



WORKING PAPER

Disciplining Disability: The Relationship Between Inclusion and Disciplinary Outcomes for Students with Disabilities

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ABSTRACT

Students with disabilities (SWDs) are more likely to be suspended or expelled than their general education peers. This study examines the relationship between disability type, educational setting, and disciplinary outcomes, using five years (2012-13 to 2016-17) of student-level data for all special education students in Michigan. I find that males, economically disadvantaged students, underrepresented minorities, and students with emotional impairments or other health impairments are at higher risk of disciplinary referrals and suspensions. Using within-student variation, I find that inclusive educational settings are associated with fewer disciplinary incidents. However, these apparent benefits only accrue to certain groups of students, in particular, students with emotional impairments, males, White/Asian students, and non-economically disadvantaged students. Further, these overall results were driven by students who transitioned from more to less inclusive settings experiencing more disciplinary referrals and suspensions after these moves. Implications for policy and practice are discussed.

Keywords: student discipline, special education, suspensions, inclusion, disproportionalities

1. INTRODUCTION AND BACKGROUND

According to a report by the U.S. Department of Education's Office for Civil Rights (2018), in 2015-16, students with disabilities (SWDs) made up about 12% of the student population, but 28% of referrals to law enforcement or school-related arrests, 26% of students receiving one or more out-of-school suspension (OSS), and 24% of students expelled. Several studies have documented disparities in the rate of suspensions for SWDs relative to their general education peers (GENs) (Anderson & Ritter, 2017; Leone, Mayer, Malmgren, & Meisel, 2000; Losen & Gillespie, 2012; Ritter & Anderson, 2018; Sullivan, Klingbeil, & Van Norman, 2013; Vincent, Sprague, & Tobin, 2012; Zhang, Katsiyannis, & Herbst, 2004). Similarly, students in special education tend to receive greater numbers of disciplinary infraction referrals (Rocque & Paternoster, 2011).

Exclusionary discipline of SWDs is problematic because it limits learning opportunities for students who already have academic challenges, and exclusionary discipline is associated with poor academic achievement (Anderson, Ritter, & Zamarro, 2019; Beck & Muschkin, 2012; Cobb-Clark, Kassenboehmer, Le, McVicar, & Zhang, 2015; Kinsler, 2013; Noltemeyer, Ward, & Mcloughlin, 2015). Given concerns about the school-to-prison pipeline, in which suspended students are more likely to enter the juvenile justice system or be incarcerated (Christle, Jolivette, & Nelson, 2005; Fabelo et al., 2011), disciplinary exclusion of SWDs may contribute to their overrepresentation in the juvenile justice system as well (Coalition for Juvenile Justice, 2001; Kim, Losen, & Hewitt, 2010). Estimates of the proportion of youth in the juvenile corrections system with a disability

range from about 30% to 70% (Quinn, Rutherford, Leone, Osher, & Poirier, 2005).

While these disproportionalities are well documented, less is known about the source of these gaps, including whether they are driven by differential rates of student misbehavior, differential treatment by adults, or other factors. One state-wide analysis from Arkansas finds that students receiving special education services are about 18 percentage points more likely to receive exclusionary discipline than their general education peers, even controlling for school fixed effects, the type of behavior, and behavioral history, suggesting that differences in student behavior is not driving all of the SWD-GEN Discipline gap (Anderson & Ritter, 2017).

While the relationship between disability type and behavioral outcomes has been widely studied, another remaining gap in the literature is an understanding of how the educational setting – in particular, the degree to which SWDs are educated in a general education classroom – are related to behavioral outcomes. This is an important open question, because these stark discipline disproportionalities raise doubts about the extent to which schools are providing SWDs with a “free and appropriate education” (FAPE) in the “least restrictive environment” (LRE), in compliance with the Individuals with Disabilities Education Act (IDEA), and in particular, whether the behavioral supports available to SWDs are adequate (Wald & Losen, 2003).

Understanding how educational setting plays a role in these disproportionalities is one critical piece for designing programmatic or policy-based solutions, so the goal of this study is to determine how educational setting relates to discipline outcomes, and to determine whether educational setting may differentially affect various groups of SWDs. In

general, SWDs might be more disruptive in a general education classroom if they are not getting as much opportunity for one-on-one attention and help from their teacher(s). On the other hand, inclusion might make SWDs feel more accepted and less isolated, which could improve behavioral outcomes. Of course, whether inclusion leads to better or worse behavioral outcomes for students may be related to disability type as well. For example, general education teachers, may be less prepared to monitor, regulate, and support the behavior of students with emotional and/or behavioral disorders (EBD). Similarly, students with Attention Deficit Disorder (ADD) may exhibit behaviors that are viewed as disruptive or defiant by classroom teachers, and students with specific learning disabilities (SLD) may have behavioral issues in class as a result of feeling stigmatized by their learning challenges within a general education classroom.

This study examines the relationship between educational setting and student disciplinary outcomes, using five years of student demographic data and discipline incident data from 2012-13 to 2016-17 for all students identified as receiving special education services in Michigan's K-12 public schools. While the relationship between disability type and behavioral outcomes has been studied, the key contribution of this study is the use of student fixed effects to help account for unobservable student heterogeneity. While some have used this approach to estimate the impact of educational setting on student achievement (Hanushek, Kain, & Rivkin, 2002), the application of this approach to social and behavioral outcomes for SWDs is particularly novel. In addition, I have detailed disciplinary data including infraction and consequence types, which allows for a more nuanced assessment of the issues than previous studies (Achilles, McLaughlin, & Croninger,

2007; Bowman-Perrott et al., 2013; Fabelo et al., 2011; Krezmien, Leone, & Achilles, 2006; Sullivan, Van Norman, and Klingbeil, 2014).

Michigan is a particularly relevant context in which to study these issues given the state's recent identification as the only state in the nation – in addition to the District of Columbia – in need of intervention for failing to meet the Individuals with Disabilities Education Act (IDEA) requirements for individuals age 3-21 (U.S. Department of Education, 2018). Michigan's SWDs experience high drop-out rates (29%), low graduation rates (63%) and poor academic achievement (Chambers, 2018). Given that exclusionary discipline is predictive of poor academic achievement (Anderson et al., 2019; Beck & Muschkin, 2012; Cobb-Clark et al., 2015; Kinsler, 2013; Noltemeyer et al., 2015), grade retention and drop-out (Anderson et al., 2019; Balfanz, Byrnes, & Fox, 2014; Carpenter & Ramirez, 2007; Chu & Ready, 2018; Fabelo et al., 2011; Suh & Suh, 2007; Swanson, Erickson, & Ritter, 2017), it is possible that discipline of Michigan's SWDs may be contributing to these disturbing statistics.

I find that students are less likely to receive disciplinary referrals and be suspended during years in which they are in the general education classroom 80% or more of the day (i.e., mainstreamed), relative to when they are in less inclusive settings. These apparent benefits of inclusion accrue for students with emotional impairments, males, White and Asian students, and non-economically disadvantaged students, which has important implications for designing policies aimed at addressing discipline disproportionalities. I also test whether these apparent benefits of inclusion accrue to students experiencing a variety of different types of educational setting changes (e.g. moves to more or less inclusive

settings). These results indicate that students who were transitioning from more to less inclusionary settings experienced more disciplinary referrals and suspensions after these moves, but that students experiencing different types of transitions did not have fewer referrals and suspensions when in more inclusive settings.

This work has important implications for the IDEA's requirement for schools to provide a "free and appropriate education" (FAPE) in the "least restrictive environment" (LRE) meaning that, to the extent possible, SWDs should be educated alongside non-disabled students. In particular, the finding that the apparent disciplinary benefits of inclusion – if causal – are only accruing to certain groups of students indicates a need to further understand the mechanism driving these benefits and the need for policy supports to expand the benefits to other groups.

1.1 BACKGROUND ON IDEA AND STUDENT DISCIPLINE

Prior to the IDEA Amendments in 1997 and 2004, educators lacked clarity about how, legally, to discipline students with disabilities. Beginning in 1997, IDEA stipulated that schools can remove a student for misconduct for up to 10 school days as long as the removal did not constitute a pattern of removal. A student cannot be removed for longer periods for behavior that was determined a manifestation of his disability. The 1997 amendments also allowed removal to an interim alternative educational placement for up to 45 days for students who possess a dangerous weapon or illegal drugs at school (U.S. Department of Education, 1999).

The 2004 reauthorization further clarified discipline policy for SWDs. In particular,

IDEA 2004 emphasized the use of positive behavioral interventions and supports while also expanding the authority of school officials in disciplining SWDs, allowing administrators to consider “any unique circumstances on a case-by-case basis” (Individuals with Disabilities Education Act, 2004, § 300.530).

The 2004 reauthorization also clarified that SWDs committing serious offenses such as drug possession, weapon possession, or infliction of serious bodily injury on another person may be removed to an interim alternative educational setting (IAES) for up to 45 school days, regardless of a manifestation determination. For lesser violations, IDEA allows school personnel to suspend SWDs out-of-school for no more than 10 school days. If the removal is for more than 10 days, or if there is a series of removals that constitutes a pattern,¹ a manifestation determination is required (Ryan, Katsiyannis, Peterson, & Chmelar, 2007). If the behavior is determined to be a manifestation of the disability, the educational placement cannot be changed without either parental consent or the normal process for modifying an Individualized Education Program (IEP). Moreover, if a determination is made, the IEP team must conduct a functional behavioral assessment (FBA), if not recently done, and create or modify an existing behavior intervention plan (BIP).

