First-Year Effects of Early Indicator and Intervention Systems in Oregon

Susan Sepanik
Senior Research Associate, MDRC

Pei Zhu
Senior Research Associate, MDRC

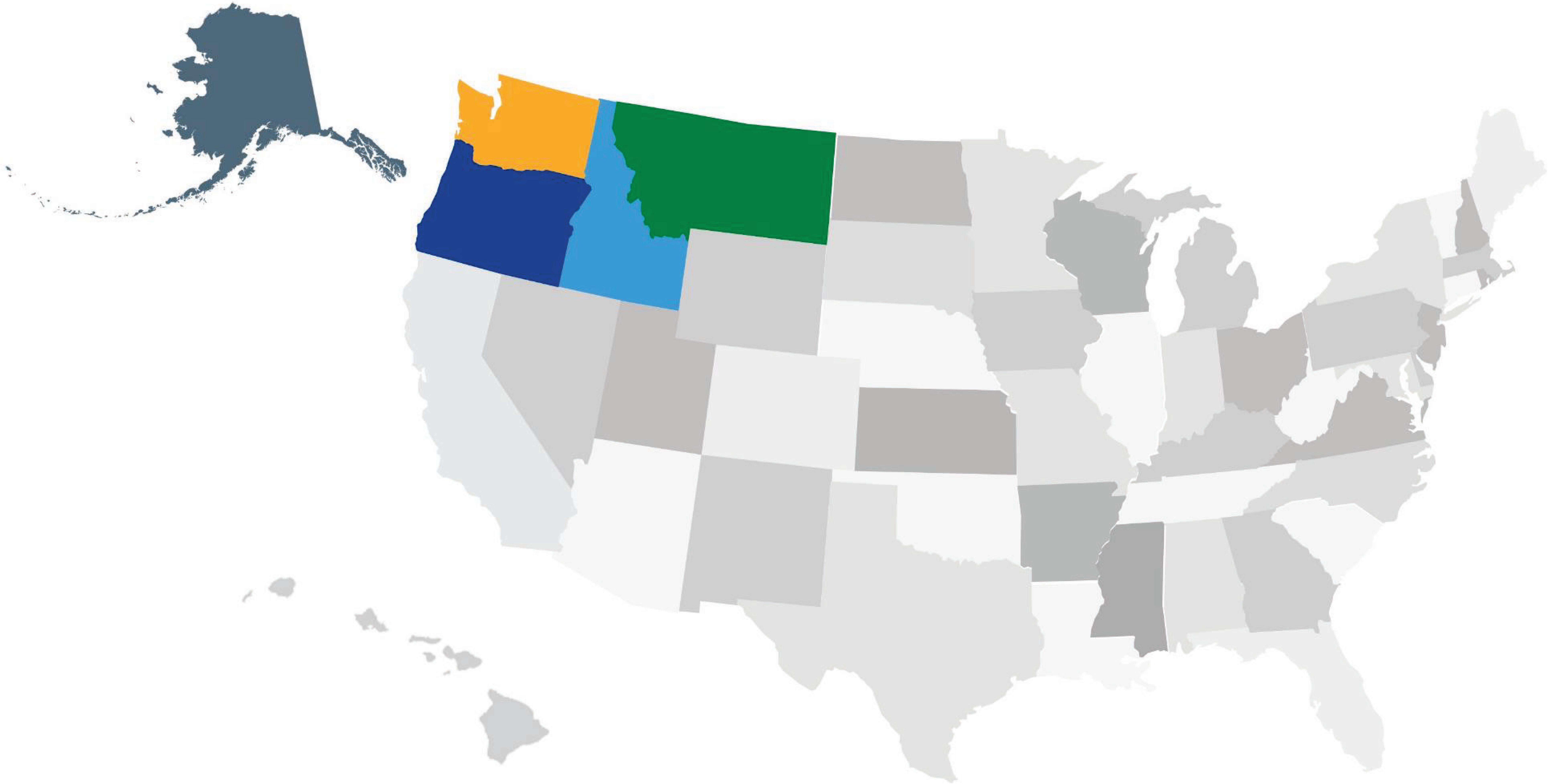
Miki Bairstow Shih
Technical Research Analyst, MDRC

Nicholas Commins
Technical Research Analyst, MDRC

IES Institute of Education Sciences | REL Northwest at Education Northwest

This presentation was prepared under Contract ED-IES-17-C-0009 by Regional Educational Laboratory Northwest, administered by Education Northwest. The content does not necessarily reflect the views or policies of IES or the U.S. Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

Regional Educational Laboratory (REL) Northwest



Agenda

- Why this study?
- Research questions.
- Data sources and sample.
- Methods.
- Findings.
- Implications.

Why this study?

The importance of high school graduation

- **15%** of U.S. public school students and **21%** of Oregon public school students did not graduate within four years in 2018.
- Educational attainment is important to future employment and earnings as well as social, personal, and societal well-being.
  - In 2017, the average full-time earnings for young adults ages 25–34 was:
    - $26,000 for those who had not completed high school.
    - $32,000 for high school graduates, $39,000 for those with an associate degree, and $55,000 for those with a bachelor's degree (McFarland et al., 2019).
  - Students who do not graduate are more likely to live in poverty, suffer from poor health, become incarcerated, or depend on social services (Moore, 2014).

