

Do Our Students have a Case of the Mondays? The Academic Impact of Moving to a Four-Day School Week

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Introduction

The standard American school week operates five days a week, nine months of the year, yet the optimality of this schedule for student outcomes is unclear. The benefits of this schedule—at least outside of academic outcomes—are pretty obvious: most working parents work five days per week, and having summers off is a long-standing tradition that most families are used to dealing with. But is this calendar the best option for students? Without some sort of an experiment, it is hard to uncover what type of academic schedule is optimal for educational outcomes, and conducting such an experiment would require tremendous financial and administrative resources. In the absence of such an experiment, we can look toward natural experiments to see if this information can be uncovered from differences in scheduling that came about on their own. Fortunately, for the sake of research, schools across the United States have recently started changing up their routines.

In some urban areas, overpopulation has encouraged districts to move to a year-round schedule, often operating in 45-15 shifts—meaning students attend school for 9 weeks and then have three weeks off. This schedule allows students to be sorted into tracks, which are not all in session at the same time. Under this scheduling system, tracks can operate so that only 75% of students are in session at any given time, which increases a school's capacity without any capital investment. The full-year academic schedule has been studied in various economic projects, including Jennifer Graves' 2010 publication examining the academic impact of year-round school, when the schedule is adopted to increase school capacity. Ms. Graves finds that moving to year-round school—at least under these circumstances—actually harms the school's academic performance relative to the national average. In her later work (2011), Graves finds that these effects are even worse for low socioeconomic students.

On the other side of the population spectrum, rural schools are also making major schedule changes. Rural districts across the United States have been moving toward a four-day school week as opposed to the traditional five-day week. While some rural districts have been operating on this schedule for years—and some for decades—the trend really didn't take off until the late 2000s. Despite the fact that many students are impacted by the four-day school week, and the fact that the four-day week has been around in some districts for decades, the impacts of this schedule have not been studied as intensively as the year-round schedule.

While urban districts made the switch for overcrowding purposes, rural districts made the switch for budgetary purposes. Most districts cite financial savings as the reason for switching to a four-day week, and the rise in popularity of the four-day week coincides with the US financial crisis. Administrators in switching districts anticipate saving money on utilities, transportation costs, and payroll for hourly workers. These savings are reasonable to expect, especially given the long-

distance bus routes rural districts face, but how does this cost-saving scheme impact students?

Uncovering the effect of moving to a four-day week on student outcomes is important for various reasons: if the schedule change is not harmful—or is even beneficial—it could be a viable option for schools struggling to make ends meet; if the schedule change hurts student outcomes, then school districts and administrators should be aware of the risk they're taking by switching to a four-day week to save money. This work could also open a discussion on the optimal academic schedule for students. If students thrive on a four-day school week, perhaps other districts will switch to the four-day week in order to capture those educational benefits, regardless of their financial picture.

Research Methodology and Data

In order to understand the causal effect of moving to a four-day school week on educational outcomes, I will exploit variation in the timing of adoption of the four-day schedule. I will utilize a generalized difference-in-differences research design with individual, district, and year fixed effects.

In order to answer this research question, I will use individual-level test score, attendance, and graduation data from the state of Oregon. This will allow me to see how students' performance in switching districts changes over time, relative to how students' performance in non-switching districts changes over time. Additionally, I'll be able to address concerns of compositional change. Clearly, a student could move into or out of a district after the district moves to a four-day week. If only high-performing students' parents decided to move into a four-day week, for example, then any estimate of the effects of the schedule change that do *not* consider compositional change will bias the effect of the schedule change upwards. Similarly, if only low-performing students moved into (or stayed in) a four-day week district, the estimates for the effects of the schedule change that ignore compositional changes could bias the effects down. Because of these potential biases, it is important to answer this question with individual-level data.

Contribution

The findings of this project will contribute to the literature regarding education policy and finance. While there has been a paper written on the effects of the four-day school week, by Anderson and Walker in 2015, the authors did not have access to individual-level data and were therefore unable to directly address compositional change concerns. Unfortunately, they also lacked the statistical power to detect significant effects. While my progress is still early, I know that I will be able to speak to compositional changes since I have individual data, and I hope that my results will have the statistical power to detect or accurately rule out any effects. I also intend to look at more outcomes than have been previously studied in regards to the four-day week. While Anderson and Walker looked at test scores for fourth- and fifth-graders, I have test scores and attendance for students in elementary, middle, and high school, as well as graduation and college-going rates. My early work seems to indicate that test scores are not harmed—and in fact *may* be improved—by the switch to a four-day week.