The Effect of Workplace Raids on Academic Performance: Evidence from Texas

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Abstract: Workplace raids are visible and disruptive immigration enforcement operations that can result in the detention of hundreds of immigrants at one time. Despite concerns about the impact of raids on children's well-being, there is limited research on how these tactics affect their academic performance. Using school-level testing data from 2015 to 2019, I compare changes in the performance of Hispanic students in schools close to a workplace raid to white students in the same schools and Hispanic students at control schools. I find exposure to a raid lowered the scores and passing rates of Hispanic students in standardized tests taken 40 days after the operation. I further find that students in schools closer to the raid experienced more pronounced drops in performance, but I do not detect strong evidence that performance decreases were caused by interruptions to schooling. These findings provide new evidence on the spillover effects of workplace raids, underscoring the potential role of immigration enforcement in generating disparities in Hispanic children's educational outcomes.

Keywords: immigration enforcement; workplace raids; education; academic performance; acute stress

Replication Package: Replication data and code can be found at https://osf.io/n7xzy/

THE years following the 2016 presidential election were marked by a sharp rise in immigration enforcement, including an increase in worksite enforcement operations. In these raids, U.S. Immigration and Customs Enforcement (ICE) comes into a workplace and interrogates employees, detaining those who they believe are working in the United States unlawfully (National Immigration Law Center, 2020). In early 2017, the director of ICE ordered a four- to five-time increase in worksite operations, prompting several unprecedentedly large raids that set new deportation records. One such operation took place on April 3, 2019 when ICE conducted a raid at an electronics manufacturing plant in Allen, Texas. The operation led to the arrest of nearly 284 workers, making it the largest workplace raid in a decade. Although the raid generated immediate backlash among local organizations, teachers, and leaders, there has been no causal research on how it impacted children in the nearby community. In this article, I use standardized test data to study the effects of the raid on the academic performance of Hispanic students, finding strong negative effects on scores and passing rates in reading and math. These findings complement existing research on the spillover effects of immigration enforcement, providing additional evidence that the impact of enforcement and removal operations is not confined to those deported but can also affect Hispanic children in the community and generate disparities in their educational outcomes.

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Abrego and Menjivar (2011) argue that the implementation of contemporary U.S. immigration law is a form of legal violence, giving rise to "practices that harm individuals physically, economically, psychologically, or emotionally." A growing literature supports this assessment, showing how a variety of immigration enforcement tactics can have negative consequences on education (Dee and Murphy, 2019; Bellows, 2019; Santillano et al., 2020; Bellows, 2021; Heinrich et al., 2023; Kirksey and Sattin-Bajaj, 2023), health (Novak et al., 2017; Torche and Sirois, 2019; Cardoso et al., 2021; Collins et al., 2022; Heinrich et al., 2023), safety (Muchow and Amuedo-Dorantes, 2020; Jacome, 2022), and financial well-being (Collins et al., 2022; Lopez et al., 2022; Amuedo-Dorantes and Antman, 2022). Studies focusing on the impact of workplace raids on education provide qualitative and causal evidence that raids have negative effects on relevant outcomes such as attendance rates, Head Start enrollment, and disciplinary actions (Capps et al., 2007; Chaudry et al., 2010; Santillano et al., 2020; Heinrich et al., 2023). Although research on the impact of workplace raids on academic performance is still limited, a recent study finds significant declines in reading and math performance among Hispanic students eight months after a raid (Kirksey and Sattin-Bajaj, 2023). Other work shows that immigration enforcement policies such as the Secure Communities program decrease average achievement for Hispanic students in English Language Arts (Bellows, 2019) but unlike worksite raids, this program delivers more prolonged and often less visible shocks to immigrant communities, likely impacting academic performance in distinct ways.¹ Research on the impact of stressful events on children also suggests workplace raids could significantly impair cognitive performance, but provide mixed evidence on the duration of these effects (Ang, 2021; Cabral et al., 2022; Sharkey, 2010). As such, it remains unclear how long the cognitive effects of a workplace raid persist and whether they decrease over time.

To determine the effects of the large-scale workplace raid in Allen, Texas on Hispanic students' academic outcomes, I use publicly available test score data from the 2015–2019 State of Texas Assessment of Academic Readiness (STAAR) assessments. Because the raid occurred 40 days before the administration of the 2019 STAAR assessment, the data allow me to compare academic performance before and after treatment. To estimate the effects of the raid, I employ three difference-in-difference strategies, comparing the academic performance of Hispanic students in Allen following the raid to those of (1) white students in Allen, (2) Hispanic students in similar and nearby school districts, and (3) Hispanic students in matched control schools. I show results are robust to alternative matching specifications as well as a triple-difference strategy that combines control groups (1) and (2). In addition, I conduct a series of analyses to understand potential factors that could mediate the decrease in academic performance.

I find evidence that the raid decreased Hispanic students' scores and passing rates on the STAAR assessment. I also find that geographic proximity to the raid predicts larger drops in test score performance. Supplementary analysis shows that the raid also reduced the attendance rate of Hispanic students, but the effect is likely too small to explain the large drops in academic performance I observe on the STAAR tests. Accordingly, I also find no evidence that the raid decreased foot traffic to impacted schools in the weeks following the raid, further indicating that interruptions to schooling were minor and unlikely to be the only mechanism underlying decreases in academic performance. Because education is an essential way in which immigrant households achieve intergenerational economic progress and social incorporation (Portes and Rumbaut, 2001), the results suggest that, by negatively affecting Hispanic children's academic performance, workplace raids could have enduring consequences on the children of immigrants.

Spillover Effects of Immigration Enforcement

Many of the individuals detained or deported in enforcement operations are mothers and fathers of children living in the United States. In 2016, 4.1 million K-12 students were children of undocumented parents, constituting approximately 8 percent of all K-12 students. Of those children, 85 percent of them are U.S. citizens. In Texas, the share of students with an unauthorized immigrant parent was 13.3 percent, making it the state with the second highest share. Moreover, 40 percent of unauthorized immigrant households consist of two-parent households with children compared to only 18 percent of households headed by U.S.-born adults (Passel and Cohn, 2016). As such, detentions and deportations commonly result in families becoming separated, often with dire consequences to children.

The deportation of a parent is associated with increased financial instability and housing and food insecurity (Capps et al., 2015; Chaudry et al., 2010; Dreby, ????; Preston, 2020; Warren and Kerwin, 2017; Collins et al., 2022; Lopez et al., 2022). To supplement lost family income, the remaining parent might be forced to enter the workforce or increase their number of work shifts, which reduces their time with children and can force older siblings to take on caregiving responsibilities (Dreby, ????; Collins et al., 2022; Lopez et al., 2022). Similarly, adolescents might skip school or drop out altogether to work and supplement their family's income (Chaudry et al., 2010; Lopez et al., 2022). In addition to material losses, parental deportation has a negative impact on children's emotional and behavioral wellbeing, resulting in symptoms such as eating and sleeping changes and increases in anxiety, sadness, and anger. Children affected are also more likely to report emotional and behavioral problems such as negative mood, negative self-esteem, and attention deficit/hyperactivity (Brabeck et al., 2011; Dreby, ????; Hagan et al., 2010; Gulbas et al., 2016; Delva et al., 2013; Zayas et al., 2015). The financial and socioemotional instability produced by the deportation of a parent can in turn have negative consequences on schooling, potentially affecting attendance, behavior, and academic performance.

Beyond those experiencing a parental deportation, we also know immigration enforcement can impact the lives of Hispanic children even when their families are not directly affected. The specter of enforcement, heightened by raids and restrictive immigration policies, engenders fear, stress, anxiety, and isolation, even in the absence of deportation (Chaudry et al., 2010; Lopez, 2011). The fear of deportation is a likely mechanism for some of the noxious spillover effects of immigration enforcement, including a decreased engagement with public institutions such as reduced use of public benefits (Alsan and Yang, 2018; Vargas, 2015; Vargas and Pirog, 2016; Watson, 2014; Santillano et al., 2020) and crime reporting (Jacome, 2022; Muchow and Amuedo-Dorantes, 2020). Enforcement has also been linked to decreases in mental health and maternal health, even among U.S.-born Latino populations (Novak et al., 2017; Cardoso et al., 2021; Collins et al., 2022).

Consistent with this evidence highlighting the disruptive impact of enforcement actions and the large number of children affected, multiple studies provide evidence that immigration raids have negative effects on educational outcomes. Local immigration raids have been found to cause increases in absences and disciplinary actions such as suspensions (Heinrich et al., 2023) and decrease Head Start enrollment among Hispanic children, largely due to families in the community failing to enroll (Santillano et al., 2020). Qualitative evidence suggests these effects could be due to ongoing fear of deportation and anxiety about leaving the house or interacting with other adults or authorities (Heinrich et al., 2023).