For suspensions longer than 10 days, the student is entitled to educational services

¹ IDEA states in §300.536 that a pattern would exist: when 1) “the series of removals total more than 10 school days in a school year”, 2) “the child’s behavior is substantially similar to the child’s behavior in previous incidents that resulted in the series of removals,” and 3) when there are “such additional factors as the length of each removal, the total amount of time the child has been removed, and the proximity of the removals to one another.”

that will enable academic progress through the general education curriculum, address the undesirable behavior, and fulfill the goals of the student's IEP.

2. LITERATURE REVIEW

2.1 DISCIPLINE DISPROPORTIONALITIES FOR STUDENTS WITH DISABILITIES

Concerns about exclusionary discipline are commonly expressed in the educational community, particularly with respect to students of color and SWDs. The overrepresentation of SWDs in suspensions, expulsions, and referrals to law enforcement/school-related arrests (U.S. Department of Education, 2018) raises concerns about whether SWDs are accessing a “free and appropriate education” (FAPE) in the “least restrictive environment” (LRE), in the full spirit of the Individuals with Disabilities Education Act (IDEA).

Over-reliance on exclusionary discipline for SWDs is of concern because suspensions may be less effective for students with particular needs such as those with behavioral and emotional disabilities (Krezmien et al., 2006) or problems with aggression, hyperactivity, and social skills (Atkins et al., 2002). In addition, given that students with emotional and behavioral disabilities also struggle academically (Kutash & Duchnowski, 2004), exclusion from educational opportunities is of particular concern. Even ISS, which is arguably less exclusionary than OSS or expulsion, may not be an effective response to misbehavior, as the quality of ISS differs greatly from district to district, ISS supervisors are often paraprofessionals without adequate training to work with at-risk students (Adams, 2000), and ISS is still correlated with poor academic outcomes (Anderson et al., 2019; Noltemeyer et al., 2015).

2.2 DISABILITY TYPE AND DISCIPLINE OF SWDS

Disability might influence a student's risk of exclusionary discipline in several ways. First, manifestation of a disability such as EBD might affect a student's ability to regulate her own behavior. This is concerning because students with EBD require intensive and consistent interventions, and disruptions due to discipline referrals may impact their academic success (Krezmien et al., 2006).

Moreover, educational structures, resources, and context might affect the likelihood of students with EBD being involved in the disciplinary system. Students with EBD may be less likely to be assigned to high quality, certified teachers. Growth in special education rates over time and a shortage of teachers to fill these positions led many school districts to rely on emergency licensure or alternative certification to fill special education teacher vacancies, with this stop-gap strategy being applied disproportionately for students with EBD (Katsiyannis, Zhang, & Conroy, 2003). Accordingly, Billingsley, Fall, and Williams (2006) compared the characteristics of teachers of students with EBD to other special education teachers and found that those teaching students with EBD were younger, less experienced, less likely to be fully certified, and more likely to be certified through an alternative route. Similarly, Henderson, Klein, Gonzalez, & Bradley (2005) found that teachers who primarily served students with EBD were less likely than other special education teachers to have a master's, less likely to be fully certified, and more likely to have an alternative certification credential. Many studies have indicated that students with EBD are viewed by teachers as the most difficult and/or stressful to include in the general education classroom (Avramidis et al., 2000; Heflin & Bullock, 1999; Soodak, Powell, & Lehman, 1998; Yell, 1995). In addition,

some have raised concerns about whether including students with EBD in a general education classroom actually provides them the full intended benefits of inclusion such as opportunities for social interaction (Heflin & Bullock, 1999).

Students with other health impairments (OHI), defined by the Michigan Department of Education (2018) as “limited strength, vitality or alertness, including a heightened alertness with respect to environmental stimuli, which results in limited alertness with respect to the educational environment,” may also be at higher risk for involvement in the school disciplinary system. OHI includes, for example, attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD), which are associated with absenteeism, lower grade point averages, and course failure (Kent et al., 2011). Students labelled with ADD/ADHD may appear off-task, non-compliant, aggressive, impulsive, or may exhibit an inability to listen, sustain attention, or complete assignments (Al-Yagon, 2016; Tarver, Daley, & Sayal, 2014; Wehmeier, Schacht, & Barkley, 2010), putting them at a higher risk for disciplinary referrals. Students with ADHD in one Virginia school district were about seven times more likely to receive a suspension or expulsion (LeFever, Villers, Morrow, & Vaughn, 2002).

While the Michigan data used here do not indicate precisely what share of students with OHI are diagnosed with ADD/ADHD, according to the National Survey of Children’s Health (Centers for Disease Control and Prevention, n.d.), over 11% of parents of Michigan 4-17 year-olds indicated their child was currently diagnosed with ADHD. Although a large portion of these students are apparently not receiving special education services for ADHD (because only OHI only represents about 12.8% of all SWDs), it is reasonable to suspect that

a large share of the students with OHI are those with ADD/ADHD-related needs.

It is also possible that students with certain disability types may act differently if they have adverse feeling towards school or low student engagement. For example, students with learning disabilities in inclusion classrooms report more feelings of loneliness and are less popular than their classmates without disabilities (Pavri & Luftig, 2000). Similarly, in a study of middle schoolers in New York City, students with EBD and OHI were less likely than their GEN peers to feel included with peers (Stiefel, Shiferaw, Schwartz, & Gottfried, 2018). It is possible that students may be more likely to exhibit undesirable behaviors in an environment where they feel excluded or otherwise uncomfortable.

Indeed, some studies have assessed the likelihood of disciplinary issues, by disability type. Sullivan et al. (2014) used data from 39 schools in a single Midwestern district. They accounted for the nesting of students within schools using hierarchical generalized linear models, exploring predictors such as disability type, age, gender, race, language status, socioeconomic status, and school-level characteristics. They found that students with EBD and OHI had higher rates of suspensions, but these relationships were attenuated when controlling for gender and race/ethnicity (Sullivan et al., 2014).

Achilles et al. (2007) and Bowman-Perrott et al. (2013) assessed within-group disparities in suspension among SWDs using the Special Education Elementary Longitudinal Study (SEELS) and found that students with EBD and attention-deficit/hyperactivity disorder (ADHD) – who make up a large proportion of students with OHI – were more likely to receive exclusionary discipline, relative to students with learning disabilities (LD).

In a study of seventh graders in Texas from 2000-2002, following them for at least

six years, Fabelo et al. (2011) found that, of the students who qualified for special education services, almost three quarters were suspended or expelled at least once, students with ED were especially likely to be suspended or expelled, and students with autism or mental retardation were considerably less likely to receive one of these types of exclusionary discipline, after controlling for other observable characteristics.

Similarly, Krezmien et al. (2006) used data for all public school students in Maryland from 1995 to 2003 and found that SWDs received more suspensions than GENs across all racial groups. Students with other health impairments (OHI) and learning disabilities (LD), especially African-American students, were at particularly high risk for suspensions. This led the authors to conclude that, while students with ED are understandably going to have behavioral problems, it appears that schools may be poorly managing behavior and/or not considering a student's disability when determining what type of disciplinary response to take. The authors suggested that when students respond to difficult academic tasks in disruptive ways, responding punitively might be counterproductive and reinforce negative behavior by making academic tasks more aversive (Krezmien et al., 2006).

In summary, a body of evidence suggests that students with ADHD/OHI, EBD, and at least in some cases, LD, are at higher risk of disciplinary referrals and suspensions (Achilles et al., 2007; Bowman-Perrott et al., 2013; Fabelo et al., 2011; Krezmien et al., 2006; Sullivan et al., 2014), while students with autism spectrum disorders or mental retardation may be at lower risk (Fabelo et al., 2011). Within the group of SWDs, those at highest risk appear to be those with ADHD/OHI and EBD, relative to other groups such as those with LD (Achilles et al., 2007; Bowman-Perrott et al., 2013; Sullivan et al., 2014).

2.3 EDUCATIONAL SETTING AND DISCIPLINE OF SWDS

The educational services provided to students in special education, and in particular the degree of inclusion of the student's education setting might have important implications for student discipline. The degree of inclusion relates directly to the LRE component of IDEA. Students have a legal right to remain in the most inclusive setting possible. The argument for LRE is based in part on the normalization principle (Dybwad, 1980), which argues for individuals with disabilities to have available all the same opportunities as non-disabled people. Some arguments for inclusion are that exposure to the general education curriculum could help students develop socially and feel more accepted and included (Ballard, Corman, Gottlieb, & Kaufman, 1977; Fitch, 2003).

While inclusiveness in special education has been a national trend, there is little empirical evidence that the practice is actually effective (Gilmour, 2018; Stiefel et al., 2018), and some in the education community have argued for improvements in the quality of inclusive education programs, particularly for students with severe disabilities (Downing & Peckham-Hardin, 2007). Some scholars have questioned whether general education teachers have adequate motivation and preparation to educate SWDs effectively (Kauffman, 1993; Kavale & Forness, 2000; Zigmund & Kloo, 2017), which could create opportunities for SWDs to develop or exhibit problematic behaviors. Many educators feel underprepared to meet the learning needs of students with exceptionalities (Scruggs & Mastropieri, 1996).

Early work found that students included in general education classrooms exhibit lower levels of self-esteem (Daniel & King, 1997), which may lead certain students to act

differently in an inclusive setting. More recent work, however, suggests that students' feelings of inclusion is not closely related to the degree of inclusiveness or exclusiveness of the student's educational setting, except that for students with low incidence (LI) disabilities, they actually felt more included when assigned exclusive services (Stiefel et al., 2018).

