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The Ten Billion Dollar Deficit:

The Economic Burdens of Inequities Across California Schools

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SUMMARY

California's public schools face significant pressure to improve across a range of metrics, to improve educational efficiency and reduce inequities between student groups. One student support framework is the Multi-Tiered System of Support (MTSS), which includes screening of students' needs, monitoring their progress, data-based decision making and a multi-level prevention system. MTSS has the potential to maximize student success. However, to set MTSS in context, it is necessary to calculate the full economic consequences of failing to invest in MTSS (and other educational support strategies).

Here we investigate the economic consequences of failure to graduate from high school; chronic absenteeism; and disciplinary sanctions (suspension, expulsion, and restraint). Applying a standard economic model, we calculate the burdens to society, families, schools, and the California taxpayer. We find significant burdens from each perspective and that these burdens vary by race and student disadvantage. For example, there are racial inequities in how many students get suspended as well as the economic burden of these suspensions.

Summary results (Table S1) show a social gain of almost one-half million dollars per extra high school graduate. For a 3 percentage point increase in the state-wide high school graduation rate, California would gain almost $10 billion in total and $3 billion in taxpayer savings.

Table S1. Summary Results: Gains from More High School Graduates in California

	Economic Value
Social gain per extra HS graduate	+$478,000
For California if state-wide HS grad rate ⇑ 3 percentage points	
Social saving	$9.57B
Taxpayer saving	$2.95B

Economic calculations (Table S2) show the substantial economic burden for students who are off-track or have been disciplined. For each student who is chronically absent, the burden is $5,630. Disciplinary social burdens are also high: for each expulsion, for example, the social burden is $70,870.

Table S2. Summary Results: Social Burdens per Student Status in California

Per Student	Social Burden
Chronic absentee	$5,630
Suspension	$27,260
Expulsion	$70,870
Disciplinary Restraint	$6,040

These calculations provide compelling evidence that educational support strategies such as MTSS are needed and that there is significant potential for them to be socially efficient.

INTRODUCTION

California's schools face a number of challenges that have been greatly exacerbated by the pandemic.[1] Insufficient public funding statewide, compounded over many years, has meant slow growth in learning and educational productivity. This in turn has exacerbated educational gaps as disadvantaged and minority students lag far behind their peers. In terms of both efficiency and equity, these challenges impose significant burdens on California's K–12 system.

To address these challenges, there is a compelling case for additional investments in education—not just to give all students an opportunity to succeed but also for the education system to be more efficient in its use of resources. One comprehensive support framework is the Multi-Tiered System of Support (MTSS), which has many promising features that can improve equity and efficiency. MTSS is discussed below, but the primary task here is to determine the scale of the educational challenge.[2]

In this report, we investigate three specific—and related—challenges facing California's public school system. They are:

1. students' failure to complete high school
2. chronic absenteeism
3. disciplinary infractions

We begin by showing patterns across each of these challenges for the state's 6.3 million students and within groups of California students. We then describe an economic model that allows us to calculate the burdens on the state's school system, its parents, and its economy. Using state-level, school-level, and student-level data, we calculate the total economic burden of low rates of high school completion and high levels of absenteeism and disciplinary infractions from a range of perspectives. We identify substantial economic burdens from high non-completion rates, chronic absenteeism, and disciplinary sanctions.

Our results identify substantial economic burdens from high school non-completion rates, chronic absenteeism, and disciplinary sanctions. For example, from a social perspective, the economic burden for each student who does not complete high school is $478,440. If California's high school graduation rate were to increase by 3 percentage points—to match the national average of 90%—this would translate into an additional $9.57 billion in economic benefits statewide. Similarly, large economic consequences result when students are absent, suspended, or expelled. These burdens are borne primarily by students and their families—particularly disadvantaged and minority families—but taxpayers and residents of California at large also suffer significant consequences.

1 There is growing evidence on how the pandemic adversely impacted K–12 schooling. The main mechanisms include lost schooling directly from COVID infection; lost schooling due to school closures; reduced school-level productivity (for example, from teacher absence, changed curricula, social distancing); and lower instructional productivity from online classes (Fuchs-Schündeln et al., 2020; Escueta et al., 2020; Goldhaber et al., 2022).

2 For a review of challenges and achievement levels, see gettingdowntofacts.com/--/2018-09/GDTFII_Report_Reardon-Doss.pdf. For a comprehensive Multi-Tiered System of Supports for California schools to address students' academic, social, and behavioral needs, see cde.ca.gov/ci/cr/ri/.

CHALLENGES FACING CALIFORNIA SCHOOLS

High School Non-Completion

Each year, many California students fail to graduate from high school. As shown in Table 1, 87% of high school students graduate within five years (2019). Thus, across each cohort, there are over 75,000 high school non-completers. This statewide non-completion is high and significantly above the average across the U.S. These students are disproportionately African American and male; they are also much more likely to be in foster care, have a disability, experience homelessness, or be an English Learner.

There are many reasons why high school graduation rates are relatively low in California. These include family pressures, financial burdens, mental health issues, and environmental factors (Rumberger, 2011).[3] Regardless of the causes of school failure, none of these students who do not complete high school will have the opportunity to go to college; and most will struggle to become economically secure and may need to rely on government supports. Thus, there is a clear economic burden from failure to complete high school, and this burden is likely to be especially significant for minority students and disadvantaged groups.

Chronic Absenteeism

On any given school day, many of California's students are absent. In this report, our focus is on chronic absenteeism, which we define as the percentage of K–8 students absent on more than 10% of their school's instructional days (that is, more than 18 days per academic year).[4] Absenteeism rates are shown in Table 2 for the 2018–19 school year (pre-pandemic) and the 2020–21 school year (when pandemic lockdown rules were still partially enforced). Before the pandemic, an average of 10% of all students were chronically absent. Rates of absenteeism were much higher for students who are African American, Hispanic, or other non-white or non-Asian ethnic groups; and disadvantaged students (especially those in foster care and experiencing homelessness). The pandemic dramatically

Table 1. California High School Non-Completion Rates, 2018–19 School Year

	Non-Completion Rate
All students	13%
Race:	
African American	20%
Hispanic	15%
Other ethnicity	18%
White	9%
Asian	5%
Disadvantage:	
Socioeconomic status	15%
Disability	25%
Homelessness	26%
English Learner	27%
Foster care	36%
Gender:	
Male	16%
Female	10%

Source: From cde.ca.gov/ta/ac/cm, retrieved February 21, 2023.