More recently, Kirksey and Sattin-Bajaj (2023) studied the effect of an August 2018 raid in Sumner, Texas. The study shows the raid increased absence rates and outmigration of Hispanic and English language learner students and decreased math and reading achievement on standardized tests. Although this work provides a strong indication that the raid in Allen could have impacted academic performance, there are three key differences that could lead to different effect estimates. First, Kirksey and Sattin-Bajaj (2023) identify four counties that saw spikes in the number of deportations processed through their immigration courts and define all students in these counties as treated, aggregating student-level data to the countylevel for the analysis. Although it is possible students in these areas were exposed to the raid, the effects might be more concentrated among the students most proximate to the raid. By using school-level data and defining treated students as those in schools within a narrow radius of the raid, I am able to estimate the effects in the immediate community surrounding the raid and measure the relationship between distance and decreases in performance. Second, the raid in Sumner occurred more than eight months before the administration of standardized tests, whereas the raid in Allen happened only 40 days prior. Given the longer time span between the raid and testing, the effects found in Kirksey and Sattin-Bajaj (2023) could be more attenuated if some of the disruption and emotional trauma of the raid subsided or if a large share of Hispanic families impacted left the community as a result of the raid.² Finally, whereas Allen is a large suburb only 20 miles away from Dallas, Sumner is a rural community away from any major city. Relatedly, all the elementary schools in the district most proximate to the raid in Allen are within 6 miles—the closest is only 1.8 miles away—whereas the closest elementary school to the raid in Sumner is about 20 miles away. For these reasons, it is important to build on this existing work to expand our understanding of how different temporal and geographic contexts could influence the academic effects of raids.

Looking beyond workplace raids, we also have evidence for the deleterious effects of other immigration enforcement practices. Studies on the consequences of 287(g) agreements find these displace Hispanic students (Dee and Murphy, 2019) and decrease their attendance (Bellows, 2021), but do not find evidence of reductions in test scores (Bellows, 2021).³ By contrast, studies on the consequences of Secure Communities—a different partnership between ICE and local law enforcement—do find decreases in average achievement for Hispanic students in English Language

Arts but not in math (Bellows, 2019). Other work has found increased deportations near school districts increase absenteeism and achievement gaps between white and Hispanic students (Kirksey et al., 2020); increased immigration arrests cause declines in achievement, arrests, and school climate (Kirksey and Sattin-Bajaj, 2021); and intensified interior enforcement increases the probability that children of unauthorized immigrants drop out or repeat a grade (Amuedo-Dorantes and Lopez, 2015).

Here, it is important to emphasize federal and state governments employ a myriad enforcement tactics-for example, workplace raids, Secure Communities, 287(g) agreements, anti-immigrant laws—and these have heterogenous effects on Hispanic populations. It is possible that the scale of workplace raids and sudden, militaristic nature of the operation produce shock and create acute stress responses unmatched by those produced by the enactment of a law. Moreover, companies and factories impacted by workplace raids often shut down, sometimes creating devastating economic effects in the community (Pedroza and Scott, 2018). On the other hand, anti-immigrant laws create a long-term active threat for undocumented immigrants, which can have protracted effects on health and socioemotional well-being on vulnerable populations and may push families to move away from their communities (Dee and Murphy, 2019). Still, although the spillover effects of immigration enforcement can vary in kind and magnitude between different operations, there is overwhelming evidence that Hispanic children are impacted by enforcement and removal practices. Indeed, in a country that relies on the nuclear family to ensure the well-being of children and where millions of Americans are born to undocumented immigrants, immigration enforcement cannot solely target individuals who have violated immigration laws. Instead, the socioemotional well-being, health, and education of their children are indirectly impacted, hindering their social and economic incorporation.

Children of immigrants and "fractured institutional webs." Jackson (2020) describes a child's transition to adulthood as a series of encounters with social institutions. Because the quality of each institution is influenced by available resources, Jackson (2020) argues underprivileged children are more likely to interact with lowerquality institutions than their more privileged peers. This is true for children of undocumented immigrants who encounter low-quality functioning in school and in the family, two core social institutions.

Children of undocumented immigrants are more likely to live in a low-income household, with 75 percent of them living below 185 percent of the federal poverty level (Capps et al., 2016). Despite having high poverty rates, these families face barriers to obtaining public benefits, increasing their risk of food and housing insecurity (Acevedo-Garcia et al., 2021). Because of their status, undocumented workers have little leverage relative to their employer, which often results in them accepting lower wages and substandard working conditions. Even after controlling for qualifications and experience, studies have shown that undocumented workers earn less than documented workers (Donato et al., 2008; Flippen, 2012; Hall et al., 2010). To compensate for low wages, undocumented immigrants have to work for longer hours, decreasing time spent in caregiving activities. In addition, foreignborn workers are more likely to work nonstandard schedules (Dramski, 2017) which can create challenges for arranging childcare, forcing parents to rely on informal care and preventing them from receiving government childcare assistance (Enchautegui et al., 2015; Kim and Liu, 2021).

At school, children of immigrants are also likely to encounter a poorly functioning education system. Children of immigrant Latino parents attend racially and economically segregated schools with high concentrations of low-income students (Fuller et al., 2019) where they face disadvantages in school funding, teacher quality and teacher-to-student ratios, and access to valuable educational resources such as Advance Placement courses and arts programs (U.S. Department of Education, 2014; Jackson et al., 2015). Outside of the school and the family, children of undocumented immigrants also tend to live in undesirable residential contexts. Minority groups and immigrants, particularly undocumented immigrants, have a higher risk than native-born whites to live in high-poverty neighborhoods where they might encounter inadequate public services; environmental problems such as trash, noise, and pollution; and increased exposure to crime and violence (Hall and Greenman, 2013; Jargowsky, 2013).

Examining the school, neighborhood, and family institutions individually, it is evident children of immigrants face critical barriers in their path to adulthood. Yet the disparities experienced by children of immigrants can be exacerbated by a lack of coordination between these institutions. Children at the center of a wellcoordinated web of institutions can rely on their schools, neighborhoods, and families to work together and to compensate for problems when issues arise in one of these key arenas (Jackson, 2020). However, the fortification links through which institutions coordinate are often missing for the children of undocumented immigrants. Not only are these children more likely to attend schools where they receive insufficient attention and support, but they also go home to impoverished, potentially dangerous neighborhoods and parents who might lack the language skills, educational attainment, and financial resources to compensate for issues experienced outside the home.

Similarly, if access to quality schools was not tied to a family's resources, these children might be more likely to attend schools equipped to alleviate shocks experienced in the family and neighborhood institution, such as exposure to a workplace raid. Immigration enforcement operations represent a direct shock to families with undocumented immigrants: even when a parent is not deported, they can create problems by increasing the stress and anxiety of immigrant parents and children, causing disruptions to their routine if fear drives families into hiding, and creating financial instability due to job loss and other economic disruptions. School services such as mental health specialists and supplemental education programs could help compensate for the shocks experienced, yet these school-based support services are closely tied to funding and many underresourced schools lack the staff and money to meet demand (Schaeffer, 2022; Afterschool Alliance, 2020).

If a workplace raid causes a drop in academic performance, it would be an indication that disturbances in the family and neighborhood environment created subsequent disturbances in a different social institution. Even more, drops in performance could have rippling effects in a child's schooling: because states across the country use standardized tests to distribute funding or assign accountability ratings

to schools (Evans, 2018), decreasing passing rates of Hispanic students could cause schools and districts to experience budget cuts and even face state takeovers.⁴ For the students, adverse effects to performance would serve to widen the already large achievement gap between Hispanic and white children (Reardon and Galindo, 2009) and could lead to further disturbances such as grade retention (Amuedo-Dorantes and Lopez, 2015), a practice that increases their odds of dropping out of high school and has been shown not to benefit student achievement (Hughes et al., 2018; Allen et al., 2009). Overall, determining the extent to which workplace raids affect Hispanic children's academic performance not only expands our understanding of the spillover effects of immigration enforcement, but also clarifies the interconnection among the institutions they encounter.

The Endurance of Academic Effects Following Traumatic Experiences

In line with this research, several studies have revealed how exposure to traumatic or stressful events such as local homicides, school shootings, aggressive policing tactics, and restrictive immigration enforcement practices lower children's cognitive, behavioral, and academic performance (Sharkey, 2010; Sharkey et al., 2012, 2014; Cabral et al., 2022; Ang, 2021; Legewie and Fagan, 2019; Dee and Murphy, 2019; Bellows, 2019, 2021; Heinrich et al., 2023; Kirksey et al., 2020; Kirksey and Sattin-Bajaj, 2021, 2023). Although this work provides consistent evidence that a traumatic event such as a workplace raid can affect standardized testing outcomes, the expected duration of these effects is less clear. On one hand, psychological research has long documented children's resilience to adversity, showing that children can overcome and recover quickly from disruptive and traumatic events (see, e.g., Agaibi and Wilson (2005); Goldstein and Brooks (2013); Ungar (2013)). At the same time, children's coping abilities are influenced by their environment, so their capacity to "bounce back" could be constrained by poorly functioning family, neighborhood, and school contexts (Pearlin, 1989; Wheaton, 1994; Ungar, 2013). Moreover, as the stress process paradigm proposes (Pearlin et al., 1981), a primary stressor such as a workplace raid can lead to secondary stressors such as changes in income and housing, burdensome legal processes, and disruptions in the classroom due to classmate absences. This cascade of disruptions can increase the intensity and duration of stress, potentially prolonging academic consequences.

Evidence from sociology and economics on the persistence of academic effects following a traumatic event is accordingly mixed. For example, Sharkey (2010) finds the effects of local homicides on the cognitive performance of black adolescents fade after a week to 10 days. In contrast, when examining the effects of exposure to police killings on inner-city students, Ang (2021) finds negative effects on GPA persist for more than four semesters following exposure. Similarly, Cabral et al. (2022) show exposure to a school shooting in high school increases the risk of grade retention two years after exposure, reduces college attendance and graduation, and affects long-term employment and earnings. Finally, Kirksey and Sattin-Bajaj (2023) document negative effects on performance eight months after a workplace raid.

