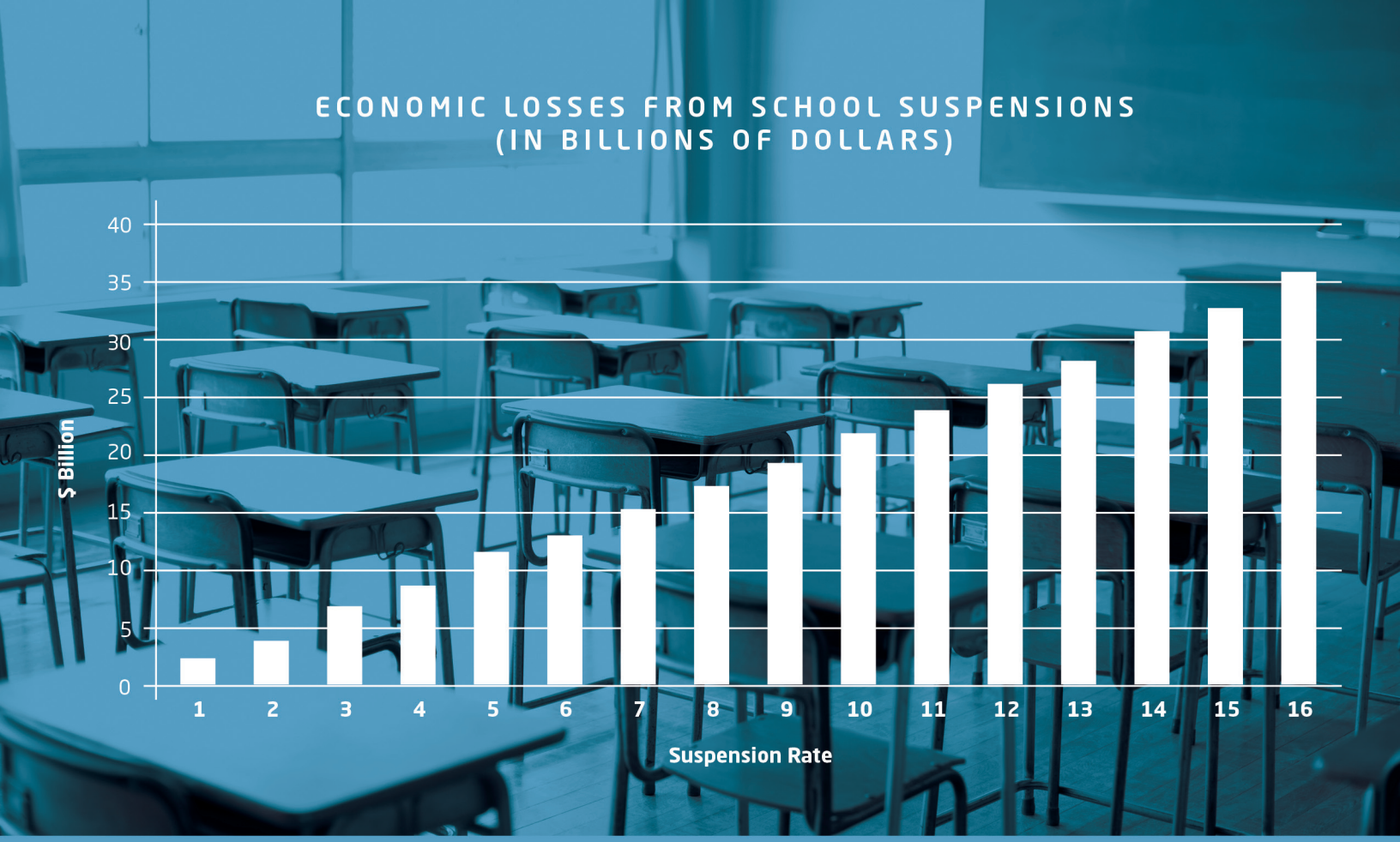

The High Cost of Harsh Discipline and Its Disparate Impact

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Abstract

School suspension rates have been rising since the early 1970s, especially for children of color. One body of research has demonstrated that suspension from school is harmful to students, as it increases the risk of retention and school dropout. Another has demonstrated that school dropouts impose huge social costs on their states and localities, due to lost wages and taxes, increased crime, higher welfare costs, and poorer health. Although it is estimated that reducing school suspension rates in Texas would save the state up to $1 billion in social costs, only one study to date has linked these two bodies of research. The current study addresses some of the limitations of that study by (1) estimating a stronger causal model of the effects suspension has on dropping out of school, (2) calculating a more comprehensive set of the social costs associated with dropping out, and (3) estimating the cost of school suspensions in Florida and California, and for the U.S. as a whole. The results show that suspensions in 10th grade alone produced more than 67,000 dropouts in the U.S. and generated social costs to the nation of more than $35 billion. These results are undoubtedly conservative, since the California and U.S. estimates were limited to 10th-grade students, while the Florida estimates were limited to 9th-grade students. Thus, they did not capture the effects of suspensions in earlier grades.

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Introduction

School suspension rates have been rising since the early 1970s, especially for children of color (Losen & Martinez, 2013). Moreover, because there are no immediate financial costs when sending a student home, some educators may assume there are no economic costs associated with this intervention. Nothing could be further from the truth. The tremendous hidden costs to our economy and society of the disciplinary removal of students from schools and classrooms have come light only recently (Marchbanks et al., 2015).

Most prominent education policymakers, researchers, teachers, and administrators agree that many schools have gotten away from using suspension from class or from school entirely only as a last resort (Council of State Governments, 2014). While many schools still suspend students at a high rate for mostly minor offenses, they in fact are outnumbered by the schools and districts that keep suspension rates relatively low (Losen, Hodson et al., 2015).

This clearly indicates that there is nothing inevitable about high suspension rates. They are not necessary to maintain a productive learning environment, as more effective alternatives to removing students from the classroom are available. Data from large urban districts, including Los Angeles, Chicago, Denver, and Baltimore, have demonstrated that desirable educational outcomes like test scores and high school graduation rates can rise substantially when schools make an effort to bring down disciplinary exclusion rates.

If schools knew the real costs associated with suspension, its use might not have become so pervasive. The common sentiment that we have to kick out the bad kids so the good kids can learn was trumpeted by the Reagan administration when it honored Joe Clarke of East Patterson (N.J.) High School. Clarke, who was featured in the movie *Lean on Me,* gained fame for his controversial "tough love" approach to discipline. He patrolled his school's hallway with a bullhorn and a bat, and pledged to rid the school of "maggots and leeches." Of course Joe Clarke was not the first to promote harsh school discipline. Countless educators over the decades have assumed this approach would be effective and believed there were benefits to freeing up educational resources by investing only in obedient students who raised few challenges for teachers.[1] Asserting this view, some charter school leaders publicly embrace crime control theories such as "broken windows."[2] The most blatant example of this is the "got to go" list of struggling students maintained by one charter school principal, which raises questions about whether charters that take this harsh approach are really using it to weed out all but the brightest and best-behaved students (Losen, Keith, Hodson, Belway, & Martinez, 2016).

Another area of resistance to school discipline reform is more grounded in reality. It usually comes from administrators and teachers who readily admit that the status quo of frequent suspensions and high racial disparities in punishment is unjust, but they also argue that they don't have the tools, training, or resources to make suggested changes. In Los Angeles, for example, the teachers union has complained that many teachers have not been trained in alternative methods like restorative justice or social and emotional learning (Watanabe & Blume, 2015). In many districts where teachers resist changing the code of conduct to eliminate suspensions, the resources needed to ensure the successful implementation of the new code have not been provided. When submitting a new budget or allocating flexible federal Title I or Individuals with Disabilities Education Act funds, some school board members and administrators may worry that investing financial resources in reducing suspensions won't yield any benefits. Moreover, the larger community the school boards and school committees must answer to may not fully grasp the expected benefits.

The purpose of this research is to inform the budget debates that take place in every school district every year. In California, for example, districts must decide how to allocate the additional funds they receive each year to align with their goals, and then submit this plan to the state. States and some districts across the nation will soon enjoy the increased flexibility resulting from the federal omnibus Elementary and Secondary Education Act of 1965, previously known as No Child Left Behind and now known as the Every Student Succeeds Act of 2015 (ESSA). While this paper does not evaluate the costs and benefits of the different approaches a district might invest in to reduce school suspensions, it does expose the stark economic consequences, in real dollars, of maintaining the status quo.