Note: Non-completion rate is inverse of 2019 five-year completion rate.

Table 2. California Chronic Absenteeism Rates, 2019–20 and 2021–22 School Years

	Chronic Absenteeism	
	2019–20	2021–22
All students	10%	30%
Race:		
African American	21%	43%
Hispanic	11%	36%
Other ethnicity	9%	28%
White	8%	22%
Asian	4%	12%
Disadvantage:		
Socioeconomic status	13%	37%
Disability	16%	40%
Homelessness	21%	45%
English Learner	10%	34%
Foster care	20%	42%
Gender:		
Male	10.2%	30.3%
Female	9.9%	29.7%

Source: From cde.ca.gov/ta/ac/cm, retrieved February 21, 2023.

Note: Chronic absenteeism is defined as absence for more than 10% of the school year.

3 A comprehensive research compendium with more than 40 papers and reports on California's high school non-completion rate is at cdrpsb.org.

4 Intermittent low-level absenteeism may also be important, but it is not the focus of this analysis.

increased absenteeism: for the 2021–22 school year, the average chronic absenteeism rate tripled to 30% of all students. Within-group rates spiked accordingly: 43% of African American students and 36% of Hispanic students were chronically absent: for disadvantaged students, rates were also significantly elevated (to almost half of all students experiencing homelessness). By an extremely conservative calculation, approximately 5% of all student time in California's schools is simply missing.

Students are absent for many reasons, including but not limited to poor health (Allensworth & Easton, 2007). Chronic absenteeism is a significant barrier to educational success. By definition, absentee students are failing to receive educational opportunities; chronically absent students have lower achievement levels in math and English language arts and are more likely to not complete high school (Liu, Lee, & Gershenson, 2021). Similarly, these students will face diminished economic opportunities in adulthood. School resources are also needed to ameliorate absence (and to ensure attendance). It is important to catalog these various burdens of absenteeism.

Disciplinary Actions or Exclusionary Discipline

Disciplinary sanctions are also common across California's public school system. These sanctions are grouped into suspensions, restraints (physical and mechanical), and expulsions (plus seclusions). Table 3 shows the rates for each sanction type (pre-pandemic). Each year, 233,800 students (almost 4%) are suspended, 7,300 students are restrained, and 3,300 are expelled. There are also a small number of seclusions—although this disciplinary status is relatively new—and mechanical restraints (860 and 120, respectively). Again, these disciplinary sanctions are not evenly distributed across student populations. Suspension rates are strikingly higher for African American students—almost four times that of any other racial group; males—double the rate for females; and disadvantaged students—with one-quarter of foster students and one in 12 students experiencing homelessness suspended each year.

Table 3. California Disciplinary Sanction Rates, 2018–19 School Year

	Suspension	Physical Restraints (per 10,000)	Expulsions (per 10,000)
All students	3.8%	16	6
Race:			
African American	11.8%	40	12
Hispanic	3.7%	8	6
Other ethnicity	3.4%	10	4
White	3.0%	18	4
Asian	0.9%	4	1
Disadvantage:			
Socioeconomic status	5.0%	12	7
Disability	8.7%	83	8
Homelessness	7.7%	14	13
English Learner	3.6%	8	5
Foster care	24.2%	162	21
Gender:			
Male	5.4%	19	8
Female	2.0%	3	2

Source: From cde.ca.gov/ta/ac/cm, retrieved February 21, 2023.

Students are disciplined based on various behaviors. However, disciplinary sanctions do not exactly reflect student behavior (Davison et al., 2021). Indeed, there is evidence that discipline systems within California schools are not well-aligned to behavior (Bacher-Hicks et al, 2019). For example, repeated offenses by African American students are more likely to be viewed as a deviant pattern compared to the same repeated offenses by white students. Another example is the greater prevalence of "zero-tolerance" policies at majority-minority schools. As a third example, the assignment of in-school versus out-of-school suspensions is not consistent across schools (Rumberger and Losen, 2017). Finally, the overall number of disciplinary actions may be excessive and counterproductive, since policies that reduce school discipline have been found to improve student

achievement and decrease student truancy rates (Lacoe and Steinberg, 2018, 2019; Pope & Zuo, 2023).

Each of these disciplinary sanctions—suspensions, restraints, and expulsions—impairs learning opportunities for disciplined students (Noltemeyer et al., 2015; Losen and Martinez, 2020b). Disciplined students are less likely to complete school; less likely to participate in the labor market; and more likely to be system-involved, including within the carceral system (Liu, Lee, & Gershenson, 2020; Rocque, Jennings, Piquero, Ozkan, & Farrington, 2017). In developing discipline policies, schools and districts should weigh these harms against any gains to the classroom environment and school peers that accrue when misbehaving students are disciplined. There is plausible evidence that the impact of disruptive students on their peers can be significant. Effects have been found on math and English test scores, attendance, and high school completion for affected students; some of these effects are mediated through aspects of school culture, including improved student-teacher relations and student perceptions of safety (Carrell et al., 2018; Craig & Martin, 2023).

On balance, it is not possible to definitively conclude that current disciplinary policies in California are optimal: the trade-offs have not been calculated.[5] Nevertheless, as shown in Table 3, there are substantial discrepancies in discipline across student characteristics.

Regardless of whether discipline systems are effective or accurately targeted, it is still important to identify the economic consequences of current disciplinary policies. These consequences include school resources, family and student time and expenses, and burdens on peer students.

Addressing the Challenges

Each of these challenges is significant for the California economy and for California's education system. People readily recognize the economic connection—getting a good job requires education and skills. But the full extent of the relationship—across many economic domains and over the course of an individual's lifetime—is less well-known. Similarly, schools and districts do implement policies to combat these challenges, but the aggregate amount of resources expended—including the economic consequences across the

education system—has not yet been calculated. Moreover, for both relationships, there is limited evidence on gaps by race and by extent of disadvantage.

We estimate the full economic burdens for each of these challenges below. We recognize that these are not the only challenges facing the California school system. Also, these challenges may be interconnected: policies that address systemic absenteeism and discipline problems in school have the potential to increase graduation rates. Our analysis provides one benchmark against which to determine the efficiency and equity of California's school system.