The policy solution in Oregon

- In 2016, Oregon voters approved Ballot Measure 98 to fund dropout prevention and college and career readiness initiatives in high schools (Oregon Department of Education, 2019).
  - The measure provided $170 million in funding for the **High School Success Initiative** from 2017 through 2019.
  - Many districts used the funding to adopt an **early indicator and intervention system (EIIS)**, with the goal of improving high school graduation rates.

Key predictors of high school dropout

- Researchers have identified key indicators of high school dropout and graduation that can be used in EIISs.
  - **Chronic absenteeism.**
  - **Course performance.**
  - **Disciplinary infractions** (Allensworth & Easton, 2005; Balfanz et al., 2007; Balfanz et al., 2014; Bowers et al., 2013; Kemple et al., 2013; Seeskin et al., 2020; Uekawa et al., 2010).
- Attendance and course performance data appear to be strong predictors, but the evidence for disciplinary infractions is mixed (Allensworth et al., 2018).

How is an EIIS expected to improve high school graduation?

Key EIIS Components and Indicators

School districts use data dashboards to identify students who **do not** meet district-defined thresholds for attendance, behavior, or course performance.

Each high school maps a menu of available interventions for each indicator, which may include:

Attendance | daily check-ins and/or policy to call home after each absence

Course performance | after-school tutoring or homework help

Behavior | peer mediation groups

Multiple indicators | individual coaching

A response team assigns students to interventions that fit their needs.

The response team monitors each student's progress and adjusts interventions as needed.

Authors' adaptation of Faria et al. (2017)

Key EIIS components and indicators are hypothesized to lead to:

Short-term Outcomes

Reduced chronic absenteeism

Reduced disciplinary infractions

Improved course performance

Medium-term Outcomes

Strengthened overall academic performance

Increased rate of persistence and progression in school

Long-term Outcomes

Improved high school graduation rate

Improved career readiness

Authors' adaptation of Faria et al. (2017)

Evidence of the effectiveness of EIISs

Few rigorous studies of EIISs have been conducted.

- The What Works Clearinghouse practice guide *Preventing Dropout in Secondary Schools* recommends early warning systems but notes the evidence is slight (Rumberger et al., 2017).
- One study found EIISs reduced chronic absenteeism and course failure in the first year but did not affect grade point average, suspensions, or credits earned (Faria et al., 2017).
- Another study of a school reform model that included an EIIS did not find impacts of the model on individual indicators but found impacts on a composite measure of attendance, behavior, and course performance (Corrin et al., 2016).

Research questions

Research questions

Confirmatory

What were the first-year effects of EIIS on:

- Chronic absenteeism and severe chronic absenteeism (grades 9–12)?
- Disciplinary infractions (grades 9–12)?
- Course progression (grade 9) and academic performance (grade 11)?

Exploratory

What were the first-year effects of EIISs on subgroups of students who would likely have been identified by an EIIS as at risk of not graduating on time in the year prior to the study?

Definitions

- **Chronic and severe chronic absenteeism**. The percentage of students who were absent for more than 10 percent of enrolled days (chronic absenteeism) or for more than 15 percent of enrolled days (severe chronic absenteeism).
- **Disciplinary infractions**. The percentage of students who were ever suspended or expelled during the year, as reported in the Oregon Department of Education data.
- **Course progression**. The percentage of grade 9 students who obtained at least 25 percent of the credits required for high school graduation.
- **Academic performance.** The percentage of grade 11 students who scored proficient or better on the Smarter Balanced assessments in math or English language arts.

Subgroup analyses

- We did not have access to EIIS data and could not directly explore whether EIISs helped the students who were identified for additional services.
- We looked, instead, at the effects of an EIIS on subgroups of students who did not meet EIIS thresholds in the year before systematic EIIS adoption, including students who:
  - Were absent for 15% or more of school days (severely chronically absent).
  - Were suspended or expelled one or more times.
  - Did not acquire at least 25 percent of the credits required for high school graduation during grade 9 (for grade 10 students).

Data sources and sample

Data sources

- **Oregon Department of Education.**
  - Student- and school-level administrative data, including demographics, enrollment, attendance, and graduation.
- **U.S. Department of Education's Common Core of Data database.**
  - School-level administrative data, including Title I status and urbanicity.
- **Willamette Education Service District.**
  - District-level EIIS participation.

Sample: EIIS districts

- **65 EIIS districts*** were included in the study because they:
  - Logged into the EIIS system at least once during the 2018/19 school year.
  - Have at least one regular (non-virtual, non-alternative) high school.
  - Have available data on all outcome measures for the school years 2013/14 through 2018/19.

** The sample includes districts in the east, south, west, and northwest regions of Oregon; there were no EIIS districts in the central region.*

Characteristics of EIIS districts

- EIIS districts were similar to other districts across Oregon in their:
  - Levels of student absenteeism and disciplinary incidents.
  - Academic achievement and course progression.
- EIIS districts were different than other districts across Oregon in their:
  - Higher proportions of students from racial/ethnic minority backgrounds.
  - Larger school enrollments and higher student-teacher ratios.

Sample: Comparison districts

- **29 comparison districts* were selected because they were similar to EIIS districts in the five school years before 2018/19 in:**
  – Levels and trends of the outcomes of interest.
  – Student composition.
  – District structural characteristics.