This report carefully and conservatively quantifies the costs of suspension in two highly populated states, Florida and California, and for the nation.[3] While it is well established in the research that graduating from high school has substantial benefits over dropping out (Belfield & Levin, 2007a) for both individuals and society, few realize that being suspended from school or the classroom significantly increases the likelihood of dropping out, even after controlling for a myriad of other factors that also increase dropout rates (Balfanz, Byrnes, & Fox, 2015). This report explores the connection between being suspended and the risk for dropping out, and the logical connection to the higher costs resulting from an increase in the dropout rate. We explore the connection in two steps: first we use the latest research findings on the connection between suspensions and dropping out to make a conservative estimate of how much being suspended (just once and multiple times) increases the risk of dropping out. We then calculate the cost of this increased dropout rate in dollars and cents.

The financial calculations consider the social costs alleviated by reducing suspension rates, including those based strictly on estimated increases in federal and state taxes. We further break down the estimated costs of suspension (and the savings from reducing suspensions) for each major racial and ethnic group. We then use the extant data to estimate the costs and savings at the national level. We believe that the model we present can be replicated in each state, and that policymakers should consider the economic costs to inform education reform efforts around school climate and accountability.

There are two limitations to the present study. First, the results are undoubtedly conservative, since the California and U.S. estimates were limited to 10th-grade students, while the Florida estimates were limited to 9th-grade students. Thus, they did not capture the effects of suspensions in earlier grades. Second, the estimated costs are for the high school graduating class of 2004, so they don't account for the recent declines in suspension rates reported by California and some other states. Nonetheless, the results show that even a modest reduction in suspension rates can yield substantial economic benefits.

Previous Research

Three areas of research inform the current study. The first area concerns the causes of disciplinary actions in the form of suspensions, expulsions, and forced school transfers. The second area concerns the effects such actions have on student outcomes, specifically school dropout and graduation rates. The third area concerns the economic costs associated with school dropout. Linking these three areas enables us to demonstrate that harsh disciplinary actions, suspensions in particular, increase dropout rates, which generates huge social and fiscal costs for communities, states, and the nation.

Research studies in the first area have investigated two factors that drive suspensions and expulsions: student behavior and institutional practices. Student misbehavior, such as altercations between students or between students and school staff members, often lead to some disciplinary action for those students, including suspension or expulsion from school. The specific action taken depends on the nature and severity of the offense, the judgements of individual educators, and the formal and informal practices of the school where the incident took place. Descriptive data reveal widespread variation in suspension and expulsion rates among schools, districts, and states (Losen & Martinez, 2013), which suggests that institutional factors account for at least some of these differences (Fabelo et al., 2011; Losen, Hodson et al., 2015; Skiba, 2015). After controlling for more than 80 variables, a study that tracked every middle school student in Texas for over six years showed that school policies and practices—factors schools control—are the primary drivers of suspension rates, not student behavior (Fabelo et al., 2011). Moreover, independent analyses demonstrate that some principals prefer harsh discipline, and that this preference is the strongest predictor of high suspension rates and large racial disparities in discipline (Skiba, 2015). Factors public schools control that we can identify as diminishing a community's economic power and vitality should be curtailed; this includes administrators' disciplinary preferences. It is less likely that taxpayers and school board members would approve harsh disciplinary practices or defer to local school leaders who consider suspension rates a measure of a productive school environment if they knew the hidden costs associated with these harsh policies.

Research also reveals a causal connection between suspensions/expulsions and student outcomes, such as achievement, retention, absenteeism, and dropping out of high school. In a review of 25 years of research on high school dropouts, Rumberger and Lim (2008) identified 49 analyses of the relationship between misbehavior and dropping out, most of them at the high school level. Among the 31 analyses conducted at the high school level, 14 found misbehavior to be significantly associated with higher dropout and lower graduation rates. Of the 17 analyses at the middle school level, 14 found misbehavior in middle school to be significantly associated with higher dropout and lower graduation rates in high school.

A more recent meta-analysis by Noltemeyer, et al. (2015) found 12 studies of the relationship between suspensions (nine only examined out-of-school suspension) and dropout. The estimated effect size across the 12 studies was a statistically significant .28, approximately an 11 percentage-point increase in the probability of dropping out. In another recent study, Johns Hopkins researchers showed that improving achievement in core academic areas and reducing chronic absenteeism increased high school graduation rates (Balfanz, Byrnes, & Fox, 2015). Balfanz and colleagues not only pointed to the benefits gained from tackling those issues, they also highlighted how being suspended even once in grade nine correlates with a doubled risk for dropping out.

Equally important to our analysis is the fact that researchers on the economics of education have shed light on the specific economic benefits of education, beginning with the pioneering work of Becker (1962) and Schultz (1963). In 1972, Levin undertook a study for the U.S. Congress that reviewed and summarized the research literature on the seven consequences of an "inadequate" education—that is, dropping out (Levin, 1972). He then estimated the social costs associated with four of the seven: forgone national income, forgone tax revenues, increased demand for social services, and increased crime. Thirty-five years later, Levin and his colleagues estimated the social impact dropping out has on earnings and taxes, health, crime, and public assistance. They used the results of their new research to estimate the lifetime economic benefits to taxpayers of getting a dropout to graduate from high school (Belfield & Levin, 2007a). They estimated that a 20-year-old dropout generates an average $209,210 in economic losses to taxpayers over his or her working lifetime; the losses range from $143,000 for Hispanic females to $268,500 for Black males. The economic losses to the larger economy are even greater. In California, for example, Belfield and Levin estimated that an average dropout generates $168,880 in fiscal losses to federal, state, and local governments, but $391,110 in total economic losses to the larger economy.

Prior research on the costs of suspension looked at the correlation between any exclusionary discipline—including both in- and out-of-school suspension, expulsion, and transfer to an alternative disciplinary program—and subsequent grade retention and dropping out (Marchbanks et al., 2015). Researchers who extended the analysis conducted for the report *Breaking Schools' Rules* (Fabelo et al., 2011) found a strong relationship between discipline and failing to graduate, as did Balfanz et al. (2015). Using the same longitudinal database that tracked nearly one million middle school students in the state of Texas for as many as seven years, Marchbanks et al.'s (2015) study assessed the economic costs of school discipline that are the result of higher rates of grade retention and dropping out. To ensure that changes in dropout/grade retention rates were not due to other factors, the authors controlled for academic performance, socioeconomic status, race/ethnicity, student-teacher ratios, and district wealth, which were among the more than 40 variables associated with academic failure and exclusionary discipline. Marchbanks et al. then assigned an economic value to the resulting difference in rates, based on available measures and previous economic studies. After controlling for other factors, they found that a "typical" student who received one in-school suspension during the school year was 24 percent more likely to drop out during that year than a student who was not disciplined. The authors found that, if the increases their study attributed to school discipline were eliminated, the dropout rate in Texas would be about 14 percent lower.

The economic costs associated with dropping out were based on a study of a single Texas student cohort (Alvarez et al., 2009). It was estimated that the students in this cohort who dropped out cost between $5 billion and $9 billion in present-value lost wages throughout the course of their careers. Marchbanks et al. (2015) estimated that, if policymakers could remove the entire 14 percent increase in dropouts associated with school discipline, the total lifetime savings for each student cohort would be between $750 million and $1.35 billion dollars.

The Study

In light of the extant research, this paper seeks to answer three main questions:

1. To what extent does being suspended from the classroom or school predict dropping out, and does this impact of suspension remain after controlling for the most likely contributing factors, such as poor grades or absenteeism?

2. What are the specific economic costs associated with dropping out that were likely precipitated solely by disciplinary removal (after controlling for other contributing factors), and how do the costs impact each racial group?

3. What are the potential savings for even a small reduction in the use of suspension?

Methods

The analyses contained in this study were carried out by three researchers. The first, Russell Rumberger, conducted an analysis of suspensions and expulsions for the U.S. and California, based on data from the Education Longitudinal Study of 2002 (ELS: 2002). The second, Robert Balfanz and colleagues, conducted an analysis of suspensions and expulsions for Florida, based on data from the Florida state data system. The third, Clive Belfield, estimated the fiscal and social costs of dropping out for the states of California and Florida. The results of all three analyses were then combined to generate the fiscal and social costs of suspensions and expulsions in California and Florida, and for the entire U.S.

One strength of this approach is that the analyses enabled the researchers to estimate the causal impact of suspensions and expulsions by drawing on student-level longitudinal data and applying rigorous, quasi-experimental methods. Another strength is that the analyses provided detailed state-specific and national estimates of the fiscal and social impact of suspensions and expulsions, the first time such a comprehensive estimate of this impact has ever been generated.

Of course there are some limitations. For one, the analyses were based on different datasets that contain different variables, and therefore yielded estimates that were not fully comparable across the two states, California and Florida, and for the U.S. overall. Readers should also note that the findings are based on the impact and economic costs for the high school graduating class of 2004, and some values and costs have changed since then. Despite these limitations, we believe this report provides the most convincing and comprehensive estimates of the fiscal and social impact of suspensions and expulsions to date.