The heterogeneity of effects across these studies provides strong evidence that students have distinct responses to different traumatic events and the magnitude

of these effects might vary over time. Because workplace raids differ from shocks like local homicides, school shootings, and police killings across various relevant dimensions including the type of event and the number of people impacted, existing work on the effects of these events on academic performance can likely not be generalized to the context of workplace raids. Additionally, because the raid in Allen was one of dozens conducted during the Trump administration, it is possible that students in the district perceived the raid as part of an ongoing threat rather than a discrete, traumatic event. If this were the case, even students whose families were not impacted by the raid might continue to experience negative academic effects due to feeling stress, fear, and anxiety about potential raids in the future. For example, in a study of Latino students in Harris County, Texas and Rhode Island conducted in the 2018 to 2019 school year, Capps and Cardoso (2020) find that nearly 60 percent of students in their sample were afraid someone close to them would be deported and this fear was more pronounced in Texas, a state with higher rates of deportation and greater cooperation between law enforcement and ICE. Thus, we might expect observed effects of the workplace raid in Allen to fall more in line with research examining aggressive policing and immigration enforcement programs (Legewie and Fagan, 2019; Dee and Murphy, 2019; Bellows, 2019, 2021) which represent active threats on students and correspondingly cause prolonged declines in test performance. Indeed, this might explain why Kirksey and Sattin-Bajaj (2023) find effects of a workplace raid persisted months after a raid in Sumner, Texas. Still, if children do gradually recover from trauma, it is possible decreases in performance on the STAAR test would be more acute 40 days after the raid than eight months after.

Although the existing research indicates that students in Allen Independent School District (ISD) likely experienced lower levels of academic performance following the workplace raid, it remains unclear how these effects might change over time. Determining if the raid's educational consequences fade as quickly as previous research might suggest is crucial to understanding the true cost that these tactics have on the lives of Hispanic children. Doing so would also help us situate workplace raids among the range of stressors that have been previously documented, thus expanding our understanding on the relationship between shocks, stress, and academic performance.

Workplace Raids in the 21st Century

I use Lopez et al.'s (2022) definition of large-scale workplace raids as tactics in which 1) ICE agents enter commercial spaces; 2) in a single enforcement action; 3) on a single day; 4) in a single community. These operations might target a single business, or they might target a series of locations at once, often businesses belonging to the same chain. A notorious example of a multisite operation is the 2006 Swift raids in which ICE agents raided six different Swift & Company meatpacking plants in the Midwest, resulting in the arrest of approximately 1,300 workers. These raids marked the beginning of a period of increased large-scale workplace raids that became a hallmark of George W. Bush's administration (Chertoff, 2006). DHS data show a steady increase in workplace arrests throughout Bush's administration, growing

Date	Location	Number of detainees
2017-02-17	Jackson, MS	55
2018-04-05	Bean Station, TN	104
2018-05-09	Mount Pleasant, IA	32
2018-06-05	Sandusky, OH	146
2018-06-18	Salem, OH	146
2018-08-08	O'Nell, NE	133
2018-08-28	Sumner, TX	160
2019-02-05	Sanford, NC	30
2019-04-03	Allen, TX	284
2019-08-07	Mississippi, TN	680

Table 1: Major large-scale workplace raids of the Trump administration.

Notes: This table shows the 10 largest workplace raids conducted between January 2017 and January 2020. The data are compiled by the National Immigrant Law Center (2020) using press releases issued by ICE since January 2017.

from 510 in 2002 to 6,287 in 2008 (Jones-Correa and Fennelly, 2009). Only two years after the Swift raids, ICE raided a meatpacking plant in Postville, Iowa arresting 398 undocumented employees and charging them with aggravated identity theft, punishable by a mandatory minimum sentence of two years.

Following Bush's presidency, Barack Obama's administration replaced workplace raids with audits of employee files and record-setting civil fines on businesses that hired unauthorized immigrants (Preston, 2010). During Trump's presidency, however, workplace raids were reinstituted and ramped up. In 2017, the director of ICE ordered a four- to five-time increase in worksite operations, leading to a number of large raids that set new deportation records. In April 2018, ICE raided a meat processing facility in eastern Tennessee, arresting nearly 100 workers. A year later, the agency raided CVE Technology Group, an electronics manufacturing plant in Allen, Texas, detaining 284 workers. Then, in August 2019, the largest single-state operation in ICE's history took place in Mississippi after ICE detained nearly 700 workers in poultry processing facilities. For more examples of raids conducted in this period, Table 1 presents a list of the 10 largest workplace raids that happened between 2017 and 2020.

Supporters of worksite raids argue they are an effective enforcement tool that deter undocumented migration and help safeguard employment opportunities for authorized workers (Bennett, 2011; Thies, 2022). Yet the use of the practice has also garnered sharp criticism due to its perceived humanitarian cost. Following the raids in Mississippi in 2019, regional and national immigration advocates joined forces to denounce the raid, condemning the tactic as "deeply disruptive to local communities, leaving children stranded without their parents, terrifying entire communities, and devastating local economies" (Tennessee Immigrant and Refugee Rights Coalition, 2019). Less than a year into his presidency, the Biden administration responded to this criticism and announced it would halt large-scale workplace immigration raids and focus its enforcement efforts on employers rather than individual workers (Sullivan, 2021). However, the Biden administration has already rolled back on earlier promises to reverse policies enacted by his predecessor,

reinstating enforcement practices he had initially discontinued, such as building the border wall in Texas (Shear, 2023). In addition, workplace raids have been a fixture of the Republican party, suggesting future GOP leaders may consider reinstating the practice. As such, it is critical to prepare for the potential return of workplace raids by establishing a comprehensive body of evidence on their effects.

Raid in Allen, Texas

Allen is located in Collin County, Texas, a suburb north of Dallas. In 2019, the city had an estimated population of 105,000 residents, of which 19.6 percent were immigrants and 10.9 percent were Hispanic (U.S. Census Bureau, 2019). One of Allen's key industries is technology and it is home to several major technology companies including CVE Technology Group which refurbishes and repairs consumer tech products.

On April 3, 2019, ICE conducted a workplace raid at one of CVE's national receiving centers, located in Allen. The raid resulted in the arrest of 284 employees (U.S. Immigration and Customs Enforcement, 2019) and generated immediate backlash among local organizations, teachers, and leaders who condemned the operation. United We Dream Texas released a statement shortly after the raid, urging Congress to defund ICE and CBP, noting the abuse and negligence towards the well-being of the immigrants they target: "within hours, the lives of hundreds have spiraled into turmoil and anxiety," the group declared. A report by Cervantes et al. (2020) finds that children of all ages affected by the raid exhibited signs of trauma, missed several days of school or childcare, and suffered mental and physical health impacts even months after the raid. Despite media attention, to my knowledge there has been no causal research on the impact the raid had on the academic performance of Hispanic students in Allen.

For this analysis, I focus on the raid in Allen for three reasons. First, the large number of detainees likely increases the number of students in the district who were directly or indirectly impacted by the raid. The magnitude of the operation can also increase the amount of media coverage that the raid receives, raising awareness of the event and perhaps heightening fear or related stress. Second, because of previous research showing the effects of local homicides on cognitive performance weakening over time (Sharkey, 2010), I filter for raids occurring in the second semester of the school year because state standardized testing usually occurs in the final quarter of the school year. Out of these raids, the operations in Bean Station, TN and Allen, TX are most appropriate for this analysis, but I am unable to focus on the raid in Bean Station due to data limitations.⁵ The raid in Allen occurred just 40 days before the start of the 2018 through 2019 math and reading STAAR examinations, administered May 13 through May 16 for 6th grade students in Allen ISD, allowing me to measure short-term effects of the raid on academic performance. Furthermore, on-the-ground research finds the majority of Hispanic students affected missed classes only in the days immediately following the raid (Cervantes et al., 2020) so the 40-day buffer would give enough time for most of these students to resume normal attendance. Third, the raid predominantly impacted Hispanic workers-as Table 2 shows, of the 284 people arrested in Allen,

Nationality	Number of detainees
Mexico	112
Nigeria	48
El Salvador	38
Honduras	27
Venezuela	25
Guatemala	18
Colombia	6
Nicaragua	2
Peru	2
Bolivia	1
Brazil	1
Kenya	1
Liberia	1
South Africa	1
South Korea	1

Table 2: Breakdown of detainees in the worksite raid in Allen, TX by nationality.

Notes: This table presents the nationalities of the 284 workers arrested in the worksite raid in Allen, TX. Data were released by U.S. Immigration and Customs Enforcement and collected by Kera News (2019).

232 (82 percent) were from Latin America, with 112 of those hailing from Mexico (Chávez, 2019). Hispanic students, who were likely to be most affected by the operation, are well-tracked in the STAAR data so I can readily study their academic performance before and after the raid.

Data and Methods

STAAR Test Data

To measure academic performance, I use publicly available test score data from the Texas Education Agency (TEA). The test scores are taken from the STAAR assessment, which is administered in the spring. The most granular STAAR data available for public use are at the school level, disaggregated by race and ethnicity. My analysis is conducted at this level, using data from 2015 to 2018 as the preraid period and from 2019 as the postraid period.⁶ Because FERPA standards require the TEA to mask data corresponding to fewer than five students, some STAAR data are missing from the publicly available file. To maintain a balanced panel, I restrict the sample to only include schools with complete data from 2015 to 2019.

