The Impact of Every Student Succeeds on Educational Attainment: Case Studies Across Geographic Regions*

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Abstract

Education policies have been rigorously analyzed in terms of their effects on student achievement, most frequently through standardized test scores. However, their impact on longer term educational outcomes, most specifically high school graduation and college enrollment, has yet to be rigorously studied. After the passage of the Every Student Succeeds Act in 2015, states were compelled to adjust their education policies to better fit the education systems of their states. Through a case study difference in difference analysis of three key states – Georgia, Maine, and Texas, all of whom significantly changed their educational policies relative to their geographic neighbors – we find a positive effect of ESSA deregulation on human capital investment outcomes in all three cases. Given the differential policy treatments between the three states, we conclude that it was the deregulation inherent to ESSA, not any one policy shift, that caused these changes. Additionally, given a relaxed focus on test score outcomes

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in the wake of ESSA, test scores slowed in growth, or in some cases dropped, echoing the findings of Hanushek et al. (2024). However, these effects are by no means heterogeneous, with at least one state seeing relative gains in test score outcomes. In addition to being one of the first to relate education policies to human capital investment outcomes, this research hopefully provides a useful framework to be applied to a national study of the impact of ESSA.

1 Introduction

The Every Student Succeeds Act (ESSA) was implemented as an attempt to avoid the bureacratic headaches that came into effect as a result of the No Child Left Behind Act (NCLB). While the NCLB sought to improve uniformity across districts through a commitment to a number of standardized tests, the ESSA instead focused on modifying existing testing structures to be more responsive to state and local needs. As a result, federal standardized testing requirements became less stringent, as the "federal accountability" standards became "state accountability" standards.[21] Hanushek et al. (2024) call this decentralization an example of "altered federalism,"[8] explaining that while federal policies may struggle to directly effect educational outcomes, the educational environment shaped by policy influences learning outcomes. As states adopted accountability plans different from the national standard, student educational outcomes were undoubtedly affected. Hence, an analysis of these outcomes, including test scores and educational attainment, could offer a clear picture of policy effectiveness.

As pointed out by Dee and Jacob (2009)[4]and others, standardized testing data is prone to a host of biases that may not accurately encapsulate true student learning outcomes. Hence, this study aims to take a robust approach by measuring human capital investment outcomes (i.e. high school graduation rates, college enrollment rates, etc.), through data provided by the American Community Survey (ACS), in addition to standardized testing data collected by the Stanford Education Data Archive (SEDA). Through an analysis of these measures, I can gain a refined vision of the impact of the ESSA on educational outcomes across stages of ones academic career. Additionally, because of the shift towards state and local jurisdiction of educational policy, comparisons between states offer unique insights into a number of educational policies. As Hanushek et al. (2024)[8] show, because states implemented education policies uniquely, we can compare relevant treatment and comparison groups while allowing the "treatment" to vary (i.e. from more stringent to less stringent policy, or vice versa), which provides a more robust analysis of the impacts of the federal initiative.

Ultimately, our analysis finds that ESSA policies resulted in positive human capital investment outcomes for students. Notably, states making bigger changes relative to NCLB standards saw increases of between 1.6 and 5.1 percentage points per year in high school graduation rates relative to their less policy active neighbors. These impacts began immediately after policy implementation, and appear to have mainly persisted even through the Covid-19 pandemic (albeit with additional noise due to the pandemic). The policies also resulted in a similar (although not simply oppsite) reduction in high school dropout rates, resulting in between 1.9 and 3.0 percentage point reductions in dropouts relative to neighboring states, exhibiting similar stability through the pandemic. Finally, ESSA deregulation did result in an up to 5.3 percentage point reduction in college enrollment rates, although this outcome is the least likely to be interpreted causally based on the scope of ESSA policy, the significance of the coefficients, and the impact of Covid-19 on the outcome. Because of greater state jurisdiction to design their educational policies, educators are no longer hindered by arduous NCLB policies, which leads to more positive classroom experiences at all grades, notably in high school (leading to gains in terms of high school graduation and college enrollment, and a reduction in high school dropout rates).

This paper contributes to the existing literature primarily in its focus on human capital investment outcomes. While a great deal of literature has focused on the effects of increasing human capital on economic outcomes (Mincer (1970),[19] Card (1999),[2] Heckman et al. (2006),[13] and many others), research on what leads to increased human capital investment has been relatively limited. Kuka et al. (2020)[18] analyzes the effect of immigration status on human capital investment through the lens of DACA, but such an analysis clearly is not applicable to students in America at large. Hanushek (2009)[10] focuses on the impacts of school policy in South Asia and other developing countries, finding that while specific policy measures are unclear in their effects on human capital investment, teacher quality is one of the main mechanisms through which human capital can increase. However, the impact of school policy on human capital investment outcomes in developed countries such as the United States has yet to be thoroughly analyzed. Hanushek (2009) notes that because of the vital importance of teacher quality to human capital, policies aimed to improve quality in this way are likely to be most effective. However, specific policy recommendations have yet to be fully formulated by Hanushek or others. While this paper also does not offer explicit policy suggestions for states, it does strongly suggest that carefully designed education policies, paying particular attention to the states' needs, can provide positive effects to young people in the long run.

The rest of the paper will proceed as follows. First, I will introduce a background of the No Child Left Behind Act and how the ESSA differs, as well as more detail on the state policies I am analyzing, in Section 2. Then, I will explain the current literature on policy effects on educational outcomes (primarily focused on the No Child Left Behind Act) in Section 3. Section 4 will introduce my econometric methods and specifications. I will report and interpret my main results in Section 5, and Section 6 will offer a conclusion on the implications of my results.

2 Background

The No Child Left Behind Act (NCLB), implemented in 2002, represented a major federal effort to standardize educational accountability across the United States. Its core provisions required states to conduct regular standardized testing in math, reading, and science, report proficiency levels by school and district, and implement federally mandated interventions in underperforming schools. However, criticisms arose regarding NCLB's emphasis on test-based accountability, which many argued incentivized "teaching to the test" and disproportionately penalized schools serving disadvantaged communities.

Introduced by Senator Lamar Alexander of Tennessee on April 30, 2015 and passed through Congress with broad bipartisan support, the Every Student Succeeds Act (ESSA) sought to minimize the negative effects of the NCLB. Notably, the bill ensures that "[e]very State is required to develop an accountability system for all public schools to improve student achievement and school success, but the State has broad discretion in designing its system" (rather than adhering to federal mandates). Hence, while attempting to avoid the issues of the NCLB, the ESSA introduced significant amounts of heterogeneity between state policies. Hanushek et al. (2024) divide the policy changes into two types: input-based and output-based. Input-based policies are those creating standards for teacher quality directly (such as through compensation for higher teacher degree attainment or performance-based pay). On the other hand, output-based policies attempted to incentivize teacher performance through the performance of their students (most notably, through the use of objective student measures in teacher evaluations).

Rather than evaluating the ESSA's impact through national-level standardized test data, this study focuses on state-level policy changes and their effects on student success. Notably, analyzing policy shifts in different directions (as occurred in the wake of the ESSA) can provide a robust view of the impacts of the ESSA. In particular, Georgia, Maine, and Texas stand out as states diverging in policy choices from their neighbors. Additionally, these neighboring states enacted minimal changes to their education policies in the wake of ESSA.

As seen in Hanushek et al. (2024), Texas strengthened both its output-based and input-based standards, while their neighboring states loosened output-based standards. Georgia loosened both output-based and input-based standards, compared to their neighbors who loosened output-based standards. Finally, Maine weakened their output-based standards and increased input-based standards, while their neighboring states did not implement meaningful policy changes. Descriptive explanations the policy differences are seen in tables 1a and 1b.

Table 1a: Policy Changes of Selected States

	Strengthed Output-Based	**Neutral Output-Based**	**Weakened Output-based**
Strengthened Input-Based	Texas		Maine
Neutral Input-Based			
Weakened Input-Based			Georgia

Table 1b: Policy Changes of Selected States' Comparison Groups

	Strengthed Output-Based	**Neutral Output-Based**	**Weakened Output-based**
Strengthened Input-Based			
Neutral Input-Based		Maine	Georgia, Texas
Weakened Input-Based			

3 Current Literature

The impact of accountability on student achievement has been a central focus of the literature. Dee and Jacob (2009) utilize a comparative interrupted time series analysis to assess the impact of NCLB on student test scores, finding significant improvements in fourth- and eighth-grade math scores but no corresponding gains in reading performance. Similarly, Hanushek and Raymond (2004)[9] analyze state-level NAEP data and conclude that accountability systems introduced in the 1990s contributed to higher achievement gains, particularly among Hispanic students, though they failed to narrow the Black-White achievement gap. These findings suggest that while test-based accountability can drive improvements in measured outcomes, its distributional effects remain uneven. However, Hanushek et al. (2024) find that ESSA's shift to state control led to lower student achievement growth, reversing some of NCLB's gains. A more nuanced perspective on accountability's effectiveness is provided by Neal and Schanzenbach (2007),[20] who demonstrate that proficiency-based accountability models create strong incentives for schools to prioritize students near the proficiency threshold, leading to gains among middle-achieving students but limited benefits for the highest- and lowest-performing students. This phenomenon—referred to as "educational triage"—highlights the distortions in resource allocation caused by test-based accountability and provides a rationale for ESSA's shift towards growth-based performance measures.

Accountability reforms under NCLB introduced public school choice provisions, allowing students in low-performing schools to transfer to higher-performing alternatives. Hastings and Weinstein (2007)[12] examine the introduction of NCLB's school choice provisions in the Charlotte-Mecklenburg School District, finding that 16% of eligible parents responded to the school choice provisions, selecting schools with substantially higher test scores. Using a randomized lottery-based natural experiment, they further show that students who transferred to higher-scoring schools experienced lower suspension rates and academic gains, particularly when moving to schools significantly above the median in quality. Additional evidence on the role of school competition comes from Holmes, DeSimone, and Rupp (2003),[15] who study the effects of charter school expansion in North Carolina. They find that increased competition from charter schools leads to test score gains in traditional public schools, consistent with market-driven models of education quality improvement. These findings suggest that school choice can serve as a mechanism for improvement, but its effectiveness is contingent on the availability of high-quality alternatives—a key consideration in ESSA's de-emphasis on federally mandated school choice provisions.

The literature also documents several unintended effects of test-based accountability. Neal and Schanzenbach (2007) find evidence that schools engage in strategic behavior, focusing disproportionate attention on students who are most likely to cross proficiency thresholds while neglecting students at the very top or bottom of the achievement distribution. Jacob and Levitt (2003)[16] further demonstrate that high-stakes testing creates incentives for schools to manipulate test scores, either through explicit cheating or exclusion of low-performing students from testing pools. Beyond direct academic outcomes, Anderson, Butcher, and Schanzenbach (2011)[1] explore the impact of accountability pressures on student health, finding that schools under high accountability pressure reduced recess and physical activity time, contributing to increased childhood obesity rates. These findings underscore the narrow focus of NCLB's accountability regime, which led to distortions in broader student well-being. In contrast, ESSA expands accountability measures beyond test scores, incorporating non-academic indicators such as school climate and student engagement to promote better long-term student outcomes. Hence, this paper is among the first to link recent educational policy changes with with long-term human capital investment and labor market outcomes.