Data and Samples. Two longitudinal student databases with disaggregated racial/ethnic data were used in this study. The first is the ELS: 2002, a longitudinal study of 16,252 high school sophomores who were enrolled in a national sample of public and private U.S. high schools in 2002.[4] Participating students were administered questionnaires and standardized tests in mathematics and reading. Questionnaires were also administered to students' teachers, parents, and high school administrators. The students were resurveyed in 2004, when most were high school seniors, and again in 2006 and 2012. Transcripts were collected in the spring of 2005 for most of the original students in the study. This study is based on the national sample of 13,379 students with valid outcome data and two state samples–1,560 California students and 599 Florida students. The national and California samples were also used to estimate the causal impact suspensions have on graduation, but the Florida ELS sample was too small to yield accurate estimates. However, a robust yet slightly different longitudinal dataset was available for the Florida study, where the analysis conducted by Balfanz is based on longitudinal data from 181,897 ninth-grade students.[5] These were first-time ninth graders in the 2000-01 school year. The full Florida cohort included 205,337 students, but longitudinal analyses excluded students who transferred out of the state system in subsequent years because their final high school and postsecondary outcomes cannot be known. The data follow these students forward to 2005-06 for high school outcomes (two years past the expected time of graduation, 2003-04) and on through 2007-08 for postsecondary outcomes (four years past the expected time of graduation).

Variables. Both databases contain critical information on the dependent variables in these studies and a series of control variables used to generate more precise causal impacts. For the ELS data, the dependent variable for this study was whether the students were high school graduates (received a regular high school diploma) as of the second follow-up in 2006. This extension captures both the typical on-time graduates and the relatively few students who graduated after the normal date of 2004.

The other variables used in this study are from the base-year student and teacher surveys, and the reading and math tests. The main independent variables are in-school and out-of-school student suspensions. The student questionnaire, which was administered in the spring of tenth grade, asked students, "How many times did the following happen to you in the first semester or term of this school year?" The responses included:

- I was put on in-school suspension.
- I was suspended or put on probation.
- I was transferred to another school for disciplinary reasons.

The student response categories for each question, were Never; 1-2 times; 3-6 times; 7-9; 10 or more.

The ELS data also contain several variables that served as independent controls in the study, including demographic variables (gender, race, nativity, age), family variables (household composition, household size, parental education, family income), and school performance variables (tenth-grade test scores in math and reading, teacher-reported effort, teacher-reported performance/behavior). A complete list of variables is provided in the Appendix.

For the Florida administrative data, the dependent variable for this study was whether the students were high school graduates (received a regular high school diploma) as of 2005-06, two years past normal graduation in 2004. This is the same period covered by the ELS data and similarly captures students who graduated after the normal graduation date of 2004. These similar time frames make the ELS and Florida administrative data more comparable, since they both cover the same period past normal high school graduation. One notable difference is that the Florida data report graduation rates for students who started the ninth grade in fall of 2000, while the ELS data report graduation rates for students who were enrolled in the spring of tenth grade. Therefore the graduation rates from the ELS data will be noticeably higher than the Florida data, since they exclude students who dropped out before the second semester of ninth grade.

The main independent variables are student in-school and out-of-school suspensions in ninth grade. This is one major difference with the ELS study, which begins in the spring of tenth grade. As a result, the ELS data reveal the incidence of suspensions in the first semester of tenth grade, while the Florida administrative data reveal the incidence of suspensions over the entire ninth-grade year. These differences make our results more robust, in that they estimate the impact of suspension at two different grade levels.

A number of other variables available in the Florida administrative data were used as controls in the study: demographic characteristics (ethnicity, special education status, limited English proficiency, over age for grade) and school performance (ninth-grade attendance rate, ninth-grade course failures, ninth-grade FCAT Scale score for math).[6] This set of control variables differed from the ELS data, but it nonetheless provided a reasonable set of variables to help estimate the casual impacts of suspensions.

Statistical Models. The research literature has identified a number of quasi-experimental methods that provide strong evidence of causal impacts comparable to those derived from true, randomized experimental methods (Schneider et al., 2007). Research also finds that the strength of the causal estimates depends more on the choice of control variables than on the particular method (Pohl, Steiner, Eisermann, Soellner, & Cook, 2009; Shadish, Clark, Steiner, & Hill, 2008).

A number of statistical models were constructed to estimate the causal impact of suspensions in the national and California studies and the Florida study. This was done to verify that the estimated impacts were not dependent on the particular

statistical model used. In the national and California studies, two models were used: a linear regression model with a binary treatment variable (suspensions) to estimate the effects on students who had been suspended, known as the average treatment effect on the treated; and a treatment effects model using regression adjustment and matching estimators (StataCorp, 2013). In the Florida study, two models were used: ordinary linear regression and propensity matching. More detailed information on the statistical techniques are provided in the Appendix.

Economic Impact Analysis. The last component of this study was to combine the estimated impact of suspensions on high school graduation with the economic impact of high school dropouts and graduates. The economic model is based on one that has been used previously to estimate the economic impact of high school dropouts in the United States and California (Belfield & Levin, 2007a, 2007b). It compares the economic outcomes of high school dropouts and high school graduates over their working adult lifetimes, from age 18 to 65, in four areas: earnings, crime, health, and welfare. The economic impacts are measured from two perspectives: a fiscal perspective that considers the economic impact on local, state, and federal taxpayers; and a social perspective that considers the economic impact on the larger society. As Belfield describes, "Using a standard economic model, along with state-specific data and up-to-date research evidence, we calculate the social and fiscal consequences of high school failure ....The perspective is that of a 18-year old in student in 2014 with a lifetime of future work. The consequences are expressed as the lifetime differences between dropouts and graduates in: incomes; taxes paid; government spending on health, crime, and welfare; tax distortions; and productivity gains." (Belfield, 2014a). Although the fiscal and social costs are related, the social costs include the aggregate losses incurred by dropouts personally such as their lower income, diminished productivity, and higher expenditures on health care due to poorer health. The fiscal costs are a subset of the social costs and cover only the losses experienced by federal, state and local governments due to lower income tax revenues and higher government expenditures on health and social services, and on the criminal justice system. More detailed information on the methods and data can be found in Belfield (2014a, b).

This report does not include the cost of involvement in the juvenile justice system, which can be sizeable (Belfield & Levin, 2009). This report also does not factor in the cost to the taxpayer of keeping more students in school. Some of the costs associated with keeping more students in school and on track to graduate would be offset by fewer students repeating a grade and/or the reduced cost of adjudicating youth in the juvenile justice system. Additionally, in some states that include Texas and California, districts return state funds if students drop out or withdraw during the school year, so there may be offsetting financial benefits at the local level that were also not factored in.

Findings

We report our findings in three parts: (1) suspension rates; (2) the impact of suspensions on high school graduation; and (3) the economic impact of suspensions.

Suspension Rates. Because the results presented in this report are derived from different datasets, it is useful to first compare the suspension rates reported in these datasets. It is also useful to compare the figures with those reported by the Civil Rights Data Collection (CRDC), which the Office of Civil Rights collects from state and local education authorities (see Losen, Hodson et al., 2015). Such comparisons may not yield comparable figures because of different data sources, definitions of suspension, grade levels, and time periods.

Comparisons among these three sources of data are shown in Table 1, for the overall population and by ethnic group. Only out-of-school suspensions are reported from all three data sources. Based on our analysis of the CRDC data, 10 percent of all secondary students were suspended in 2011-12 (Losen, Hodson, et al., 2015). California's rate of 9 percent was somewhat lower than the national average, while Florida's rate of 19 percent was almost twice the national average. According to the ELS, 8 percent of all tenth graders reported that they were suspended from school in the first half of school year 2001-02, compared to 8 percent in California and 10 percent in Florida. Given that the ELS data only cover half the school year, estimates for the entire tenth-grade year would likely be much higher. Both datasets report similarly that Florida suspension rates are higher than the national average. Both of these estimates are below the 27 percent rate for ninth graders in 2000-01, as reported by Balfanz and colleagues based on Florida administrative data.

The ELS also provides estimates of in-school suspensions, although only for the first semester of the school year. The estimated in-school suspension rates are 12 percent for tenth graders nationally, 15 percent for California tenth graders, and 12 percent for Florida tenth graders. The ELS data suggest that, in the U.S. and California, in-school suspensions are more common than out-of-school suspensions, whereas out-of-school suspensions are more common in Florida. The national and state projected values for 2011-12, based on reporting from over 99 percent of all schools from the CRDC estimates for K-12, showed slightly lower numbers of students were suspended out of school one or more times as were suspended in school at least once, both nationally and in Florida.[7]

Table 1. Suspension Rates by Racial Group

	Total	Black	Hispanic	White
OUT-OF-SCHOOL SUSPENSION				
CRDC data, secondary 2011-12				
U.S.	10%	23%	11%	7%
California	9%	20%	10%	7%
Florida	19%	31%	19%	14%
ELS data, tenth grade 2001-02*				
U.S.	8%	15%	11%	6%
California	8%	12%	10%	6%
Florida	10%	22%	11%	5%
Florida State Department data				
ninth grade 2000-01	27%	39%	26%	22%
IN-SCHOOL SUSPENSION				
ELS data, tenth grade 2001-02*				
U.S.	12%	22%	18%	9%
California	15%	23%	22%	8%
Florida	12%	19%	10%	12%
ANY SUSPENSION				
ELS data, tenth grade 2001-02*				
U.S.	16%	30%	22%	12%
California	18%	30%	25%	12%
Florida	18%	33%	17%	14%

*Estimates are weighted.
Note: The ELS data report suspensions for the first semester of tenth grade, while the CDRC and Florida data report suspensions for the entire school year.