For all analyses, I use two measures: the percentage of students who pass the test and scaled test scores, a conversion of the raw score which the TEA adjusts based on the difficulty level of the questions. I use scaled scores for these analyses because (1) scaled scores are commonly used in the student assessment result reports created by the TEA and are readily available in publicly available data, (2) the adjustment for difficulty allows for a clearer interpretation across years and (3) the TEA uses scaled scores and not raw scores to establish cut points for performance level indicators. However, as I describe in Section A.4 of the online supplement, the results are robust to using raw scores instead.

I use data for the reading and math for Hispanic and non-Hispanic white students in school within Allen ISD and in schools in neighboring regions.⁷ In the analyses presented in the main results section, I used a combined test score and passing rate measure obtained by averaging the math and reading results weighted by the number of students who took each test. I also present the results for each subject separately in the online supplement, showing the magnitude and direction of the raid's effects are similar for each subject.

Although there are available STAAR assessment data for grades 3 through 8, I use 6th grade test score data for this analysis due to data constraints. In grades 3 to 5, the STAAR test is available in English and Spanish, with scores for each of these tests reported separately. Students in Allen taking the Spanish test are all transported to the same campus to take the assessment and, as such, there is only one observation for this group per year. Although more data are available for Hispanic students taking the test in English, the analysis would exclude a critical segment of the population. Additionally, due to FERPA standards described above, a large number of potential control schools had missing data from the Spanish assessment. In grades 6 through 8, the test is only offered in English, making these results easier to leverage for this analysis.

Similarly, I use grade 6 data rather than grade 7 or 8 because the 6th grade assessment afforded me richer and more granular data than 7th and 8th grade. There are 17 elementary school campuses in Allen ISD for students in 6th grade. Once students graduate grade 6, they go on to attend one of only three middle school campuses. Thus, 6th grade test score data gave me a larger per-year sample, where each observation collapsed the scores of a smaller number of Hispanic students. The higher number of campuses also allowed for a more meaningful exploration of how distance from the raid was related to the drop in scores. Despite these data limitations, exploratory analyses on the 5th grade and 7th grade data reveal drops in performance that are consistent with my findings for the 6th grade data.⁸

One concern is that workplace raids and similar immigration enforcement operations have been shown to increase absenteeism and outmigration among Hispanic students (Cervantes et al., 2020; Bellows, 2021; Dee and Murphy, 2019; Heinrich et al., 2023; Kirksey et al., 2020). If Hispanic students affected by the raid were absent during the administration of the test, it would threaten the validity of the analysis. Reassuringly, 100 percent of Hispanic students in Allen took the STAAR assessments in 2019 (Texas Education Agency, 2019), indicating the raid did not lead to decreases in test participation due to absenteeism. Further, as described in Section A.5.1 of the online supplement, a causal analysis of the impact of the raid on Hispanic student enrollment suggests the raid did not cause a significant outmigration of Hispanic students in Allen ISD in the months after the operation.⁹ As an additional robustness check, I repeat all analyses allowing for a 5 percent rate of outmigration in the treated schools (based on estimates from Dee and Murphy (2019)) and bound the scores the missing students would have received using extreme STAAR score values, showing that the partially identified effect of the raid remains negative (see Section A.5.2 of the online supplement). Together, these

findings ease concerns that absenteeism and out-migration may account for the main findings presented in the article.

Data for Supplementary Analyses

To study the relationship between the distance a school was from the raid and the school's test outcomes in 2019 compared to 2018, I use driving distance and travel time data from Google Maps. Google Maps does not provide historical data and only allows users to obtain an estimate of driving time at the time of fetching or on a specific day and time in the future. To replicate driving conditions in the months surrounding the raid as much as possible, I obtained the estimated driving time for the first Wednesday of April 2023 at 8 a.m., which matches the weekday when the raid took place and around the time when kids would be commuting to school.

Next, to understand how the raid impacted attendance, I use two additional data sources. First, I use administrative data on the attendance rates of Hispanic students from 2015 through 2019. Attendance rates are calculated as the percentage of days students were in attendance from the total number of days students were enrolled. Specifically, for a school *s* in year *t*, attendance rate is calculated as:

Attendance Rate_{*s*,*t*} =
$$\frac{\text{Days that students in } s \text{ were present in } t}{\text{Days students in } s \text{ were in enrolled in } t}$$
 (1)

In addition to attendance rates, I also use foot traffic data to study how visits to the school changed in the weeks following the raid. I obtained foot traffic data from SafeGraph which uses location services on mobile phones to estimate the number of daily visitors to restaurants, shopping malls, parks, schools, and other points of interest (POIs). I successfully matched all noncharter schools in Allen's school region and neighboring regions 7, 8, 10, 11, and 12 to SafeGraph foot traffic records from February 25, 2019 to April 14, 2019 and calculated the total number of weekly visits to each school. Using academic calendars from 2018 and 2019 (Figure C.14 in the online supplement), I matched each week in the 2019 data to the corresponding academic week day in 2018 (e.g., the first week after winter break in 2018 is matched with the first week after winter break in 2019) and removed the week of spring break from the data. Table 3 shows the dates from 2018 and 2019 that each week corresponds to. Finally, I calculate the percentage change of weekly visits from 2018 to 2019. Specifically, for each week *i*, I calculate:

Change Week
$$i = \frac{\text{Visits week } i \text{ in } 2019 \text{ - Visits week } i \text{ in } 2018}{\text{Visits week } i \text{ in } 2018}$$
 (2)

Empirical Approach

STAAR Test Peformance

I use four strategies to estimate the causal impact of workplace raids on Hispanic 6th graders in Allen ISD:



Figure 1: Schools in Allen and site of raid. *Notes:* This figure shows the location of the site of worksite raid in Allen, TX and the elementary schools in Allen ISD that I use for this analysis.

Strategy 1: white students in Allen ISD. I use white students attending the same schools as the treated Hispanic students. Figure 1 provides a map showing the site of the raid and the location of these schools. Using white students in Allen ISD as a control group is useful because, if there were other changes in Allen in 2019 that impacted academic performance, these would be captured by differences in performance amongst whites and subtracted from the estimates for the raid's effects. However, there are two concerns with this strategy. First, even though white students likely did not have a parent or sibling impacted in the raid (none of the deportees in Table 2 are white), they might still have close ties with Hispanic peers and could have also experienced some of the raid's effects. Second, the strategy is unable to account for events outside of the raid that might have impacted Hispanic students. These shortcomings motivate the use of additional strategies described below.

Strategy 2: Hispanic students in nearby, similar districts. For a second strategy, I use Hispanic students attending schools that are geographically close to Allen and similar to Allen ISD. Using this group alleviates concerns about other statewide or regional shocks to Hispanic students biasing my analysis. Specifically, if there



Figure 2: TEA-designated regions. *Notes*: This figure shows a map of the 20 regions that the Texas Education Agency uses to categorize school districts. Allen ISD is located in region 10. I select control schools from regions 7, 8, 10, 11, and 12.

were any other changes that affected Hispanic students in Texas in the 2018 to 2019 academic year, the effects would be reflected in the performance of the control group and would thus remove this source of bias in the estimate of the raid's effects.

To select geographically proximate districts, I use boundaries created by the TEA which divide all school districts into 19 regions (see Figure 2). I select schools in the same region as Allen ISD (10) or in a neighboring region (7, 8, 10, 11, 12). To determine which districts are similar to Allen, I rely on district types assigned by the National Center for Education Statistics based on the population size of the district and its proximity to urban areas. Because Allen ISD is defined as a "Large Suburb," I filter the sample to only include schools in the same district category. Finally, I calculate the average commuting time to work in Collin County, Texas was 27.7 minutes in 2019.¹⁰ I assume anyone within that radius of the location of the raid could have been impacted and remove any school within that boundary. In addition, because Allen ISD is a public school district, I remove all charter schools from the sample. The panel on the left of Figure 3 provides a map of the control and treated schools used in this strategy.

Strategies 1 and 2 help separate differences in performance that were caused by the raid from differences attributable to (1) district-level trends or (2) group-level trends. However, there could still be some concerns that differential trends between



• Control schools \blacktriangle Schools in Allen

Figure 3: Control schools. *Notes*: This figure shows the elementary schools used as control groups in strategies 2 through 4 outlined above. The map on the left shows all schools in districts that (1) are in the same region as Allen ISD or in regions neighboring, and (2) are in a type of area classified as a "Large Suburb" by the National Center for Education Statistics, and (3) are more than 27.7 minutes away from the raid. The map on the right represents a subset of these schools that were matched to each school in Allen using propensity scores based on school-level demographic characteristics.

schools in Allen ISD and schools not exposed to the raid could bias our estimates. I address these concerns through a third strategy, described below.

Strategy 3: Hispanic students in matched schools. To reduce any concerns about bias due to confounding, I use a nearest-neighbor matching procedure to select control schools that are similar to schools in Allen ISD across characteristics potentially related to being exposed to a workplace raid. Specifically, from the set of control schools in strategy 2, I calculate propensity scores using three school-level covariates averaged across 2015 to 2019: the share of Hispanic students, the share of students with limited English proficiency, and the share of economically disadvantaged students. I then measure the difference in propensity scores between the treated and control units and, for each school in Allen, I select the two nearest control schools. The panel on the right of Figure 3 provides a map of these matched control schools. In addition, Table B.6 in the online supplement shows relevant school-level summary statistics for each of the control groups, and Figure C.4 shows results are robust to using alternative matching strategies.

Strategy 4: white and Hispanic students (triple difference). Lastly, I also estimate a triple difference model that uses the white and Hispanic student control groups from strategies 1 and 2 above. The key advantage of this approach is that it combines the strengths of each difference-in-difference strategy, reducing bias that could be caused by changes in the academic performance of Hispanic children across different districts at the district level and changes in both Hispanic and white students in Allen ISD.