4 Data and Methods

Given that academic achievement standards were not uniformly enforced in the aftermath of NCLB (see Davidson et al. (2013)[3] and others), analysis of policy which further weakened enforcement uniformity becomes a challenging task. Fortunately, Hanushek et al. (2024) and the non-profit organization the Alliance for Excellent Education (All4Ed) provide a robust set of the effects of ESSA on state policy. Hanushek et al. provides an analysis of states' responses (i.e. strengthening or weakening policy) on the axes of output and input based policies.[1] Meanwhile, the dataset created by All4Ed provides state-by-state analysis of post-ESSA educational policies in terms of three main indicators: long-term goals, support and intervention, and accountability. These standards are then rated on a "traffic-light" scale, offering a comprehensive understanding of proficiencies/deficiencies of state educational policies. Ultimately, these sources are not directly involved in the analysis of this paper, but rather serve as a framework to demarcate treated and control groups to compare outcomes in the wake of the ESSA.

From these sources, our three treatment states were selected: Georgia, Maine, and Texas. These states were chosen given their differential policy changes relative to their neighboring states. These neighboring states are thus used as the comparison group. For Georgia, this

[1]Unfortunately, at the time of this paper, the dataset utilized by Hanushek et al. is not publicly available, meaning that the information that can be gleaned is primarily qualitative in nature.

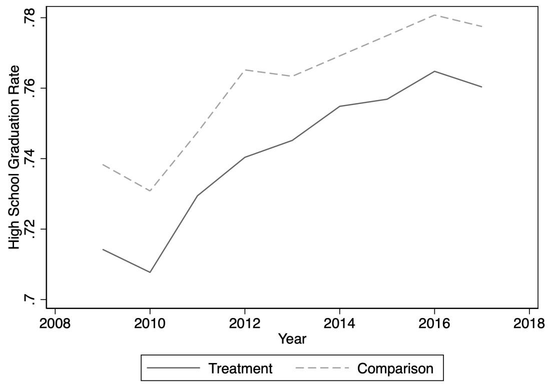
includes Alabama, Florida, South Carolina, and Tennessee. For Maine, New Hampshire and Vermont. Finally, for Texas, Arkansas, Louisiana, New Mexico, and Oklahoma. While the policies between states all changed in slightly different ways, the general trends between treated and "control" states nonetheless offer strong insights into the effects of ESSA's de-federalization of educational policy.

After gleaning appropriate treatment and comparison groups with the help of Hanushek et al. (2024) and the All4Ed dataset, we can analyze differences in state educational outcomes. This includes test score data, which has been accumulated by the Stanford Educational Data Archive (SEDA), including test scores by school district, by subject (reading and math), and by grade (grades 3-8) for the 2009-2019 school years. Additionally, the American Community Survey (ACS) provides data on various educational achievement outcomes of interest: namely high school graduation rates, high school dropout rates, and college[2] enrollment rates for individuals (by state) aged 17-25 for the years 2009-2019. Note that because education policies are implemented at all grades K-12, this time frame may miss some of the impacts of ESSA on the longer term educational outcomes. Hence, analysis is also conducted including samples of 17-25 year olds until 2023. However, given complications due to the Covid-19 pandemic (which greatly impacted educational outcomes at all ages, see Fahle et al. (2023)[5] and others), this is not our main specification. Results using this extended sample are presented in the appendix.

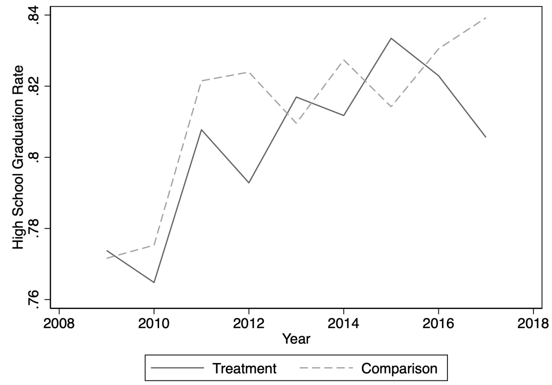
To account for the heterogeneous state trends seen in Figures 1-3, our outcomes cannot simply be measured directly, as in a standard difference in difference model. Instead, as seen in Goodman-Bacon (2021)[6] and others, this study first regresses the outcome on our covariates using a sample of only the pre-period years. Then, the residuals from this regression are used as the outcome in the second stage regression on the same covariates. Thus, a positive coefficient would mean that the predicted outcome is consistently underestimating

[2]In this analysis, both 2 year and 4 year degree programs are considered in the outcome "college enrollment"

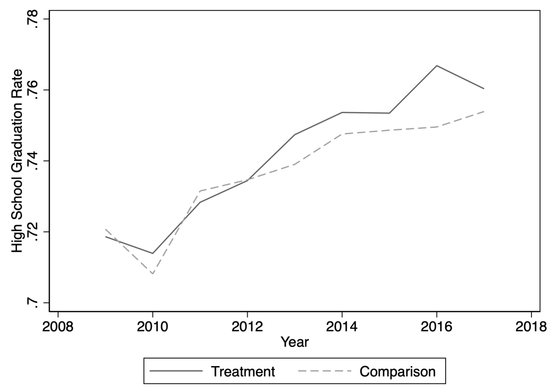
Figure 1: High School Graduation Rates: 2009-2017



(a) Georgia



(b) Maine

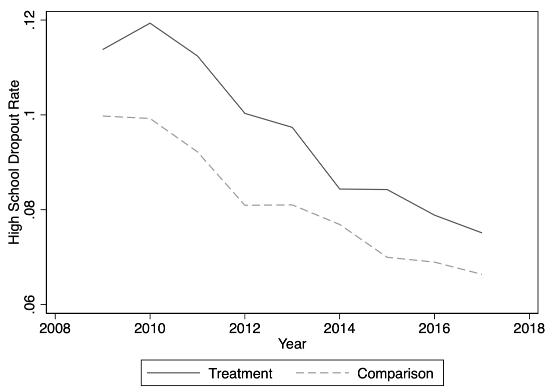


(c) Texas

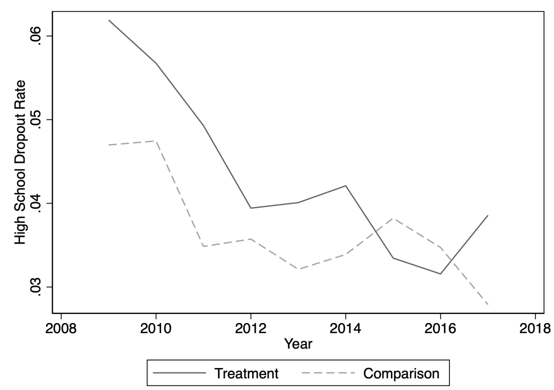
the true outcome in the post-period of the treated state relative to their comparison states. In short, the treated state is doing better than expected. Although this methodology has the benefit of ensuring parallel pre-trends,it makes the potentially questionable assumption that absent the ESSA, trends in the difference between treated and comparison states would have continued into the post-period years. Raw means for our outcomes of interest are included in tables A1 and A2. Notice that while the raw data may imply particular trends, our de-trended model works to ensure that any differential trends in the pre-period are accounted for.

Mechanically, when considering the ACS data source, we take our outcome variable

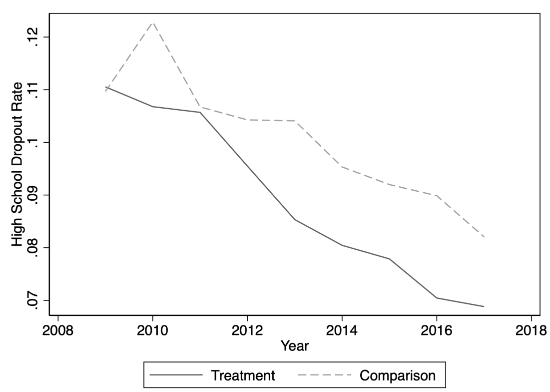
Figure 2: High School Dropout Rates: 2009-2017



(a) Georgia



(b) Maine



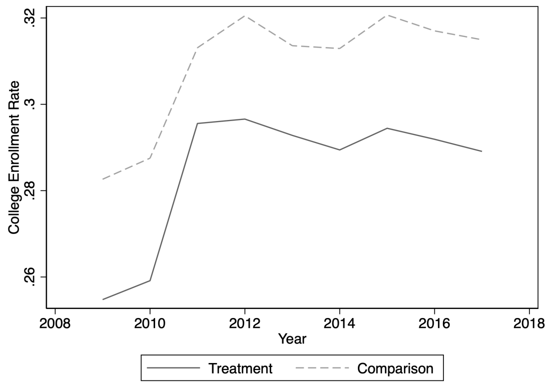
(c) Texas

of interest, Y_{st} (being high school graduation rates, high school dropout rates, or college enrollment rates), and regress it on our covariates only in the years before the implementation of ESSA. This takes the form of equation 1.

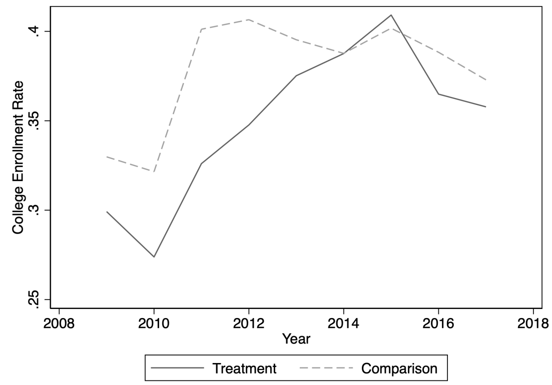
$$Y_{st} = \alpha_0 + \alpha_1 * Treat_s + \alpha_2 * Year + \alpha_3 * Treat_s * Year + X_{st} + \gamma_s + +\zeta_{st} \qquad (1)$$

Where X_{st} is a vector of controls including covariates for race/ethnicity and education level of the survey respondent's parents. γ_s is a set of state fixed effects, and ζ_{st} is an error term. Finally, our regressions are weighted using the ACS' individual weighting structure. From this regression, we predict the demeaned residual for each data point, which we call Z_{st}.