Finally, the ELS data estimate that 16 percent of all tenth graders nationally reported that they had received either an in-school or out-of-school suspension in the first semester of tenth grade, compared to 18 percent of tenth graders in California and 18 percent of tenth graders in Florida.

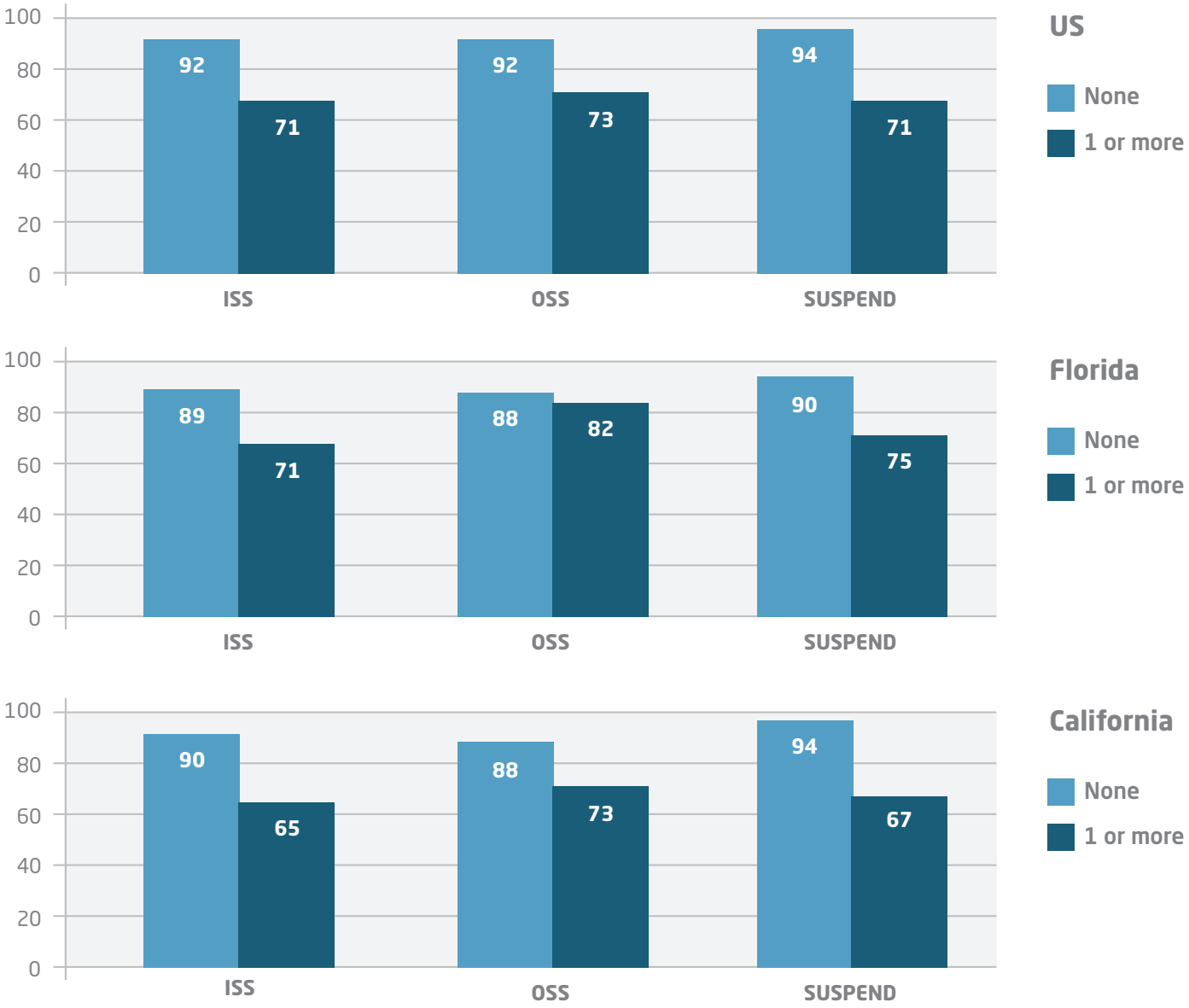
Data from all three sources show much higher suspension rates for Blacks and Hispanics than for Whites. For example, in the CRDC data, out-of-school suspension rates were 23 percent for Black secondary students, 11 percent for Hispanic secondary students, and 7 percent for White secondary students. The racial disparities reported in the ELS data are less severe among tenth graders, at least in figures for the U.S. and California, but in Florida the rates for Black tenth-grade students are more than twice the rates for Hispanics and four times the rates for Whites. Although the Florida administrative data show the highest rates for each racial group, the rate for Blacks was 17 percentage points higher than for Whites, which is the same percentage point difference as observed in the data from both the ELS and the CRDC. The ELS data further suggest that almost one-third of all Black students and more than one-fifth of Hispanic students experienced either an in-school or out-of-school suspension in the first semester of tenth grade.

The Impact of Suspensions on Graduation. The next phase of this study examined the relationship between suspensions and the failure to graduate from high school. Descriptive ELS data, shown in Figure 1, show that students who reported either an in-school or out-of-school suspension in the first semester of tenth grade were much less likely to graduate from high school than students with no suspensions. In the U.S., only 71 percent of tenth graders who received a suspension graduated from high school, compared to 94 percent of tenth graders who did not receive a suspension. In other words, being suspended is associated with a 23 percentage-point decrease in the likelihood of graduating. The disparity is somewhat smaller in Florida—90 percent versus 75 percent, or 15 percentage points—and larger in California—94 percent versus 67 percent, or 27 percentage points. Interestingly, receiving an in-school suspension may have a stronger association with not graduating than receiving an out-of-school suspension. One possibility is that there are more out-of-school suspensions given out in the second half of the school year. In many districts, for example, repeated offenses are responded to with increasingly harsh penalties. The survey data do not account for the possibility that students receiving a lesser punishment or who only reported an in-school suspension by mid-year then received an out-of-school suspension later that year. Another difference not reflected in calculating the impact different types of suspension have on graduation rates is the average length of suspension.

Of course, students who are suspended may be less likely to graduate from high school for other reasons besides being suspended. For example, students who are suspended may have poorer attendance and lower grades and be more likely to be retained than students who are not suspended—all factors associated with failure to graduate from high school (Rumberger, 2011). Consequently, observed differences in graduation rates between students who were or were not suspended should not be regarded as the causal impact suspensions have on graduation—that is, whether suspending a student who may be at risk for dropping out anyway actually increases the likelihood that student will drop out.

To estimate the causal impact of suspensions more accurately, statistical models were estimated that controlled for a series of variables associated with both being suspended and dropping out. The specific variables available in the ELS data were different than the specific variables available in the Florida administrative data, but both sets of variables represent a reasonable set of controls. The results of these models can be used to compare the differences in graduation rates between suspended students and non-suspended students, with and without controlling for background variables.