** Since there were no EIIS districts in the central region of Oregon, no comparison districts were included from that region.*

Select characteristics of districts in the study

Baseline measure	EIIS districts	Comparison districts
Student composition		
Percentage of White students	68.9	72.5
Percentage of students of color	31.1	27.5
Percentage of English learner students	2.7	1.6
Percentage of students with individualized education programs	14.2	13.3
District characteristics		
Percentage of high schools located in a city or suburb	22.3	16.9
Percentage of high schools located in rural areas	77.7	83.1
Percentage of high schools eligible for Title I	10.7	6.2
Average high school enrollment	687.8	621.1
Student-to-teacher ratio	18.9	18.9
Average graduation rate (percent)	80.6	82.5
Number of districts	65	29

Source: Authors' calculations based on student-level data from the Oregon Department of Education and school-level data from the U.S. Department of Education for school years 2013/14 through 2017/18.

Methods

Methods

- A **Comparative Interrupted Time Series (CITS)** design was used to estimate the effect of EIISs.
- The CITS estimates whether districts that implemented an EIIS deviated from their baseline trends by a greater amount than a similar group of comparison districts.

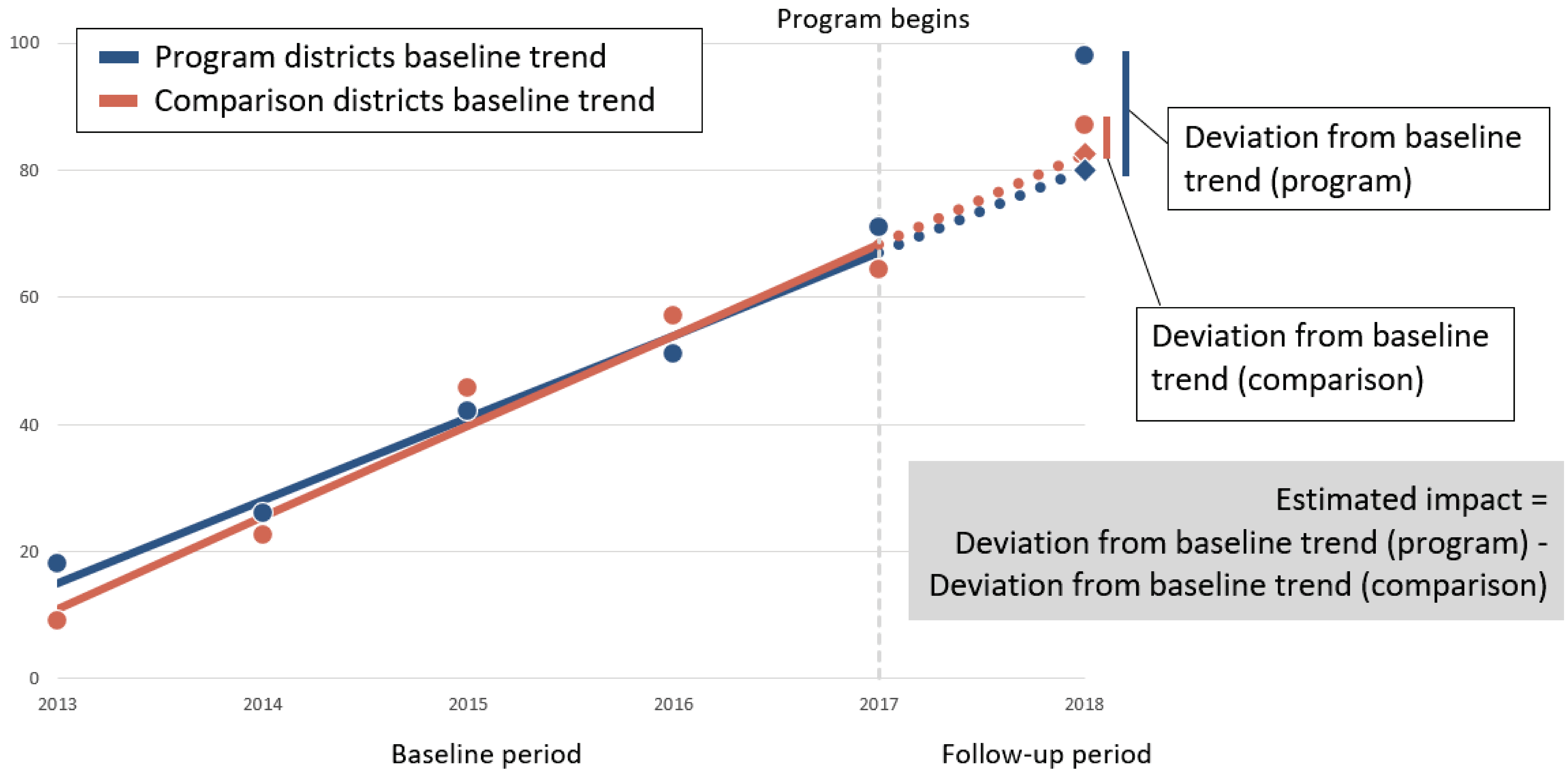
Why CITS?

- We selected a CITS design because:
  - Oregon's High School Success Initiative caused an influx of funding during the program year (2018/19 school year).
  - A large number of districts chose to implement an EIIS with the funding, while other similar districts chose to adopt other initiatives.
  - School records for multiple school years were available for all districts in Oregon.