Inclusion with GENs might help children with disabilities learn pro-social behaviors, at least for young children (Buisse & Bailey, 1993). This implies that positive behaviors might be learned through inclusion in general education settings. On the other hand, Daniel and King (1997) found that students in more inclusive settings exhibited more behavioral problems than their peers in non-inclusion classrooms, based on the Child Behavior Checklist (CBCL).

While the literature does not provide a definitive answer on the influence of exclusion on behavior, even less is known about how educational settings or services are associated with student likelihood of disciplinary referrals for SWDs. In one study, Rea, McLaughlin, and Walther-Thomas (2002) find that among students with learning disabilities, those in inclusive classrooms received no more behavioral referrals (those that resulted in ISS or OSS) than students in a pullout program. Addressing this gap in the literature, the key contribution of the present study is to assess whether educational setting is associated with student risk of disciplinary referral and exclusionary discipline, and whether the influence of educational setting differs by disability type or other student characteristics, focusing on within-student estimation over time.

2.4 OTHER FACTORS THAT PREDICT SUSPENSION RISK

Many indicators such as race, gender, age, income status, and language status are correlated with suspension risk (Anderson & Ritter, 2017; Anderson & Ritter, 2018; Anyon et al., 2014; Barrett, McEachin, Mills, & Valant, 2018; Losen, Hodson, Keith, Morrison, & Belway, 2015; Losen & Skiba, 2010; Ritter & Anderson, 2018; Sartain et al., 2015; Skiba et al., 2014; Skiba et al., 2011; Skiba, Michael, Nardo, & Peterson, 2002). Therefore, controlling for these characteristics is important to estimate relationship between disability type, educational setting, and disciplinary outcomes.

3. DATA AND DESCRIPTIVE STATISTICS

I use five years of student demographic data and incident-level disciplinary records (from 2012-13 to 2016-17) for students identified as receiving special education services in the state of Michigan.² Descriptive statistics comparing the characteristics of student-year observations for students in special education, relative to students in general education, are available in Table 1. In Michigan, males, economically disadvantaged students, and Black/African American students – all groups who are already over-represented in the school discipline system – are over-represented among students receiving special education services. Students in special education are also less likely to be White or Asian and less likely to be identified as limited English proficient.

² 2017-18 data were also used to compare discipline outcomes for special education students and general education students in the first year these data were made available for general education. The results indicate that special education students are about 10 ppts more likely to receive at least one disciplinary referral, and about 8 ppts more likely to receive at least one out-of-school suspension, than their general education peers (controlling for gender, race/ethnicity, limited English proficiency, and school-by-grade fixed effects).

Table 1 also reports the frequency of each infraction type, consequence type, and disability type for SWDs. For the school years included in this study, schools were only required to report disciplinary data for students in special education.³ If additional incidents were reported for regular education students, they were dropped from these analyses. The disciplinary incident data include codes for one or more infraction type (alcohol, arson, bomb threats, firearms, illicit drugs, other weapons, tobacco, violence with injury, violence with no injury, and other).⁴ In some cases (approx. 0.2% of all disciplinary incidents reported), more than one infraction type is reported. Each incident reported indicates at least one consequence (expulsion, ISS, OSS, removal by hearing officer (to an alternative educational setting), and unilateral removal (to an alternative education setting). These two types of removals to alternative settings are rare and are combined for this analysis.

Students in some educational settings are likely at lower risk of involvement in a typical public school discipline system, so they are excluded from this analysis. In particular, I drop 3% of student observations for which the primary educational setting was either an early childhood program, homeschooling, hospitalization, correctional facility, private schooling, or other non-school setting. This results in keeping the 97% of observations in four more common school-based settings: a general education classroom 80% or more of the day (66% of SWD student-year observations), general education 40-79% of the day (15%), general education less than 40% of the day (11%), or a public or private

³ See footnote 2.

⁴ Originally there were twelve infraction type categories, but three categories of firearms (handguns, rifle or shotgun, and other gun) were consolidated into one firearm category.

special education school building at public expense (6%). For SWDs, educational placement decisions are made by the IEP team, which assesses the IEP at least once a year or as needed. The MDE (2004) provides guidance on determining the appropriate LRE for students. Notably, the MDE recommends that “education assignments are not to be based on the label describing the student’s disability or the availability of programs.” This means that the process of determining educational placement is likely very specific to particular students, rather than being based on exogenous factors such as the availability of various educational settings.

Table 1 shows the frequency of infraction types for this restricted set of students (those in the four most frequent educational settings) in Michigan. In about 0.2% of incidents, more than one infraction type is listed. For the purposes of reporting infractions, also in Table 1, each of these infraction types is reported separately, rather than combined into one incident. The most common type of infraction is the “other” category, which I refer to as other non-specified, to indicate that these were only coded as “other” in the data and are not a researcher-created category. These “other” infractions represent 81% of all infractions reported. The inability to separate this group of infractions into more specific categories is a key limitation, as the types of infractions included may differ by school and also over time. To limit the influence of this limitation, I use a variety of fixed effects⁵ to control for time-invariant factors including these types of reporting practices.

⁵ Depending on the model, either school-by-grade-by-year level fixed effects or both student and school level fixed effects.

More serious infractions occur less frequently: physical violence without injury (12.8%), physical violence with injury (2.3%), illicit drugs (1.2%), tobacco (1.1%), and other (non-firearm) weapons (0.9%). Low-incidence referrals such as alcohol, arson, bombs or similar threats, and firearms are particularly rare, and represent only about 0.5% of the total infractions in Table 1. It is important to note that only a select group of students are receiving disciplinary referrals. In any given year, less than 12% of the special education population receive one or more referral.

Table 1 also shows the frequency of disciplinary consequences, by type. I order these by the theoretical degree of exclusion (expulsion and removals to alternative settings as the most exclusionary, ISS as the least exclusionary). In some cases (approx. 2.3% of all disciplinary incidents reported), more than one consequence was reported, so in these instances, I code the consequence as the most exclusionary listed, following this hierarchy of exclusion: 1) Expulsion or Removal to Alternative Educational Setting (Either Unilaterally, or by a Hearing Officer)⁶, 2) OSS, and 3) ISS. For example, if an incident resulted in OSS and ISS, it was coded as OSS.

Finally, Table 1 shows the frequency of each student disability type. The most common disability types are specific learning disabilities (35.4%), speech and language impairment (21.1%), other health impairment (12.8%), cognitive impairment (10.4%), autism spectrum disorder (8.8%), and emotional impairment (6.3%). Severe multiple impairment is relatively rare (1.6%), and I group six categories of disabilities, each representing less than

⁶ Of the 144 removals to ALE in the total disciplinary dataset (including regular education students), 91 were by hearing officers, 52 were unilateral, and 1 listed both types of removal.

1.5% of the total, as “low-incidence” disabilities.⁷ The sum of the low-incidence disabilities represents only 3.6% of total student-year observations. Some categories have experienced large growth over time. In particular, OHI grew 19.6% over the five year period, and autism spectrum disorders grew 18.6% over the five year period. See Appendix Table A for the frequency of reported disability types by year and Appendix B for the definition of each disability type, from the Michigan Administrative Rules for Special Education (MARSE) (Michigan Department of Education, 2018).

As in Michigan, across the U.S., students with SLDs are the most common category of SWDs, representing 42% all students receiving special education services in the country (Cortiella & Horowitz, 2014). The more general term “learning disabilities” is often used interchangeably with “specific learning disabilities” (Pullen, Lane, Ashworth, & Lovelace, 2017). While this category experienced fast growth between 1976 and 2000, between about 2002 and 2011, the number of students identified with SLDs declined by 18 percent (Cortiella & Horowitz, 2014).

In the next section, I describe my analytic approach.

4. ANALYTIC METHODS

Before turning to the main analysis, which is focused on the relationship between educational setting and disciplinary outcomes, I first assess which groups of students are at higher risk for disciplinary referrals and consequence, because they are the most policy-

⁷ IDEA defines low-incidence as those that are expected at a rate of less than 1% of total statewide enrollment. I increased this to include hearing impairments (1.2% of total).

relevant groups, and the groups on which I will focus the main analyses. To determine what these policy-relevant groups are, I begin with a set of linear probability models⁸ that predict the likelihood of various discipline outcomes following:

$$y_{igst} = a_0 + a_1 disc_{it-1} + \mathbf{dis_type}_{it}\boldsymbol{\beta} + \mathbf{X}_{it}\boldsymbol{\rho} + \boldsymbol{\vartheta}_{gst} + \varepsilon_{igst} \quad (1)$$

The outcome variable, y_{igst} is one of several binary variables:

1. Whether student i had at least one disciplinary referral in year t
2. Separately, by infraction type: whether student i was referred for any of the five most common infraction types (other non-specified, violence without injury, violence with injury, illicit drugs, and tobacco), at least once in year t
3. Separately, by consequence type: whether student i received at least one consequence (expulsion, removal to an alternative placement, OSS, and ISS) in year t

Each of these outcome variables equals one if the student had at least one referral or consequence of that type, in year t and zero otherwise.

I include, $\mathbf{dis_type}_{it}$ a vector of disability types, with SLD as the reference group, based on the primary disability identified for student i in year t . Note, these disability types are not assumed to be exogenous. Descriptive multivariate regression analyses indicate that disability types are correlated with other observable characteristics of students that may also put them at higher risk for discipline. For example, older students, males, economically disadvantaged students, and students of two or more races are more likely to

⁸ In some cases, I was able to check these results using logistic regression as well, and the results are generally robust. Logistic regression was not possible within the student fixed effects models.

be identified as having an emotional impairment. Similarly, older students, males, and students of two or more races are more likely to be identified as having OHI. For this reason, it is important to attempt to isolate the correlation between disability type and outcomes, controlling for these other characteristics.⁹

I control for a students' prior discipline (and by proxy, the propensity for misbehavior in year t), by controlling for $disc_{it-1}$, a binary indicator that equals 1 if student i received at least one disciplinary referral in the prior year and 0 otherwise.