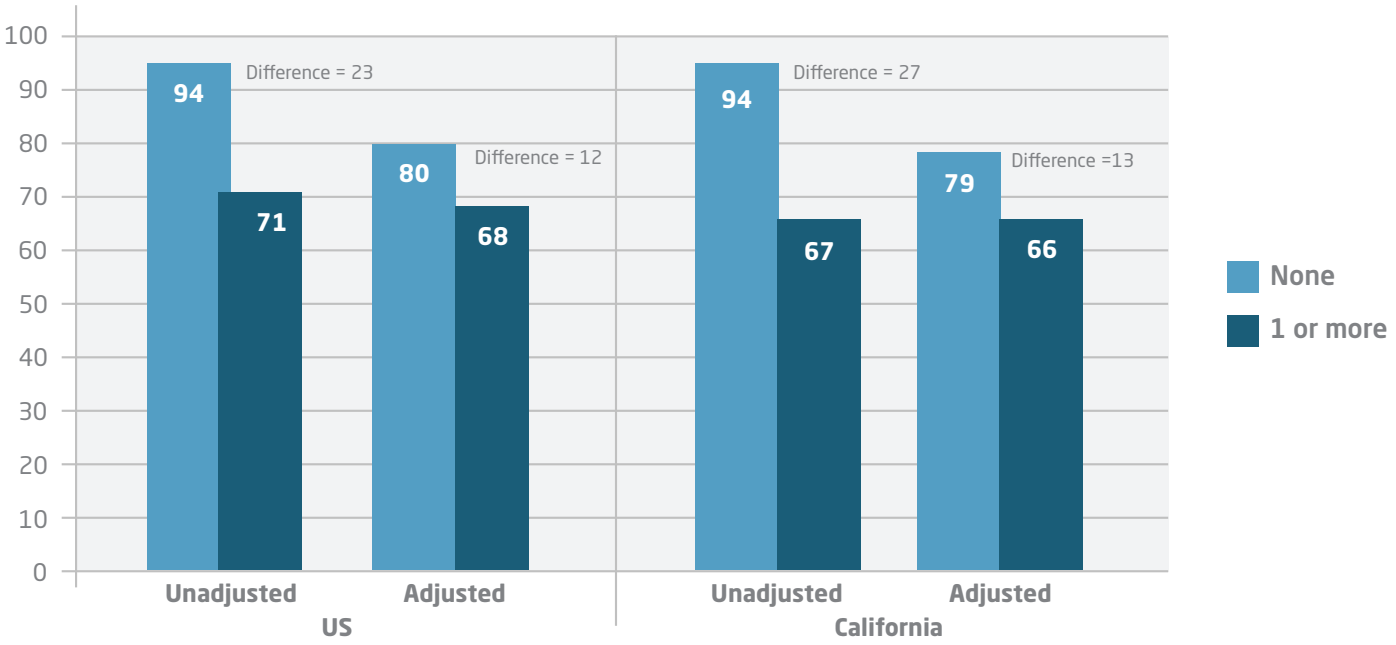
Figure 1.
High School Graduation Rates by Number of Tenth-Grade Suspensions, U.S., Florida, California



Note: Suspensions are for the first semester of tenth grade.

Estimates for the entire U.S. are shown in the left-hand side of Figure 2. The left-most bars represent the difference in graduation rates between tenth-grade students who did and did not report receiving an in-school or out-of-school suspension in the first semester of tenth grade—the same data reported earlier. The difference in graduation rates was 23 percentage points. The next two bars represent the difference in graduation rates between tenth-grade students who reported receiving a suspension and controlling for the effects of background variables, including family income, parental education, immigration status, and tenth-grade test scores (see Appendix for a complete list of variables). The left-hand bar represents the estimated graduation rate for suspended students if they had not been suspended, while the right-hand bar represents the estimated graduation rate for the suspended students who were suspended. Note that, even if suspended students had not received a suspension, their estimated graduation rate is much less than the observed graduation rate for all non-suspended students, 80 percent versus 94 percent. This illustrates that students who are suspended from school are more likely to have other risk factors associated with not graduating. Specifically, when we compare the suspended students to their non-suspended peers, they are more likely to have poor academic performance (grades, test scores) and come from disadvantaged backgrounds. That is why this analysis controlled for those other contributing factors. The result is a more reliable estimate of the impact of being suspended. Figure 2 shows the results before and after we made the adjustment by controlling for other contributing factors. The right-hand bar shows the results when controlling for the same set of background variables. It shows that, with other factors controlled, the estimated graduation rate for students who are suspended is 68 percent, which is still 12 percentage points less than the estimated rate if they had not been suspended. In other words, this suggests that suspensions increase the risk of not graduating from high school by 12 percentage points.

Figure 2. Unadjusted and Adjusted High School Graduation Rates by Number of Suspensions, U.S. and California



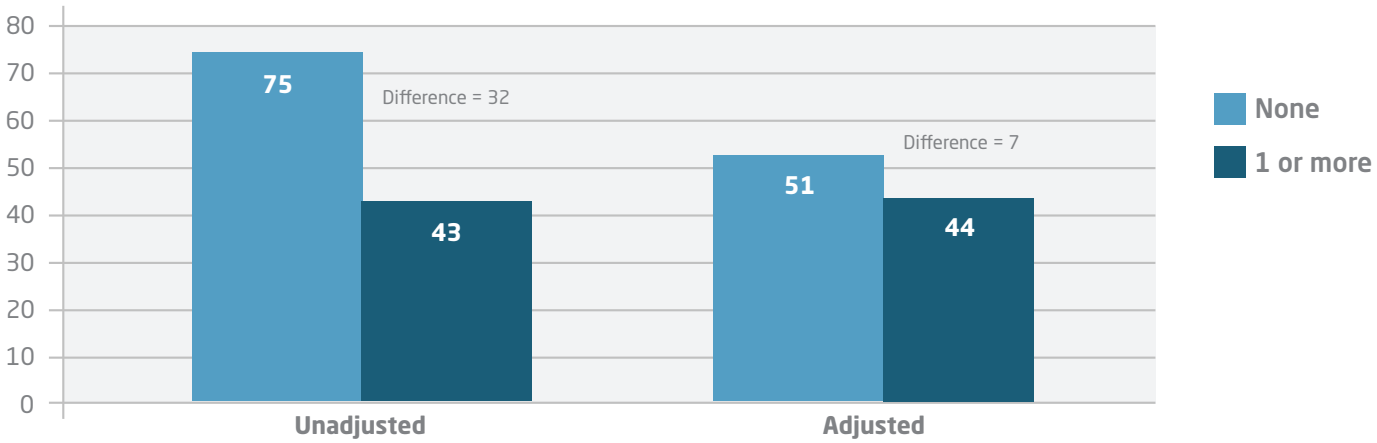
Note: Adjusted graduation rates were estimated using treatment effects models with regression adjustment and a series of control variables (see Appendix).

The right-hand portion of Figure 2 shows the same estimates for California, which are very similar to the estimates for the U.S. The observed graduation rate for California tenth-grade students who were not suspended was 94 percent, the same as for the U.S., while the observed graduation rate for suspended students was 67 percent, somewhat lower than for the U.S. The difference in observed graduation rates between students who were not and were suspended was 27 percentage points, somewhat higher that the overall difference in the U.S. Controlling for background variables, the estimated graduation rate among suspended students if they had not received a suspension was 79 percent, substantially lower than the observed graduation rate among all non-suspended students. The estimated graduation rate for suspended students was 66 percent, which is still 13 percentage points below the estimated graduation rate if they had not been suspended. In other words, this suggests that suspension increases the risk of not graduating from high school in California by 13 percentage points, about the same as the national rate.

A similar procedure was done with the Florida administrative data. The results are shown in Figure 3. The observed graduation rate for Florida ninth-grade students who were not suspended was 75 percent, while the observed graduation rate for suspended students was 43 percent. The difference in observed graduation rates between students who were not and were suspended was 32 percentage points, higher than the difference estimated for the U.S. and California based on ELS data. Controlling for background variables, the estimated graduation rate among suspended students if they had not received a suspension was 51 percent, substantially lower than the observed graduation among all non-suspended students. Again, this lower estimated rate reflects the fact that suspended students typically have several of the dropout predictors and would therefore be less likely to graduate even if they didn't receive a suspension. The estimated graduation

rate for suspended students was 44 percent, which is still seven percentage points below the estimated graduation rate if they had not been suspended. In other words, this suggests that suspension increases the risk of not graduating from high school in Florida by seven percentage points. This is lower than the rate in the U.S. and in California, but it may reflect the fact that Florida data report graduation rates for ninth graders, which are lower than the graduation rates of tenth graders reported in the ELS data. Florida also has a higher suspension rate, so this smaller impact affects more students.

Figure 3. Unadjusted and Adjusted High School Graduation Rates by Number of Suspensions, Florida



Note: Adjusted graduation rates estimated using propensity matching models using a series of control variables (see Appendix).

The Economic Impact of Suspensions. The last phase of the study was to estimate the economic impact of suspensions. The impact was calculated in a number of steps. The first step was to select a cohort of students and estimate the number of students suspended from this cohort. For the U.S. and California, the tenth-grade cohort from 2001-02 was used to coincide with the year of the ELS data and the estimates derived from these data. The second step was to estimate the number of additional dropouts (non-graduates) due to suspension, based on the estimated impact of suspensions shown earlier. The last step was to use figures on the fiscal and social impact of high school graduates to compute the economic losses due to the total number of suspensions, and then to calculate the economic gains if suspension rates were reduced by 1 percentage point, by 5 percentage points, and finally by the equivalent of cutting suspension rates in half. All the figures used in these calculations and the final estimates are shown in Table 2.