Selecting comparison districts

- Out of 75 eligible non-EIIS districts, 29 comparison districts were selected that matched best with the EIIS districts. Districts were matched on:
  - The baseline levels and trends of all outcome measures.
  - Student composition in the last baseline year (such as average school enrollment and percentages of students from racial/ethnic minority groups).
  - Structural characteristics (such as high school graduation rates and school locale).
- EIIS districts and comparison districts were found to be very similar on student composition and performance on student outcomes in the year before the program.

CITS design, an illustration



Source: Authors' calculations based on student-level data from the Oregon Department of Education and school-level data from the U.S. Department of Education for school years 2013/14 through 2017/18.

Limitations

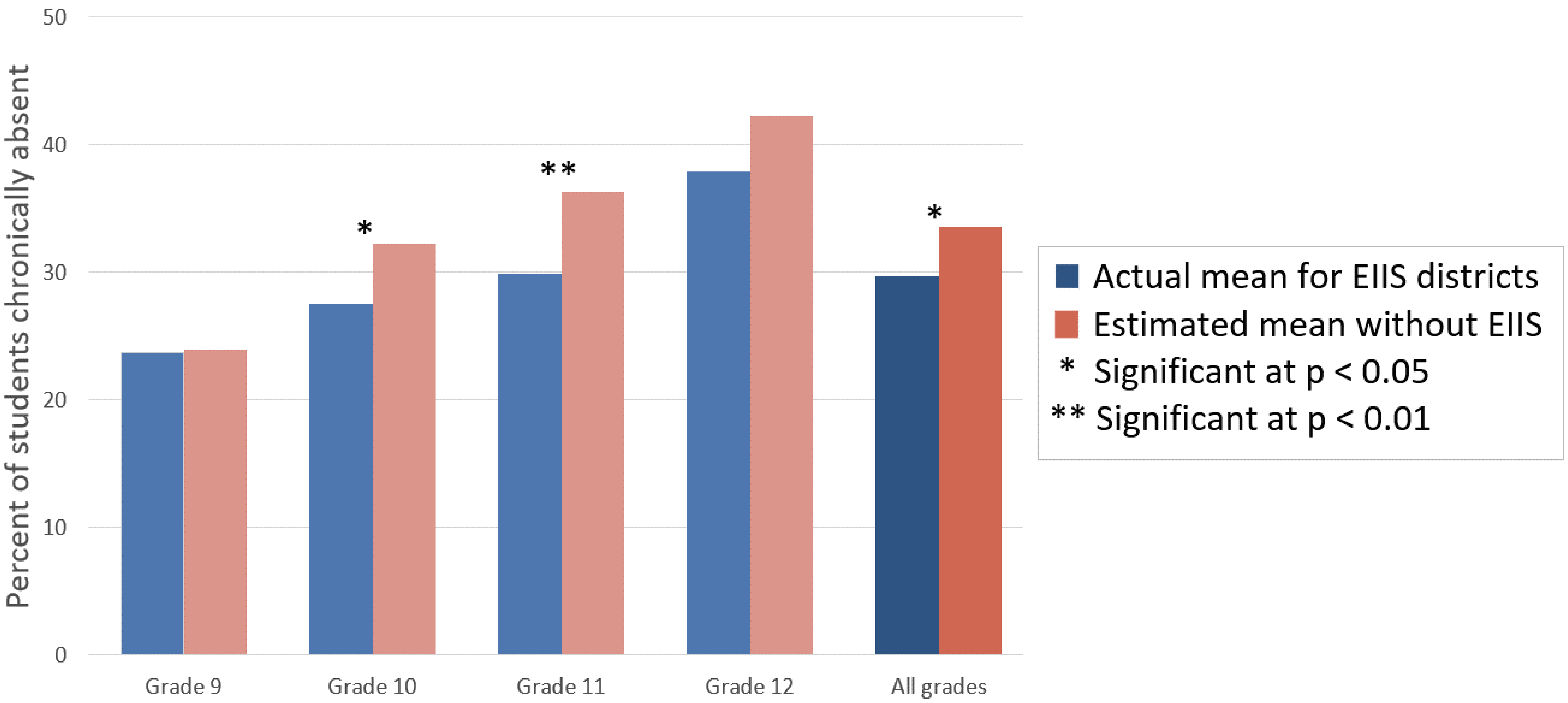
The study has two important limitations:

- Only includes outcomes after one year of EIIS adoption.
  - It may take more than one year for outcomes to be fully realized.
  - Effects may differ once school and district staff have more experience with the system.
- Lacks information on EIIS implementation.
  - We do not know how well EIIS was implemented in EIIS districts or if similar systems were implemented in comparison districts or baseline years.