For each control group strategy described above, I estimate two difference-indifference regression models. The first model is estimated as follows:

$$y_{rst} = \alpha_{rs} + \omega_t + \beta D_{rst} + \epsilon_{rst}$$
(3)

The dependent variable y_{rst} is defined as the passing rate or the scaled test score in the reading and math test (or a "combined" measure using a weighted average of each subject) for racial-ethnic group r in school s at time t. I include a school and racial-ethnic group fixed effect α_{rs} and time fixed effect ω_t . These help account for differences in academic performance across schools and groups as well as generalized differences in performance across years. D_{rst} is an indicator variable used to denote treatment. When I use white students in Allen ISD as the control group, D_{rst} is defined as 1 if the observation is for Hispanic groups in 2019, 0 otherwise. Alternatively, when I use Hispanic students as the control group, D_{rst} is defined as 1 for observations from Allen ISD in 2019, 0 otherwise. The corresponding coefficient, β , measures the difference in the change in passing rates and scaled test scores after the raid between Hispanic students in Allen ISD and control groups.

The second model adds time-varying school-level covariates, θ_{st} including the percent of Hispanic students, the percent of students with limited English proficiency (LEP), and the percent of economically disadvantaged students. Adding these covariates helps increase the precision of the treatment effect estimate by capturing changes in the demographic composition of students that could affect the average academic performance of the school in the given year. All other variables are defined as above.

$$y_{rst} = \alpha_{rs} + \omega_t + \beta D_{rst} + \theta_{st} + \epsilon_{rst}$$
(4)

Finally, for the triple difference approach, I use data from white and Hispanic students in Allen as well as in similar districts in neighboring regions. For this, I use the following model:

$$y_{rst} = \alpha_{rs} + \omega_t + \chi_1 \text{Hispanic}_r \times \text{Post}_t + \chi_2 \text{Near}_s$$
$$\times \text{Post}_t + \beta \text{Hispanic}_r \times \text{Near}_s \times \text{Post}_t + \theta_{st} + \epsilon_{rst}$$
(5)

Where, as above, y_{rst} , α_{rs} , ω_t , and θ_{st} are defined as academic performance, school and group fixed effects, academic year fixed effects, and time-varying school-level controls, respectively. *Hispanic*, *Post*, and *Near* are all indicator variables: *Hispanic* is set to 1 for observations for Hispanic students, 0 for white students; *Post* is set to

1 for observations from the 2019 STAAR test, 0 for observations from the 2015 to 2018 tests; and *Near* is set to 1 for schools in Allen ISD, 0 otherwise. As described above, this strategy helps ensure the estimate for the effect of the raid, captured by β , is not biased by other district wide shocks that affected all students in Allen ISD or by shocks affecting all Hispanic students in nearby regions or all of Texas. In all the models presented above, standard errors are clustered by school.

In each of these strategies, the estimand I'm targeting is the average treatment effect on the treated (ATT). In order for the coefficient of interest β to identify the ATT, I must assume that the difference in scores and passing rates between treatment and control groups would have remained constant in the absence of a raid. To verify the parallel trends assumption, I provide plots showing raw trends in STAAR test performance (see Figure 4) and estimate an event-study specification to assess whether there were differential pretrends between treatment and control schools (see Figure 5). Additionally, I assume no anticipation of treatment among Hispanic students in Allen ISD. If, for example, students in 2018 expected a raid to happen the following year, their scores might have reflected a state of anxiety and would yield a biased estimate for the difference in potential outcomes under no treatment between Hispanic students in Allen and the control groups. Alternatively, anticipation of the raid would have given Hispanic families time to prepare for the raid (e.g., by changing workplaces) so the group I observe in 2019 might not have been affected by the treatment. To support this no-anticipation assumption, I rely on the fact that workplace raids are secretive by design. As described in Lopez et al. (2022), "Raids occur without warning so that agents may detain targets while they are clustered in one location." That the raid in Allen resulted in the arrest of nearly 300 workers further suggests that workers did not anticipate the operation.

Event Study Specification

As described above, the difference-in-difference analyses I performed in this article rely on a standard parallel trend assumption. In Figure 4, I assess the validity of the assumption by showing the score and passing rates of Hispanic students in Allen ISD followed similar trends to the three control groups in the years before the raid. An additional way to test the assumption is to estimate an event study specification which uses the performance in 2018 as the reference period. The model has the following form:

$$y_{rst} = \sum_{q=2015, q \neq 2018}^{2019} \beta_q \times \text{NearHispanic}_{rs}^q + \alpha_{rs} + \omega_t + \theta_{st} + \epsilon_{rst}$$
(6)

Where *NearHispanic*^{*q*}_{*rs*} is an indicator variable set to 1 for observations pertaining to Hispanic students in schools in Allen ISD when q = t, 0 otherwise. y_{rst} , α_{rs} , ω_t , θ_{st} , and ϵ_{rst} are defined as above. The coefficients of interest are β_q which capture yearly changes in the average difference between the control and treated groups. To support the parallel trends assumption, the estimates for these coefficients in the period before treatment (2015 to 2017) should not be statistically different from 0. This would indicate that yearly changes in the difference between the control and treated groups (measured relative to the difference in 2018) are not significant.

Supplemental Analyses

To examine how proximity to the raid was related to the change in students' academic performance, I use 6th grade scores for Hispanic students from all schools within a 27.7-minute radius of the raid, again relying on ACS data to determine a reasonable cutoff point. Then, I estimate the following model:

$$y_{s19} - y_{s18} = \beta \text{Distance}_s + \epsilon_s \tag{7}$$

Where y_{s19} and y_{s18} are the scaled scores and passing rates obtained by Hispanic students in school *s* in the reading, math, or averaged reading and math tests in 2019 and 2018, respectively. Distance_{*s*} is the estimated time in minutes it would take to drive from school *s* to the site of the raid.

To determine if the raid caused interruptions to schooling, I conduct two analyses. The first uses administrative data on the attendance rates of Hispanic students and follows a similar difference-in-difference approach as the one I used for the STAAR test data. As above, I use Hispanic students in similar school districts and in geographic proximity. Because the attendance rate data pertain to students in all grade levels in a school, data suppression due to FERPA standards is not an issue, giving me a larger set of eligible control schools. Thus, I am able to restrict the sample to only those schools in the same region as Allen ISD (region 10) rather than relying on neighboring regions. As I do for the STAAR performance analysis, I construct a second control group of Hispanic students in similar schools by matching each treated school to the two nearest control schools based on a nearest-neighbor matching procedure. Then, I estimate two models:

$$y_{st} = \alpha_s + \omega_t + \beta \mathbf{D}_{st} + \epsilon_{st} \tag{8}$$

$$y_{st} = \alpha_s + \omega_t + \beta D_{st} + \theta_{st} + \epsilon_{st}$$
(9)

The dependent variable y_{st} is defined as the attendance rate for school *s* in year *t* (the subscript *r* was dropped because this analysis only uses data for Hispanic students). I include a school fixed effect α_s and time fixed effect ω_t . As in earlier models, D_{st} is an indicator variable defined as 1 for observations from Allen ISD in the 2019 academic year, 0 otherwise. In the second model, I also add time-varying school-level covariates, θ_{st} including the percent of Hispanic students, the percent of students with limited English proficiency (LEP), and the percent of economically disadvantaged students.

Finally, I conduct a second analysis that uses foot-traffic data to measure potential interruptions to schooling. For this analysis, I obtain a similar control group by matching each treated school to another noncharter school in a neighboring region based on the same nearest-neighbor matching procedure. Then, I use a difference-in-difference event study specification and estimate the following model:

$$\frac{y_{sw}^{19} - y_{sw}^{18}}{y_{sw}^{18}} = \sum_{q=-4, q \neq -1}^{1} \beta_q \times \operatorname{Near}_{s}^{q} + \alpha_s + \omega_w + \epsilon_{sw}$$
(10)

Where y_{sw}^{19} and y_{sw}^{18} are defined as the number of visits to school *s* in week *w* in years 2019 and 2018. *Near*^{*q*}_{*s*} is an indicator variable set to 1 if school *s* is in Allen ISD and

Table 3: Weeks used for foot traffic analysis.

Week	2018	2019
-4	February 26 - March 4	February 25 - March 3
-3	March 5 - March 11	March 4 - March 10
	March 12 - March 18*	March 11 - March 17*
-2	March 19 - March 25	March 18 - March 24
-1	March 26 - April 1	March 25 - March 31
0	April 2 - April 8	April 1 - April 7 [†]
1	April 9 - April 15	April 8 - April 14

Notes: This table shows the dates corresponding to each week used to calculate the year-over-year changes in weekly visits to schools in Allen ISD. I remove the week corresponding to the spring break holiday. See Figure C.14 in the online supplement for a complete view of the academic calendar in Allen ISD. *: spring break holiday, *: week of raid.

q = w. α_s and ω_w are school and time fixed effects. The coefficient of interest is β_q which measures the difference on the percentage change in foot traffic from 2018 to 2019 following the raid between schools in Allen and treated schools. Week w is measured relative to the week of the raid. Table 3 shows the weeks used in the analysis.