X_{it} is a vector of student characteristics including gender, race (separate indicators for Black/African-American, Hispanic/Latino, Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, and two or more races, with White as the reference category), limited English proficiency, economic disadvantage status, and separate indicators for each grade level.

Other school or grade-level factors might contribute to a student's risk of disciplinary involvement. Thus, I control for ϑ_{gst} , a set of grade-by-school-by-academic-year fixed effects to compare students only to their peers in the same grade, school, and year. This combination fixed effect accounts for the fact that there may be temporal or across-

⁹ In addition, males are more likely than females to be identified as having an emotional impairment (2 ppts), an autism spectrum disorder (8 ppts), or other health impairment (2 ppts), and less likely to be identified as having any of the other disability types. Limited English proficient students are more likely than their English-proficient peers to be identified as having a specific learning disability (7.5 ppts), speech and language impairment (4.5 ppts), a cognitive impairment (1.8 ppts), or a low-incidence disability (1.5 ppts). Economically disadvantaged students are more likely than their non-economically disadvantaged peers to be identified as having a specific learning disability (5.5 ppts), cognitive impairment (3.9 ppts), or emotional impairment (2.4 ppts). There are also some differences by race. Black students are more likely to be identified as having a specific learning disability or a cognitive impairment. Hispanic students are more likely to be identified as having a specific learning disability or a speech and language impairment. Results available by request.

grade variation in school quality, resources, etc., making it less likely these types of variation in school factors would bias the estimated relationships.

Finally, ε_{igst} is the idiosyncratic error term, clustered at the district level.

Alternatively, I could have clustered at the school level, but in many districts, particularly small ones, the determination of educational setting may be made at a district level, rather than at a school level, and when clusters are grouped within a higher level of cluster, it is generally preferred to cluster using the higher level, as long as a large number of clusters exists (Angrist & Pischke, 2008). In this case, there are over 900 district-level clusters in the analytic panel.

Next, to assess whether educational setting is associated with reported behavioral outcomes, I conduct a series of student fixed effects models that use within-student temporal variation in educational setting to estimate the relationship between educational setting and disciplinary outcomes. The student fixed effect approach helps control for the unobservable but time-invariant characteristics of students that might be correlated both with my variables of interest (educational settings) and outcomes (disciplinary referrals and consequences). In these models, I do not control for disability designation in specific years, and assume instead that the characteristics of the student's disability are largely time-invariant and thus accounted for in the student fixed effect.¹⁰

¹⁰ To address whether this assumption – that the influence of disability is relatively stable over time – is reasonable, I assess the frequency with which students' disability types are re-identified. Approximately 90% of students with disabilities had the same primary disability type in every year observed. Another 9% of students had one disability change, and 1% had two changes or more during the five year panel. Most of these changes occur in the elementary grades (62% of the changes were in grades 1-5).¹⁰ The majority of reported disability changes (54%) included SLD as one of the reported disability types, which might indicate that this category is sometimes used when an alternative diagnosis is not clear. This may provide further support for the

The student fixed effects linear probability models¹¹ follow:

$$y_{it} = a_0 + \mathbf{prim_ed_sett}_{it}\boldsymbol{\gamma} + \mathbf{X}_{it}^*\boldsymbol{\rho} + \boldsymbol{\sigma}_i + \boldsymbol{\pi}_s + \boldsymbol{\vartheta}_t + \varepsilon_{it} \quad (2)$$

where $\boldsymbol{\sigma}_i$ is a student fixed effect, \mathbf{X}_{it}^* is a vector of student characteristics that vary over time including grade level indicators, English language proficiency, and economic disadvantage, $\boldsymbol{\pi}_s$ is a school fixed effect to account for unobservable time-invariant characteristics of schools including things like community characteristics, resources, etc., which might influence the availability of various educational settings as well as student outcomes. To account for differences across schools over time, I also control for academic year fixed effects, $\boldsymbol{\vartheta}_t$. I include $\mathbf{prim_ed_sett}_{it}$, a vector of primary educational settings (in a general education classroom 40-79% of the day, in a general education classroom less than 40% of the day, or in a public or private special education school at public expense, with being in a general education classroom 80% or more of the day as the reference group).

In the student fixed effects models, only students who have variation in their educational setting during the panel will contribute to the estimates of the relationship between educational setting and disciplinary outcomes. About 23.4% of the students had at least one educational change, with about 15.0% of students having only one, 6.6% having two, and 1.8% having three or four changes during the five-year panel. These changes are a roughly equal mix of moves to less inclusive settings (51.6%) and to more inclusive settings (48.4%). Descriptive analyses of students who change educational setting indicate that they are somewhat different from other students. In particular, they are more likely to be

assumption that the particular disability label for a student is context-dependent, and thus, the use of student fixed effects may better account for the unobservable factors underlying those labels.

¹¹ Unfortunately, I was not able to check the student fixed effects models using logistic regression, due to the very high number of fixed effects.

economically disadvantaged, and they have larger numbers of disciplinary infractions on average. The students who have educational setting changes are also more likely to have cognitive impairments, emotional impairments, SLD, autism spectrum disorders, or OHI, but less likely to have speech and language impairments, severe multiple impairments, or low-incidence impairments.

In addition to estimating student fixed effects models across all students, I test for heterogeneous effects for a few key groups, as informed by the results from Equation (1). To protect against Type I error (false positives) across a large number of models, I adjust the p-values using the Benjamini-Hochberg (1995) false discovery rate correction, assuming a false discovery rate of 0.05.

5. RESULTS

5.1 PREDICTING REFERRALS AND CONSEQUENCES BY DISABILITY TYPE AND STUDENT

DEMOGRAPHICS

Before turning to the main models estimating the relationship between educational setting and disciplinary outcomes, I assess which students are the most policy-relevant groups by estimating which types of students are at higher risk of infraction referrals of various types, following Equation (1). Notably, SWDs are already at higher risk for disciplinary referrals and consequences than their otherwise similar GEN peers, so these analyses focus on estimating whether these gaps are driven by students with particular

disability types or other characteristics.¹² Specifically, I estimate linear probability models¹³ predicting one of several binary outcomes indicating whether a student received at least one of the following referrals: any referral, an other non-specified infraction, violence without injury, violence with injury, illicit drugs, and tobacco. These five types are the most common in the data. The reference disability type is SLD. To protect against Type I error across a large number of comparisons, the p-values in Table 2 have been adjusted using the Benjamini-Hochberg (1995) false discovery rate correction, assuming a false discovery rate of 0.05.

Table 2 indicates the importance of controlling for whether the student was disciplined at least once in the prior year. Across all models, prior year discipline referral was predictive of current year referral. Still, even controlling for this, disability type is related to risk of referral. Students with emotional impairments and OHI are at greater risk of referral than their otherwise similar peers with SLDs, across many infraction types, but particularly for other non-specified infractions. Students with emotional impairments are approximately 11 percentage points more likely and students with OHI are about 3.5 percentage points more likely than their peers with SLD to be referred for any infraction. Students with emotional impairments are also more likely to be referred for an other non-

¹² Michigan 2017-18 data were also used to compare discipline outcomes for special education students and general education students in the first year these data were made available for general education. The results indicate that special education students are about 10 ppts more likely to receive at least one disciplinary referral, and about 8 ppts more likely to receive at least one out-of-school suspension, than their general education peers (controlling for gender, race/ethnicity, limited English proficiency, and school-by-grade fixed effects).

¹³ In some cases, I was able to check these results using logistic regression as well, and the results are generally robust. Logistic regression was not possible for the student fixed effect models due to the large number of fixed effects.

specified infraction (10.1 ppts), violence without injury (3.6 ppts), and violence with injury (1.1 ppts), with a minimally higher risk of referral for tobacco (0.2 ppts). Students with OHI are more likely to be referred for other non-specified infractions (3.2 ppts), violence without injury (0.8 ppts), with minimally higher risk of referral for violence with injury and tobacco (0.2 ppts each). Students with other disability types such as cognitive impairments, speech and language impairments, severe multiple impairments, autism spectrum disorders, and low incidence disabilities receive referrals at rates lower than students with SLD.

Table 2 also indicates that males, economically disadvantaged students, Black students, Native American/Alaska native students, and students of two or more races, are also at higher risk of referral across some infraction types, with these disparities being the largest for males and Black students). Thus, Table 2 informs the subgroups of focus for the set of student fixed effect models in section 5.2.

Next, I use similar models to predict receipt of at least one disciplinary consequence, overall, and by type of consequence. As with the infraction outcomes, I estimate a set of regression models to assess which groups of students are at higher risk (Table 3), and then use this analysis to inform the policy-relevant students to focus on for the main models estimating the relationship between educational setting and disciplinary consequences in section 5.2.

In Table 3, as in Table 2, the coefficient on discipline in the prior year is positive across all models. Most notably, discipline in the prior year is associated with a 26.8 ppt higher likelihood of receiving at least one OSS in the current year, and a 9.6 ppt higher

likelihood of receiving at least one ISS in the current year. Most of the statistically significant disability type coefficients (following the Benjamini-Hochberg (1995) false discovery rate correction) are related to OSS and ISS outcomes. In general, as in Table 2, students with emotional impairments and OHI are at higher risk than their peers with SLD, in this case, for OSS and ISS. These two groups were not at higher risk for expulsion or removal to an alternative placement, relative to their peers with SLD but these outcomes are particularly rare across all groups of students. The largest gaps are for OSS; students with emotional impairment and OHI are about 11 ppts and 3 ppts more likely, respectively, to receive at least one OSS, relative to their peers with SLD. Other types of disabilities were associated with lower risk of OSS and ISS, relative to students with SLD. Students with cognitive impairments and autism spectrum disorder were also at a slightly lower risk for expulsion.

