

# The educational effects of school start times

## Delaying secondary school start times can be a cost-effective policy to improve students' grades and test scores

Keywords: start times, biorhythms, sleep, secondary education, education production function

### ELEVATOR PITCH

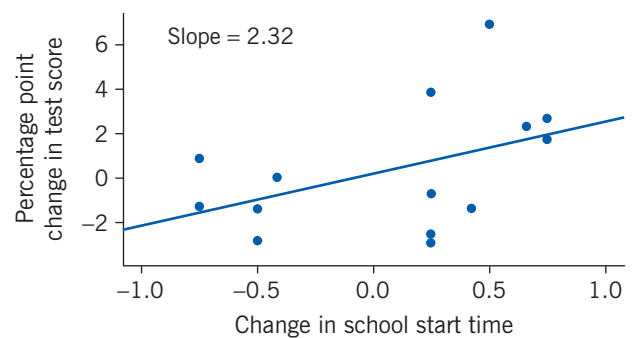
The combination of changing sleep patterns in adolescence and early school start times leaves secondary school classrooms filled with sleep-deprived students. Evidence is growing that having adolescents start school later in the morning improves grades and emotional well-being, and even reduces car accidents. Opponents cite costly adjustments to bussing schedules and decreased time after school for jobs, sports, or other activities as reasons to retain the status quo. While changing school start times is not a costless policy, it is one of the easiest to implement and least expensive ways of improving academic achievement.

### KEY FINDINGS

#### Pros

- + Hours of sleep are positively correlated with academic achievement, yet traditional secondary school schedules lead to sleep deprivation among adolescent students.
- + Starting classes later in the morning improves grades in classes throughout the day and boosts standardized test scores.
- + Even small adjustments in start time can have beneficial effects.
- + Lower-ability students gain the most from delayed start times.
- + Delaying start times can be a very cost-effective measure for raising student achievement.

A one-hour delay in school start times is associated with a 2.32 percentage point increase in test scores



Source: [1].

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World of Labor

#### Cons

- An optimal start time for secondary schools has not been determined.
- Starting school later will require ending school later, reducing the amount of time available for homework, jobs, and extracurricular activities.
- School districts that rely on one set of buses to serve all different levels of schools—e.g. elementary, middle, and high schools—may need to purchase additional buses or change the start time for the other school levels.
- Reduced time for extracurricular activities may require scheduling adjustments or additional expenses.

### AUTHOR'S MAIN MESSAGE

Because adolescents have different internal clocks than younger children and adults, and later natural sleep and waking times, early secondary school start times are not conducive to learning. Empirical studies find sizable gains in test scores and grades from later start times for adolescents. A one-hour delay has the same effect as being in a class with a third fewer students or with a teacher whose performance is one standard deviation higher. Later start times are also shown to improve non-academic outcomes, such as mood and attendance, and reduce the frequency of automobile accidents. While changing start times is not costless, the benefits are likely to outweigh the costs.