Results

STAAR Test Performance

Figure 4 presents the raw trends in the scaled scores and passing rates for Hispanic students in Allen ISD and in control groups in the period before and after treatment. The figure shows the treated group and the three control groups followed largely similar trends in scores and passing rates from 2015 to 2018, although the trends are more clearly parallel for Hispanic students in matched schools. Figure 4 also shows a clear divergence in these trends in the year following the raid with scores and passing rates decreasing for Hispanic students in Allen but increasing or remaining stable for all control groups. These raw trends provide some evidence that (1) the difference in performance between treated and control groups remained constant over time in the years prior to the raid (2) and scores and passing rates decreased for Hispanic students in Allen ISD relative to the treated group after the raid.

To support this evidence, I also plot the estimates from the event study specified in Equation 6. Figure 5 shows the coefficient estimates and 95 percent confidence intervals on the interaction between the dummy variable to indicate observations for Hispanic students in Allen and indicator variables for each year (β_q in Equation 6). Crucially, Figure 5 shows there is not a significant change in the difference between the treated and control groups for scores in the pretreatment period, helping to validate the parallel trends assumption. However, the figure does show that the parallel trend assumption for combined passing rates is likely violated when using Hispanic students in nearby regions, though this is not a problem when using matched schools or white students in Allen. Due to this, I am cautious interpreting



Figure 4: Raw trends in performance across Hispanic students in Allen ISD and control groups. *Notes*: This figure plots raw trends in the average scores and passing rates in the STAAR test between 2015 and 2019 for treatment and control schools. All averages are weighted by the number of students in the school and racial group who took the test. Each column in the grid represents a different control group: the panel on the left shows trends for Hispanic students in matched schools, the center panel shows trends for Hispanic students in Allen ISD.

the results for the difference-in-difference analyses for passing rates and rely on the other control groups for a more reliable estimate of the effects of the raid. Figure 5 also shows a sharp decrease in performance in the posttreatment period (t = 0) relative to the control groups. Due to large standard errors, the effects of passing rates and scores are not always significant at the 0.05 level but the magnitude and direction of the point estimates would suggest sharp decreases in performance in the period after the raid. Figure C.3 in the online supplement shows estimates from the event study specification for individual math and reading outcomes. Results for both figures are displayed in Table B.2.

Table 4 presents the results of the regression model estimating the effect of the raid on the scores and passing rates of Hispanic children in Allen ISD (estimation of Equation 3 and Equation 4). Across all control group and model specifications, I



Control Group - Hispanic (PSM) - Hispanic (Region) - White

Figure 5: Estimates for the effect of workplace raids on academic performance using an event study specification. *Notes:* This figure presents output from estimation of Equation 6. In each figure, I plot the coefficients and 95 percent confidence intervals on the interactions between the indicator denoting results of Hispanic students in Allen ISD and the indicators denoting each of the years before and after a shooting with 2018 as the omitted category. The regressions include school and year fixed effects. Standard errors are clustered by school. These results are also presented in Table B.2 in the online supplement.

find negative effects on academic performance. In the first panel, I show estimates for average decreases in scores in the combined math and reading STAAR test. Although the point estimates vary across model specifications, the results suggest the workplace raid lowered the scores of Hispanic students in Allen ISD by more than 30 points. As shown in the second panel, exposure to the raid led to a decrease in passing rates of over seven percentage points. All of these results are significant at the 0.05 or 0.01 level.

Table 4 and Figure 4 show the drop in scores widened the average gap between Hispanic and white students in Allen ISD and, although these students had consistently performed above their peers in matched schools on average, the raid fully erased this difference. The historic differences between Hispanic students and white students in Allen ISD are consistent with existing research on achievement gaps across racial-ethnic groups (Reardon and Galindo, 2009; Gandara and Contreras, 2010). These disparities in performance can be particularly consequential in the context of shocks such as a workplace raid because they can push already underperforming students below the passing threshold.¹¹ Indeed, as we see in panel B, the drop in scores was enough to decrease the passing rate of Hispanic students in Allen by around eight percentage points. If Hispanic students in Allen had been performing at the level of their white counterparts, the drop in scores would have led to fewer students failing the test. Conversely, if the raid had affected lower-performing schools in the region, these schools would have likely seen larger impacts on their students' passing rates, even if the baseline effects on scaled scores were the same. This emphasizes the point that existing educational disparities make already vulnerable groups less resilient to shocks that might impact academic

			Difference-	in-difference			Triple d	lifference
Control	White (A	Allen ISD)	Hispan	ic (near)	Hispan	ic (PSM)	white an	d Hispanic
group								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: sco	ore, math and	l reading com	ibined					
Workplace	-32.64^{*}	-36.24^{*}	-39.73^{+}	-43.56^{+}	-35.03^{*}	-35.79^{*}	-32.59^{*}	-35.65^{+}
raid								
	(12.84)	(12.35)	(13.02)	(13.34)	(14.70)	(15.38)	(12.74)	(12.57)
Constant	1,612.99†	1,686.00 ⁺	1,626.81 ⁺	1,720.31 ⁺	1,626.32 ⁺	1,538.23 ⁺	1,624.88†	1,696.63†
	(5.19)	(149.08)	(2.83)	(41.17)	(3.85)	(69.86)	(2.80)	(32.50)
R-squared	0.786	0.823	0.852	0.862	0.735	0.743	0.916	0.920
Panel B: pas	sing rate, ma	ath and readin	ng combined					
Workplace	-7.12*	-7.38^{+}	-9.86 ⁺	-10.73^{+}	-7.74^{*}	-8.15^{*}	-9.27^{+}	-9.88^{+}
raid								
	(2.54)	(2.37)	(2.75)	(2.83)	(3.17)	(3.46)	(2.58)	(2.53)
Constant	73.32	107.23*	70.01 ⁺	98.92 ⁺	72.01 ⁺	78.99 ⁺	71.64 ⁺	87.91 ⁺
	(1.02)	(24.09)	(0.83)	(15.63)	(0.95)	(13.19)	(0.65)	(11.48)
R-squared	0.750	0.773	0.821	0.831	0.694	0.707	0.893	0.897
Year FE	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
School FE			\checkmark	\checkmark	\checkmark	\checkmark		
School ×	\checkmark	\checkmark					\checkmark	\checkmark
Race FE								
School con-		\checkmark		\checkmark		\checkmark		\checkmark
trols								
Observations	140	140	540	540	210	210	1,050	1,050

Table 4: Effects of a nearby large-scale workplace raid on academic performance of Hispanic students in Allen ISD.

† p < 0.01; * p < 0.05.

Notes: This table presents coefficients, standard errors in parenthesis, and *p* values (see significance codes below) from the estimation strategies described in models Equation 3, Equation 4, and Equation 5 above. I group columns based on which control group I'm using: white students in Allen ISD, Hispanic students in nearby similar districts, Hispanic students in matched schools, and white and Hispanic students for the triple-difference approach. Panel A reports the effects on STAAR test scores and panel B reports effects on the passing rates. All regressions include year fixed effects. Regressions using white students as a control group include school \times race fixed effects whereas those that use Hispanic students only have school fixed effects (as there is only race being considered). All observations are weighted by the number of students in the school and racial group who took the test. Additional school-level controls are added to some of the models as described in Equation 4. Standard errors are clustered by school.

performance. As an illustration, in Figure 6 I show how the change in passing rates from 2018 to 2019 might have been different if Hispanic students in Allen ISD had been performing at the higher level of white students in the district or the lower level of other Hispanic students in neighboring regions.

To place these effect sizes in context, the smallest estimate of -32.59 points corresponds to about 40 percent of the Hispanic–white gap in scores recorded in the sample (73.6 points). As shown in Table B.1 of the online supplement, these large negative effects on scores and passing rates persist when analyzing reading and math performance separately. The smallest estimates for the effect on reading and math scores are of -28.30 and -32.10 points, respectively, corresponding to a drop in percentile rank of -8.1 for reading and -6.5 for math.¹² By comparison,



Figure 6: Simulated changes in passing rates for different levels of academic performance. *Notes*: This figure simulates changes in the passing rate of Hispanic students in Allen ISD for the reading assessment if we assume the same effect size on scores but adjust the performance level the students were performing at before treatment. To construct these estimates, I use STAAR score conversion tables (see Figure C.11 in the online supplement) to find the score corresponding to the passing threshold in 2018 and 2019. Using the school-level data on (1) the percent of Hispanic students who passed the test and (2) their average score, I make the assumption that student scores are normally distributed around this average and find the standard deviation that models the observed distribution. Then, to simulate the change in passing rates if Hispanic students in Allen had been performing at the level of white students or Hispanic students in neighboring districts, I keep the same standard deviation but increase or decrease the mean based on the average difference between the two groups in pretreatment years.

Kirksey and Sattin-Bajaj (2023) find a workplace raid occurring eight months before standardized testing caused a smaller percentile rank drop in reading of -5 and -1 for math, providing suggestive evidence that the effects of raids on academic performance might fade over time but do not completely disappear within the first year. This is consistent with prior work showing the impact of police violence on GPA gradually dissipates but only become insignificant after 2.5 years (Ang, 2021). Expressed in terms of standard deviations, the smallest estimates from Table B.1 correspond to a -0.20 SD change in reading and -0.23 change in math.¹³ This is larger than the estimated effects of the activation of the Secure Communities program on 6th to 8th grade achievement tests (-0.009 SD for English Language Arts and -0.008 SD for math), police killings on GPA (-0.03 SD), and aggressive policing programs on the test scores of 15-year-old African American boys (-0.15 SD for English Language Arts) (Bellows, 2019; Ang, 2021; Legewie and Fagan, 2019). As for passing rates, the smallest point estimates show a change of -7.14 percentage

	Score (1)	Passing rate (2)
Minutes from raid	1.740^{\dagger} (0.550)	0.354^{+} (0.134)
Constant	-35.347^{+} (10.522)	-5.859^{*} (2.559)
Observations	156	156

Table 5: Association between the distance to the raid and the change in student performance from 2018 to 2019.

p < 0.01; * p < 0.05.