Findings

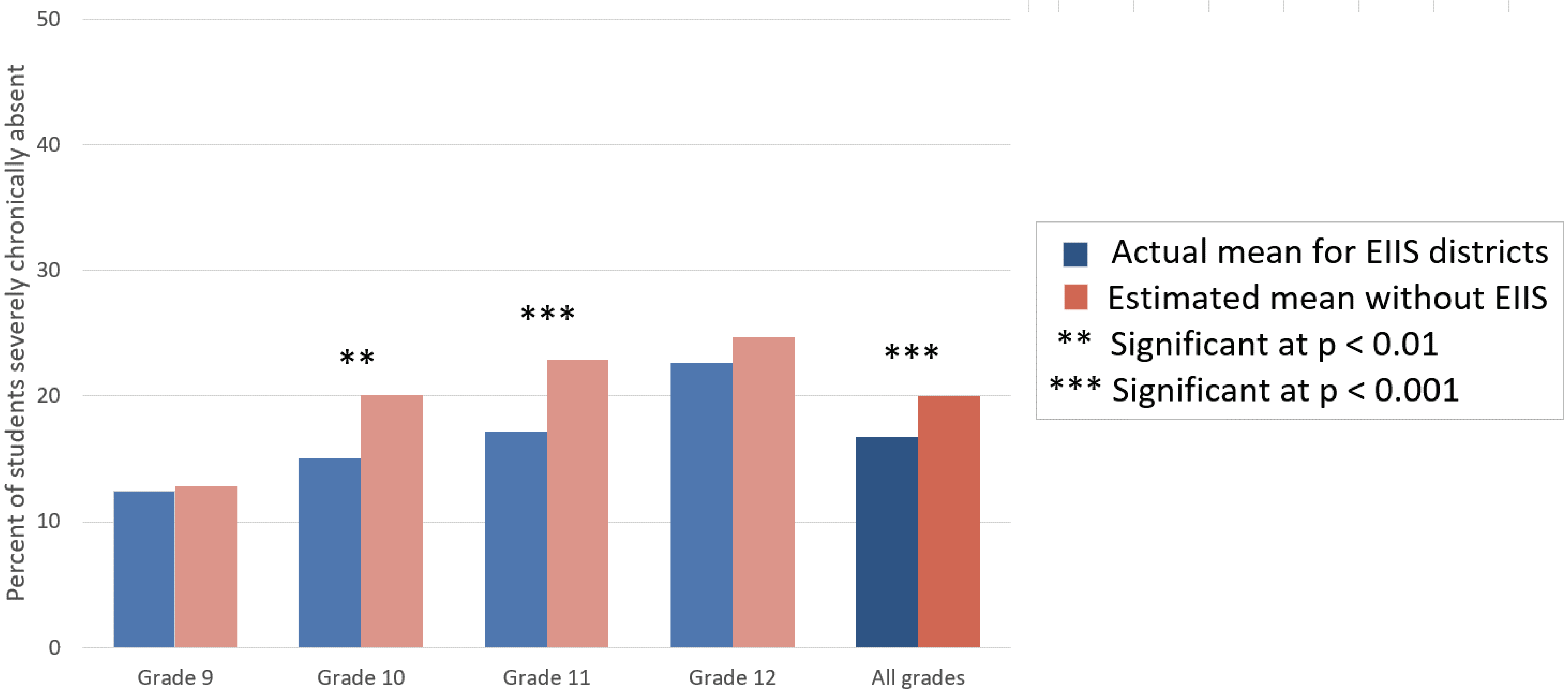
Confirmatory Question 1a: What were the early effects of EIISs on chronic absenteeism and severe chronic absenteeism?

EIIS adoption appears to have reduced chronic absenteeism rates, overall and for grades 10 and 11



Source: Authors' calculations based on student-level data from the Oregon Department of Education and school-level data from the U.S. Department of Education for school years 2013/14 through 2017/18.

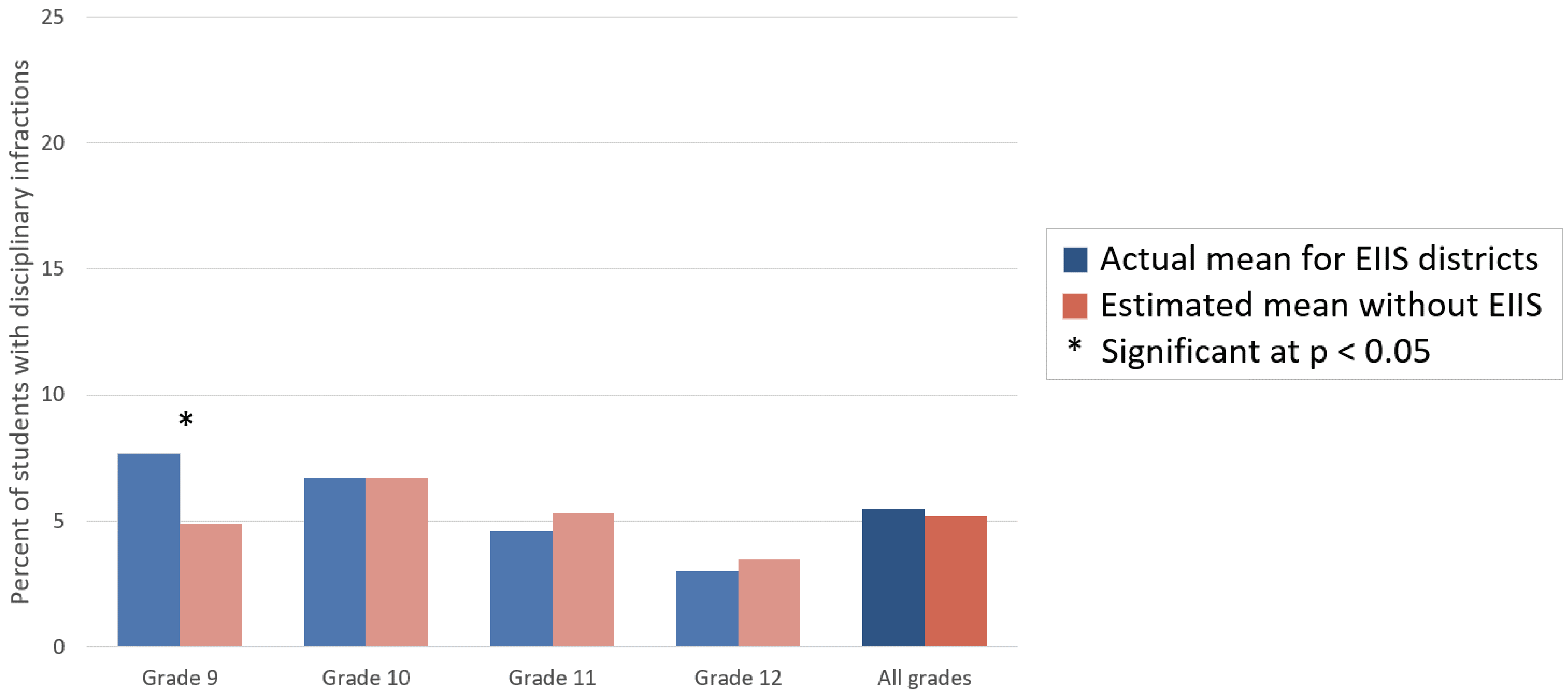
EIIS adoption appears to have reduced severe chronic absenteeism rates, overall and for grades 10 and 11