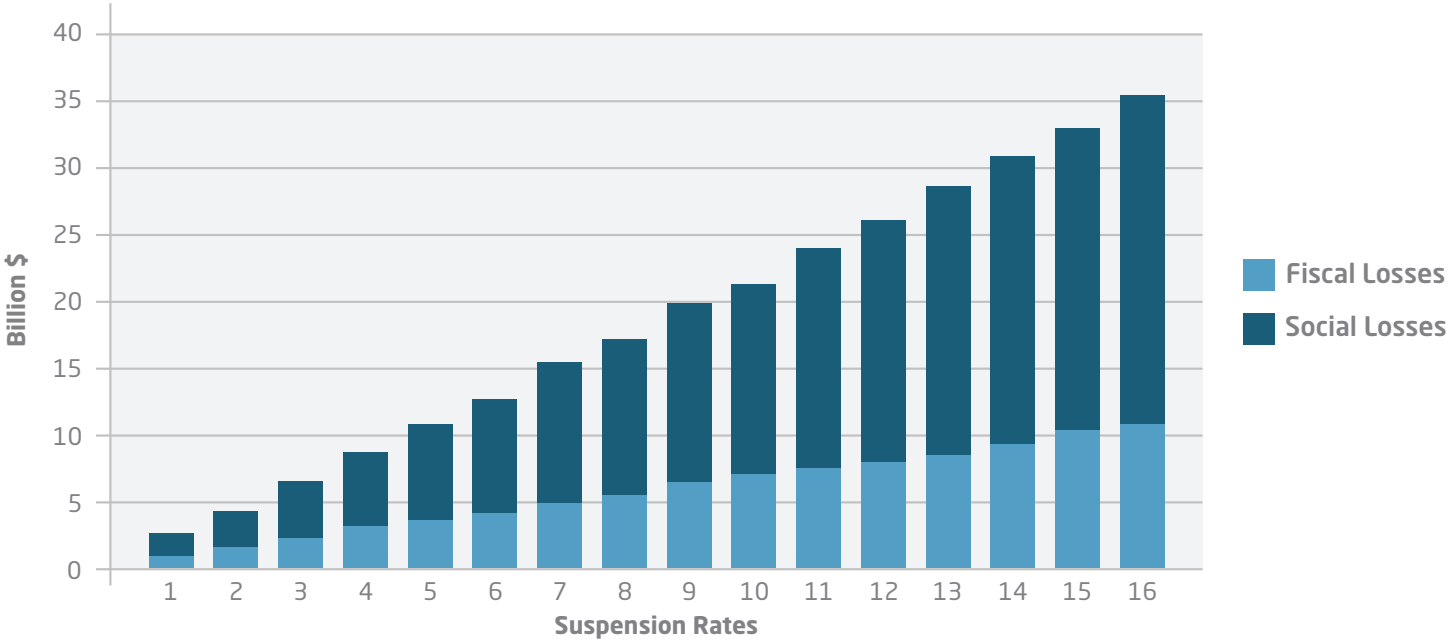
Table 2. Economic Impact of Suspensions, U.S., California, and Florida

	U.S.	California	Florida
Ninth-grade cohort 2000-01 (Florida administrative data)			181,897
Tenth-grade cohort 2001-02 (based on NCES data)	3,527,855	459,588	
Suspension rate	16%	18%	27%
Number of suspended students	564,457	82,726	48,853
Percentage point in increase in dropouts due to suspensions	12	13	7
Number of dropouts due to suspensions	67,735	10,754	3,420
Economic impact per expected high school graduate			
Fiscal impact	$163,340	$175,120	$151,560
Social impact	$527,695	$579,820	$475,570
Economic impact of dropouts due to suspensions			
Fiscal impact	$11B	$1.9B	$518M
Social impact	$35.7B	$6.2B	$1.6B
Economic savings from reduction in suspension rate of:			
1 percentage point			
Fiscal savings	$691M	$105M	$19M
Social savings	$2.2B	$346M	$61M
5 percentage point			
Fiscal savings	$3.5B	$523M	$96M
Social savings	$11.2B	$1.7B	$303M
50 percent (half)			
Fiscal savings	$5.5B	$942M	$261M
Social savings	$17.8B	$3.1B	$817M

Source: Enrollment figures from NCES, *Digest of Education Statistics 2004*. Retrieved from http://nces.ed.gov/programs/digest/d04/tables/dt04_039.asp

The National Impact. First, consider the U.S. overall. In 2000-01 there were 3.5 million tenth-grade students. According to the ELS data, 16 percent of tenth graders reported that they had received an in-school or out-of-school suspension in the first semester. Applying that rate to the entire tenth-grade cohort yields a figure of 564,457 suspended students. Next, based on the estimates reported earlier, suspensions led to a 12 percentage-point increase in the number of dropouts in the U.S., or an additional 67,735 dropouts. The fiscal (taxpayer) impact of each dropout, based on the work of Belfield (2014a, 2014b), is $163,340, while the social impact is $527,695.[8] Multiplying the economic impact per graduate by the number of additional dropouts yields a figure of $11 billion in fiscal impact and $35.7 billion in social impact due to suspensions in the U.S. In other words, the additional 67,735 dropouts caused by suspensions cost U.S. taxpayers $11 billion in lost tax revenues over the lifetimes of these additional dropouts, and they cost the larger society more than $35 billion. Figure 4 below shows the economic losses due each percentage point increment in the suspension rate.

Figure 4. Economic Losses from Suspensions



Reducing suspension rates would yield substantial economic benefits, as follows:

- A one percentage-point reduction in the suspension rate would reduce the number of suspended students by 35,279 and the number of dropouts due to suspensions by 4,233, yielding a fiscal benefit of $691 million and a social benefit of $2.2 billion.
- A five percentage-point reduction would yield a fiscal benefit of $3.5 billion and a social benefit of $11.2 billion.
- Finally, cutting the suspension rate in half, or by eight percentage points, would yield a fiscal benefit of $5.5 billion and a social benefit of $17.8 billion, including $2 billion in health savings and $3 billion in crime savings.

Impact in California and Florida. The economic impact of suspensions and the benefits of reducing suspensions are also substantial for individual states. California enrolled almost a half-million tenth graders in 2001-02. Based on an estimated 18 percent suspension rate, this yielded an estimated 82,726 suspended students. The estimated 13 percentage-point increase in dropouts due to suspensions yields an additional 10,754 dropouts. The fiscal (taxpayer) impact of each dropout, based on the work of Belfield (2014a), is $175,120, while the social impact is $579,820. Multiplying the economic impact per graduate by the number of additional dropouts yields a figure of $1.88 billion in fiscal losses and $6.2 billion in social losses due to suspensions in California. A one percentage-point reduction in the suspension rate would yield a fiscal benefit of $105 million and a social benefit of $346 million. A five percentage-point reduction would yield a fiscal benefit of $523 million and a social benefit of $1.7 billion. Finally, cutting the suspension rate in half, or by nine percentage points, would yield a fiscal benefit of $.94 billion and a social benefit of $3.1 billion.

Florida enrolled 181,897 ninth-grade students in 2000-01.[9] A total of 48,853, or 27 percent of ninth-grade students, were suspended.[10] Based on the estimated seven percentage-point increase in dropouts due to suspensions yields an additional 3,420 dropouts. The fiscal (taxpayer) impact of each dropout, based on the work of Belfield (2014b), is $151,560, while the social impact is $475, 570. Multiplying the economic impact per graduate by the number of additional dropouts yields a figure of $518 million in fiscal losses and $1.6 billion in social losses due to suspensions in Florida. A one percentage-point reduction in the suspension rate would yield a fiscal benefit of $19 million and a social benefit of $61 million. A five percentage-point reduction would yield a fiscal benefit of $96 million and a social benefit of $303 million. Finally, cutting the suspension rate in half, or by 13.5 percentage points, would yield a fiscal benefit of $261 million and a social benefit of $817 million.

It is important to point out that these estimated costs are for the "average" student. But, as shown earlier, suspension rates and thus the economic impact of suspensions are disproportionate among students by race, particularly among Black students. In the U.S., for example, Black suspension rates were 30 percent while overall suspension rates were 16 percent (see Table 1), which means that while Blacks made up 13 percent of all tenth graders they made up 25 percent of all suspended students. Blacks thus represented 25 percent or $2.8 billion out of $11 billion in fiscal loses and $8.9 billion out of $35.6 billion in social loses to the U.S. In California, Blacks represented 6 percent of tenth-grade students but 11 percent of suspended students, and therefore they represented 11 percent of the fiscal and social losses to the state. Finally, in Florida, Blacks represented 16 percent of the tenth-grade students but 31 percent of suspended students, and thus 31 percent of the fiscal and social losses to the state.

Two inferences may be drawn from the disparate impact of suspensions. One is that the economic burden of suspensions is currently harming Black children more than others. The second is that greater economic benefits may be realized if efforts to reduce suspensions for all students purposefully include efforts to reduce the racial school discipline gap between Black and White students. Although how to reduce the racial discipline gap is not the focus of this report, numerous studies point to interventions that have helped school districts reduce disciplinary exclusion generally, and in particular to narrow this gap (Losen, 2015).