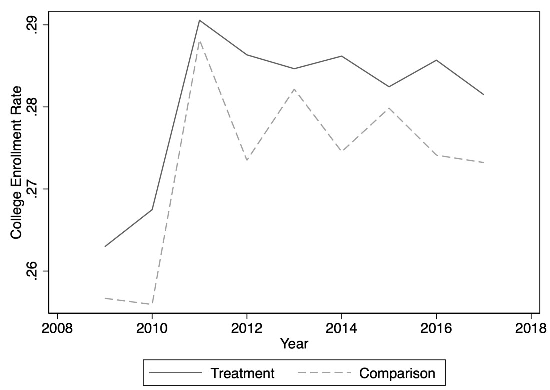
Figure 3: College Enrollment Rates: 2009-2017



(a) Georgia



(b) Maine



(c) Texas

This value should be centered around 0 in the pre-ESSA years, but is allowed to vary in the post-ESSA years. Thus, we create our standard difference in difference specification, seen in equation 2.

$$Z_{st} = \beta_0 + \beta_1 * Treat_s + \beta_2 * Post_t + \beta_3 * Treat_s * Post_t + X_{st} + \gamma_s + \epsilon_{st} \tag{2}$$

Note that the covariates we include are the same in both regressions. That must hold for the validity of the methodology, but we allow the level of covariates (i.e. X_{st}) to change. The results of varying levels of controls are presented in the appendix.

Given the generally uniform timing of the federal policy,[3] we can also easily transition equation 2 into an event study model, creating a universal treatment time of the year 2017. This is equivalent to equation 2, only we create an interaction term between treatment and the year relative to 2017 for every year from 2009-2019. Tables of these results are reported in the appendix, and form the key findings in our results section.

Considering the school testing data, our specification is almost the same as seen in equations 1 and 2. However, given that our data covers grades 3-8, we fully interact the treatment and year variables with the associated grade level of the test takers. This accounts for variation in the ages of students sampled in the SEDA data.

$$\begin{aligned} Score_{st} = \alpha_0 + \alpha_1 * Treat_s + \alpha_2 * Year + \alpha_3 * Treat_s * Year + \alpha_4 * Grade + \alpha_5 * Treat_s \\ * Grade + \alpha_6 * Year * Grade + \alpha_7 * Treat_s * Year * Grade + X_{st} + \gamma_s + \zeta_{st} \end{aligned} \tag{3}$$

Hence, to fully account for the grade variation, we include a control for grade in our secondary regression as well, seen in equation 4. Z_{st} is still our detrended outcome of interest as in equation 2.

$$Z_{st} = \beta_0 + \beta_1 * Treat_s + \beta_2 * Post_t + \beta_3 * Treat_s * Post_t + Grade + \gamma_s + X_{st} + \epsilon_{st} \tag{4}$$

Additionally, with the SEDA data, X_{st} represents school controls (racial demographics of school, size/urbanicity of school, income/poverty level of parents). γ_s still represents a set of state fixed effects. Standard errors are clustered by school district.

As table 1b shows, the treatment indicator does not solely divide a state that received a treatment from a state that did not receive a treatment. However, the difference in difference specification still provide important insights into the effects of heterogeneous policies. Maine's comparison states did not engage in meaningful policy change in terms of output-based or input-based assessment measures, providing a quality comparison group in the

[3]After the federal policy was passed in 2015, the states analyzed in this paper all submitted policy proposals in the six month period between April and October 2017.

typical sense. Georgia provides an insight into the impact of weakened input-based standards. Finally, Texas provides insights into stronger standards in both dimensions. Given that the selected policies are themselves separate, we run three separate analyses with the coefficient on the interaction term, β_3, being our main coefficient of interest.

Seen below are balance tests for the key covariates available through the ACS data source. Balance tests for key SEDA covariates are seen in the appendix[4]. Even though a number of variables experience changes at the 1% significance level, the magnitude of these coefficients (all less than 2% in magnitude) means that we should not be particularly concerned about any major variation in our covariates.

Table 2a: Difference in Difference Balance Test of ACS Covariates: Georgia

VARIABLES	(1) Female	(2) Black	(3) Native American	(4) Asian	(5) Other Race/Ethnicity	(6) Parents with One Degree	(7) Parents with Two High School Diplomas	(8) Parents with One High School Diploma	(9) Parents Both Without Diploma
Post x Treatment	0.00336	0.00604*	0.00184***	0.00135	-0.00449***	0.00258	0.000535	-0.00907**	0.00747**
	(0.00363)	(0.00318)	(0.000428)	(0.00116)	(0.00169)	(0.00530)	(0.00624)	(0.00398)	(0.00295)
Constant	0.485***	0.267***	0.00283***	0.0215***	0.0491***	0.212***	0.460***	0.131***	0.0540***
	(0.00231)	(0.00203)	(0.000272)	(0.000739)	(0.00108)	(0.00346)	(0.00407)	(0.00260)	(0.00192)
Observations	532,365	532,365	532,365	532,365	532,365	177,422	177,422	177,422	177,422
R-squared	0.000	0.020	0.000	0.003	0.003	0.002	0.003	0.001	0.002

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2b: Difference in Difference Balance Test of ACS Covariates: Maine

VARIABLES	(1) Female	(2) Black	(3) Native American	(4) Asian	(5) Other Race/Ethnicity	(6) Parents with One Degree	(7) Parents with Two High School Diplomas	(8) Parents with One High School Diploma	(9) Parents Both Without Diploma
Post x Treatment	-0.0105	-0.00584*	-0.00532***	-0.00126	-0.00113	-0.00125	0.0229	-0.0151	0.000436
	(0.0119)	(0.00343)	(0.00171)	(0.00362)	(0.00423)	(0.0176)	(0.0204)	(0.0104)	(0.00501)
Constant	0.488***	0.0208***	0.00729***	0.0208***	0.0317***	0.203***	0.491***	0.0861***	0.0218***
	(0.00818)	(0.00235)	(0.00117)	(0.00248)	(0.00290)	(0.0117)	(0.0135)	(0.00692)	(0.00332)
Observations	38,595	38,595	38,595	38,595	38,595	13,383	13,383	13,383	13,383
R-squared	0.000	0.000	0.004	0.001	0.001	0.005	0.008	0.003	0.001

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[4]Note that the SEDA dataset had a much more robust set of covariates than the ones included in the appendix tables. However, for brevity, only the ones theoretically most likely to impact test scores were included in the appendix tables. Due to sample size issues, many of these coefficients are omitted from our preferred specification anyways

Table 2c: Difference in Difference Balance Test of ACS Covariates: Texas

VARIABLES	(1) Female	(2) Black	(3) Native American	(4) Asian	(5) Other Race/Ethnicity	(6) Parents with One Degree	(7) Parents with Two High School Diplomas	(8) Parents with One High School Diploma	(9) Parents Both Without Diploma
Post x Treatment	0.00752**	0.00287	-8.29e-05	0.00327***	-0.00869***	-0.00440	0.0118**	0.0125***	-0.0125***
	(0.00345)	(0.00242)	(0.000907)	(0.00125)	(0.00204)	(0.00474)	(0.00583)	(0.00421)	(0.00417)
Constant	0.484***	0.156***	0.0174***	0.0267***	0.108***	0.177***	0.399***	0.148***	0.146***
	(0.00245)	(0.00172)	(0.000644)	(0.000887)	(0.00145)	(0.00340)	(0.00418)	(0.00302)	(0.00299)
Observations	480,860	480,860	480,860	480,860	480,860	166,721	166,721	166,721	166,721
R-squared	0.000	0.057	0.057	0.004	0.010	0.002	0.010	0.001	0.017

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5 Results

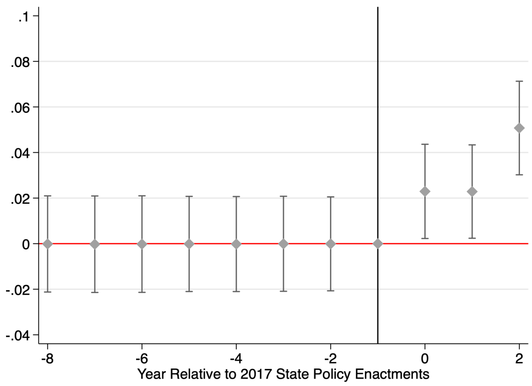
5.1 Human Capital Investment Outcomes

We begin our results analysis with a discussion of ESSA's impact on human capital investment outcomes. Coefficients discussed here are included in tables A1-A5 in the appendix. The results of the event study on high school graduation rates are seen in Figure 4. The figures shown in this section include controls based on race and parental education level, and are weighted by the person weight data point included in ACS survey data (the specification seen in column 4 of the appendix tables, our most restrictive specification).

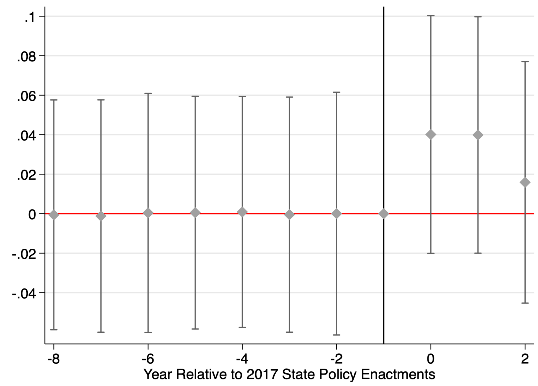
Georgia (Figure 4a) saw a 9.66 percentage point increase (annually ranging between 2.29 and 5.08 percentage points) in high school graduation rates following the state's ESSA-driven reduction in both input-based and output-based accountability measures. The coefficients are significant at the 95% confidence level or higher in every post-treatment year. This represents a substantial departure from pre-policy trends, suggesting that the relaxation of accountability pressures allowed more students to complete high school rather than dropping out.

In the case of Maine (Figure 4b), their reduction in output-based accountability measures resulted in an increase in high school graduation by 9.59 percentage points (ranging annually between 1.59 and 4.01), an almost identical coefficient in total to that of Georgia. However, given the smaller sample size available for the state, these coefficients are not significant at any meaningful level.