Many comprehensive support systems may be adopted in response to the need for greater efficiency and equity. One framework is the Multi-Tiered System of Support (MTSS). This framework has four components: screening of students' needs; monitoring progress; data-based decision-making; and a multi-level prevention system. These MTSS components are likely to enhance efficiency and equity. Screening is important as many students do not complete high school because their specific educational needs go undiagnosed (or are diagnosed too late); and, historically, the educational and developmental needs of disadvantaged students are less likely to be identified. Monitoring student progress is valuable because to be academically successful, students need to meet grade-level expectations; initial investments can be inefficient if they are not maintained. Data-based decision-making is important to ensure that policies and strategies are working as planned and that gaps (inequities) between students can be identified. Finally, a multi-level prevention system can promote both efficiency and equity. Instead of delivering expensive supports to all students, MTSS provides supports where more resource-intensive supports can be delivered to students with the highest need.

5 A stylized example illustrates the trade-offs. Assume students learn 1 Grade Level Equivalent (GLE) per academic year. If student x was disciplined and so learned 0.8 GLE, then the loss is 0.2 GLE. Offsetting this loss is the gain to peers when student x is disciplined; in total, this peer gain may exceed 0.2 GLE such that discipline is beneficial. However, alternative disciplinary systems may yield 0.9 GLE for student x, i.e., a loss of only 0.1 GLE. And if the initial disciplinary system was unjustified, then the loss of 0.2 GLE is incurred directly by student x with no corresponding gain to peer students. Trade-offs are discussed in detail at calschls.org/docs/factsheet-18_disparities_fairness_discpline_racialconflict.pdf.

ECONOMIC MODEL

Lifetime Framework

We model the economic burdens across these three challenges—high school failure, absenteeism, and disciplinary actions—using a life-course trajectory model (Boardman et al., 2018; Levin et al., 2018).[6] Under this framework, we estimate the economic burden based on the California educational indicators presented in Tables 1–3. We use a life-course model to calculate and monetize the expected gains (from high school graduation, for example). The model accounts for all the resource flows attributable to each educational status over an individual's working life. Each student outcome is multiplied by its respective shadow price to determine its associated economic burden.

Shadow prices are based on the willingness to pay (WTP) for the following groups: families; society (California residents); and fiscal (California taxpayers). In addition, we derive the impact on school budgets. All shadow prices used in the estimation of the economic burdens are taken from established research and findings in the literature. These shadow prices indicate a willingness to pay. For policy purposes, this WTP should be compared against the resources needed to ameliorate the challenge (for example, to increase the high school graduation rate). If the WTP exceeds costs, then educational investments should be made (for example, in programs that increase high school completion). However, estimates of the resources needed to ameliorate these challenges are beyond the scope of our analysis: there are many potential interventions that are backed by either promising or confirmed evidence.[7] Also, some interventions may ameliorate multiple challenges (such that several WTP values should be aggregated). Thus, our results pertain to the benefits of addressing these challenges, not the costs.

Throughout, to ensure comparability across years, all money amounts are expressed in 2023 dollars and are converted to present values using a 3.5% discount rate. Prices are adjusted to account for the cost of living in California.

Willingness to Pay for High School Graduation

High school completion is arguably one of the most economically important educational outcomes for students. Students who fail to earn a high school degree earn significantly less, on average, than high school graduates with no college experience.[8] The socio-economic returns to a high school diploma can also be substantial. High school graduates are more likely to be self-sufficient participants in democracy who do not require social safety net support, who are less likely to commit crimes, and who are healthier (Barrow & Malamud, 2015; Belfield & Bailey, 2011; Belfield & Levin, 2007). Each of these consequences has an impact over the life course, and each can be expressed in dollar terms.

Table 4. Social Gain from High School Completion in California

	Social Gain	
	HS Graduate	HS Graduate + College
Earnings	$358,100	$559,820
Health gain	$26,100	$43,350
Crime gain	$71,880	$77,490
Productivity spillovers	$18,640	$33,140
Marginal Excess Tax Burden gain	$10,810	$18,540
Welfare gain	$510	$940
Education savings	($7,600)	($51,350)
Total social gain:		
Present value at age 18	$478,440	$681,930
Present value at age 12	$389,210	$554,750

Source: See Appendix Table A.1.1.

Note: Gains relative to high school non-completion. Discount rate 3.5%; rounded 2023 dollars.

The shadow price of high school graduation from the social perspective is shown in Table 4. (Full details of the calculations, including sources, are reported in Appendix Table A.1.) Measured as a value at age 18, the economic gain when a California student graduates from high school is $478,440. If the student then enrolls in college (with a probability based on their academic and individual characteristics), the economic gain is $681,930. From the perspective of a student at age 12, the social

6 Similar economic models have been widely applied using national data and for states and population subgroups. See for example Belfield and Levin (2007); Trostel (2010); Heckman and Mosso (2014); Vining and Weimer (2019). The model adjusts for two time-varying COVID-19 pandemic-adjustment factors. Earnings are adjusted for differential life-course trajectories from Autor and Mitchell (2022). Health status is adjusted based on Alon et al. (2020) and Poteet and Craig (2021).

7 For example, the What Works Clearinghouse catalogs 69 interventions in 9th grade that may increase high school completion (ies.ed.gov/ncee/wwc/).

8 Evidence on this education–earnings relationship is consistently expanding. Recent studies include: Ashworth et al. (2021); Altonji and Vidangos (2022); Deming (2022); Guyenen et al. (2022). For differential impacts by race, see Cheng et al. (2019); Antman et al. (2022); Levine and Ritter (2022).

gain is also high (at $389,210–$554,750).[9] Most of the social gain accrues from higher earnings associated with more education; but there are also significant gains from reduced criminal activity and improved health status.

Table 5. Fiscal Gain from High School Completion in California

	Fiscal Gain	
	HS Graduate	HS Graduate + College
Tax contributions	$80,190	$132,930
Health savings	$31,670	$46,950
Crime savings	$37,190	$40,300
Productivity tax contributions	$2,240	$1,740
Welfare savings	$3,940	$7,260
Education savings	($7,600)	($25,420)
Total fiscal gain:		
Present value at age 18	$147,630	$203,760
Present value at age 12	$120,100	$165,760

Source: See Appendix Table A.1.1.