Conclusion

This study found that there are substantial economic costs to suspending students, as students who receive suspensions are more likely to drop out of high school. At the national level, suspensions increased the number of dropouts by more than 67,000, which cost taxpayers more than $11 billion. Cutting the suspension rate in half would save taxpayers $5.5 billion. In California, suspensions increased the number of dropouts by more than 10,000, which cost taxpayers more than $1.88 billion. In Florida, suspensions likely increased the number of dropouts by 3,400, costing taxpayers more than $500 million. This study demonstrates emphatically that suspensions impose large fiscal costs and that reducing suspension rates would reap substantial savings for taxpayers.

To some the prospect of reducing suspension rates may sound like an impossible task, yet the latest findings on changing suspension rates, which cover every district in the nation, found that many large districts were able to reduce their suspension rates dramatically in just three years. For example, at the secondary level in districts with at least 3,000 students enrolled, the largest declines ranged from approximately 14 percentage points in Saginaw, New Jersey, to 46 percentage points in Richmond County, Georgia.[11] This evidence is offered as an indication that it is not unrealistic for districts that have high suspension rates to make significant reductions. One reason is that the districts with the most excessive rates are likely those with very harsh discipline policies, including suspending students for minor offenses.

In another example, a recent report on declining suspension rates in California and the use of suspensions for the minor offense "disruption or defiance" found that, in 11 of the 12 districts with the highest out-of-school suspension rates in the state, more than 29 percent of the suspensions were for this minor infraction (the statewide share for this category), and in four districts the category accounted for more than half of all suspensions (Losen, Keith, Hodson, Martinez, & Belway, 2015). The report found that between 2011-12 and 2013-14, the state reduced in- and out-of-school suspensions by more than 206,000 and that 77 percent of this reduction was due to fewer suspensions being meted out for disruption/defiance. Data included in the report showed there was a large decline in suspension rates in Los Angeles after out-of-school suspensions were prohibited for this category. Several other large districts, including Chicago, recently documented significant reductions in suspension rates after making concerted efforts to employ less exclusionary responses to problematic behavior. The University of Chicago's Consortium on Chicago School Research recently published an extensive study that found the use of suspensions had declined markedly between 2008-09 and 2013-14 but still remained high. Moreover, 60 percent of suspensions in Chicago were still meted out for minor offenses such as disruption or defiance. It is important to note that the six-year decline in the use of out-of-school suspensions since 2008-09 coincides with higher school safety ratings from students and teachers (Stevens, Sartain, Allensworth, & Levenstein, 2015).

Researchers have demonstrated that there are effective alternatives to suspending students from school. Moreover, the racial disparities in suspension rates raise serious questions about the disparate impact harsh discipline has on educational opportunity. Many districts may find that they cannot legally justify the current policies and practices that are contributing to excessive and racially disparate suspension rates. Other districts may find that their suspension rates are relatively high although the racial/ethnic disparities are not.

Some may resist calling for changes to discipline policy or practice on the grounds that suspensions cost the school nothing and help teachers maintain a more effective learning environment. If graduation rates inform the latter assumption, these findings add more robust evidence that suspensions damage academic outcomes. Perhaps more important, however, is that these findings show that suspensions cost taxpayers billions in social costs. In this report we have monetized these

costs, based on the impact of one cohort of potential high school graduates. We have demonstrated that these costs can be estimated at the state level, and that even a small reduction in the use of suspensions can save a state hundreds of millions of dollars. If policymakers who once endorsed tougher codes of conduct that include frequent disciplinary removal had known of the tremendous long-term economic cost of suspending students from school, it is likely that most schools would have invested in more constructive approaches to handling misbehavior that reserve removal from the classroom or school as a punishment of last resort.

Of course, done properly, attempting to reduce suspension rates usually requires investing education dollars differently. In Los Angeles, for example, the president of the teachers union, who embraced the move to more effective punishment alternatives, has also raised concerns that the district is not giving teachers adequate support and training to implement changes to the school code (Watanabe & Blume, 2015). Some policy changes may entail only minimal costs, such as ceasing to suspend students for minor offenses such as truancy, tardiness, and dress code violations, and thus do not require a major reallocation of resources. However, research does indicate that the most successful reforms require spending time and money on training and supports for teachers and leaders and the adoption of restorative practices or other disciplinary systems. For example, according to the *Los Angeles Times*, the Los Angeles Unified School District's investment in hiring and training 45 school counselors to implement restorative practices cost the district several million dollars, and it still left some educators without the intended training and support. (Watanabe & Blume, 2015). A cost benefit analysis of these investments is beyond the scope of this research, but we believe the model developed for this study could be used for a more fine-grained state- and district-level analysis in the future.

On the other hand, given the high and previously unknown costs of suspension documented here for the nation and for two of the most populated states, and considering that the high costs associated with involvement in the juvenile justice system were not included, it is hard to imagine that additional research will show that the high-suspending status quo is economically efficient. We believe that educators interested in ensuring equal educational opportunities, as the law requires, and those seeking a wise return on education expenditures should find common ground in the goal of reducing suspension rates and be keenly interested in pursuing reforms.

Keep in mind that this economic analysis is centered on the relationship between suspensions and the increased risk of failing to graduate high school. As educators are encouraged to think about reallocating education dollars to reduce suspensions, they should be wary of the interwoven nature of the contributing causes of dropping out of school. Although beyond the scope of this study, researchers suggest that the best investments are likely those that incorporate efforts to reform discipline policy and practice with those aimed at improving performance in core academic subjects and reducing chronic absenteeism (Balfanz, 2015). Unfortunately, there are no federal or state academic evaluation or accountability systems that consider suspension rates. However, the Every Student Succeeds Act does call for states to have in place some accountability for schools with the lowest graduation rates and encourages states to include "school climate" as one of the chosen indicators of successful schools in the state accountability plans due for secretarial review. Furthermore, the new law also requires each state plan to provide assurances that it is taking measures to improve the conditions of learning, including addressing the "overuse of suspension." While it is true that the new federal law does not require any specific accountability or evaluation component that reviews suspension rates or the large disparities along the lines of race and disability status, one proposed regulation is designed to require states to ensure that more districts take action when significant racial disproportionality in discipline is found among students with disabilities.[12] Some states have passed laws or regulations designed to limit the use of suspensions, but such discipline reform efforts are far from universal. For this reason, we conclude this study with a set of recommendations, including several that seek to nest efforts to reduce suspension rates within broader education policy initiatives.

Recommendations to Policymakers

1. Evaluation, Monitoring, and Accountability: One central recommendation is that when federal and state governments create and implement evaluation and oversight plans for schools and districts they include suspension rates among the indicators they use to determine whether schools are high performing or in need of assistance. While ESSA (2015) does require a degree of state review to ensure they are supporting districts and schools in reducing the overuse of suspensions we encourage states to make such reviews rigorous, constructive and to address discipline disparities. Policymakers should strongly support schools and districts that are effectively reforming their school discipline systems. Similarly, as the high cost of suspension is evidenced by the impact it has on graduation rates, efforts to improve those rates should bring school discipline reform into the discussion. Suspension rates are easy to calculate and monitor and, as other studies have demonstrated, they are heavily influenced by policies that school districts control (Fabelo, 2011; Skiba, 2015). Moreover, in states that identify struggling schools that need support and action plans to turn their academic performance around, the elements of those improvement plans, and the system of monitoring progress, should require these schools to focus on ensuring that suspension rates are low for all subgroups of students.

2. Review the Data and Research Findings: If we accept the evidence that suspension contributes to the risk of dropping out, we can use the suspension data as part of an early warning system for schools and districts. This means that, as more and more districts with high suspension rates explore alternatives, we will need data to help them distinguish between effective and ineffective interventions and policy changes. If schools and districts do not collect and report data on this important indicator accurately and in a comprehensive and timely manner, they are bound to miss what they are doing well and allow failing practices to continue. There are clear economic costs to such ignorance, and increased awareness of the high costs of suspension could help erode resistance to collecting and reporting discipline data. Furthermore, to ensure that these data can be used in a timely fashion, they should be disaggregated not only by race but also by disability, English learner status, and gender and reported to the public at least once a year. This report did not have access to data such as days of lost instruction or the more immediate costs of involvement in the juvenile justice system, so our future understanding of the costs and benefits of disciplinary exclusion will rely on having access to current state and federal data, and it will be bolstered by information on lost instruction, turning to law enforcement for school infractions, and the costs of involvement in the juvenile justice system.