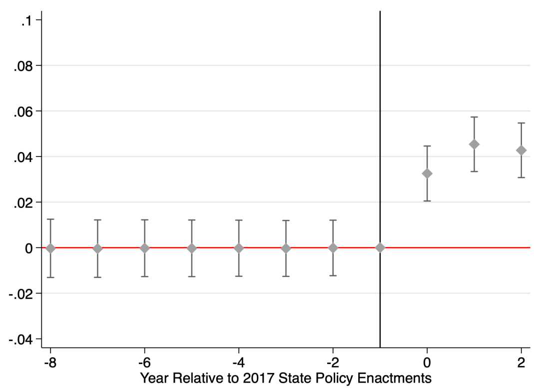
Figure 4: Event Study: Detrended High School Graduation Rates



(a) Georgia



(b) Maine



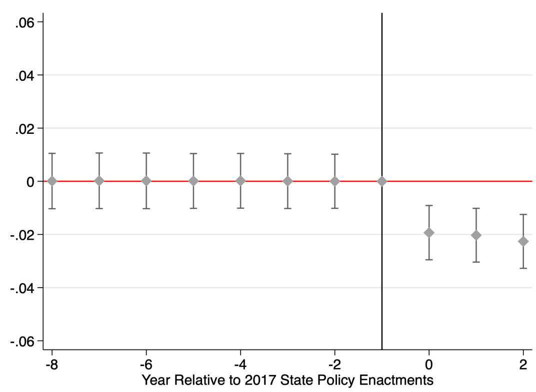
(c) Texas

Note: 95% Confidence Intervals Displayed

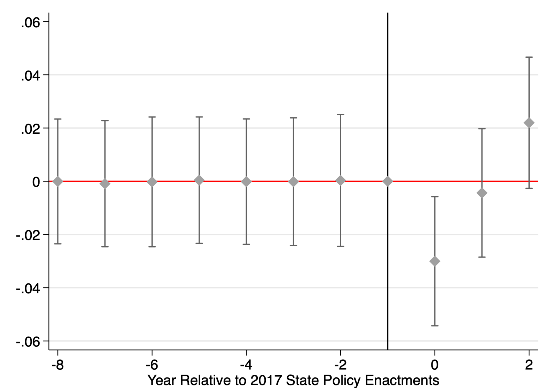
Finally, in Texas (Figure 4c), where the state strengthened both input- and output-based accountability measures relative to their comparison group, saw a total increase of 12.06 percentage points (between 3.25 and 4.54 percentage points annually) in high school graduation rates relative to their neighboring states. This suggests that tightening accountability mechanisms can also improve graduation rates, potentially through enhanced school support systems or intervention programs targeting at-risk students.

Admittedly, these findings seem rather contradictory: states engaging in some cases in directly oppositional policy decisions and obtaining similar outcomes. These results suggest that ESSA's decentralized approach allowed states to tailor policies in ways that improved student retention, either by reducing high-stakes testing pressure (Georgia) or increasing institutional accountability (Texas). By allowing states lenience to enforce standards in a way more appropriate to their needs, the ESSA allowed states to provide more tailored educational experiences, leading to more positive long-term outcomes for students. Hence, the question of what makes effective education policy does not appear to have a straightforward/singular answer, but rather depends on the ability of the state to be responsive and transform policy based on their individual needs.

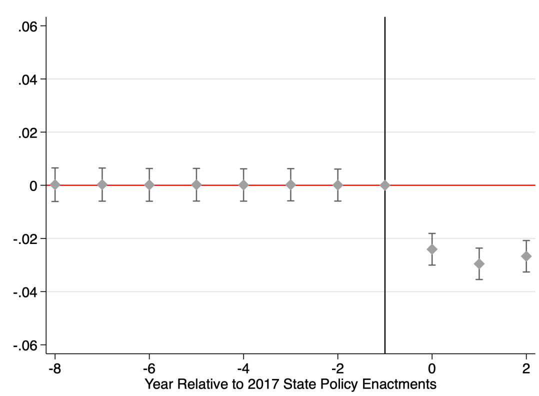
Figure 5: Event Study: Detrended High School Dropout Rates



(a) Georgia



(b) Maine



(c) Texas

Note: 95% Confidence Intervals Displayed

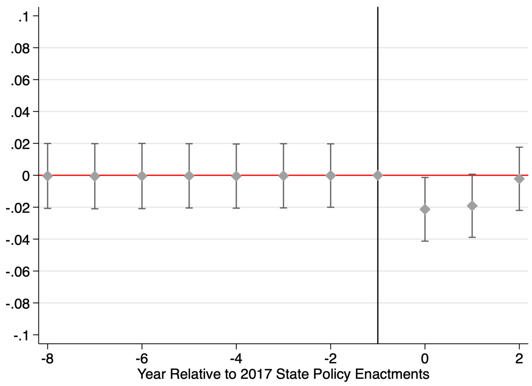
Furthermore, in Georgia (Figure 5a), ESSA policy also resulted in a 6.22 percentage point reduction in high school drop out rate (between 1.93 and 2.26 percentage points annually)

, with coefficients significant at the 99% level in every year. In Maine (5b), the results are once again less conclusive, but not simply because of the small sample size. In 2017 (the year of policy passage), Maine saw a 3 percentage point reduction in high school dropout rates (significant at the 95% level), but by 2019, the state's high school dropout rate was 2.2 percentage points above pre-ESSA trends (significant at the 90% level). This pattern suggests a temporary reduction in dropout rates that was not sustained, possibly due to weaker enforcement of accountability standards over time. Finally, in Texas (5c), ESSA policy resulted in a total 8.03 percentage point reduction in dropout rates (2.41 to 2.95 percentage points annually). Taken together, these findings show that while ESSA policies consistently improved graduation rates, their impact on dropout rates varied in persistence across states, depending much more on implementation and policy design by state.

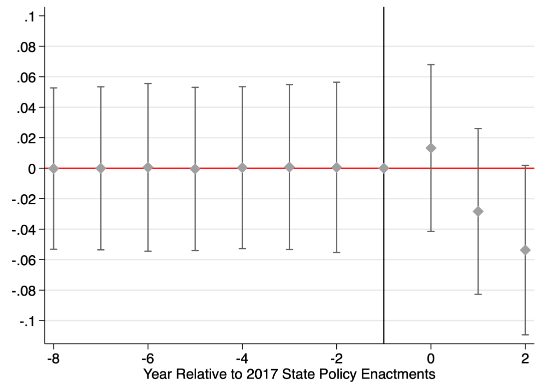
Note that the coefficients for dropout rates are not simply opposite those of high school graduation rates. This is because the ACS data set includes students who have not yet graduated but are still in high school. In our definition of high school dropouts, we specified that such students must currently not be in school and be without a high school degree.

Finally, Figure 6 shows the impact of ESSA on college enrollment rates. This was the most ambitious outcome examined by this paper, as the ESSA at best could have residual effects on student motivation past high school graduation. So it is unsurprising that the coefficients for this outcome are by far some of the smallest, and no state has more than one year with a coefficient significant at the 95% confidence level. Hence, we can clearly state that the effects, if any, of ESSA on college enrollment are quite minimal. What is interesting, however, is that these coefficients are generally negative, suggesting a negative impact of ESSA on college enrollment rates. For instance, Georgia saw a 2.13 percentage point decrease in college enrollment rates in 2017 (the year of the state policy implementation), a coefficient significant at the 95% level. While some research has been done to investigate the emerging phenomenon of falling college enrollment rates (i.e. the Gates Foundation[22] and others), a thorough analysis of this topic is beyond the scope of this paper.

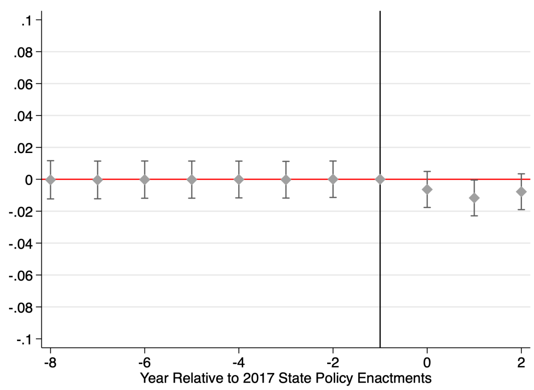
Figure 6: Event Study: Detrended College Enrollment Rates



(a) Georgia



(b) Maine



(c) Texas

Note: 95% Confidence Intervals Displayed

5.2 Test Score Outcomes

For younger grades (grades 3-8), the effects of any education policy are most likely to be seen with respect to student test scores. Hence, we analyze student test score trends across states, controlling for effects by grade level. Event study tables are included in the appendix, showing the effects of test scores with a variety of different control measures. However, our main specification is seen in Figure 7. After detrending with respect to state by year by grade variation in the pre-period, we were able to analyze the impact of ESSA on student test scores. Tables A13-A15 report our findings implementing a variety of controls. Column

4 of these tables is our preferred specification, with “pooled controls” representing controls for racial demography, urbanicity, size of school, as well as income and poverty level of the parents in the school district.

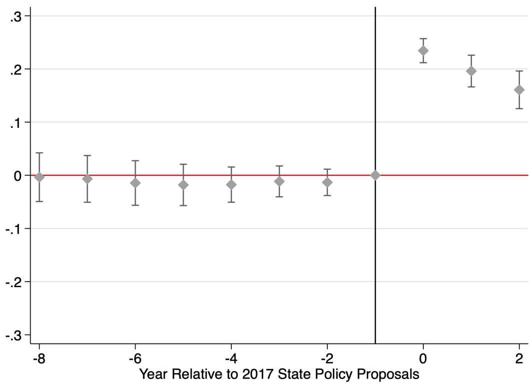
Georgia (Figure 7a) saw a total increase of 0.59 test score points, relative to average test scores in the pre-period, in the years after the implementation of the ESSA. This effect appears mostly steady across each year of treatment, meaning that the state policy introduced in the wake of ESSA may have promoted a somewhat permanent positive change in test score outcomes for students in Georgia.

In Maine (Figure 7b), ESSA policy changes resulted in a total 0.39 point reduction in test scores relative to pre-period averages. The worsening test score outcomes over time suggest that in Maine, the stringent policies of NCLB were propping up test scores and without them, educators were unable to extract the same performance levels from students.

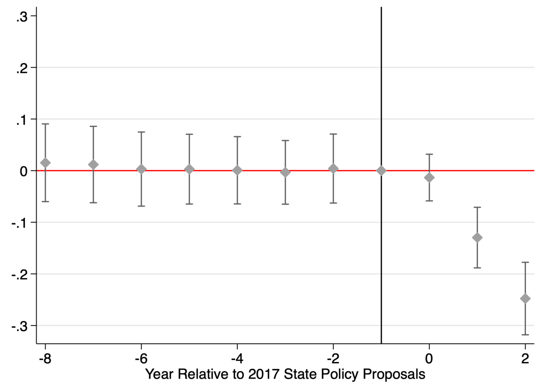
In Texas (Figure 7c), ESSA brought about a 0.05 total point reduction in test scores relative to the pre-period. However, this finding is extremely statistically insignificant. Given that NCLB emphasized stringent test score standards, it is unsurprising that Texas, who strengthened their accountability policies in the wake of ESSA, should experience little divergence from their prior trends. As Texas’ results helps to show, the fact that test scores do not improve as consistently as graduation rates suggests that graduation and learning outcomes may not be perfectly aligned.