Source: Authors' calculations based on student-level data from the Oregon Department of Education and school-level data from the U.S. Department of Education for school years 2013/14 through 2017/18.

Confirmatory Question 1b: What were the early effects of EIISs on disciplinary infractions?

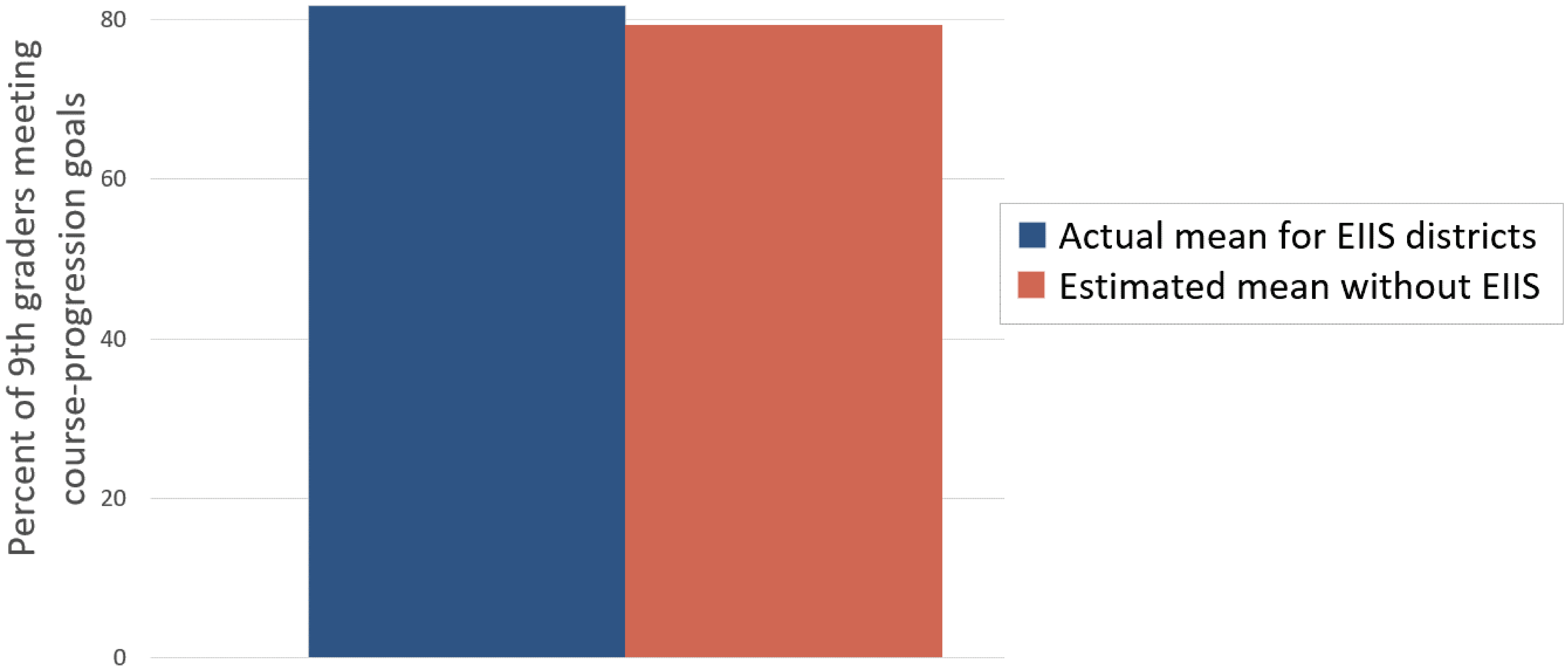
EIIS adoption does not appear to have affected disciplinary infractions across all grades but seems to have increased the percentage of grade 9 students with disciplinary infractions



Source: Authors’ calculations based on student-level data from the Oregon Department of Education and school-level data from the U.S. Department of Education for school years 2013/14 through 2017/18.