Notes: Gains relative to high school non-completion. Discount rate 3.5%; rounded 2023 dollars.

The fiscal gains of high school graduation are shown in Table 5. This fiscal calculation counts only the gains to the California taxpayer from high school graduation. This gain is sizable: conservatively, it is $147,630. If high school graduates progress to college, the fiscal gains are even larger. Similarly, most of the gain is in the form of increased tax contributions via higher earnings. There are also reductions in health and crime spending in California from having a more educated population.

Clearly, there are strong incentives to raise the high school graduation rate. If this rate could be increased by 3 percentage points—to match the national average of 90%—then California would have 20,000 additional graduates per year. Expressed as a lump sum at the time of graduation, the economic value would be $9.57 billion added to the resources of California and $2.95 billion added to tax revenues in California.

Shadow Prices: Absenteeism and Disciplinary Sanction

There are significant economic consequences from chronic absenteeism and from disciplinary sanctions. We group these consequences into five categories: 1) student lifetime losses because of lower achievement and

attainment; 2) family burdens to address related impacts; 3) school burdens; 4) educational externalities within schools; and 5) educational externalities on peer students. We assign each component a dollar value based on its opportunity cost.

Student lifetime losses from chronic absenteeism and from being disciplined are mediated if the student graduates from high school—but when absenteeism or disciplinary sanctions are high, students are less likely to complete high school. Thus, the economic burdens from failing to graduate from high school (as identified above) can be partially attributed to absenteeism and to disciplinary sanctions. Applying relationships from Losen and Martinez (2020b), chronically absent students have an 8% lower graduation rate; for suspended students, the rate is 12% lower, and for expelled students, it is 27% lower. Given the shadow prices identified in Tables 4 and 5 and baseline graduation rates of 87% (Table 1), the shadow prices for student losses are calculated based on these impacts. These are expressed as present values at age 12 for each impacted student inover their grades 6 to 12.

Family impacts are measured as the resources families use to support their child when he or she is disciplined. These family supports include time at home to supervise children; in addition, families must spend time negotiating with the school regarding both absenteeism and discipline. Conventionally, time valuation is used to calculate the economic value of these family supports (Levin et al., 2018). Based on the opportunity cost of parental time, each day without schooling is shadow-priced at $80–$100 per day;

9 These estimates are similar to those from Vining and Weimer (2019): adjusting for California prices and inflation, the differences are less than 10%.

Table 6. Economic Burdens: Chronic Absenteeism and Disciplinary Sanctions

Per Impacted Student	Chronic Absence	Suspension	Expulsion	Restraint
Shadow prices:				
1) Lost human capital	$2,720	$25,300	$54,490	$3,890
2) Family burden	$1,080	$300	$1,300	$180
3) School resources	$360	$430	$11,500	$500
4) Educ. externalities: school	$650	$650	$1,250	$650
5) Educ. externalities: peers	$820	$580	$2,340	$820
Burden per perspective:				
Social	$5,630	$27,260	$70,870	$6,040
Family (including student)	$3,800	$25,900	$55,790	$4,250
School	$1,010	$1,080	$12,750	$1,150
Fiscal/taxpayer	$1,850	$8,890	$29,560	$2,350

Sources: Tables 4–5; Appendix A.2. Noltemeyer et al. (2015); Lacoe and Steinberg (2018); Losen and Martinez (2020a); Sorensen et al. (2022); Pope and Zuo (2023).

Notes: Restraint is in-school with calculations derived from chronic absence penalties, adjusted for duration. Social perspective equals sum (1)-(5). Family perspective is (1)+(2). School perspective is (3)+(4). Fiscal perspective is (1), adjusted for tax contributions as per Table 5. Present values at age 12 for grades 6–12. Discount rate 3.5%; rounded 2023 dollars.

and each incident is estimated at $30 per absenteeism case and $80 per suspension.[10]

School burdens are the resources expended by education professionals to address absenteeism and disciplinary cases. For days missed by students, we can estimate society's willingness to pay (WTP) for a school day. This WTP can be proxied by public funds allocated per day of school, which is the amount society considers a day of school to be worth.[11] However, schools must also expend resources directly on absentee students and disciplinary procedures. Resources for absenteeism include expenditures on educational personnel tasked with supervising attendance plus the time of counselors and professional services received by students. However, to our knowledge, resources needed for disciplinary procedures have not been shadow-priced. Therefore, we calculated these shadow prices directly from interviews with school personnel (see Appendix A.2 for interview protocol). In terms of personnel, costs include teacher time; senior school management time; and professional time from individuals outside the school (for example, counselors). This time is estimated as a function of the severity of the discipline (see Appendix Table A.3). Also, some students will be reassigned to new schools (or other facilities, such as juvenile detention centers); the costs of reassignment are also counted in the shadow prices (including any net extra resources between the transfer and receiving schools). Actual shadow prices for low-resource (minor) and high-resource (severe) suspensions are reported in Appendix Table A.3.

There are educational externalities from absenteeism and misbehavior in the classroom.[12] Specifically, school districts must pay education professionals (teachers, principals, and other personnel) extra to work in settings with low levels of student effort and high levels of disruptive behavior. This extra pay is a spillover effect (externality). However, if teacher pay is uniform across a district, the school system cannot pay these "compensating wage differentials," and the more effective teachers will tend to move to schools with less challenging environments within the district—or quit. In both cases, teacher turnover increases in schools with high levels of disruptive behavior, and districts must pay more in recruitment and training costs. These burdens are extra: the resources are not allocated to improve student outcomes but are in response to an education system with high absenteeism rates and disciplinary infractions. School externalities are calculated from Goldhaber et al. (2010).

10 The calculated value of one missed workday is based on median hourly wages for California workers (retrieved February 12, 2023, from bls.gov/oes/current/oes_ca.htm).

11 This shadow price per day is from current expense per ADA, California Department of Education, School Fiscal Services Division, EDP365: Expenditures for Current Expense of Education. Based on annual spending of $17,000 across 180 school days.

12 These externalities are discussed in Curran (2016); Anderson et al. (2017); Bacher-Hicks et al. (2018); Hashim et al. (2018); Carrell et al. (2018); and Pope and Zuo (2023).