Notes: This table shows the results of regressing the change in scores and passing rates between 2018 and 2019 on the commuting time from each school to the raid as described in Equation 7. I use data for Hispanic students from all schools within a 27.7-minute radius of the raid, a cutoff based on average commute times calculated using ACS data.

points for reading and -5.62 percentage points for math, slightly larger than the effects of being exposed to a school shooting resulting in a single death on high schooler's proficiency rates (-4.85 for English and -4.71 for math) but smaller than the effects of shootings resulting in multiple deaths (-8.63 for English and -8.85 for math) (Beland and Kim, 2016). Although these studies use a range of different estimation strategies and data for academic performance, the comparatively large effect sizes I find following a workplace raid suggest the impact of this tactic is practically significant and warrants careful study.

Supplementary Analyses

In all the analyses above, I assume Hispanic students in all schools in Allen ISD were exposed to the raid and experienced the same level of treatment. However, the distance of the school from the raid is an important potential source of heterogeneity in the effects of the raid. Table 5 shows the results of the model regressing the change in scores and passing rates from 2018 to 2019 on the estimated commuting time from the school to the raid, in minutes. I find that distance has a significant positive effect on the change in passing rates and scores, indicating that proximity to the raid was predictive of a larger drop in performance. For each minute further away from the raid, the change in score and passing rates increases by an average of 1.74 points and 0.35 percentage points, respectively. On average, a school one minute from the raid would be expected to see a 5.8 percentage point drop in its passing rate and 35.35 drop in scores. By contrast, a school 15 minutes away from the raid would be expected to have a minimal change in its passing rates (-0.55 percentage points) and about a 9.2 drop in scores. Figure C.5 in the online supplement presents these results graphically.

There are a few potential reasons why the distance between a school and the raid could mediate the effects of the raid on academic performance. First, if workers

impacted by the raid lived in the nearby community, then students in the nearest schools were more likely to know someone impacted by the raid. Such a direct exposure to the raid would increase stress due to concern for family and community members and could produce a heightened sense of threat for their own well-being. Moreover, if a parent or close member of their community were detained, it could lead to strong disruptions in their home life and impact their academic performance directly by causing them to miss school and affecting their homework and afterschool routines. But even if the 6th graders in nearby schools did not know anyone detained, the proximity to the raid could still affect the extent and type of exposure these students had to the event. Those closest to the raid were more likely to physically witness the operation, seeing or hearing the hundreds of ICE agents that came to the location, some by helicopter. Second, because geography and neighborhoods shape networks of communication, those living close to the raid might have been more likely to hear first-hand experiences of the raid, as compared to students in more distant schools who might have only learned about it through

If the drop in performance can be attributed to disruptions to schooling, we might expect to see some effect on the attendance rate of Hispanic students. Figure C.6 in the online supplement shows raw trends in attendance rates, showing that the attendance rate for the control and treatment groups followed similar trends in the pretreatment period and thus providing evidence for the parallel trends assumption. Table 6 shows the results of the difference-in-difference analyses estimating the effects of the raid on Hispanic students' attendance rate in Allen ISD. Estimates for the drop in attendance rate range from a 0.188 percentage point drop to a 0.268 drop. As described earlier, the TEA measures attendance rate as the total number of days students were present over the total number of days students were enrolled at the school. In 2019, Allen ISD had 175 days of instruction. If we assume most students remained enrolled for the duration of the academic year, the effects on attendance rate would translate to an average of 0.329 to 0.469 additional missed days of school for Hispanic students. Although it is likely the effects on attendance rate were concentrated on a subset of Hispanic students who faced deeper disruptions, the decrease in attendance is probably too small to conclusively identify it as a mechanism driving down academic performance.

When I estimate disruptions to schooling using foot-traffic data, I am unable to detect any effects. Figure C.7 in the online supplement shows the number of visits relative to 2018 largely follows the same patterns for schools in Allen ISD as well as for untreated schools in the neighboring regions. Table 7 shows the results of the event study using the percent change in foot traffic in the week prior to the raid (week = -1) as the reference period. The table provides further evidence for the parallel trends assumption, showing no significant week-over-week change in the average difference between the treated and control groups. In the week of the raid and the following week, there is also no significant change in the number of visits to school in Allen ISD as compared to the control group.

Overall, although there might have been disruptions to schooling, the analyses suggest these effects might have been too small to lead to the large drops I find in academic performance.

news media.

Control group Hispanic (neighbo		ing region)	Hispanic (PSM)	
	(1)	(2)	(3)	(4)
Workplace raid	-0.19	-0.22^{*}	-0.25	-0.27^{*}
	(0.10)	(0.11)	(0.13)	(0.13)
Constant	97.29 ⁺	98.49 ⁺	97.26 ⁺	99.36 ⁺
	(0.04)	(0.80)	(0.06)	(0.94)
School FE	\checkmark	\checkmark	\checkmark	\checkmark
Year FE	\checkmark	\checkmark	\checkmark	\checkmark
School controls		\checkmark		\checkmark
Observations	655	655	300	300
R-squared	0.810	0.813	0.722	0.733

Table 6: Effects of a nearby large-scale workplace raid on the attendance rate of Hispanic students in Allen ISD.

+ p < 0.01; * p < 0.05.

Notes: This table presents coefficients, standard errors in parenthesis, and *p* values (see significance codes below) from the estimation strategies described in models Equation 8 and Equation 9 to determine the effects of the raid on attendance rates. I group columns based on which control group I'm using: Hispanic students in nearby similar districts and Hispanic students in matched schools. All regressions include school and year fixed effects. All observations are weighted by the number of students in the school and racial group who took the test. Additional school-level controls are added to some of the models as described in Equation 9. Standard errors are clustered by school.

Discussion

The use of work-site raids to enforce immigration law has seesawed over the last 20 years, rising sharply during some presidential administrations and falling in others. Indeed, in October 2021, the Biden administration announced it would halt large-scale workplace immigration raids and focus its enforcement efforts on employers rather than individual workers (Sullivan, 2021). However, because support for the practice falls along party lines (Bennett, 2011; Oprysko, 2019) and the decision to use work-site raids is largely at the discretion of the U.S. president, it is possible we will see this practice reinstituted in the coming years. Therefore, it is essential to build our understanding of the consequences of raids to be prepared for their potential return.

Workplace raids have long been criticized for causing physical and psychological harm to workers and their children while doing little to reduce undocumented migration (Tennessee Immigrant and Refugee Rights Coalition, 2019; Capps et al., 2007, 2015; Kitroeff, 2018; Juby and Kaplan, 2011). Causal research on the spillover effects of worksite raids on children's education strongly supports these objections: several studies provide qualitative and causal evidence that raids have negative effects on outcomes on relevant educational outcomes such as attendance rates, Head Start enrollment, and disciplinary actions (Capps et al., 2007; Chaudry et al., 2010; Heinrich et al., 2023; Santillano et al., 2020). One case study of a raid in Sumner, Texas also finds evidence of negative effects on academic performance (Kirksey and Sattin-Bajaj, 2023), but these estimates might be attenuated given that

	Matched schools in neighboring regions
	(1)
$\overline{\text{Allen ISD} \times \text{Week} = -4}$	0.083
	(0.101)
Allen ISD \times Week = -3	-0.008
	(0.090)
Allen ISD \times Week = -2	0.079
	(0.099)
Allen ISD \times Week = 0	-0.021
	(0.080)
Allen ISD \times Week = 1	0.157
	(0.094)
School FE	\checkmark
Week FE	\checkmark
Observations	246

 Table 7: Percent change in foot traffic 2018-2019 in weeks before and after the raid.

Notes: This table presents results obtained by estimating Equation 10. I report the coefficient and standard error on interactions between the indicator denoting elementary schools in Allen ISD and the indicators denoting the weeks before and after the raid. The week before the raid (March 26-April 1) is the omitted category. All regressions include school and week fixed effects. Standard errors are clustered by school.

treatment is identified at the county level and eight months had passed between the raid and the standardized tests used to measure performance. There has also been causal research showing restrictive immigration enforcement policies such as 287(g) agreements or the Secure Communities program reduce achievement of Hispanic students in English Language Arts (Bellows, 2019), decrease attendance (Bellows, 2021), and displace Hispanic students (Dee and Murphy, 2019). But because these programs are a very different kind of enforcement practice, these findings cannot be easily generalized to the context of workplace raids. Similarly, research on the impact of traumatic events on children suggests that workplace raids could significantly hinder cognitive performance (Sharkey, 2010; Sharkey et al., 2012, 2014) and influence educational outcomes (Cabral et al., 2022; Ang, 2021; Kirksey and Sattin-Bajaj, 2023) but provides differing evidence of the duration of these effects. Therefore, this research answers important questions about a relatively understudied immigration enforcement practice: Do workplace raids have negative academic effects on Hispanic children? How do these compare to the effects that have been documented for different restrictive immigration policies such as Secure Communities and 287(g) agreements? And, do these effects fade as quickly as some research on trauma and cognitive performance might suggest?

