on the causal effects of instruction time policies on long-term outcomes such as postsecondary access, completion, and adult earnings. It is important to have a better understanding of these long-term effects to answer whether these policies are worth the aforementioned costs.

Another missing piece in the extant literature is the possible unintended consequences of policies that increase instruction time in low-performing schools. For example, the potential benefits of instruction time could be mitigated by increases in student absences. Being labeled as low performing could also lead to higher performing students or effective teachers leaving the targeted schools to avoid the stigma. Finally, very little is known about the health effects of instruction policies on students. More time spent in school could mean less physical activity for students in these schools, which could, in turn, lead to adverse effects on student health.

### **Policy Levers and Policy-Making Challenges**

There are several policy levers related to instruction time to improve the achievement levels of students in low-performing schools. The first, as evidenced in Florida's Extended School Day program, is to extend

the school day to address the academic deficiencies of students. In Florida, low-performing schools are identified using the reading performance of their students on a standardized test, and schools with average test scores below a predetermined cutoff are required to extend the school day by an hour to provide literacy instruction. Several studies, including our recent work in Florida, provide evidence that these programs could be beneficial in the short term, but more research is needed to better understand the long-term consequences.

Another instruction time–related policy lever is to extend (or restructure) the school year in struggling schools. An example is the extended school year policy of DCPS, which extended the school year by almost a month and restructured the year in some of the most disadvantaged schools. While we know very little about the causal effects of these policies, the evidence from studies using unexpected shocks to the length of school year seems to indicate that longer school years could have a positive effect on student achievement.

Early evidence on additional instruction time policies is promising, yet we need more research on the broader effects of these policies in the long run to assess whether their benefits could justify the costs. These costs represent the biggest hurdle for financially constrained states and school districts that are planning to use instruction time as a policy lever to improve low-performing schools.

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