As in Table 2, Table 3 reiterates that males, economically disadvantaged students, and Black students are also at higher risk of involvement within the school discipline system, reiterating that these are some of the key subgroups on which to focus the next analyses assessing the relationship between educational setting and receipt of disciplinary consequences.

5.2 USING WITHIN-STUDENT VARIATION IN EDUCATIONAL SETTING TO PREDICT DISCIPLINARY REFERRALS AND CONSEQUENCES

Next, I present the results from a set of student fixed effects models that assess how educational setting is related to disciplinary outcomes, comparing across groups of students that differ across these important dimensions: race, gender, and economic

disadvantage. Table 4 shows the results of these student fixed effect models, following Equation (2), for all SWDs and by student subgroup. Relative to being in a general education classroom 80% or more of the day, less inclusive settings are associated with a similar or higher risk of disciplinary referral. The elevated risk of referral when in a less inclusive setting exists primarily for males, White and Asian students, and non-economically disadvantaged students in particular, and is never statistically distinguishable from zero for female students. There is not a statistically significant relationship between inclusion and discipline referrals for economically disadvantaged students and underrepresented minorities (non-White, non-Asian), except in limited instances. This indicates, perhaps, that the benefits of inclusion – if causal – do not accrue for traditionally underrepresented students like non-white non-Asian students and economically disadvantaged students. Similarly, these estimated relationships are generally only significant for more common outcomes, and are never statistically significant when predicting tobacco and drug referrals, which are relatively objective but also rarer.

I also assess whether the student fixed effects models estimate different results for students with different disability types, focusing on the most common disability type (SLD), and the two groups at higher risk for disciplinary referrals (students with OHI and emotional impairments). Given that a student's labelled disability type may change over time, I group students into disability types based on their first identified disability type. The results, in Table 5, indicate that students are at higher risk of disciplinary referrals, if anything, when in less inclusionary settings, but generally only for students with emotional impairments.¹⁴

Consistently, across all student subgroups (Table 4) and disability types (Table 5), students are at either a similar or higher risk of disciplinary referrals in years in which they are in less inclusionary settings, relative to when they are in the general education classroom 80% or more of the time. In no instance do I estimate that a more exclusionary setting was associated with a lower risk of referrals.

Table 6 and 7 show similar student fixed effects models, but predicting receipt of various consequences. Table 6 shows the results of student fixed effects models focusing on all SWDs, as well as subgroups by gender, race, and economic disadvantage. Within-student over time, there is very little association between educational setting and likelihood of receiving either an expulsion, a removal to an alternative placement, or ISS. However, SWDs, and in particular male students, White or Asian students, and non-economically disadvantaged groups, are more likely to receive OSS when in less inclusive settings,

¹⁴ I also estimated these models for students with speech/language impairments and cognitive impairments, and find no significant relationships for students with cognitive impairments, but that students with speech/language impairments sometimes have fewer referrals when in more inclusive settings.

relative to when they are in the general education classroom 80% or more of the time. This is similar to the results in Table 4, which indicated that these groups were at lower risk of referrals when in the most inclusive setting.

I present similar models by disability type in Table 7, again focusing on students with SLD, OHI, or emotional impairment. Similar to Table 5, inclusion is not related to discipline outcomes for students with SLD or OHI, but there is some evidence that students with emotional impairments are less likely to receive OSS during years in which they are in more inclusive settings.¹⁵

5.3 SENSITIVITY CHECKS

My student fixed effects models identify the relationship between educational setting and discipline outcomes using the change in educational setting for students who transition educational settings within the panel. Given that these transitions can be of different types (from more inclusive to less, or vice versa), and that changes in educational setting are not random, I also estimate the same models separately for students exhibiting different transition patterns. In addition, these models test for heterogeneity across these transition types. For example, students who transitioned to a more inclusive setting may have demonstrated ability to behave and perform well, leading to a transition.

Alternatively, those with more exclusive moves might experience feelings of stigmatization or isolation, which could trigger behavioral issues. Specifically, I estimate the relationship between educational setting and disciplinary outcomes for three groups of students: those

¹⁵ I also estimated these models for students with speech/language impairments and students with cognitive impairments, and found little relationship between educational setting and consequences except that students with speech/language impairments are more likely to receive at least one OSS when in a general education classroom 40-79% of the time (relative to being in the general education classroom 80% or more of the time).

whose transitions over the five-year panel were only to more inclusive settings, those whose transitions were only to less inclusive settings, and those who experienced a mix of more-inclusive and less-inclusive moves. This is similar to an approach taken by Hanushek et al. (2002) to identify the effects of special education on student achievement separately for those transitioning into and out of special education.

For these analyses, I focus on five of the most common outcomes: 1) receipt of at least one referral of any type, 2) receipt of at least one other non-specified referral, 3) receipt of at least one referral for violence without injury, 4) receipt of at least one referral for violence with injury, and 5) receipt of at least one OSS. The top panel represents the overall results from Table 4 and Table 6, which include all students, and the next three panels include sub-samples for each transition type. Students who never moved settings (n = 627,608) are excluded from the bottom three panels.

The results, in Table 8, indicate that the estimated relationships between educational setting and disciplinary outcomes in the top panel (for all students) are only statistically significant for the set of students who only had moves to less inclusive settings. These students were generally at lower-risk of other non-specified infractions, violence with injury infractions, and OSS consequences, when in the most inclusive setting. This suggests that the benefits of inclusion, if causal, may not accrue for students moving to more inclusive settings, and indicates that educators should use caution when choosing to move students to less inclusive settings.

I also test whether the results differ by grade span, by estimating some of the main models among students in K-5, 6-8, and 9-12 separately. The results in Tables 2 and 3 are

largely consistent across different grade bands.¹⁶ However, the results of the student fixed effect models, following Equation (2), significantly lose statistical power, when limited to grades K-5, 6-8, and 9-12. The student fixed effect models only identify the relationship between educational setting and discipline outcomes for students who change educational setting within the panel, so when splitting the sample in three ways, it further limits the number of students contributing to these estimates. Despite a lack of power, I report the results of these models in Appendix Table C. The only statistically significant relationships are for students in grades K-5, where I estimate that students are more likely to have referrals (overall, or violent infractions), and more likely to be suspended out of school, when in a public or private special education school at public expense, compared to years in which they are in a general education classroom at least 80% of the time. Given the limited power in these models, I am unable to draw any strong conclusions.

6. DISCUSSION AND POLICY IMPLICATIONS

I embarked on this study with the goal of estimating the influence of student disability, educational setting, and the interaction thereof, for students with disabilities. A key focus here is on the potential influence of inclusiveness on disciplinary outcomes, which has direct implications for IDEA's requirement to educate SWDs in the least restrictive environment. Estimating these relationships is complex given the great potential for selection bias into educational setting, which could be correlated with both severity of disability, and the likelihood of disciplinary outcomes. Therefore, one of the key

¹⁶ Results available from author by request.

contributions of this work is the use of within-student temporal variation in educational setting to describe how educational setting is related to disciplinary outcomes. In addition, I have more detail on the types of reported infractions and consequences than previous studies (Achilles et al., 2007; Bowman-Perrott et al., 2013; Fabelo et al., 2011; Krezmien et al., 20; Sullivan et al., 2014).

I began by presenting the results of models in which I find, consistent with prior work (Achilles et al., 2007; Bowman-Perrott et al., 2013; Sullivan et al., 2014), that students with other health impairments, a category which includes ADD and ADHD, and students with emotional impairments, are more likely to be referred for a variety of behavioral infractions, more likely to receive at least one OSS, and more likely to receive at least one ISS, relative to their similar peers with SLD. Notably, the elevated risk of disciplinary referrals for students with OHI and emotional impairments are largest for the other non-specified infractions, which may include a variety of minor and subjective infractions, and were either statistically indistinguishable from zero, or precisely estimated but very small, for some objective infractions such as possession of drugs or tobacco. This is perhaps good news for policymakers and educators seeking solutions to these gaps, if it is easier to design interventions that reduce the use of exclusionary discipline for non-violent and non-illegal infractions that could include things like classroom misconduct, insubordination, etc.

Then, in my preferred student fixed effects models, I find that students are less likely to receive disciplinary referrals in years in which they are educated in the general education classroom for 80% or more of the day, relative to some other less inclusive educational settings. These differences were largest in the common category of other non-

specified infractions, a category which could include a wide variety of behaviors, but likely not illegal or violent behaviors that are required to be reported separately. However, the potential benefit of inclusive settings does not accrue to all students, as these relationships are only statistically significant for students with emotional impairments, males, white and Asian students, and non-economically disadvantaged students.

Because there are many different types of educational setting changes, I test the results separately for those whose moves were always to less inclusive settings, always to more inclusive settings, or a mix of different types of moves. The results indicate that the estimated relationship (a potential benefit of inclusion in terms of both disciplinary referrals and receipt of OSS) are only statistically significant for students who had moves only to less inclusionary settings.