Ultimately, while these outcomes provide an interesting insight into the effects of ESSA on test scores, it is difficult to parse out any kind of universal effect of the ESSA on test score outcomes. Instead, the outcomes likely all vary by state as they adjust their academic standards to better fit their needs in the post-ESSA world. While some states such as Georgia took the passage of ESSA to provide a better tailored schooling environment at all ages, in other states such as Maine, the lack of strict policy enforcement meant students fall behind in terms of test scores. Although Hanushek et al. (2024) find slowing growth in test scores in general, this paper qualifies that finding by pointing out the existence of states improving

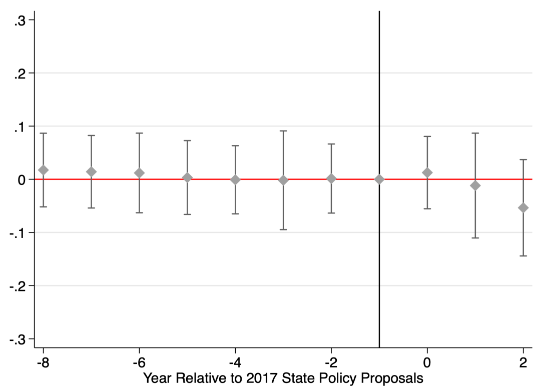
Figure 7: Event Study: Detrended Mean School Test Scores



(a) Georgia



(b) Maine



(c) Texas

Note: 95% Confidence Intervals Displayed

test score growth post-ESSA.

6 Discussion

As seen in the appendix tables, our methodology is generally robust to controls (excepting specifications which greatly reduce the sample size, which raises selection bias concerns with respect to these specific covariates). With respect to the ACS data, our main results are also generally our most conservative estimates, meaning that the true effect of ESSA deregulation may actually be larger than our primary estimates suggest. Additionally, figures A1-A3 confirm that the effects of ESSA on human capital investment outcomes generally persist beyond 2019, albeit with noise introduced by the Covid-19 pandemic. Hence it appears strongly unlikely that the positive increases in human capital outcomes were due to random yearly variation, which is particularly important as our model specifically did not include year fixed effects in the detrended regressions as an attempt to more accurately capture the impacts of ESSA deregulation.

Given the case study methodology of this study, we cannot yet draw any conclusions on a national scale of the effect of ESSA-induced state policy changes on human capital investment outcomes. However, the robustness of our findings suggests that the conclusions we can draw with respect to our studied states can be interpreted causally. While our findings support the positive effects of state control of education policy and standards, they also do not make any explicit suggestions as to the most successful policies for states to implement to improve human capital investment outcomes. This is one of the main drawbacks of the case study method, as the policy effects cannot be easily extrapolated from the states in which they were implemented. This is the major area for further research, although the robustness of these models suggests that they provide a strong groundwork for future national analysis. Additionally, analysis of human capital investment outcomes in the wake of ESSA could eventually turn to analysis of labor market outcomes, although currently available data would likely produce speculative results at best due to the recency of the policy.

7 Conclusion

This paper is among the first to link educational policy with human capital investment decisions. Using a detrended difference in difference model, we find that definitive policy action in the wake of ESSA federal deregulation led to relative gains in terms of high school graduation rates and high school dropout rates. The effects found through our model on college enrollment are negative, but likely to be confounded by national trends away from college enrollment. Additionally, ESSA deregulation led to a decreased emphasis on test score outcomes in many states, meaning that it is unsurprising that test scores fell in many states. This finding confirms that of Hanushek et al. (2024). However, while Hanushek et al. discuss a national slowing of test score growth, this paper finds evidence of relative test score gains in at least one state (Georgia) in the wake of ESSA.

This paper is among the first to explicitly suggest that higher test scores do not equate to better human capital investment outcomes. While this may have been an implicit finding in the literature discussing the negative effects of testing pressures on student well being, this paper is one of the first to clearly make that connection. Because of the positive effects of ESSA deregulation on states when they took strong policy action, states should hopefully feel incentive, not towards any explicit policy decision, but towards a thorough analysis of their education systems in order to make stronger policy decisions with regards to their input- and output-based assessment measures.

Acknowledgments

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Alliance for Excellent Education (All4Ed) database can be accessed here: https://all4ed.org/publication/essa-in-your-state/

A summary of the Every Student Succeeds Act is available here: https://www.ed.gov/sites/ed/files/policy/elsec/leg/essa/essa-flex.pdf

The full Every Student Succeeds Act is available here: https://www.congress.gov/bill/114th-congress/senate-bill/1177

The full No Child Left Behind Act is available here: https://www.congress.gov/bill/107th-congress/house-bill/1/text

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Appendix

Table A1: Mean Human Capital Investment Outcomes

	Georgia		Comparison States	
VARIABLES	Pre-2017	Post-2017	Pre-2017	Post-2017
High School Graduation Rate	.7394	.7665	.7589	.7845
	(.439)	(.423)	(.4277)	(.4111)
High School Dropout Rate	.0987	.0726	.0835	.0641
	(.2983)	(.2595)	(.2766)	(.245)
College Enrollment Rate	.2847	.2883	.3088	.3139
	(.4513)	(.453)	(.462)	(.4641)
Observations	88,362	33,740	298,555	111,708

	Maine		Comparison States	
VARIABLES	Pre-2017	Post-2017	Pre-2017	Post-2017
High School Graduation Rate	.8035	.8093	.8101	.837
	(.3974)	(.3929)	(.3922)	(.3693)
High School Dropout Rate	.0442	.0405	.0378	.0325
	(.2054)	(.1972)	(.1907)	(.1773)
College Enrollment Rate	.3485	.339	.3804	.375
	(.4765)	(.4734)	(.4855)	(.4842)
Observations	10,486	3,849	17,577	6,683

	Texas		Comparison States	
VARIABLES	Pre-2017	Post-2017	Pre-2017	Post-2017
High School Graduation Rate	.74	.7659	.7351	.7611
	(.4386)	(.4234)	(.4413)	(.4264)
High School Dropout Rate	.0912	.0652	.103	.0789
	(.2879)	(.2469)	(.304)	(.2696)
College Enrollment Rate	.2811	.2808	.2733	.2738
	(.4495)	(.4494)	(.4457)	(.4459)
Observations	230,946	90,338	116,890	42,686

Standard deviations in parentheses

Table A2: Mean Test Scores By Grade

	Georgia		Comparison States	
VARIABLES	Pre-2017	Post-2017	Pre-2017	Post-2017
Grade 3	2.6857	2.6126	2.6599	2.6808
	(.9327)	(1.0544)	(1.114)	(1.1824)
Grade 4	3.5678	3.4606	3.5506	3.5579
	(.9599)	(1.1205)	(1.1118)	(1.1962)
Grade 5	4.5102	4.4719	4.4651	4.4666
	(.981)	(1.1098)	(1.1604)	(1.2117)
Grade 6	5.4126	5.4544	5.472	5.4793
	(.9824)	(1.1549)	(1.1617)	(1.1952)
Grade 7	6.3627	6.4662	6.4005	6.3244
	(.9857)	(1.1436)	(1.2285)	(1.2816)
Grade 8	7.3823	7.5673	7.268	7.1139
	(1.045)	(1.2337)	(1.289)	(1.3468)
Observations	17,152	6,371	37,036	14,398

	Maine		Comparison States	
VARIABLES	Pre-2017	Post-2017	Pre-2017	Post-2017
Grade 3	3.3511	3.1301	3.9898	3.6468
	(.885)	(1.062)	(.9006)	(1.0986)
Grade 4	4.3774	4.0898	4.9822	4.6993
	(.906)	(1.0582)	(.9269)	(1.1702)
Grade 5	5.3697	5.1066	5.9911	5.7025
	(.9739)	(1.0766)	(.9809)	(1.2397)
Grade 6	6.3729	6.2004	7.0153	6.8448
	(1.0344)	(1.0947)	(1.0274)	(1.2505)
Grade 7	7.3303	7.1085	7.9877	7.7928
	(1.1341)	(1.1407)	(1.0594)	(1.1938)
Grade 8	8.4561	8.184	9.0248	8.9083
	(1.1381)	(1.2631)	(1.1446)	(1.2505)
Observations	10,701	3,901	15,542	4,151

	Texas		Comparison States	
VARIABLES	Pre-2017	Post-2017	Pre-2017	Post-2017
Grade 3	2.8663	3.2333	2.6814	2.6986
	(.9612)	(.9416)	(1.1478)	(1.1718)
Grade 4	3.9327	3.8222	3.5492	3.5583
	(1.1235)	(1.0285)	(1.1168)	(1.1917)
Grade 5	4.7193	4.5434	4.4246	4.4332
	(1.1109)	(1.1725)	(1.1283)	(1.2138)
Grade 6	5.8313	5.5625	5.4352	5.4078
	(1.1289)	(1.17)	(1.1138)	(1.1619)
Grade 7	6.7887	6.1208	6.3006	6.3204
	(1.0729)	(1.208)	(1.1162)	(1.1799)
Grade 8	7.7422	7.2269	7.2745	7.2507
	(1.1201)	(1.0003)	(1.137)	(1.2645)
Observations	62,965	22,360	68,414	24,781

Standard deviations in parentheses

Table A3: Event Study: Detrended High School Graduation Rates in Georgia

VARIABLES	(1)	(2)	(3)	(4)
t=2	0.0515***	0.0526***	0.0509***	0.0508***
	(0.00561)	(0.00560)	(0.0105)	(0.0105)
t=1	0.0384***	0.0388***	0.0237**	0.0229**
	(0.00561)	(0.00560)	(0.0105)	(0.0105)
t=0	0.0376***	0.0384***	0.0230**	0.0229**
	(0.00562)	(0.00561)	(0.0106)	(0.0105)
t=-2	3.69e-06	-5.92e-05	4.20e-05	-8.32e-05
	(0.00563)	(0.00561)	(0.0105)	(0.0105)
t=-3	2.39e-06	4.41e-05	-8.06e-05	-5.81e-05
	(0.00563)	(0.00562)	(0.0106)	(0.0106)
t=-4	4.51e-06	4.41e-06	-0.000161	-0.000174
	(0.00563)	(0.00562)	(0.0106)	(0.0106)
t=-5	-5.60e-07	3.51e-05	-0.000113	-0.000123
	(0.00565)	(0.00564)	(0.0107)	(0.0107)
t=-6	2.73e-06	0.000133	-0.000138	-0.000188
	(0.00565)	(0.00564)	(0.0108)	(0.0108)
t=-7	6.07e-06	4.96e-05	-0.000197	-0.000250
	(0.00568)	(0.00567)	(0.0108)	(0.0108)
t=-8	-1.12e-05	0.000106	-3.71e-05	-0.000129
	(0.00565)	(0.00564)	(0.0108)	(0.0108)
Constant	0.00908***	0.00628***	0.00381	0.00322
	(0.00120)	(0.00127)	(0.00335)	(0.00338)
Observations	532,365	532,365	177,422	177,422
R-squared	0.001	0.001	0.001	0.002
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: ACS

Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year $t=-1$.