Confirmatory Question 1c: What were the early effects of EIISs on course progression in grade 9?

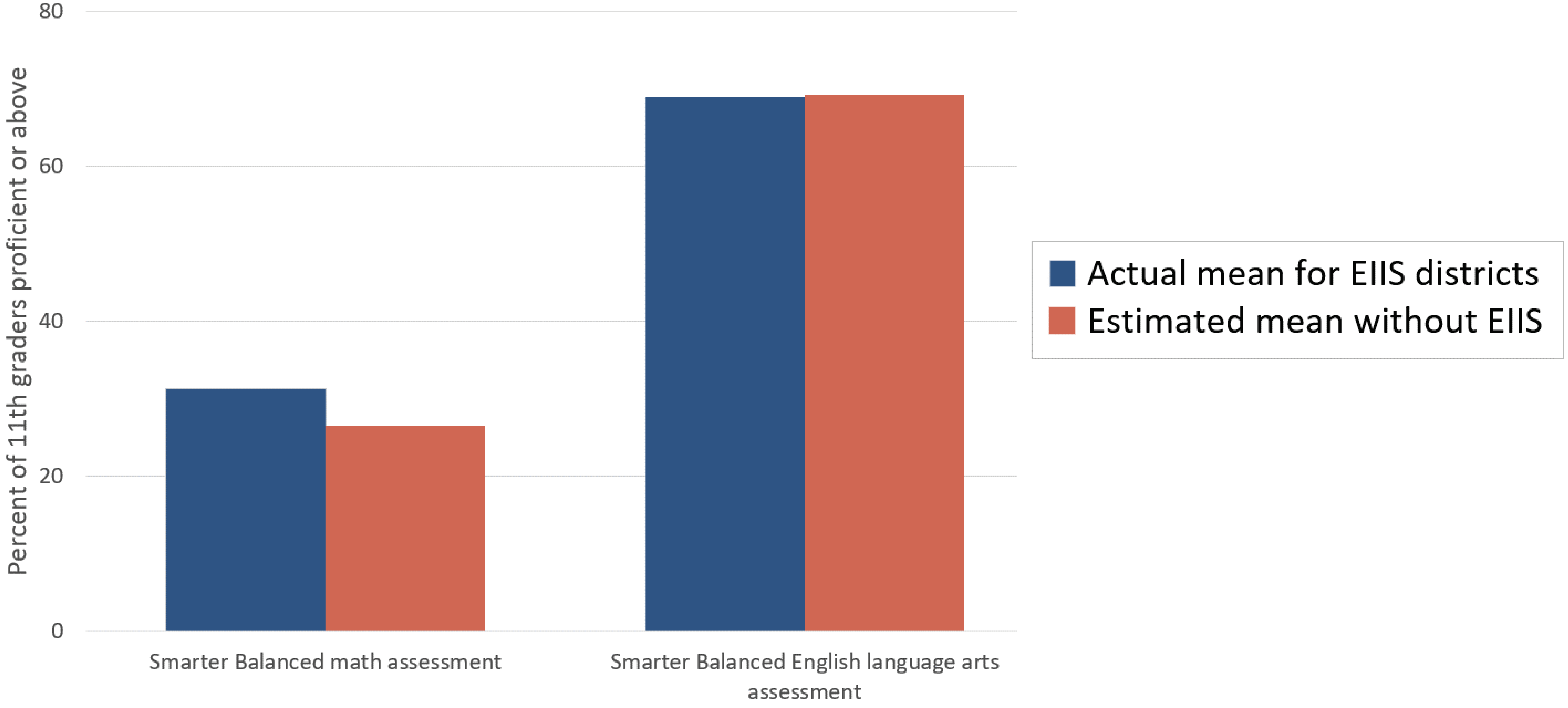
EIIS adoption does not appear to have affected course progression for grade 9 students



Source: Authors' calculations based on student-level data from the Oregon Department of Education and school-level data from the U.S. Department of Education for school years 2013/14 through 2017/18.

Confirmatory Question 1c: What were the early effects of EIISs on academic performance in grade 11?

EIIS adoption does not appear to have affected academic performance for grade 11 students



Source: Authors' calculations based on student-level data from the Oregon Department of Education and school-level data from the U.S. Department of Education for school years 2013/14 through 2017/18.

Exploratory Question: What were the early effects of EIISs on subgroups of students who would likely have been identified by an EIIS as at risk of not graduating on time in the year prior to the study?

There is no evidence that EIIS adoption affected any outcomes for students who did not meet attendance, behavior, or course progression goals in the previous year

Overall, we found no evidence indicating that EIIS adoption benefited subgroups of students who:

- Were severely chronically absent.
- Had disciplinary infractions.
- Failed to accumulate enough credits by the end of grade 9 to be considered on track to graduate.

Implications

Implications

The mixed findings suggest that Oregon might want to do further research to identify the indicators and interventions most beneficial to students.

- Explore whether using an EIIS to target and support students with attendance issues might be effective.
- Explore dropping disciplinary infractions as an indicator or changing the interventions used to support identified students.

Implications

Additional effort might be needed to ensure that the EIIS initiative supports grade 9 students as they transition into high school.