3. Direct federal and state resources toward more effective disciplinary policies and practices: While this study only begins to estimate the high costs of disciplinary removal, it should be obvious that all or part of an investment in more effective discipline policies and practices would be offset by the future costs avoided. We hope this analysis will prompt the application of these findings at the district level. While we could not calculate the level of resources needed to lower suspension rates, we believe the economic findings combined with evidence of racial inequity in discipline are sufficient to justify investments in more effective disciplinary policies. To this end, we encourage state and federal policymakers to provide schools and districts with incentives to improve their school climate, such as grants for substantial teacher and administrator trainings, and resources targeted at improving the collection and use of discipline data at the school level.

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Appendix

ELS Analysis

The ELS data were used to estimate graduation rates for students who had similar characteristics to students who were suspended, but were not. We refer to these as adjusted graduation rates. The table below shows the set of variables from the ELS data that were used as control variables. They include demographic variables (gender, race, nativity, age), family variables (household composition, household size, parental education, family income), and school performance variables (tenth grade test scores in math and reading, teacher-reported effort, teacher-reported performance/behavior).

Table A-1. ELS Data, Descriptive Statistics

	Mean	Std. Deviation	Description
Female	.47	.499	= 1 if BYS14=2
Hispanic	.14	.343	= 1 if BYS15=1
Black	.12	.330	= 1 if (byrace=3& R_hisp=0)
White	.54	.499	= 1 if (byrace=7& R_hisp=0))
Other race	.20	.402	= 1 if (r_black=0&r_hisp=0&r_white=0
Age	16.41	.564	=year+month
Family income	63,835	50,836	=0 if byincome=1 =500 if byincome=2 =2500 if byincome=3 =7500 if byincome=4 =12500 if byincome=5 =17500 if byincome=6 =22500 if byincome=7 =30000 if byincome=8 =42500 if byincome=9 =62500 if byincome=10 =87500 if byincome=11 =150000 if byincome=12 =225000 if byincome=13
Born in US	.91	.280	=1 if BYP23 =3
Parents born in US	.20	.402	= 1 if BYP17=3|BYP20=3
Native language is English	.82	.382	= 1 if BYSTLNG2=4
Household size	.27	.445	= BYP08>2
Living with both parents	.71	.455	= 1 if byfcomp==1| byfcomp==2|byfcomp==3
Region northeast	.18	.387	= 1 if byregion =1)
Region Midwest	.25	.432	= 1 if byregion =2)
Region south	.36	.481	= 1 if byregion =3)

Mother's education below hs	.17	.379	= 1 if bymothed <=1
Mother's education hs	.25	.436	= 1 if bymothed =2
Mother's education some college	.11	.318	= 1 if bymothed =3
Father's education below hs	.18	.385	= 1 if byfathed<=1
Father's education hs	.27	.442	= 1 if byfathed =2
Father's education some college	.09	.285	= 1 if byfathed =3
math_10	.00	1.00	Standardized (BYNELS2M)
read_10	.00	1.00	Standardized (BYNELS2R)
Teacher rating of student's effort	.49	.500	BYTE04~=1
Teacher rating of student's behavior	.15	.352	=1 if (BYTE18A=1|BYTE18B=1
ISS	.10	.306	= 1 if BY24E>=2
OSS	.07	.259	=1 if BY24F>=2
SUSPEND	.14	.347	ISS=1|OSS=1
HS diploma	.87	.339	=1 if F2HSSTAT==1| F2HSSTAT==2|F2HSSTAT==3

A number of statistical techniques were considered to estimate adjusted graduation rates. One technique was simply logistic regression. A second technique was a treatment effects model (teffects command in STATA) using logistic regression analysis to estimate graduation rates for all suspended and unsuspended students adjusting for the same set of covariates (STATA manual, pp. 35-41). A third technique was a treatment effects model (teffects command in STATA) using propensity-score matching to estimate the probability of being suspended and using the propensity score as a single control variable in estimating graduation rates for suspended and unsuspended students (STATA manual, p. 56). The two treatment effects models do not reveal the coefficients of the underlying control variables. So a propensity-score model was estimated using stratified matching of suspended and non-suspended and the resulting pscore was used to estimate the effects of suspensions on graduation rates. As shown in Table A-2, all of these techniques produced similar results in estimating the effects of in-school suspensions (ISSS). The results were also not affected by using weighted data versus unweighted data, which also supported the use of treatment effects models since they could only produce unweighted results. The results from the treatment effects models based on regression analysis were used in this study. Also shown in the table are the estimated effects for out-of-school (OSS) and total suspensions. Similar results were obtained for California.

Table A-2. Comparisons of Techniques for Estimating Effects of Suspensions on Graduation Rates

Technique	Sample	Weighted	Predictors	Suspension co-eff.	Grad rate non-suspended	Grad rate suspended
Log regression	National (N=13,962)	Weighted	Full set	ISS = -.788	81%	66%
Treatment Effects: Regression Analysis	National (N=15,190)	Unweighted		ISS = -.121	79%	68%
Treatment Effects: Propensity Matching	National	Unweighted		ISS = -.116		
Pscore with stratified method ATT	National (N=16,190)	Unweighted	pscore	ISS = -.122		
Treatment Effects: Regression Analysis	National (N=15,190)	Unweighted		OSS = -.121	78%	66%
Treatment Effects: Regression Analysis	National (N=15,190)	Unweighted		TotalS = -.123	80%	68%
Treatment Effects: Regression Analysis	California (N=1,329)	Unweighted	Full set less region	ISS = -.149	78%	63%
Treatment Effects: Regression Analysis	California (N=1,329)	Unweighted	Full set less region	OSS = -.050	73%	68%
Treatment Effects: Regression Analysis	California (N=1,329)	Unweighted	Full set less region	TotalS = -.131	79%	66%
Pscore with stratified method ATT	California (N=1,329)	Unweighted	Full set less region	-.153		
Pscore with stratified method ATT	California (N=1,218)	Weighted	Full set less region	-.157		

Florida Analysis

The Florida analysis was based on state administrative data. The control variables were:

- If student was new to Florida Public Schools (mobility)
- Ethnicity
- Overage for grade status
- Free/reduced-price price lunch program eligibility
- LEP status
- Special education status
- Ninth-grade attendance rate
- Ninth-grade course failures
- Ninth-grade FCAT Scale score for math

Two statistical techniques were used. The first was simple logistic regression. The second was propensity matching. Although both models produced similar estimated effects of being suspended (from 5 to 7 percentage points), the propensity matching technique estimated much lower graduation rates for students who were similar to suspended students on all the control variables.

Table A-3. Florida Estimates of Suspensions on Graduation Rates

Technique	Suspension Measure	Not suspended			Suspended			Difference
		Percentage	Odds	Logit	Percentage	Odds	Logit	
Logistic Regression	OSS	75%	3.00	1.10	69%	2.23	1.10 -.300 = .800	6
	OSS/ISS	75%	3.00	1.10	70%	2.34	1.10 - .250 =	5
Propensity matching	OSS	41.5%			34.9%			6.6
	OSS/ISS	51.4%			44.1%			7.3

Endnotes

[1] While Clarke cannot be credited for introducing Draconian discipline into our public schools, he was among the chief promoters of it during the late 1980s.

[2] The "broken windows" theory is shorthand for the approach to law enforcement that calls for locking up those committing even the most minor crimes in high-crime neighborhoods' it originated with James Q. Wilson and George W. Kelling. The concept is that crime flourishes in chaotic neighborhoods that nobody cares about. When police attend to every small detail it signals that people do care and the chaos that pervades in high-crime neighborhoods cannot possibly prevail, which stunts the growth of more serious crime. See http://www.theatlantic.com/magazine/archive/1982/03/broken-windows/304465/.

[3] It is built on the commissioned work of high school dropout expert Robert Balfanz and education economist Clive Belfield (2014a, 2014b).

[4] See http://nces.ed.gov/surveys/els2002/.

[5] See http://edwapp.doe.state.fl.us/doe/.

[6] To ensure confidentiality, gender was not made available in the Florida dataset.

[7] See the U.S. Department of Education's estimates available at http://ocrdata.ed.gov/StateNationalEstimations/Estimations_2011_12

[8] These figures are based on an average of the estimates for California and Florida, since Belfield only computed figures for these two states. Through personal correspondence he suggested that an average of the California and Florida figure was a reasonable national estimate.

[9] The full ninth-grade cohort was 205,337, but only 181,897 students that had longitudinal data were included in the study, so this would tend to underestimate the total number of suspended students and the economic impact. See Balfanz et al. (2012, pp. 2-3).

[10] Florida only reported out-of-school suspensions, so these estimates can be considered very conservative, since they exclude in-school suspensions.

[11] See Losen et al. (2015, at table 10, p. 26). Available at www.schooldisciplinedata.org.

[12] On March 2, 2016, the U.S. Department of Education issued a "Notice of Proposed Rule Making" that included proposed regulations with regard to addressing racial disproportionality in discipline among students with disabilities. See https://www.gpo.gov/fdsys/pkg/FR-2016-03-02/pdf/2016-03938.pdf.