Table A4: Event Study: Detrended High School Graduation Rates in Maine

VARIABLES	(1)	(2)	(3)	(4)
t=2	0.0265*	0.0273*	0.0148	0.0159
	(0.0154)	(0.0154)	(0.0312)	(0.0312)
t=1	0.0283*	0.0277*	0.0407	0.0399
	(0.0155)	(0.0155)	(0.0305)	(0.0305)
t=0	0.0323**	0.0320**	0.0413	0.0401
	(0.0155)	(0.0155)	(0.0307)	(0.0307)
t=-2	-2.29e-05	-2.42e-05	-0.000461	4.12e-05
	(0.0152)	(0.0152)	(0.0314)	(0.0314)
t=-3	-5.44e-06	0.000222	-0.000522	-0.000471
	(0.0152)	(0.0152)	(0.0304)	(0.0304)
t=-4	-9.64e-06	0.000407	0.000504	0.000874
	(0.0152)	(0.0152)	(0.0298)	(0.0298)
t=-5	-1.06e-05	0.000636	7.63e-05	0.000533
	(0.0151)	(0.0151)	(0.0301)	(0.0301)
t=-6	-2.95e-05	7.51e-05	-0.000417	0.000403
	(0.0152)	(0.0152)	(0.0309)	(0.0309)
t=-7	-1.49e-05	0.000410	-0.000841	-0.00119
	(0.0152)	(0.0152)	(0.0300)	(0.0300)
t=-8	-2.21e-05	0.000266	-0.000547	-0.000587
	(0.0151)	(0.0150)	(0.0297)	(0.0297)
Constant	0.00563	0.00556	4.48e-05	-0.000337
	(0.00477)	(0.00480)	(0.0121)	(0.0121)
Observations	38,595	38,595	13,383	13,383
R-squared	0.001	0.001	0.002	0.002
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: ACS
Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year t=−1.

Table A5: Event Study: Detrended High School Graduation Rates in Texas

VARIABLES	(1)	(2)	(3)	(4)
t=2	0.0455***	0.0432***	0.0434***	0.0427***
	(0.00348)	(0.00348)	(0.00611)	(0.00611)
t=1	0.0454***	0.0427***	0.0464***	0.0454***
	(0.00349)	(0.00348)	(0.00610)	(0.00610)
t=0	0.0384***	0.0358***	0.0332***	0.0325***
	(0.00350)	(0.00349)	(0.00615)	(0.00615)
t=-2	9.35e-06	4.37e-05	-0.000152	-0.000117
	(0.00351)	(0.00350)	(0.00622)	(0.00621)
t=-3	-1.66e-06	-4.29e-05	-0.000329	-0.000345
	(0.00352)	(0.00351)	(0.00626)	(0.00626)
t=-4	1.16e-06	-3.88e-05	-0.000253	-0.000243
	(0.00353)	(0.00352)	(0.00628)	(0.00628)
t=-5	-1.50e-05	-7.73e-05	-0.000294	-0.000282
	(0.00354)	(0.00354)	(0.00634)	(0.00634)
t=-6	-3.69e-06	-0.000129	-0.000250	-0.000241
	(0.00355)	(0.00355)	(0.00636)	(0.00635)
t=-7	1.16e-06	-0.000158	-0.000424	-0.000425
	(0.00356)	(0.00356)	(0.00643)	(0.00643)
t=-8	-8.53e-06	-0.000241	-0.000280	-0.000305
	(0.00360)	(0.00359)	(0.00653)	(0.00652)
Constant	0.00354*	0.00271	-0.00597	-0.00657
	(0.00181)	(0.00185)	(0.00440)	(0.00445)
Observations	480,860	480,860	166,721	166,721
R-squared	0.002	0.002	0.003	0.003
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: ACS
Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year t=−1.

Table A6: Event Study: Detrended High School Dropout Rates in Georgia

VARIABLES	(1)	(2)	(3)	(4)
t=2	-0.0497***	-0.0504***	-0.0231***	-0.0226***
	(0.00368)	(0.00367)	(0.00517)	(0.00517)
t=1	-0.0470***	-0.0472***	-0.0212***	-0.0203***
	(0.00368)	(0.00367)	(0.00516)	(0.00516)
t=0	-0.0437***	-0.0442***	-0.0195***	-0.0193***
	(0.00368)	(0.00368)	(0.00521)	(0.00521)
t=-2	-4.64e-06	6.77e-05	-1.20e-05	1.73e-05
	(0.00369)	(0.00368)	(0.00519)	(0.00519)
t=-3	-3.01e-06	-4.84e-05	7.23e-05	6.56e-05
	(0.00369)	(0.00368)	(0.00525)	(0.00525)
t=-4	-5.68e-06	8.14e-06	0.000181	0.000181
	(0.00369)	(0.00368)	(0.00525)	(0.00525)
t=-5	6.98e-07	-1.16e-05	0.000120	0.000124
	(0.00371)	(0.00370)	(0.00526)	(0.00526)
t=-6	-3.44e-06	-9.60e-05	0.000158	0.000162
	(0.00370)	(0.00370)	(0.00534)	(0.00533)
t=-7	-7.64e-06	-1.19e-06	0.000190	0.000194
	(0.00372)	(0.00371)	(0.00533)	(0.00533)
t=-8	1.41e-05	-7.67e-05	8.81e-05	9.65e-05
	(0.00370)	(0.00370)	(0.00531)	(0.00531)
Constant	-0.00934***	-0.00755***	-0.00188	-0.00165
	(0.000784)	(0.000831)	(0.00165)	(0.00167)
Observations	532,365	532,365	177,422	177,422
R-squared	0.002	0.002	0.001	0.001
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: ACS
Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year t=−1.

Table A7: Event Study: Detrended High School Dropout Rates in Maine

VARIABLES	(1)	(2)	(3)	(4)
t=2	-0.0105	-0.0106	0.0216*	0.0220*
	(0.00828)	(0.00827)	(0.0126)	(0.0126)
t=1	-0.0159*	-0.0153*	-0.00456	-0.00437
	(0.00832)	(0.00832)	(0.0123)	(0.0123)
t=0	-0.0312***	-0.0309***	-0.0299**	-0.0300**
	(0.00833)	(0.00832)	(0.0124)	(0.0124)
t=-2	-1.02e-05	-2.98e-05	0.000168	0.000313
	(0.00818)	(0.00817)	(0.0126)	(0.0126)
t=-3	-2.42e-06	-7.28e-05	0.000118	-0.000159
	(0.00817)	(0.00816)	(0.0122)	(0.0122)
t=-4	-4.30e-06	-0.000188	-0.000277	-0.000139
	(0.00818)	(0.00818)	(0.0120)	(0.0120)
t=-5	-4.71e-06	-4.92e-05	-0.000350	0.000422
	(0.00814)	(0.00813)	(0.0121)	(0.0121)
t=-6	-1.31e-05	-5.82e-05	4.75e-05	-0.000233
	(0.00819)	(0.00818)	(0.0124)	(0.0124)
t=-7	-6.63e-06	-4.64e-05	1.73e-05	-0.000906
	(0.00818)	(0.00817)	(0.0121)	(0.0121)
t=-8	-9.86e-06	-8.27e-05	-6.37e-05	-6.10e-05
	(0.00809)	(0.00809)	(0.0120)	(0.0120)
Constant	-0.00143	-0.00203	0.000844	0.000597
	(0.00256)	(0.00258)	(0.00488)	(0.00489)
Observations	38,595	38,595	13,383	13,383
R-squared	0.001	0.001	0.002	0.002
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: ACS
Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year $t=-1$.

Table A8: Event Study: Detrended High School Dropout Rates in Texas

VARIABLES	(1)	(2)	(3)	(4)
t=2	-0.0570***	-0.0551***	-0.0270***	-0.0267***
	(0.00234)	(0.00233)	(0.00302)	(0.00302)
t=1	-0.0583***	-0.0562***	-0.0299***	-0.0295***
	(0.00234)	(0.00234)	(0.00302)	(0.00302)
t=0	-0.0514***	-0.0492***	-0.0244***	-0.0241***
	(0.00235)	(0.00234)	(0.00304)	(0.00304)
t=-2	-5.83e-06	-5.42e-05	0.000133	8.48e-05
	(0.00235)	(0.00235)	(0.00307)	(0.00307)
t=-3	1.03e-06	4.54e-05	0.000212	0.000211
	(0.00236)	(0.00236)	(0.00309)	(0.00309)
t=-4	-7.25e-07	5.27e-05	0.000136	0.000122
	(0.00237)	(0.00236)	(0.00310)	(0.00310)
t=-5	9.35e-06	9.19e-05	0.000203	0.000212
	(0.00238)	(0.00237)	(0.00313)	(0.00313)
t=-6	2.31e-06	0.000168	0.000154	0.000166
	(0.00238)	(0.00238)	(0.00314)	(0.00314)
t=-7	-7.21e-07	0.000209	0.000255	0.000270
	(0.00239)	(0.00239)	(0.00318)	(0.00318)
t=-8	5.33e-06	0.000299	0.000177	0.000228
	(0.00241)	(0.00241)	(0.00322)	(0.00322)
Constant	-0.00370***	-0.00320***	0.00244	0.00227
	(0.00121)	(0.00124)	(0.00217)	(0.00220)
Observations	480,860	480,860	166,721	166,721
R-squared	0.006	0.005	0.004	0.003
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: ACS
Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year $t=-1$.

Table A9: Event Study: Detrended College Enrollment Rates in Georgia

VARIABLES	(1)	(2)	(3)	(4)
t=2	0.00708	0.00671	-0.00111	-0.00220
	(0.00601)	(0.00600)	(0.0101)	(0.0101)
t=1	0.0134**	0.0119**	-0.0168*	-0.0191*
	(0.00601)	(0.00599)	(0.0101)	(0.0101)
t=0	0.00574	0.00514	-0.0209**	-0.0213**
	(0.00602)	(0.00600)	(0.0102)	(0.0102)
t=-2	2.22e-06	8.13e-06	-0.000142	-0.000169
	(0.00602)	(0.00601)	(0.0101)	(0.0101)
t=-3	1.44e-06	1.18e-05	-0.000307	-0.000320
	(0.00603)	(0.00601)	(0.0103)	(0.0103)
t=-4	2.72e-06	2.01e-05	-0.000481	-0.000499
	(0.00603)	(0.00601)	(0.0103)	(0.0103)
t=-5	-3.26e-07	2.10e-05	-0.000328	-0.000341
	(0.00606)	(0.00604)	(0.0103)	(0.0103)
t=-6	1.64e-06	4.38e-05	-0.000446	-0.000449
	(0.00605)	(0.00604)	(0.0104)	(0.0104)
t=-7	3.65e-06	4.27e-05	-0.000583	-0.000584
	(0.00608)	(0.00606)	(0.0104)	(0.0104)
t=-8	-6.70e-06	3.67e-05	-0.000427	-0.000401
	(0.00605)	(0.00603)	(0.0104)	(0.0104)
Constant	0.000807	-0.000145	-0.00718**	-0.00766**
	(0.00128)	(0.00136)	(0.00323)	(0.00327)
Observations	532,365	532,365	177,422	177,422
R-squared	0.001	0.001	0.004	0.004
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: ACS

Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year $t=-1$.

