

Impact of Four-Day School Week on Growth and Achievement in Missouri

Prepared for Missouri Department of Elementary and Secondary Education by SAS® EVAAS



Introduction

Four-day school weeks have become increasingly common across the United States, often as part of a strategy to reduce operational expenses and attract teachers¹. The first district in Missouri adopted a four-day school week in 2011, and almost every subsequent year the state has seen an increase in the number of districts switching to a four-day school week. This trend has accelerated since the COVID-19 pandemic, prompting the Missouri Department of Elementary and Secondary Education (DESE) to commission an investigation into the impact of a four-day school week on student outcomes. Prior research into the impact of four-day school weeks across 16 states have shown negative or no effects on student achievement and growth^{2,3,4}. **This research specifically investigates the impact of a four-day school week on student achievement and school growth in Missouri.**

Between 2011 and 2022, a total of 125 districts in Missouri experienced a four-day school week at some point. This represents 21% of Missouri school districts and 3% of students. **However, the districts that adopted a four-day school week were not representative of all Missouri districts.** Districts that adopted a four-day school week were more likely to be rural and serve a larger proportion of students are white and receive free and reduced-price lunch. These students were less likely to be identified as Gifted or English Learners/Limited English Proficiency. Districts that adopted a four-day school week also had generally lower test scores and lower academic growth prior to adjusting their instructional time than districts that never adopted a four-day school week.

Students in districts with a four-day school week



MORE likely to be rural, white, receive Free or Reduced-Price Lunch

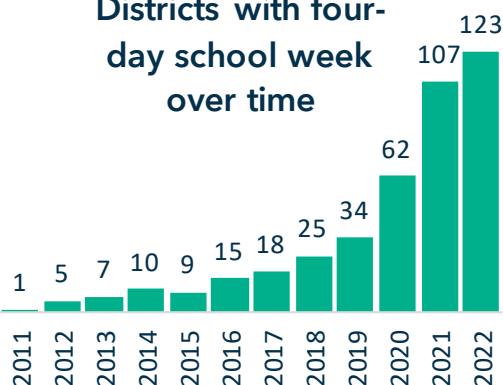


LESS likely to be Gifted, English Learner/Limited English Proficiency



LOWER achievement and growth prior to adopting four-day week

Districts with four-day school week over time

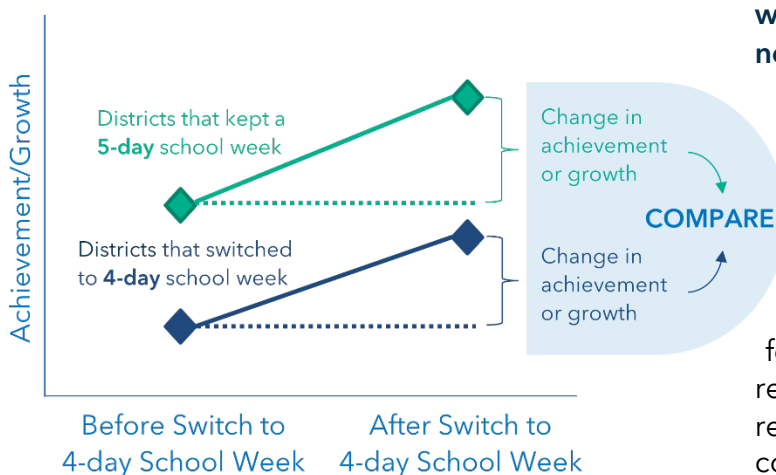


Analytic Approach

The purpose of this study was to evaluate the impact of switching to a four-day school week on achievement (measured by test scores) and growth (measured by the Missouri Growth Model). This analysis included standardized assessment data from 585 Missouri districts (appx 1.6 million students) in English Language Arts (ELA), Math, and Science. The assessments included in this analysis were taken between 2008 and 2022 and by elementary, middle, and high school students.

To study the impact on achievement, **the analysis considered the change in student test scores before and after the time of adoption** for districts that used a four-day school week. This change in achievement was compared to the changes occurring over the same time period for a subset of districts that remained on a five-day school week schedule. To study the impact on growth, the same analytical approach was used but examined the change in school-level growth instead of student-level achievement. Because the districts that adopted a four-day school week looked different from the entire state, on average, **the analysis restricted the comparison group to rural districts who maintained a five-day school week schedule.**

Overview of Analytic Approach



Results

Overall, **no statistically significant effect of switching to a four-day school week on either student achievement or school growth was found**, with some exceptions. For some assessments and years there were small but statistically significant effects on achievement and growth, both positive and negative. However, while these effects are statistically significant, they are relatively small in magnitude, similar to the effects seen from interventions offering a universal free breakfast⁵.

Overall, **no statistically significant effect (harmful or helpful) of a four-day week was found**

These results are also in line with what previous research on the effects of four-day school weeks have seen. In general, prior work across the United States has yielded results that were either not statistically significant or were not large in magnitude^{2,3,4}. This further supports the conclusion that regardless of statistical significance, there was little evidence of an effect – either helpful or harmful – of a four-day school week on student achievement and school growth in Missouri.

However, it is important to keep in mind that **these results tell us what the effect of a four-day school week on student achievement and growth is and not why that effect is happening**. For example, it is unknown whether districts that switched to a four-day school week increased the length of daily instruction to account for the lost instructional day. It is also unclear what happened on the fifth day of the week that could impact achievement. Similarly, this work does not explore additional outcomes of interest, such as whether adopting a four-day school week improves teacher retention or reduces school operational costs. Therefore, these results should be viewed as a starting point for considering the broader impact of a four-day school week on Missouri students.

¹ Anglum, J.C. and A. Park. 2021. "Keeping up with the Joneses: District Adoption of the 4-Day School Week in Rural Missouri." *AERA Open*, 7.

² Morton, E., P. Thompson, and M. Kuhfeld. 2022. A Multi-State, Student-Level Analysis of the Effects of the Four-Day School Week on Student Achievement and Growth. EdWorkingPaper: 22-630.

³ Thompson, P.N. 2021. "Is Four Less Than Five? Effects of Four-Day School Weeks on Student Achievement in Oregon." *Journal of Public Economics*: 193.

⁴ Thompson, P.N. and J. Ward. 2022. "Only a Matter of Time? The Role of Time in School on Four-Day School Week Achievement Impacts." *Economics of Education Review* 86.

⁵ Kraft, M.A. 2019. Interpreting Effect Sizes of Education Interventions. EdWorkingPaper: 19-10.