Finally, there are educational externalities on peer students. When students are absent, and disruption is high, peer students suffer. So, when a student is disruptive (such as to eventually warrant suspension or expulsion), many peer students—either in the classroom or across the school—will be affected. Their educational progress will be impaired. For the economic model, these externalities are measured as lost human capital proportionate to the number of delinquent behaviors to which the average student is exposed.

Table 6 shows the shadow prices per impacted student and the economic burdens from each perspective. For absenteeism, the largest component of the burden is the long-term loss in human capital as a result of fewer skills. There are also significant economic impacts on parents/guardians such that the overall family burden is large (at $3,800 per chronic absentee). Direct school expenditures (at $360) are modest, and in fact there are bigger impacts via school and peer externalities: the total burden on educational productivity is $1,010 (equivalent to 6% of annual per-pupil funding in California).[13] There are also significant burdens to California taxpayers (at $1,850) when students are chronically absent.

Given the high rate of absenteeism, the aggregate burdens across California are large. Using 2019 data (Table 2) on the 3.38 million students in grades K–8, the aggregate social burden of absenteeism is $1.9 billion per year. The burden in terms of lower school productivity is $341 million each year.[14]

Disciplinary sanctions impose significant economic burdens. In absolute terms, these burdens are much larger than for absenteeism, although the patterns are similar (and the incidence of absenteeism is much higher). Lost human capital is the largest component of the burden; and the amounts are now large when considering exclusions and suspensions. From a social perspective, each suspension imposes a burden of $27,260 and each expulsion imposes a burden of $70,870. Family burdens (including the lost lifetime human capital) are also large at $25,900 and $55,790, respectively (equivalent to 28% and 63% of median household income in California).[15] Suspensions are notable for the high burdens they impose on the education system. At $12,750, the school burden per suspension is equivalent to 70% of annual per-pupil funding.

Looking statewide, the social burden of all suspensions per year amounts to $2.76 billion; for expulsions, the burden is $479 million; and for restraints, it is $163 million. Much of this lump-sum burden results from diminished lifetime economic opportunities faced by suspended students. In terms of educational productivity, the annual burdens are: $109 million for suspensions; $86 million for expulsions; and $31 million for restraints. Added together, these three disciplinary sanctions equate to $226 million in school resources per year.

Separately, these burdens are large; each one merits attention from policymakers. However, from a social perspective these burdens cannot be simply added together. The overall aggregate burden depends on the correlation between incidences (for example, the number of suspended students who are subsequently expelled). The burden can be approximated based on the school-level correlations of incidences. Across California's 10,000 public schools, the correlation is 0.34 between suspensions and expulsions. Thus, treating absences and restraints independently, the overall social burden to California is over $3.5 billion annually.

13 Per-pupil spending is estimated at $17,000 per student (www.cde.ca.gov/ds/fd/ec/currentexpense.asp, retrieved June 22, 2023).

14 These estimates are conservative in two significant respects. First, they only count absenteeism in grades K–8. Second, they are based on 2019 absenteeism rates, which are one-third the size of 2021 rates. All aggregate values are in present values at age 12.

15 Median household income in 2023 dollars in California is $84,400 (retrieved June 23, 2023, from www.census.gov/quickfacts/fact/table/CA/BZA210221).

BURDENS AND POLICY

Burdens Across Student Groups

These economic burdens do not fall equally on all groups. Incidences are higher for some student groups (as shown in Tables 1 and 2). Shadow prices also vary (for example, earnings are lower for minority students; labor-market participation rates are significantly lower for disabled students); notably, because of how students are clustered within schools and communities, educational externalities are concentrated within groups.[16] These two factors generate considerable inequities within the California education system.

Inequities for three student groups—African American, Hispanic, and economically disadvantaged students—are derived for absenteeism and disciplinary sanction.[17] The inequities are adjusted for each of the factors. Incidences are adjusted as per Table 2, accounting for the likelihood of absenteeism and disciplinary sanction. Shadow prices are based on that group's average earnings and expected involvement in the criminal justice system, and the concentration of educational externalities is based on school-level prevalence. Results are expressed as ratios of the burdens relative to the average economic burden per California student. Ratios are significantly above 1 for these groups because: a) they are more likely to be absent/disciplined; b) the economic consequences of being absent/disciplined are greater for the individual student; and c) these students as a group are more likely to be the peers of absent/disciplined students.

The first perspective is the family. As shown in Table 7, African American families in California face a higher burden than the average family. For chronic absenteeism, the relative burdens are 3.0 to 3.6 higher than those of the average student. For disciplinary sanction, the burdens are strikingly disproportionate, by a factor ranging from 4.6 to 11.1, depending on the discipline. Also, burdens are relatively high for Hispanic families (with the exception of restraints, where the incidence is below average). For economically disadvantaged families, the burden is disproportionate by a factor of 1.3 to 6.2.

The second perspective is the school system. African American students—because they may attend schools with higher absenteeism and disciplinary sanctions—may receive their education in an environment where more resources are devoted away from direct instruction (and toward addressing these problems). As shown in Table 7, school burdens are 3.6 to 25.8 times higher for African American students. School resources for Hispanic students are similarly reallocated (by a factor of 1.5 to 12.5, excepting restraints), and for economically disadvantaged students, the reallocation is also significant (at between 1.3 to 8.7).

Table 7. Inequities in Economic Burdens: Chronic Absenteeism and Disciplinary Sanctions

Ratio of burden per student relative to the average burden	Chronic Absence	Suspension	Expulsion	Restraint
Family (including student):				
African American	2.96	4.56	11.10	5.48
Hispanic	1.28	1.42	5.85	0.90
Economically disadvantaged	1.52	1.80	6.24	1.31
School:				
African American	3.57	11.80	25.80	8.00
Hispanic	1.54	1.81	12.50	0.82
Economically disadvantaged	2.86	2.22	8.75	1.32
Fiscal/taxpayer:				
African American	2.98	5.15	17.30	6.12
Hispanic	1.42	1.46	8.65	0.81
Economically disadvantaged	2.18	1.82	7.29	1.30

Sources: Tables 1, 2, and 6.

Notes: Ratio is the estimate per student group accounting for incidence and differential earnings, crime rates, and school-level concentration of absence and disciplinary sanction. Discount rate 3.5%; rounded 2023 dollars.