Table A10: Event Study: Detrended College Enrollment Rates in Maine

VARIABLES	(1)	(2)	(3)	(4)
t=2	-0.0218	-0.0236	-0.0519*	-0.0537*
	(0.0183)	(0.0182)	(0.0284)	(0.0284)
t=1	-0.0524***	-0.0525***	-0.0275	-0.0283
	(0.0184)	(0.0183)	(0.0278)	(0.0278)
t=0	0.0110	0.0118	0.0138	0.0132
	(0.0184)	(0.0183)	(0.0279)	(0.0279)
t=-2	5.19e-05	-5.95e-06	0.000654	0.000540
	(0.0180)	(0.0180)	(0.0285)	(0.0285)
t=-3	1.23e-05	0.000224	0.000730	0.000748
	(0.0180)	(0.0180)	(0.0276)	(0.0276)
t=-4	2.18e-05	0.000444	0.000294	0.000325
	(0.0181)	(0.0180)	(0.0271)	(0.0271)
t=-5	2.39e-05	0.000703	-0.000246	-0.000506
	(0.0180)	(0.0179)	(0.0273)	(0.0273)
t=-6	6.66e-05	0.000200	0.000415	0.000566
	(0.0181)	(0.0180)	(0.0281)	(0.0281)
t=-7	3.37e-05	0.000509	-0.000505	-8.28e-05
	(0.0180)	(0.0180)	(0.0273)	(0.0273)
t=-8	5.00e-05	0.000321	-0.000332	-0.000254
	(0.0179)	(0.0178)	(0.0270)	(0.0270)
Constant	-0.00293	-0.00347	-0.0140	-0.0144
	(0.00565)	(0.00568)	(0.0110)	(0.0110)
Observations	38,595	38,595	13,383	13,383
R-squared	0.002	0.002	0.002	0.002
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: ACS

Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year $t=-1$.

Table A11: Event Study: Detrended College Enrollment Rates in Texas

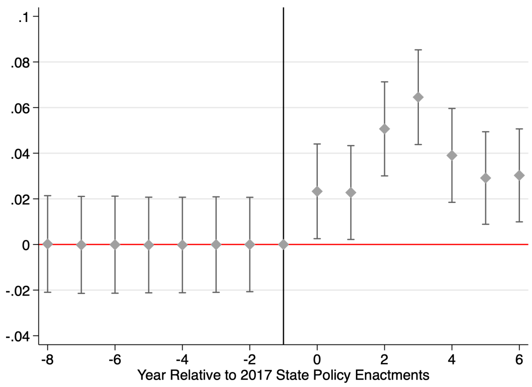
VARIABLES	(1)	(2)	(3)	(4)
t=2	-0.00473	-0.00831**	-0.00623	-0.00778
	(0.00361)	(0.00359)	(0.00573)	(0.00572)
t=1	-0.000150	-0.00447	-0.00973*	-0.0117**
	(0.00361)	(0.00360)	(0.00573)	(0.00572)
t=0	0.000179	-0.00348	-0.00522	-0.00637
	(0.00362)	(0.00361)	(0.00577)	(0.00576)
t=-2	-4.13e-06	1.38e-05	-2.49e-05	4.35e-05
	(0.00363)	(0.00362)	(0.00583)	(0.00582)
t=-3	7.26e-07	-4.77e-05	-0.000245	-0.000270
	(0.00364)	(0.00363)	(0.00587)	(0.00587)
t=-4	-5.12e-07	-3.63e-05	-0.000141	-0.000123
	(0.00365)	(0.00364)	(0.00589)	(0.00588)
t=-5	6.62e-06	-7.91e-05	-0.000179	-0.000202
	(0.00367)	(0.00365)	(0.00595)	(0.00594)
t=-6	1.63e-06	-0.000104	-0.000200	-0.000204
	(0.00368)	(0.00366)	(0.00597)	(0.00596)
t=-7	-5.10e-07	-0.000152	-0.000366	-0.000395
	(0.00369)	(0.00367)	(0.00604)	(0.00603)
t=-8	3.77e-06	-0.000232	-0.000220	-0.000316
	(0.00372)	(0.00371)	(0.00612)	(0.00611)
Constant	-0.00103	-0.00155	-0.00859**	-0.00900**
	(0.00187)	(0.00191)	(0.00413)	(0.00417)
Observations	480,860	480,860	166,721	166,721
R-squared	0.000	0.000	0.002	0.002
Race Controls	no	Yes	no	Yes
Family Ed. Controls	no	no	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

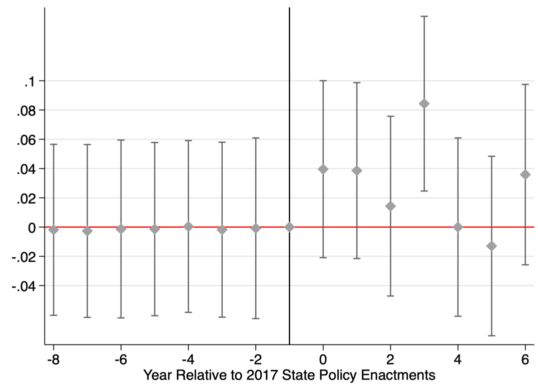
Source: ACS

Note: Column 4 is our preferred specification. Family education controls control for education level of the parents of those sampled. All coefficients relative to year $t=-1$.

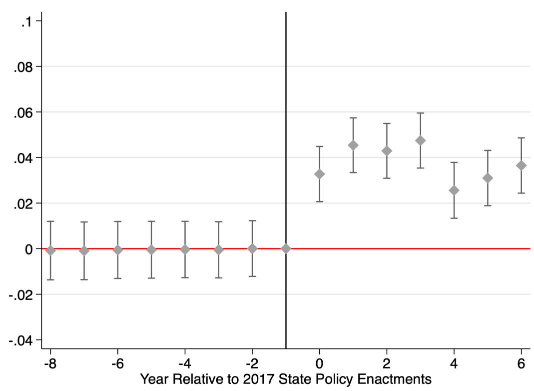
Figure A1: Event Study: Detrended High School Graduation Rates (2009-2023)



(a) Georgia



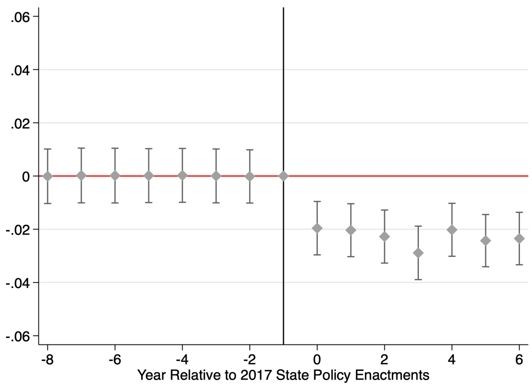
(b) Maine



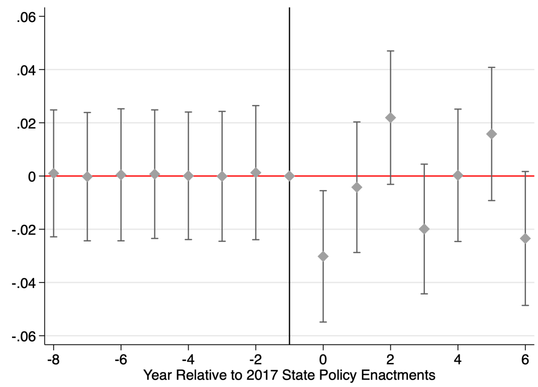
(c) Texas

Note: 95% Confidence Intervals Displayed

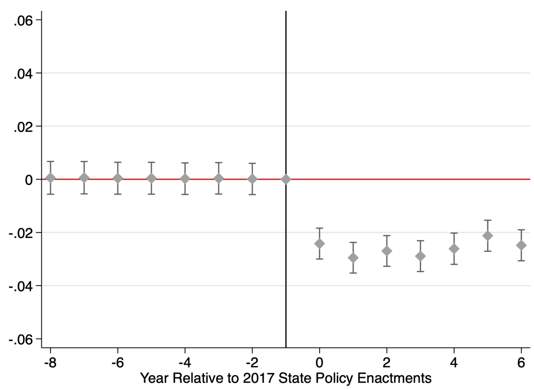
Figure A2: Event Study: Detrended High School Dropout Rates (2009-2023)



(a) Georgia



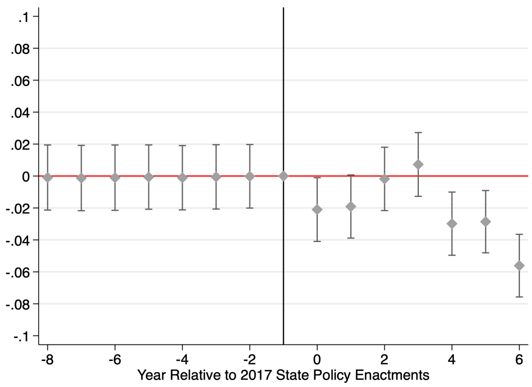
(b) Maine



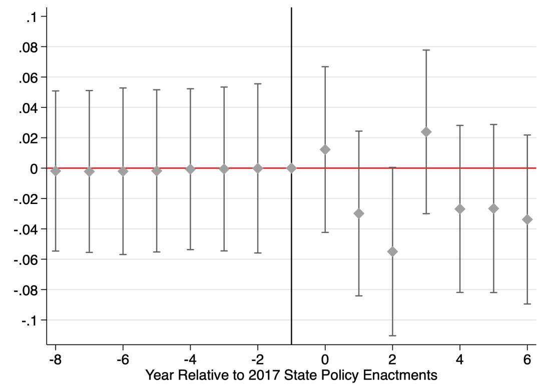
(c) Texas

Note: 95% Confidence Intervals Displayed

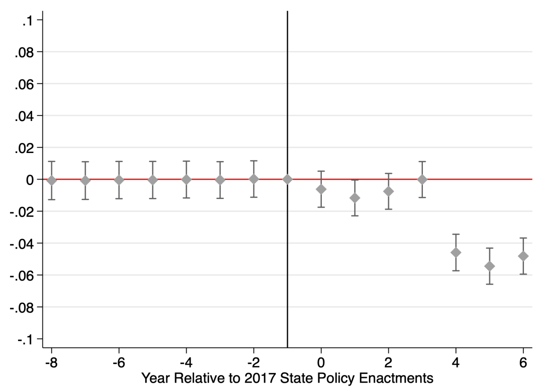
Figure A3: Event Study: Detrended College Enrollment Rates (2009-2023)



(a) Georgia



(b) Maine



(c) Texas

Note: 95% Confidence Intervals Displayed

Table A12a: Difference in Difference Balance Test of Selected SEDA Covariates: Georgia