This could indicate a number of things occurred after moving to less inclusive settings: 1) these students had worse behavior, 2) they had similar - or even better - behavior but were more likely to be referred for disciplinary issues, or 3) some combination of worse behavior and higher likelihood of referral. Student behavior might worsen, for example, if a move to a less inclusive setting creates feelings of stigmatization, isolation, or lack of belonging, that in turn lead to lower engagement and misbehavior. In terms of educator behavior, it is possible that students misbehave at similar rates in both settings, but that in a general education classroom, a student may be in larger class where misbehaviors could go unnoticed and unreported, while in a less-inclusive setting, there could be more attention and scrutiny placed on individual students, leading to an increase in referrals. Unfortunately, a key limitation of these data is that I do not have validated

reports about actual student behavior and only observe the behaviors that are reported in the disciplinary system, so it is impossible to distinguish whether this higher risk of referral is due to differences in student behavior, differences in teacher/administrator reporting practices, or both. Notably, recent evidence indicates that teachers' expectations of social readiness for kindergarten is higher for general education teachers serving students with ED than general education teachers who do not have students with ED in their classrooms (Gottfried & Ansari, 2019), indicating that teacher expectations may also play a role and are an important area for future study.

These results should be considered when designing policy or interventions with respect to student discipline for SWDs. In particular, these results suggest that moving students to more inclusive settings would not necessarily reduce their likelihood of disciplinary referrals, and that if anything, educators should use caution when considering moving students into less inclusive settings. There remains a need to promote inclusive environments that allow truly meaningful social interactions for students. Inclusion requires much more than simply placing a student in a general education classroom, and principals can play an important role in promoting an inclusive environment within a school (Heflin & Bullock, 1999; MacFarlane & Woolfson, 2013). For example, "teachers are more willing to accommodate students in their classrooms when they perceive that their school administration fosters a supportive climate and when the culture of the school encourages teaming and collaboration" (Soodak et al., 1998, p. 483). Additionally, when teachers have preservice or in-service training focused specifically on the needs of SWDs, including behavior management, teachers have higher self-efficacy beliefs about their

ability to include SWDs in a general education environment (Brownell & Pajares, 1999), which is important because teachers with more positive attitudes about mainstreaming are more likely to use effective strategies as well (Bender, Vail, & Scott, 1995).

In addition, given that relatively advantaged groups (White or Asian students and economically advantaged students), as well as males, were the ones that benefit from inclusive settings, this suggests that, the benefits of inclusion – if causal – could actually increase disciplinary disproportionalities by race and economic disadvantage. This suggests a need to carefully consider how any potential benefits might be accruing, and how to expand these benefits to relatively underserved populations as well. For example, if the benefits of inclusion are accruing to male, White/Asian, and non-economically disadvantaged students because their misbehavior is more likely to go unnoticed in a general education classroom, this raises important concerns about why other groups are still at high risk of disciplinary referrals in the general education classroom. Therefore, further work should seek to understand how other factors – including, perhaps, educator implicit bias – might be influencing these outcomes.

While the results of this study provide useful information about the sources of variation in the risk of disciplinary referrals and consequences for SWDs, there are some limitations of this work. First of all, as mentioned previously, only reported behaviors are included. This makes it hard to distinguish between changes in student behavior and changes in policies, structures, or educator behaviors that are associated with risk of disciplinary referrals.

Similarly, because reporting of disciplinary incidents was only required for special education students in Michigan during this time period, I am also not able to compare the differences between years in which students are eligible for special education services or not, nor am I able to compare their outcomes to those of their general education peers.¹⁷

In addition, determining the best environment for a particular student and when to consider changing an IEP or educational setting is a complex decision. While these results inform one important aspect of that decision, the overall well-being of a student must be considered. Many in the special education community have noted that true inclusion is more than just educational placement, and that the type and quality of supports incorporated within the general education classroom is important (e.g., Bricker, 1995; Heflin & Bullock, 1999; Zigmond, Kloo, & Volonino, 2009). Therefore, the inability to fully understand the differences in educational environments is a limitation.

Another limitation is that I am not estimating the potential impacts of SWDs on their peers in a general education classroom. Some scholars have raised concerns about the lack of available evidence on the peer effects of SWDs in general education (Gilmour, 2018). Some studies have found that students who are exposed to classroom-level peers with emotional disorders have lower academic performance (Fletcher, 2010) and are more likely to be chronically absent (Gottfried, Egalite, & Kirksey, 2016). These studies are correlational rather than causal in nature, yet they also suggest that while the LRE requirement focuses on what is appropriate for the particular student and his “unique circumstances” (*Andrew F. v. Douglas County School District*, 2017), there may be other effects as a result.

¹⁷ See footnote 2.

Regardless of the type of educational settings and services specified in the IEP, educators may need to make additional efforts to reduce the overall gap in exposure to suspensions for SWDs. While students with emotional impairments are understandably at higher risk of behavioral issues in the learning environment, the existence of large gaps in suspensions for these students suggests, as Krezmien et al. (2006) also concluded, that schools need to do more to manage these behaviors and/or take into account a student's disability when determining the appropriate response to misbehavior.

There may be reason to be hopeful for the future of some of Michigan's SWDs. Detroit superintendent Nikolai Vitti recently announced a plan to improve outcomes for SWDs, in part by using individualized behavioral plans (Levin, 2018a). Under IDEA, these types of behavioral plans are required to be implemented or modified if a manifestation determination is made (Ryan et al., 2007). In addition, Detroit is focused on removing the practice of unofficial suspensions, whereby teachers sent misbehaving students home without documenting it as a suspension (Levin, 2018b). While the success of these efforts is yet to be determined, Michigan's recent designation as "Needs Intervention" by the U.S. Department of Education (2018) certainly suggests the need for significant, but carefully designed, improvements in special education policies and practices.

REFERENCES

- Achilles, G. M., McLaughlin, M. J., & Croninger, R. G. (2007). Sociocultural correlates of disciplinary exclusion among students with emotional, behavioral, and learning disabilities in the SEELS national dataset. *Journal of emotional and behavioral disorders, 15*(1), 33-45.
- Adams, A. T. (2000). The status of school discipline and violence. *Annals, AAPSS, 567*, 140-156.
- Al-Yagon, M. (2016). Perceived close relationships with parents, teachers, and peers: Predictors of social, emotional, and behavioral features in adolescents with LD or comorbid LD and ADHD. *Journal of Learning Disabilities, 49*(6), 597-615.
- Anderson, K. P., & Ritter, G. W. (2017). Disparate use of exclusionary discipline: Evidence on inequities in school discipline from a U.S. state. *Education Policy Analysis Archives, 25*(49). Retrieved from <http://dx.doi.org/10.14507/epaa.25.2787>
- Anderson, K. P., & Ritter, G. W. (2018). "Do School Discipline Policies Treat Students Fairly? Evidence from Arkansas." *Educational Policy*. Available at: <https://doi.org/10.1177/0895904818802085>
- Anderson, K. P., Ritter, G. W., & Zamarro, G. (2019). Understanding a Vicious Cycle: The Relationship between Student Discipline and Student Academic Outcomes. Working Paper.
- Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton: Princeton University Press.
- Anyon, Y., Jenson, J. M., Altschul, I., Farrar, J., McQueen, J., Greer, E., Downing, B., & Simmons, J. (2014). The persistent effect of race and the promise of alternatives to suspension in school discipline outcomes. *Children and Youth Services Review, 44*, 379-386.
- Atkins, M. S., McKay, M. M., Frazier, S. L., Jakobsons, L. J., Arvanitis, P., Cunningham, T., & Lambrecht, L. (2002). Suspensions and detentions in an urban, low-income school: Punishment or reward?. *Journal of abnormal child psychology, 30*(4), 361-371.
- Avramidis, E., Bayliss, P., & Burden, R. (2000). Student teachers' attitudes towards the inclusion of children with special educational needs in the ordinary school. *Teaching and Teacher Education, 16*(3), 277-293.

- Balfanz, R., Byrnes, V., & Fox, J. (2014). Sent home and put off-track: The antecedents, disproportionalities, and consequences of being suspended in the ninth grade. *Journal of Applied Research on Children: Informing Policy for Children at Risk*, 5(2).
- Ballard, M., Corman, L., Gottlieb, J., & Kaufman, M. J. (1977). Improving the social status of mainstreamed retarded children. *Journal of educational Psychology*, 69(5), 605.
- Barrett, N., McEachin, A., Mills, J. N., & Valant, J. (2018). *Disparities in student discipline by race and family income*. Education Research Alliance for New Orleans Technical Report. Retrieved from <https://educationresearchalliancenaola.org/files/publications/010418-Barrett-McEachin-Mills-Valant-Disparities-in-Student-Discipline-by-Race-and-Family-Income.pdf>
- Beck, A. N., & Muschkin, C. G. (2012). The enduring impact of race: Understanding disparities in student disciplinary infractions and achievement. *Sociological Perspectives*, 55(4), 637-662.
- Bender, W. N., Vail, C. O., & Scott, K. (1995). Teachers attitudes toward increased mainstreaming: Implementing effective instruction for students with learning disabilities. *Journal of Learning Disabilities*, 28(2), 87-94.
- Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: a practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society. Series B (Methodological)*, 289-300.
- Billingsley, B. S., Fall, A. M., & Williams, T. O. (2006). Who is teaching students with emotional and behavioral disorders? A profile and comparison to other special educators. *Behavioral Disorders*, 31, 252-264
- Bowman-Perrott, L., Benz, M. R., Hsu, H. Y., Kwok, O. M., Eisterhold, L. A., & Zhang, D. (2013). Patterns and predictors of disciplinary exclusion over time: An analysis of the SEELS national data set. *Journal of Emotional and Behavioral Disorders*, 21(2), 83-96.
- Bricker, D. (1995). The challenge of inclusion. *Journal of Early Intervention*, 19(3), 179-194.
- Brownell, M. T., & Pajares, F. (1999). Teacher efficacy and perceived success in mainstreaming students with learning and behavior problems. *Teacher Education and Special Education*, 22(3), 154-164.
- Buysse, V., & Bailey, D. B. (1993). Behavioral and developmental outcomes in young children with disabilities in integrated and segregated settings: A review of comparative studies. *The Journal of Special Education*, 26(4), 434-461.