16 Disadvantaged students are more likely to be enrolled in schools with higher rates of disciplinary sanction, for example. Thus, these students face more adverse educational externalities.

17 Economic inequities across high school graduation are discussed at length in Belfield and Levin (2007). Potentially, the inequities are greater for other disadvantaged groups. However, because of a lack of data, shadow prices are harder to calculate for these groups.

The third perspective is fiscal. This perspective is relevant because higher fiscal burdens mean less revenue for public investments to support communities. As shown in Table 7, the fiscal burdens are 3.0 to 17.3 times higher for African American students. Fiscal burdens are also relatively high for Hispanic students and those who are economically disadvantaged. Again, these inequities are so large because they are compounded by three factors (higher incidence, higher shadow prices, and more concentrated externalities).

These three perspectives show the various ways in which inequities in discipline are tied to inequities in public support for education. Collectively, the results show some groups of students face higher burdens, not only because absenteeism and disciplinary sanction rates are higher, but also because they have fewer available school resources and smaller tax bases to obtain public funding.

Economic Equity Burdens and K–12 Funding in California

This evidence on the inequity of burdens across students holds relevance for K–12 funding in California. Recent changes to California's school funding formula are intended to close resource and achievement gaps between student groups. Even as these changes are effective, they are likely to be inadequate to fully offset inequity burdens.[18]

Primarily, these burdens are so economically meaningful (Tables 4–6) that current school funding allocations are almost certainly deficient. Research consistently finds that California does not invest enough to compensate for disadvantages. At most, the state allocates 18% of its funds ($13 billion) based on student needs. On average, English Learners and high-needs students are allocated $500 and $1,250 more per year, respectively. Most recently, the governor's 2023 budget includes an "equity multiplier" of $300 million for high-need students. This extra funding is helpful, but our estimate of the school-level budgetary impacts of absenteeism and disciplinary sanctions—at $560 million annually—far exceeds that allocation (and our estimate does not count every source of inequity). Per student, the equity multiplier is $800; this is well below the estimated school-level inequity burden per chronic absentee or per suspended/expelled student (at $1,000–$15,000).

As well, the concentration of inequity within schools is such that funding must be accurately targeted. Here, too, research finds that funding is imperfectly targeted, so the impact of compensatory funding is blunted. One reason targeting is inaccurate is that the funding formula does not adequately recognize peer effects: absenteeism and disciplinary sanction impose resource burdens across all students, not just those who are absent or disciplined. These peer burdens are substantial, and yet they are only weakly incorporated into California's Concentration Grants. Another source of inaccuracy is that compensatory funding is mostly allocated at the district level and is not directly targeted to schools according to their proportion of high-need students.

18 Analysis and data for this Section is from: https://gettingdowntofacts.com/sites/default/files/2018-09/GDTFII_Brief_LCFF_Effects.pdf; https://www.ppic.org/publication/financing-californias-public-schools; https://gettingdowntofacts.com/sites/default/files/GDTFII_Report_Levin.pdf; https://lao.ca.gov/reports/2023/4700/Equity-Multiplier-Accountability-022323.pdf; https://www.ppic.org/publication/understanding-the-effects-of-school-funding/

This funding deficiency and allocative inaccuracy can be modeled by comparing need-driven funding to estimated equity burdens. We define funding deficiency as the percentage of the total compensatory funding that would cover the burdens from absenteeism and disciplinary sanction (and only include direct school costs) alone. These funding deficiencies illustrate the importance of optimal K–12 funding to address economic inequities across California.

For example, under California's funding formula, African American students are funded $1,280 more than white students, given that they attend schools in districts with higher shares of high-need students (Lafortune & Herrera, 2022). However, because of their higher rates of absenteeism and disciplinary sanction (as well as elevated rates at their schools), their schooling costs, on average, $350 more per pupil. In other words, the equity burden—from these two sources alone—amounts to 27% of their entire need-driven funding. These percentages are also high for other selected groups. For Hispanic students, the equity burden equates to 18% of need-driven school expenditures, and for low-income students, it totals 24%. For English Learners, the equity burden equates to 46% of extra funding: although the equity burden for this group is modest, their compensatory funding is low. Overall, extra funding for disadvantaged groups modestly "covers" these two inequity burdens. Critically, these calculations show how few resources remain to address the ostensible goals of closing gaps in achievement and high school graduation.

Inaccurate allocation of extra funding is calculated in terms of the resource gaps that occur when the compensatory resources are allotted at the district level instead of the school level. Within a district, school-level suspension rates vary (as do non-completion rates, absenteeism, and other disciplinary sanctions). If schools receive funding based only on the district wide average suspension rate, schools with above-average suspension rates will be allocated too little (and schools with below-average suspension rates will be allocated too much). In effect, some of these schools' suspensions will be "unfunded." The number of unfunded suspensions can be estimated based on school-level and district-level suspension rates. Assuming funds are only based on districtwide averages, 24% of school suspensions would be "unfunded" (2019–20 data). Therefore, the economic equity burden of inaccurate targeting of resources for school suspensions is over $60 million annually. Inaccurate funding is even worse within groups: for African American students, over 45% of suspensions would be unfunded; for Hispanic students, the rate is 28%; for English Learners, 28%; and for economically disadvantaged students, 32%. Overall, district-level funding would mean that one-quarter of the inequity burden is essentially ignored.

Finally, based on statewide demographic and economic trends, these inequity burdens are likely to grow faster over the coming decades. The overall population of California is 33% white; the school population is less than 25% white, with Hispanic students representing more than half of all students. If absenteeism and discipline practice continue to vary across student race groups, these two challenges will increase.

In addition, increased economic inequality will continue to exacerbate these burdens. Communities with high economic-inequity burdens likely have a smaller local tax base (from which to raise funds for public education); fewer economic opportunities to motivate students to acquire skills; and fewer family resources to support education. These communities face dwindling resources but growing burdens.[19] Without adequate compensatory funding, local schools in such a community will have high rates of absenteeism and disciplinary sanction, imposing more adverse externalities onto all students (and leading to school switching by more affluent families). Thus, inequity burdens are likely to be entrenched and compounded for future generations of K–12 students.

19 During the pandemic, schools received a one-time boost of $21 billion in federal funding to cover pandemic-related burdens; now, although COVID-19 transmission may have waned, the resource burdens on schools (for example, staffing shortages, lost learning)—remain, particularly in areas where COVID-19 infection was severe.