VARIABLES	(1) % free lunch in the grade	(2) % reduced lunch in the grade	(3) % ecd in the grade	(4) % of all Students in District that are ELL	(5) % of all Students in District that are Special Ed	(6) log of median income all families	(7) log of median income asian families	(8) log of median income black families	(9) log of median income hispanic families	(10) log of median income native american families	(11) log of median income white families
Post x Treatment	0.0175***	-0.00829***	0.151***	-0.00137**	0.00328***	-0.0506***	0.231***	-0.0580***	0.0110*	0.0524***	0.0110***
	(0.00281)	(0.000416)	(0.00585)	(0.000658)	(0.000581)	(0.00443)	(0.0108)	(0.00576)	(0.00621)	(0.0134)	(0.00404)
Constant	0.555***	0.0765***	0.626***	0.0315***	0.122***	10.62***	11.00***	10.29***	10.57***	10.67***	10.76***
	(0.000556)	(8.79e-05)	(0.000733)	(0.000133)	(9.65e-05)	(0.000849)	(0.00182)	(0.00110)	(0.00123)	(0.00204)	(0.000783)
Observations	74,957	74,957	74,655	74,951	74,951	74,841	17,648	61,864	35,715	7,868	74,841
R-squared	0.102	0.174	0.213	0.123	0.352	0.051	0.118	0.088	0.067	0.273	0.051

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A12b: Difference in Difference Balance Test of Selected SEDA Covariates: Maine

VARIABLES	(1) % free lunch in the grade	(2) % reduced lunch in the grade	(3) % ecd in the grade	(4) % of all Students in District that are ELL	(5) % of all Students in District that are Special Ed	(6) log of median income all families	(7) log of median income asian families	(8) log of median income black families	(9) log of median income hispanic families	(10) log of median income native american families	(11) log of median income white families
Post x Treatment	-0.0101**	0.0131***	-0.0401***	-0.00121	-0.00911***	-0.0321***	-0.0574	0.124***	-0.0116		-0.0281***
	(0.00432)	(0.00115)	(0.00572)	(0.000918)	(0.00153)	(0.00671)	(0.0898)	(0.0366)	(0.0561)		(0.00664)
Constant	0.320***	0.0714***	0.390***	0.00939***	0.157***	10.91***	11.06***	10.47***	10.84***	10.15	10.92***
	(0.000909)	(0.000239)	(0.00122)	(0.000179)	(0.000320)	(0.00155)	(0.0138)	(0.00713)	(0.0108)	(0)	(0.00156)
Observations	34,094	34,094	32,522	33,962	33,962	32,782	861	491	981	3	32,421
R-squared	0.274	0.096	0.298	0.023	0.196	0.272	0.373	0.844	0.298		0.270

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A12c: Difference in Difference Balance Test of Selected SEDA Covariates: Texas

VARIABLES	(1) % free lunch in the grade	(2) % reduced lunch in the grade	(3) % ecd in the grade	(4) % of all Students in District that are ELL	(5) % of all Students in District that are Special Ed	(6) log of median income all families	(7) log of median income asian families	(8) log of median income black families	(9) log of median income hispanic families	(10) log of median income native american families	(11) log of median income white families
Post x Treatment	0.0297***	0.00519***	-0.0102***	0.0241***	-0.0219***	0.0178***	0.0305**	0.0544***	0.0407***	-0.0560***	0.00237
	(0.00187)	(0.000455)	(0.00252)	(0.00102)	(0.000667)	(0.00257)	(0.0149)	(0.00809)	(0.00521)	(0.0139)	(0.00241)
Constant	0.542***	0.0953***	0.643***	0.0529***	0.125***	10.70***	11.08***	10.37***	10.59***	10.63***	10.80***
	(0.000461)	(0.000111)	(0.000552)	(0.000189)	(0.000167)	(0.000657)	(0.00325)	(0.00194)	(0.00138)	(0.00173)	(0.000602)
Observations	178,410	178,410	177,732	178,520	178,520	174,463	13,818	40,784	67,724	20,370	169,482
R-squared	0.092	0.096	0.092	0.118	0.346	0.126	0.170	0.219	0.075	0.202	0.194

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A13: Event Study: Detrended Mean Test Scores in Georgia

VARIABLES	(1)	(2)	(3)	(4)
t=2	0.172***	0.202***	0.179***	0.178***
	(0.0272)	(0.0274)	(0.0575)	(0.0288)
t=1	0.209***	0.236***	0.205***	0.222***
	(0.0229)	(0.0237)	(0.0566)	(0.0246)
t=0	0.233***	0.271***	0.159***	0.276***
	(0.0155)	(0.0164)	(0.0521)	(0.0164)
t=-2	-7.71e-06	-0.00455	-0.0146	-0.00357
	(0.0140)	(0.0149)	(0.0606)	(0.0148)
t=-3	-3.92e-06	-0.00569	-0.0181	0.00793
	(0.0182)	(0.0193)	(0.0536)	(0.0194)
t=-4	-3.95e-06	-0.0165	-0.0179	0.0218
	(0.0220)	(0.0243)	(0.0489)	(0.0253)
t=-5	-1.17e-05	-0.0188	-0.0165	0.00254
	(0.0257)	(0.0272)	(0.0577)	(0.0282)
t=-6	-8.41e-06	-0.0179	-0.0148	-0.00163
	(0.0297)	(0.0305)	(0.0509)	(0.0311)
t=-7	-3.43e-06	-0.00474	-0.0139	0.00825
	(0.0316)	(0.0329)	(0.0600)	(0.0347)
t=-8	-4.86e-06	0.0298	-0.00697	0.0248
	(0.0334)	(0.0357)	(0.0559)	(0.0376)
Constant	0.0329	1.708***	0.000719	1.018**
	(0.0366)	(0.266)	(0.0391)	(0.515)
Observations	74,957	74,645	31,822	74,529
R-squared	0.089	0.085	0.122	0.087
Regional Controls	no	Yes	no	no
Equity Controls	no	no	Yes	no
Pooled Controls	no	no	no	Yes

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: Regional Controls include size of school, racial demographics, English Language Learner and Special Education demographics, and urbanicity of school. Equity controls include difference in exposure to economically disadvantaged students on the basis of race, information indices by race, and diversity indices. Column 4 is our preferred specification. Pooled controls include controls for size of school, racial demographics, English Language Learner and Special Education demographics, urbanicity of school, income per capita, poverty rates, unemployment rates, SNAP usage rates, and single motherhood rates. Outcomes controlled by grade.

All coefficients relative to year $t=-1$.

Table A14: Event Study: Detrended Mean Test Scores in Maine

VARIABLES	(1)	(2)	(3)	(4)
t=2	-0.228***	-0.205***	-0.123	-0.155***
	(0.0463)	(0.0490)	(0.156)	(0.0507)
t=1	-0.176***	-0.151***	-0.206	-0.118***
	(0.0391)	(0.0399)	(0.155)	(0.0411)
t=0	-0.127***	-0.102***	0.0381	-0.0837**
	(0.0362)	(0.0366)	(0.166)	(0.0374)
t=-2	0.00615	0.00767	0.0117	-0.00282
	(0.0794)	(0.0789)	(0.197)	(0.0792)
t=-3	-0.00140	-0.00169	0.000820	-0.0199
	(0.0449)	(0.0474)	(0.133)	(0.0491)
t=-4	-0.00142	-0.00424	-0.0236	-0.0195
	(0.0478)	(0.0485)	(0.138)	(0.0508)
t=-5	-0.00135	0.000885	-0.00768	-0.0133
	(0.0507)	(0.0512)	(0.131)	(0.0539)
t=-6	-0.00176	-0.00187	-0.0171	-0.0127
	(0.0526)	(0.0527)	(0.147)	(0.0550)
t=-7	-0.00138	0.000794	-0.00394	-0.000946
	(0.0544)	(0.0559)	(0.135)	(0.0567)
t=-8	-0.00158	0.00145	-0.00799	0.00512
	(0.0537)	(0.0561)	(0.158)	(0.0582)
Constant	-0.0585	-0.163	-0.0363	-0.183
	(0.0458)	(0.198)	(0.0759)	(0.633)
Observations	34,295	32,299	2,694	31,370
R-squared	0.085	0.077	0.064	0.075
Regional Controls	no	Yes	no	no
Equity Controls	no	no	Yes	no
Pooled Controls	no	no	no	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Regional Controls include size of school, racial demographics, English Language Learner and Special Education demographics, and urbanicity of school. Equity controls include difference in exposure to economically disadvantaged students on the basis of race, information indices by race, and diversity indices. Column 4 is our preferred specification. Pooled controls include controls for size of school, racial demographics, English Language Learner and Special Education demographics, urbanicity of school, income per capita, poverty rates, unemployment rates, SNAP usage rates, and single motherhood rates. Outcomes controlled by grade.
All coefficients relative to year $t=-1$.

Table A15: Event Study: Detrended Mean Test Scores in Texas

VARIABLES	(1)	(2)	(3)	(4)
t=2	-0.172*	-0.179*	-0.276**	-0.181*
	(0.0937)	(0.0939)	(0.111)	(0.0945)
t=1	-0.154	-0.159	-0.141	-0.138
	(0.101)	(0.103)	(0.106)	(0.107)
t=0	-0.0734	-0.0742	-0.0320	-0.0712
	(0.0731)	(0.0731)	(0.0740)	(0.0735)
t=-2	-2.59e-06	0.00174	0.0112	0.000938
	(0.0698)	(0.0695)	(0.0604)	(0.0700)
t=-3	-2.67e-05	-0.000292	0.0119	0.000304
	(0.0972)	(0.0981)	(0.0803)	(0.0989)
t=-4	4.81e-05	0.00258	0.00444	0.00270
	(0.0661)	(0.0664)	(0.0621)	(0.0680)
t=-5	-7.05e-05	0.000477	0.00458	0.00357
	(0.0704)	(0.0710)	(0.0701)	(0.0716)
t=-6	0.00824	0.00530	0.0110	0.0112
	(0.0760)	(0.0757)	(0.0714)	(0.0760)
t=-7	0.00811	0.0102	0.0198	0.0166
	(0.0680)	(0.0681)	(0.0612)	(0.0685)
t=-8	0.00819	0.00919	0.00413	0.0155
	(0.0685)	(0.0684)	(0.0670)	(0.0688)
Constant	0.124***	0.212***	0.0983**	0.371
	(0.0399)	(0.0792)	(0.0443)	(0.266)
Observations	178,520	177,635	38,385	173,724
R-squared	0.027	0.026	0.028	0.025
Regional Controls	no	Yes	no	no
Equity Controls	no	no	Yes	no
Pooled Controls	no	no	no	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Regional Controls include size of school, racial demographics, English Language Learner and Special Education demographics, and urbanicity of school. Equity controls include difference in exposure to economically disadvantaged students on the basis of race, information indices by race, and diversity indices. Column 4 is our preferred specification. Pooled controls include controls for size of school, racial demographics, English Language Learner and Special Education demographics, urbanicity of school, income per capita, poverty rates, unemployment rates, SNAP usage rates, and single motherhood rates. Outcomes controlled by grade.
All coefficients relative to year $t=-1$.