- Carpenter, D. M., & Ramirez, A. (2007). More than one gap: Dropout rate gaps between and among black, Hispanic, and white students. *Journal of Advanced Academics*, 19(1), 32-64.
- Centers for Disease Control and Prevention. (n.d.) *State-based prevalence data of parent reported ADHD diagnosis by a health care provider*. Retrieved 08/29/2019 from <https://www.cdc.gov/ncbddd/adhd/prevalence.html>
- Chambers, J. (July 18, 2018). Michigan Education Dept. acknowledges it needs to improve special needs schooling. *The Detroit News*. Retrieved 09/19/2018 from <https://www.detroitnews.com/story/news/education/2018/07/18/state-ed-dept-says-special-ed-outcomes-below-target/793833002/>
- Christle, C., Jolivet, K., & Nelson, M. C. (2005). Breaking the school to prison pipeline: Identifying school risk and protective factors for youth delinquency. *Exceptionality*, 13, 69-88.
- Chu, E. M., & Ready, D. D. (2018). Exclusion and Urban Public High Schools: Short-and Long-Term Consequences of School Suspensions. *American Journal of Education*, 124(4), 479-509.
- Coalition for Juvenile Justice. (2001). *Abandoned in the Back Row: New Lessons in Education and Delinquency Prevention*. Retrieved 8/30/18 from http://www.juvjustice.org/sites/default/files/resource-files/resource_122_0.pdf
- Cobb-Clark, D. A., Kassenboehmer, S. C., Le, T., McVicar, D., & Zhang, R. (2015). Is there an educational penalty for being suspended from school? *Education Economics*, 23(4), 376-395.
- Cortiella, C., & Horowitz, S. H. (2014). The state of learning disabilities: Facts, trends and emerging issues. *New York: National center for learning disabilities*, 2-45.
- Daniel, L. G., & King, D. A. (1997). Impact of inclusion education on academic achievement, student behavior and self-esteem, and parental attitudes. *The Journal of Educational Research*, 91(2), 67-80.
- Downing, J. E., & Peckham-Hardin, K. D. (2007). Inclusive education: What makes it a good education for students with moderate to severe disabilities? *Research and Practice for Persons with Severe Disabilities*, 32(1), 16-30.
- Dybwad, G. (1980). Avoiding misconceptions of mainstreaming, the least restrictive environment, and normalization. *Exceptional Children*, 47(2), 85-88.

Endrew F. v. Douglas County School District. 580 U.S. ____ (2017).

Fabelo, T., Thompson, M. D., Plotkin, M., Carmichael, D., Marchbanks, M. P., & Booth, E. A. (2011). Breaking schools' rules: A statewide study of how school discipline relates to students' success and juvenile justice involvement. *New York: Council of State Governments Justice Center*. Retrieved 8/20/18 from http://csgjusticecenter.org/wp-content/uploads/2012/08/Breaking_Schools_Rules_Report_Final.pdf

Fitch, F. (2003). Inclusion, exclusion, and ideology: Special education students' changing sense of self. *The Urban Review*, 35(3), 233-252.

Fletcher, J. (2010). Spillover effects of inclusion of classmates with emotional problems on test scores in early elementary school. *Journal of Policy Analysis and Management*, 29(1), 69-83.

Gilmour, A. (2018). Has inclusion gone too far? *Education next*, 18(4), 8-16.

Gottfried, M., & Ansari, A. (2019). Raising the bar: Teaching kindergartners with emotional and behavioral disabilities and teachers' readiness expectations. *Early Childhood Research Quarterly*, 48, 75-83.

Gottfried, M. A., Egalite, A., & Kirskey, J. J. (2016). Does the presence of a classmate with emotional/behavioral disabilities link to other students' absences in kindergarten? *Early Childhood Research Quarterly*, 36, 506-520.

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2002). Inferring program effects for special populations: Does special education raise achievement for students with disabilities? *The Review of Economics and Statistics*, 84(4), 584-599.

Heflin, L. J., & Bullock, L. M. (1999). Inclusion of students with emotional/behavioral disorders: A survey of teachers in general and special education. *Preventing School Failure: Alternative Education for Children and Youth*, 43(3), 103-111.

Henderson, K., Klein, S., Gonzalez, P., & Bradley, R. (2005). Teachers of children with emotional disturbance: A national look at preparation, teaching conditions, and practices. *Behavioral Disorders*, 31, 6-17

Individuals with Disabilities Education Act of 2004, C.F.R. § 300.530.

Katsiyannis, A., Zhang, D., & Conroy, M. A. (2003). Availability of special education teachers: Trends and issues. *Remedial and special education*, 24(4), 246-253.

- Kauffman, J. M. (1993). How we might achieve the radical reform of special education. *Exceptional Children*, 60, 6–16.
- Kavale, K. A., & Forness, S. R. (2000). History, rhetoric, and reality: Analysis of the inclusion debate. *Remedial and Special Education*, 21, 279–296.
- Kent, K. M., Pelham, W. E., Molina, B. S. G., Sibley, M. H., Waschbusch, D. A., Yu, J., Gnagy, E. M., Biswas, A., Babinski, D. E., & Karch, K. M. (2011). The academic experience of male high school students with ADHD. *Journal of Abnormal Child Psychology*, 39(3), 451-462.
- Kim, C. Y., Losen, D. J., & Hewitt, D. (2010). *The school-to prison pipeline: Structuring legal reform*. New York: New York University Press.
- Kinsler, J. (2013). School discipline: A source or salve for the racial achievement gap? *International Economic Review*, 54(1), 355–383.
- Krezmien, M. P., Leone, P. E., & Achilles, G. M. (2006). Suspension, race, and disability: Analysis of statewide practices and reporting.
- Kutash, K., & Duchnowski, A. J. (2004). The mental health needs of youth with emotional and behavioral disabilities placed in special education programs in urban schools. *Journal of Child and Family Studies*, 13(2), 235-248.
- LeFever, G. B., Villers, M. S., Morrow, A. L., & Vaughn III, E. S. (2002). Parental perceptions of adverse educational outcomes among children diagnosed and treated for ADHD: A call for improved school/provider collaboration. *Psychology in the Schools*, 39(1), 63-71.
- Leone, P. E., Mayer, M. J., Malmgren, K., & Meisel, S. M. (2000). School violence and disruption: Rhetoric, reality, and reasonable balance. *Focus on Exceptional Children*: 33(1), 1-20.
- Levin, K. (July 25, 2018a). Here's how the Detroit district plans to fix 'glaring disparities' in special education. *Chalkbeat*. Retrieved 9/21/18 from: <https://chalkbeat.org/posts/detroit/2018/06/25/heres-how-the-detroit-district-plans-to-fix-glaring-discrepancies-in-special-education/>
- Levin, K. (July 23, 2018b). 'Unofficial suspensions' and 10 other reasons Detroit's main district is overhauling special education. *Chalkbeat*. Retrieved 9/21/18 from: <https://chalkbeat.org/posts/detroit/2018/07/23/unofficial-suspensions-and-10-other-reasons-detroits-main-district-is-overhauling-special-education/>

- Losen, D. J., & Gillespie, J. (2012). *Opportunities Suspended: The Disparate Impact of Disciplinary Exclusion from School*. Civil Rights Project/Proyecto Derechos Civiles. Retrieved 8/30/18 from <https://files.eric.ed.gov/fulltext/ED534178.pdf>
- Losen, D., Hodson, C., Keith, M., Morrison, K., & Belway, S. (2015). *Are we closing the school discipline gap?* The Civil Rights Project, UCLA.
- Losen, D. & Skiba, R. (2010). *Suspended Education: Urban Middle Schools in Crisis*. Report: The Civil Rights Project at UCLA, The Equity Project at the Indiana University Center for Evaluation and Education Policy, and the Southern Poverty Law Center.
- MacFarlane, K., & Woolfson, L. M. (2013). Teacher attitudes and behavior toward the inclusion of children with social, emotional and behavioral difficulties in mainstream schools: An application of the theory of planned behavior. *Teaching and teacher education, 29*, 46-52.
- Michigan Department of Education. (August 10, 2004). *Procedures for determining the least restrictive environment in accordance with the Individuals with Disabilities Education Act (IDEA)*. Retrieved 9/5/19 from <http://www.respectabilitylawcenter.com/docs/lre-procedures.pdf>
- Michigan Department of Education. (February 2018). *Michigan administrative rules for special education (MARSE) with related IDEA federal regulations*. Retrieved 9/10/18 from https://www.michigan.gov/documents/mde/MARSE_Supplemented_with_IDEA_Regs_379598_7.pdf
- Noltemeyer, A. L., Ward, R. M., & Mcloughlin, C. (2015). Relationship between school suspension and student outcomes: A meta-analysis. *School Psychology Review, 44*(2), 224-240.
- Pavri, S., & Luftig, R. (2001). The social face of inclusive education: are students with learning disabilities really included in the classroom?. *Preventing School Failure: Alternative Education for Children and Youth, 45*(1), 8-14.
- Pullen, P. C., Lane, H. B., Ashworth, K. E., & Lovelace, S. P. (2017). Specific learning disabilities. In J. M. Kauffman, Hallahan, D. P., & Pullen, P. C. (Eds.), *Handbook of Special Education, Second Edition* (pp. 249-261). New York, NY: Routledge.
- Quinn, M. M., Rutherford, R. B., Leone, P. E., Osher, D. M., & Poirier, J. M. (2005). Youth with disabilities in juvenile corrections: A national survey. *Exceptional children, 71*(3), 339-345.