CONCLUSION

To improve educational opportunities and outcomes for its students, California will need to address multiple barriers to learning and to K–12 progression. Presently, long-run trends—along with the extreme shock of the pandemic—have meant that high school graduation rates are low and that student behavior and effort, even at the basic level of attendance, are not optimal. Schools spend significant amounts of time and money on addressing these challenges.

Using new evidence and standard shadow-pricing techniques, these economic burdens are calculated from various perspectives. Each year there are 75,000 students across California who do not complete high school. Their failure to graduate imposes significant burdens both from a social perspective and from a fiscal perspective. These students earn less, contribute less in taxes, and draw on government services more frequently than high school graduates, and they do so over a lifetime. Similarly, each year at least one in 10 (and potentially three in 10) students are chronically absent from school. This chronic absenteeism imposes burdens on California not just because students learn less but also because of adverse consequences for school efficiency. High rates of absenteeism mean that the aggregate burden is substantial. Finally, disciplinary sanctions—particularly suspensions and expulsions—lead to large economic burdens, not only in response to discipline but also because of the adverse impacts discipline has on peer students' educational opportunities.

Table 8. Summary Results: Gains from More High School Graduates in California

	Economic Value
Social gain per extra HS graduate	
Social saving	+$478,000
Taxpayer saving	+$148,000
For California if state-wide HS grad rate ⇑ 3 percentage points	
Social saving	$9.57B
Taxpayer saving	$2.95B

Notes: Discount rate 3.5%; rounded 2023 dollars.

Summary results (Table 8) show a social gain of almost $0.5 million dollars per extra high school graduate; the taxpayer gain is almost $0.15 million. For a 3%-point increase in the state-wide high school graduation rate, California would gain almost $10 billion and $3 billion in taxpayer savings. Also, summary results (Table 9) show the substantial economic burden for students who are off-track or have been disciplined. For each student who is chronically absent, the burden is $5,630. Disciplinary social burdens are also high: for each expulsion, for example, the social burden is $70,870.

Table 9. Summary Results: Social Burdens per Student Status in California

	Social Burden
Chronic absentee	$5,630
Suspension	$27,260
Expulsion	$70,870
Disciplinary Restraint	$6,040

Notes: Discount rate 3.5%; rounded 2023 dollars.

With large differences in attendance and discipline across student groups, there are clear inequities within and across California public schools. These inequities are discussed in three dimensions. First, how are parents and families affected by differences in, for example, suspension rates? These are the private inequities. Second, what are the economic burdens borne by schools? This report identifies how much resources schools must devote to ensuring attendance and dealing with student discipline. Third, how much are peer students affected when student discipline needs to be administered? This analysis finds that the burdens to families, to schools, and to the local tax base are significantly above average for African American and Hispanic students, as well as for economically disadvantaged students.

These findings have implications for both federal and state governments. If there were more high school graduates, both federal and state/local tax revenues would increase. Thus, both government levels have an incentive to invest in educational resources. As the main benefits of education come via higher earnings, federal tax gains are the largest. This should motivate the federal government to support educational investments by, for example, tax exemptions for educational expenditures. From the state perspective, there are significant taxpayer benefits. Also, state governments have greater control over how education systems are funded and regulated. Thus, state agencies may be able to invest in a more targeted way.

Finally, there are potential changes that can help California's school system to address these three challenges and ameliorate these burdens. Given the size of the economic burden and its multi-dimensional features, a significant investment is warranted to reduce chronic absenteeism and to ameliorate the conditions under which students are suspended, restrained, or expelled. California's Multi-Tiered System of Support represents one important framework: investment in efforts such as MTSS can increase school efficiency and promote equity.

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APPENDIX A.1. SHADOW PRICE INGREDIENTS FOR HIGH SCHOOL GRADUATION

Table A.1.1. Lifetime Trajectories by Education Level

	HS Non-Completer	HS Graduate	HS + College
Earnings	$349,120	$707,220	$908,940
Federal tax	$53,960	$103,340	$142,500
State/local tax	$47,920	$78,100	$91,680
Health spending: federal	$43,430	$26,070	$17,030
Health spending: state/local	$35,330	$21,020	$14,780
Health gain: social	$-	$26,100	$43,350
Crime spending: federal	$10,740	$3,340	$2,690
Crime spending: state/local	$42,940	$13,150	$10,690
Crime social burden	$99,950	$28,070	$22,460
Productivity spillovers	$21,240	$39,880	$54,380
Marginal Excess Tax Burden	$12,520	$23,330	$31,060
Welfare spending: federal	$9,640	$7,660	$5,410
Welfare spending: state/local	$6,690	$4,730	$3,660
Education spending: federal	$-	$720	$20,990
Education spending: state/local	$-	$6,880	$4,430
Education spending: private	$-	$-	$25,930

Sources: Author calculations. Current Population Survey (CPS), 2009-2021; California sample all persons aged 18–64 (employed or not).

Notes: Gross earnings before tax. No adjustments are made for labor market participation (annual and lifetime), GED receipt, or incarceration rates. Labor market activity begins at age 18 (conditional on not being in college) and lasts until age 65. Model includes health and pension benefits incidence as per CPS average at bls.gov.employment.cost.index; alpha factor of 10%; productivity growth rate 1.5%; pandemic adjustment factor Albanesi and Kim (2021). Average tax payments from: (1) reported tax payments from CPS; (2) predicted taxes from NBER's TAXSIM; (3) rate of 15% of earnings (Saez and Zucman, 2019). State/local tax from: taxfoundation.org. State/federal health spending: kff.org/statedata/. ACA: kff.org/--/affordable-care-act/. MEPS, Krueger et al. (2015). QALY valuation at $75,000 Neumann et al. (2016). Federal matching rate at 65% from https://www.govinfo.gov/content/pkg/FR-2024-11-29/pdf/2024-27910.pdf. Crime costs from: Anderson (2011); Cano-Urbina and Lochner (2019); Cruz and Lopez (2019); Koegl and Farrington (2021); Miller et al. (2021). Federal spending: bjs.ojp.gov/--/jeeus17.pdf. State spending and incarceration population: lao.ca.gov/--/5_cj_inmates; prisonpolicy.org/profiles/CA. State spending on: Juvenile Operations and Juvenile Offenders; Juvenile Academic and Vocational Education; and Juvenile Health Care Services. Welfare programs include: CalWorks, Calfresh, SSI (age-adjusted), and CWS. Social welfare administrative cost and error rate of welfare programs at 18% from the Brookings Institute. Higher education costs: nces.ed.gov/ipeds/; social expenditure includes public subsidy plus expected tuition/fees (expected). Productivity spillovers: Liu et al. (2020); METB: Allgood and Snow (1998); Hendren and Sprung-Keyser (2020). Notes: Present values at age 18. Discount rate 3.5%; rounded 2023 dollars.