- The outcomes on chronic absenteeism for grade 9 appear to be less promising than for other grades.
- EIIS adoption appears to have increased disciplinary infractions for grade 9 students.
- EIIS adoption does not seem to have affected the percentage of students who had accumulated the credits needed to be on track to graduate at the end of grade 9.

Implications

To identify ways to strengthen EIISs programming, Oregon might want to study EIIS implementation.

- To fully understand the study findings and strengthen EIIS adoption, the Oregon Department of Education and partnering districts might want to assess program implementation and identify challenges.
- It may also be worth reviewing the types of activities funded by the High School Success Initiative and Student Success Act.

Implications

To understand the effects of a mature EIIS program, the Oregon Department of Education and participating districts might want to consider a follow-up study of the longer-term effects of EIISs.

- It may take longer than one year to see effects on medium- or longer-term outcomes.
- EIISs are large-scale interventions with complex components that may take more than one year to fully implement.
- EIISs are meant to support students throughout high school, so it might take more than one year before supports lead to observable changes.

Reflection

- What remaining questions do you have about the study?
- What is one action that you will take to use the findings in your local context?

Contact us

REL Northwest at Education Northwest
1417 NW Everett Street, Suite 310
Portland, OR 97209

ies.ed.gov/ncee/edlabs/regions/northwest
@relnw
relnw@educationnorthwest.org
800.547.6339

References

Allensworth, E. M., & Easton, J. Q. (2005). *The on-track indicator as a predictor of high school graduation*. Consortium on Chicago School Research. https://consortium.uchicago.edu/publications/track-indicator-predictor-high-school-graduation

Allensworth, E. M., Nagaoka, J., & Johnson, D. W. (2018). *High school graduation and college readiness indicator systems: What we know, what we need to know.* Consortium on Chicago School Research. https://eric.ed.gov/?id=ED589733

Balfanz, R., Byrnes, V., & Fox, J. (2014). Sent home and put off-track: The antecedents, disproportionalities, and consequences of being suspended in the ninth grade. *Journal of Applied Research on Children: Informing Policy for Children at Risk, 5*(2), article 13. https://eric.ed.gov/?id=EJ1188519

Balfanz, R., Herzog, L., & MacIver, D. J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades schools: Early identification and effective interventions. *Educational Psychologist, 42*(4), 223–235. https://eric.ed.gov/?id=EJ780922

Bowers, A. J., Sprott, R., & Taff, S. A. (2013). Do we know who will drop out? A review of the predictors of dropping out of high school: Precision, sensitivity, and specificity. *The High School Journal, 96*(2), 77 -100. https://eric.ed.gov/?id=EJ995291

References (cont.)

Corrin, W., Sepanik, S., Rosen, R., & Shane, A. (2016). *Addressing early warning indicators: Interim impact findings from the Investing in Innovation (i3) evaluation of Diplomas Now*. MDRC. https://eric.ed.gov/?id=ED566904

Faria, A. M., Sorensen, N., Heppen, J., Bowdon, J., Taylor, S., Eisner, R., & Foster, S. (2017). *Getting students on track for graduation: Impacts of the Early Warning Intervention and Monitoring System after one year* (REL 2017–272). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. https://eric.ed.gov/?id=ED573814

Kemple, J. J., Segeritz, M. D., & Stephenson, N. (2013). Building on-track indicators for high school graduation and college readiness: Evidence from New York City. *Journal of Education for Students P laced at Risk*, *18*(1), 7–28. https://eric.ed.gov/?id=EJ995399

McFarland, J., Cui, J., Holmes, J., & Wang, X. (2019). *Trends in high school dropout and completion rates in the United States:2019* (NCES No. 2020–117). U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

Moore, K. A. (2014). *Making the grades: Assessing the evidence for integrated student supports.* Child Trends. Retrieved November, 11, 2020, from https://www.childtrends.org/publications/making-the-grade-assessing-the-evidence-for-integrated-student-supports

References (cont.)

Oregon Department of Education. (2019). High School Success Fund (Measure 98) & related programs. Retrieved July 26, 2021, from https://www.oregon.gov/ode/students-and-family/GraduationImprovement/Pages/HSS.aspx

Roderick M., Kelley-Kemple T., Johnson D. W., & Beechum, N. O. (2014). Preventable failure: Improvements in long-term outcomes when high schools focused on the ninth grade year. Consortium on Chicago School Research. https://eric.ed.gov/?id=ED553174

Rumberger, R. W., Addis, H., Allensworth, E., Balfanz, R., Duardo, D., & Dynarski, M. (2017). Preventing dropout in secondary schools. (NCEE 2017-4028). National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncee/wwc/practiceguide/24

Seeskin, A., Mahaffie, S., & Usher, A. (2020). The forgotten year: Applying lessons from freshman success to sophomore year. Consortium on Chicago School Research. https://consortium.uchicago.edu/publications/the-forgotten-year

Uekawa, K., Merola, S., Fernandez, F., & Porowski, A. (2010). Creating an early warning system: predictors of dropout in Delaware (REL MA 1.2.75 -10). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Mid-Atlantic. https://eric.ed.gov/?id=ED565682

U.S. Department of Education. (2019). Chronic absenteeism in the nation's schools: A hidden educational crisis. Retrieved June 10, 2021, from https://www2.ed.gov/datastory/chronicabsenteeism.html#one