In this article, I used data from standardized tests in Texas to present causal evidence that exposure to a workplace immigration raid lowers academic performance. Using difference-in-difference and triple difference strategies, I find a workplace raid conducted in Allen, Texas led to a 7 to 10 percentage point decrease in the combined math and reading passing rates and a 33 to 44 point decrease in scores. In addition, I find schools close to the raid experienced larger drops in performance but do not find strong evidence that interruptions to schooling fully account for the performance decrease.

These results complement existing research on the spillover effects of immigration enforcement, providing additional evidence that the impact of enforcement and removal operations is not confined to those deported but can also affect Hispanic children in the community. In addition, this research illustrates how a shock in the neighborhood or family environment can reverberate through other social institutions, affecting the child's academic performance and potentially creating long-lasting disruptions to their educational trajectory. The findings thus lay bare the precarious journey children of immigrants must navigate as they transition to adulthood. Not only are they more likely to experience shocks in their neighborhood and family environment but, because the schools they attend are also likely to have limited resources, the institution might do little to prevent these shocks from impacting their education. Finally, I detect these effects on tests administered 40 days after exposure to the raid, indicating the negative impacts of a raid persist for longer than previous research would have suggested (Sharkey, 2010). By demonstrating Hispanic children in Allen did not readily "bounce back" from the stress of the event, this research shows the humanitarian costs of workplace raids are not only steep but also enduring. It also clarifies that the speed at which children recover from traumatic shocks remains an open question, suggesting more research must be done to understand why the effects of certain stressors last for longer than others.

This work can give educators insights into the potential short-term effects of the raid and inform practices set in place by school districts to allow for a better coordination among the school, family, and neighborhood institutions. In the wake of a large-scale immigration enforcement, schools could direct additional resources towards Hispanic students in order to compensate for the shock caused by the operation, potentially helping lessen a longer-term achievement gap. In addition, state and district administrators can grant leniency when assessing the academic performance of affected schools to determine their ratings, just as the Texas Education Agency did throughout the COVID-19 pandemic (Texas Education Agency, 2020b).

Despite these contributions, there are several limitations to the study. First, although I find strong effects among Hispanic students in Allen ISD, particularly in schools closer to the raid, I am unable to determine why these students are affected. One possibility is that Hispanic students experience cognitive effects due to being afraid for their safety and well-being. Because Hispanic students in Allen might have similar demographic, socioeconomic, and immigration status characteristics as the people arrested in the raid, they might identify themselves with those affected by the operation and experience stress and fear as a result. For example, studying the effect of neighborhood shootings on cognitive performance, Sharkey (2010) finds decreases in the scores of of black but not Hispanic students. He hypothesizes the homicides may have been less salient or threatening for Hispanics because the victims were majority black.

If Hispanic students are impacted because they identify with workers affected by the raid and are afraid of facing similar enforcement, the immigration status of the student would seem likely to play an important role in how they relate to the event. Although violence such as a shooting in one's neighborhood can create a general feeling of danger, aggressive immigration enforcement might only threaten those in a precarious immigration status. However, the majority of Hispanic children in Texas are U.S. citizens, so it is unlikely that the effects I find are driven solely by undocumented students. To be sure, previous research has already shown workplace raids can affect the health of U.S.-born Hispanic women, increasing their risk of low birth weight despite being safe from deportation (Novak et al., 2017), but it is unclear why we find such results. One possibility is that Hispanic students living in communities close to the raid might have known someone impacted by the operation. This can affect their academic performance directly—perhaps because they had to miss school or had other disruptions in their class and homework schedule—or indirectly by causing stress and worry about family members and friends at risk of deportation. Alternative, because Hispanic students' ethnicity and national origin still make them subject to racialized exclusion and can shape other people's perception of their legality (Flores and Schachter, 2018), a workplace raid can instill fear and stress even if they are documented. This could explain why previous research finds evidence of widespread fear of immigration enforcement among Hispanic students, even among those who are U.S. citizens (Capps and Cardoso, 2020). Although public TEA data did not allow me to consider the national origin or immigration status of Hispanic students and their parents, it would be useful for future research on immigration enforcement and academic performance to take these factors into consideration.

A second limitation is that, because of disruptions related to the COVID-19 pandemic, I could not explore how the impact of workplace raids on Hispanic students' performance changed in later testing years. Understanding how the effects of a raid change over time is particularly relevant given that the results I find from 40 days after a raid and those documented by Kirksey and Sattin-Bajaj (2023) from eight months after a raid deviate from previous research showing adverse effects of local homicides on adolescents' attention fade after a week to 10 days (Sharkey, 2010). Although I can only speculate about why these findings diverge, there are some important differences in these studies that should be taken into account. First, the studies measure considerably different outcomes. The data used in Sharkey's (2010) research are from vocabulary and reading assessments conducted by the Project on Human Development in Chicago neighborhoods that are meant to capture cognitive skills, whereas the STAAR assessments are designed to measure learning and skills developed throughout the academic year. Thus, although we might expect cognitive skills to return to pretreatment levels once a child's acute stress subsides, if that same acute stress response affects the child's ability to pay attention in class or the raid increases absenteeism (Heinrich et al., 2023), it might affect their standardized scores later if they couldn't learn information and skills relevant to the test. In addition to differences in the assessments, a local homicide and a workplace raid are also very different treatments in kind and magnitude. Although the effects of local homicides might abate quickly, other kinds of violence such as school shootings have enduring effects on students, impacting long-run outcomes in high school completion, college enrollment, and earnings (Cabral et al., 2022). Although

it's impossible to compare the experience of homicide to that of detainment and deportation, there were significantly more people impacted by the raid in Allen than the number involved in an average local homicide, which could potentially create more enduring consequences on academic performance. Finally, workplace raids could be seen as a more prolonged stressor because the ongoing use of this tactic could cause children to experience stress, fear, and anxiety about potential raids in the future. In all, it might be the case that children do "bounce back" from cognitive effects experienced in the immediate aftermath of the raid but only gradually recover from (1) falling behind academically and (2) the fear and anxiety of future immigration enforcement. This explanation would be consistent with previous work showing effects of violence on GPA fade over time but persist for over two years (Ang, 2021) and with the fact that effects documented eight months after the raid (Kirksey and Sattin-Bajaj, 2023) are significant but smaller than the ones I identify here.

These limitations notwithstanding, these findings provide concrete evidence that workplace raids don't just target undocumented workers but have harmful effects on children in the community, including those with legal standing in the country. Although deportations of any kind are likely to impact the families and communities of undocumented immigrants, the militaristic and large-scale nature of work-site raids might be particularly traumatic and cause the large and enduring spillover effects I detect in these analyses. Understanding the social implications of this enforcement tactic can guide the priorities and guidelines set out by immigration enforcement agencies and inform policies to safeguard children if the practice becomes reinstated. In addition, the findings help illuminate the links between traumatic events and education, showing how exposure to immigration enforcement actions can have significant implications for child development and broader social inequality.

Notes

- 1 Secure Communities is a data-sharing program under which fingerprint records submitted to the FBI are automatically forwarded to the Department of Homeland Security (DHS) to match against its immigration databases. If a match occurs and the person is found to be unlawfully present in the United States, ICE can issue a "detainer" to keep the individual in custody until they can begin removal proceedings.
- 2 Dee and Murphy (2019) suggest the effects of immigration enforcement on displacement of Hispanic students grows monotonically over time.
- 3 287(g) agreements require the state and local officers to receive training and work under the supervision of ICE to identify, process, and detain immigration offenders they encounter in daily law-enforcement activities.
- 4 House Bill 1842 in Texas allows the state to close school districts or replace school board members with state-appointed managers if schools fail to meet accountability standards for multiple years (Evans, 2018).
- 5 In 2016, the state of Tennessee suspended testing for students in grades 3 through 8 due to problems with the testing material. In 2017, an entirely new exam was administered,

making any comparisons to earlier years difficult. This would have given me only one year of preraid data to conduct the analysis.

- 6 Due to the COVID-19 pandemic, all state-mandated annual academic assessment requirements were cancelled, so I am not able to study scores from 2020 (Texas Education Agency, 2020a).
- 7 Following federal standards issued in 2010, the TEA collects information about race and ethnicity separately. However, for the purposes of aggregate reporting, racial groups (African American, American Indian, Asian, Pacific Islander, white, and multiracial) do not include students of Hispanic ethnicity (Texas Education Agency, 2009).
- 8 The data and code for these analyses can be accessed in the replication package.
- 9 The TEA enrollment data I use exclude students who are served for less than two hours per day (e.g., students from a private school who receive an hour of speech therapy from a school in Allen ISD every week). This measure is described by the TEA as student "membership."
- 10 I selected households in the 2019 ACS located in Collin County where the head of the household was employed. I weighted the commuting time average using weights assigned by the Census.
- 11 A drop in passing rates is relevant insofar as failing a standardized test can have longrun effects on a student if they are held back a year or on schools if their funding and accountability scores are connected to student performance.
- 12 Kirksey and Sattin-Bajaj (2023) use student-level data that match each student's score to a percentile rank. The school-level data I use do not contain percentile rank information, so I use results from the estimation of Equation 3 and Equation 5 to estimate the scaled scores Hispanic students in Allen would have received in the absence of a raid and use TEA conversion tables (see Figures C.11 and C.12 in the online supplement) to match the observed and predicted scaled scores to a percentile rank. Because not all average scaled score values are present in the table, I use linear interpolation to fill in missing values.
- 13 Because the data I use are at the school level, I rely on the scaled-score descriptive statistics issued by the TEA which provide the standard deviation for scaled scores within subject and grade level (see Figure C.13 in the online supplement) and divide the results from Table B.1 by the corresponding SD values.

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