APPENDIX A.2. INTERVIEW PROTOCOL

Interview Protocol—California Safe, Healthy, Responsive Schools Network: California Multi-Tiered System of Support (MTSS) Initiative (for School and District-based Education Professionals)

This document is iterative and additional questions might be developed and asked during the interview as interviewers obtain answers.

Introduction

As you know, the Center for the Transformation of Schools has asked us to complete an economic evaluation of various school practices in California related to MTSS. Our research team is from the Center for Benefit-Cost Studies of Education, and we conduct cost analysis research in the field of education.

Introduce Our Study

We are a research team from the University of Pennsylvania working with the Center for the Transformation of Schools at UCLA. Our study is working to uncover the costs of student discipline, absenteeism, social-emotional learning, and high school outcomes in California schools. We are interested in the resources, meaning school personnel, equipment, materials, facilities, etc., devoted to student discipline, absenteeism, and social emotional learning, regardless of who provides them. Today, I'll be asking you about student discipline.

The goal of our research is to estimate the costs of these practices and resulting student outcomes, highlighting areas where additional investments from state and local decision-makers would benefit schools and students. Thank you for taking the time to answer our questions. We believe your experience is invaluable, and we believe your insight will teach us a great deal about student discipline, absenteeism, social emotional learning, and related school practices. If at any point you no longer want to participate, just let me know, and we will end the discussion. If you have any questions for me, you are welcome to ask.

Questions

General

- What is your current role at your school/district?
- Tell me about discipline in your school.
- Let's walk through a few different student behaviors and school-wide responses:
  - 1. Class disruption, constant disruptor, loud or inappropriate, might be better in some classes than others
    - Student time?
    - Classroom teacher steps?
    - Do you respond to students differently if teachers are stronger/weaker in classroom management?
    - How much time do classroom teachers spend on the phone or communicating with parents about discipline?
    - What is the system classroom teachers use for asking for outside of classroom support? How does that process work?
  - 2. Two students get into a physical fight, punched or hit each other multiple times

    - Student time?
  - 3. Expulsion case
    - Student time?
  - Do you have any classrooms for short- or long-term behavior concerns? If not, where do students go when there is a behavioral need?
- About how many high disciplinary need students do you have at your school right now?
- Do you use in-school suspension or an alternative to ISS? Do you have any specific space or personnel used for students who are removed from their class for a disciplinary reason?
- How does PBIS run at your school? Could you describe discipline meetings and who is involved?
- Do you coordinate or collaborate with district personnel in your disciplinary decision-making?
- Do your disciplinary processes change for students with IEPs or 504 plans? Are those changes significant? Do they require additional personnel or different use of personnel?
- How do you respond to a disciplinary event when a student has a learning disability? How do you respond when a student has an emotional behavioral disorder?
- Has your school or district made any recent changes that affect responses to student discipline?
- Describe your school's online learning procedures during this school year, in response to COVID. How much of your time is spent with students online versus in the classroom?
- How do responses to student discipline change in online format?

Personnel

- So, let me walk through all of the staff who might possibly respond to disciplinary incidents at your school: _____. Did I miss anyone?
- How much time is spent on student discipline? How much time out of an average one-hour class time? How much time out of an average day?
- How much time is spent on parent contact?
- How much time is spent on discipline documentation?
- On average, how much of your week is spent on student discipline? What is the worst case? What is the best case estimate?

Training

- What training does your school or district provide with student discipline? Does it occur at the beginning of the school year or throughout? Do you receive feedback on your response to student discipline during the school day?
- What training does your school or district provide for responding to student absences? Does it occur at the beginning of the school year or throughout?
- What does the training or feedback entail?

- Do teachers and/or school personnel receive coaching throughout the school year? If so, please describe.
- Who attends or receives the training?
- Where does the training take place?

Facilities

- What spaces in a school are used for incidents that involve student discipline? Are there other classrooms or spaces used for student discipline?
- Are there additional spaces used for responses to student absences?

Materials/Equipment

- Do you use any software or online programs for student discipline?
- What materials has your school/district supplied to assist with student discipline?
- Are you able to ask for additional resources or materials to assist with student discipline? If so, what are those materials?
- What other materials and equipment are purchased by the school/district? (Smartboards, iPads, etc.?)

Closing

- What are your school's personnel, facility, policy/practice needs in terms of student discipline? What would you like to see provided for your students?
- Are you OK with being contacted again for follow-ups?

APPENDIX A.3. SCHOOL BURDEN OF SUSPENSIONS

The Ingredients Method was used to determine the economic cost of discipline procedures in California K–12 public schools.

This project was conducted in partnership with the Center for the Transformation of Schools at UCLA. Their team assisted our CBCSE team in recruiting interview participants and confirming IRB approval within each participating school district. The schools selected were among highest ranked on racially inequitable discipline practices in the state of California. We interviewed seven school staff (three middle school principals, one high school principal, and three directors of student services from school districts) using the protocol presented in Appendix A.2. Table A.3.1 presents cost estimates of the burden on schools of suspensions.

Table A.3.1. School Burdens of Suspensions

Procedure & Steps	**Suspension Type: Low-Resource**	**Suspension Type: High-Resource**
Classification	$2	$67
Communication	$21	$26
Student placement	$53	$330
Investigation	$58	$1,615
Student meeting	$39	$39
Staff/school personnel meeting	$ --	$1,198
Outside-of-school response	$ --	$57
Parent communication	$66	$67
Data documentation	$17	$128
Re-entry	$ --	$1,240
Total	$260	$4,770

Sources: Interviews as per Appendix A.2.

Notes: 2023 dollars. Total rounded to nearest $10.