- Rea, P. J., McLaughlin, V. L., & Walther-Thomas, C. (2002). Outcomes for students with learning disabilities in inclusive and pullout programs. *Exceptional Children, 68*(2), 203-222.
- Ritter, G. W. & Anderson, K. P. (2018). Examining disparities in student discipline: Mapping inequities from infractions to consequences. *Peabody Journal of Education*. Accepted author version online. Available at: <https://doi.org/10.1080/0161956X.2018.1435038>
- Rocque, M., & Paternoster, R. (2011). Understanding the antecedents of the " school-to-jail" link: The relationship between race and school discipline. *The Journal of Criminal Law and Criminology, 633-665*.
- Ryan, J. B., Katsiyannis, A., Peterson, R., & Chmelar, R. (2007). IDEA 2004 and disciplining students with disabilities. *NASSP Bulletin, 91*(2), 130-140.
- Sartain, L., Allensworth, E. M., & Porter, S. with Levenstein, R., Johnson, D. W., Huynh, M. H., Anderson, E., Mader, N., & Steinberg, M. P. (2015). *Suspending Chicago's Students: Differences in Discipline Practices across Schools*. The University of Chicago Consortium on Chicago School Research.
- Scruggs, T. & Mastropieri, M. (1996). Teacher perceptions of mainstreaming/inclusion, 1958-1995: A research synthesis. *Exceptional Children, 63*, 59-74.
- Skiba, R. J, Chung, C., Trachok, M., Baker, T., Sheya, A., & Hughes, R. (2014). Parsing Disciplinary Disproportionality: Contributions of Infraction, Student, and School Characteristics to Out-of-School Suspension and Expulsion. *American Educational Research Journal, 51*(4), 640-670.
- Skiba, R., Horner, R., Chung, C. G., Rausch, M. K., May, S., & Tobin, T. (2011). Race is not neutral: A national investigation of Black and Latino disproportionality in school discipline. *School Psychology Review, 40*(1), 85-107.
- Skiba, R., Michael, R., Nardo, A., & Peterson, R. (2002). The color of discipline: Source of racial and gender disproportionality in school punishment. *The Urban Review, 34*(4), 317-342.
- Soodak, L. C., Podell, D. M., & Lehman, L. R. (1998). Teacher, student, and school attributes as predictors of teachers' responses to inclusion. *The Journal of Special Education, 31*(4), 480-497.
- Stiefel, L., Shiferaw, M., Schwartz, A. E., & Gottfried, M. (2018). Who feels included in school? Examining feelings of inclusion among students with disabilities. *Educational Researcher, 47*(2), 105-120.

- Suh, S. & Suh, J. (2007). Risk factors and levels of risk for high school dropouts. *Professional School Counseling, 10*(3), 297-306.
- Sullivan, A. L., Klingbeil, D. A., & Van Norman, E. R. (2013). Beyond behavior: Multilevel analysis of the influence of sociodemographics and school characteristics on students' risk of suspension. *School Psychology Review, 42*(1).
- Sullivan, A. L., Van Norman, E. R., & Klingbeil, D. A. (2014). Exclusionary discipline of students with disabilities: Student and school characteristics predicting suspension. *Remedial and Special Education, 35*(4), 199-210.
- Swanson, E., Erickson, H. H., & Ritter, G. W. (2017). Examining the impacts of middle school disciplinary policies on 9th grade retention. EDRE Working Paper 2017-11. Retrieved from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2952972
- Tarver, J., Daley, D., & Sayal, K. (2014). Attention-deficit hyperactivity disorder (ADHD): An updated review of the essential facts. *Child: Care, Health & Development, 40*(6), 762-774.
- U.S. Department of Education (March, 1999). *Discipline Procedures – Changes from Proposed Rules – Topic Brief*. Archived Information. Retrieved 9/10/18 from <https://www2.ed.gov/policy/spenced/leg/idea/brief5.html>
- U.S. Department of Education (July 5, 2018). *2018 Determination Letters on State Implementation of IDEA*. Retrieved 8/30/18 from <https://drive.google.com/viewerng/viewer?url=https://www2.ed.gov/fund/data/report/idea/ideafactsheet-determinations-2018.pdf>
- U.S. Department of Education Office for Civil Rights (2018). *School climate and safety: Data highlights on school climate and safety in our nation's public schools*. Retrieved 8/30/18 from <https://www2.ed.gov/about/offices/list/ocr/docs/school-climate-and-safety.pdf>
- Vincent, C. G., Sprague, J. R., & Tobin, T. J. (2012). Exclusionary discipline practices across students' racial/ethnic backgrounds and disability status: Findings from the Pacific Northwest. *Education and treatment of children, 35*(4), 585-601.
- Wald, J., & Losen, D. J. (2003). Defining and redirecting a school-to-prison pipeline. *New Directions for Youth Development, 99*, 9-15.
- Wehmeier, P. M., Schacht, A., & Barkley, R. A. (2010). Social and emotional impairment in children and adolescents with ADHD and the impact on quality of life. *Journal of Adolescent health, 46*(3), 209-217.

Yell, M. L. (1995). Clyde K. and Sheila K. v. Puyallup School District: The courts, inclusion, and students with behavioral disorders. *Behavioral Disorders, 20*(3), 179-189.

Zhang, D., Katsiyannis, A., & Herbst, M. (2004). Disciplinary exclusions in special education: A 4-year analysis. *Behavioral Disorders, 33*7-347.

Zigmond, N., & Kloo, A. (2017). General and special education are (and should be) different. In J. M. Kauffman, Hallahan, D. P., & Pullen, P. C. (Eds.), *Handbook of Special Education, Second Edition* (pp. 249-261). New York, NY: Routledge.

Zigmond, N., Kloo, A., & Volonino, V. (2009). What, where, and how? Special education in the climate of full inclusion. *Exceptionality, 17*(4), 189-204.

Table 1. Descriptive statistics of student-year observations for general and special education

	General Education	All Special Education	Diff.
Demographic Characteristics			
Economically Disadvantaged	47.7%	63.6%	15.9% ***
Male	49.1%	65.8%	16.7% ***
Limited English Proficient	6.2%	5.0%	-1.2% ***
White	67.6%	65.6%	-1.9% ***
Black/African-American	17.7%	21.5%	3.7% ***
Hispanic or Latino	7.3%	7.1%	-0.2% ***
Asian	3.4%	1.3%	-2.2% ***
American Indian or Alaska Native	0.7%	0.9%	0.3% ***
Native Hawaiian or Pacific Islander	0.1%	0.1%	0.0% ***
Two or More Races	3.3%	3.5%	0.2% ***
Disciplinary Infractions			
Total Count	N/A	283,687	
Physical Violence without Injury	N/A	12.8%	
Physical Violence with Injury	N/A	2.3%	
Illicit Drugs	N/A	1.2%	
Tobacco	N/A	1.1%	
Other Weapon	N/A	0.9%	
Low Incidence	N/A	0.5%	
Other Non-specified Infractions	N/A	81.1%	
Disciplinary Consequences			
Total Count		283,110	
Expulsion or Removal to Alt. Educational Setting	N/A	0.5%	
Out-of-School Suspension	N/A	77.9%	
In School Suspension	N/A	21.7%	
Disability Types			
Specific Learning Disability	N/A	35.4%	
Speech & Language Impairment	N/A	21.1%	
Other Health Impairment	N/A	12.8%	
Cognitive Impairment	N/A	10.4%	
Autism Spectrum Disorder	N/A	8.8%	
Emotional Impairment	N/A	6.3%	
Severe Multiple Impairment	N/A	1.6%	
Low-Incidence Disabilities	N/A	3.6%	
Hearing Impairment	N/A	1.2%	
Early Childhood Developmental Delay	N/A	0.9%	
Physical Impairment	N/A	0.8%	
Other LID	N/A	0.7%	
Visual Impairment	N/A	0.4%	
Traumatic Brain Injury	N/A	0.3%	
Deaf-Blindness	N/A	0.0%	

Note. These descriptive statistics are based on student-year observations, not students. Some special education students are listed without a specific grade level in the dataset, so the N's for grade level exclude these students. Discipline infraction types, consequence types, and disability types are only reported for the 97% of students in the four most common educational settings, which defines the analytic sample. Low-incidence infractions includes alcohol, arson, bomb or similar threat, and firearm infractions. The total number of infractions (283,687) is higher than the total number of incidents (283,110), because some incidents included multiple infraction types. In some cases, multiple consequences were used for the same incident. In these cases, I counted the incident in the most exclusionary group. For example, a report of expulsion plus OSS would be reported as expulsion.

Table 2. Predicting receipt of at least one referral in school year, by infraction type

	Any Infraction	Other Non- Specified	Violence Without Injury	Violence with Injury	Illicit Drugs	Tobacco
Disciplined Prior Year	0.296 *** (0.005)	0.266 *** (0.005)	0.070 *** (0.004)	0.017 *** (0.001)	0.011 *** (0.001)	0.009 *** (0.001)
<u>Disability Types</u>						
Cognitive Impairment	-0.009 ** (0.004)	-0.006 (0.004)	0.000 (0.001)	0.000 (0.000)	-0.002 *** (0.000)	-0.001 (0.000)
Emotional Impairment	0.114 *** (0.004)	0.101 *** (0.004)	0.036 *** (0.002)	0.011 *** (0.001)	0.001 (0.001)	0.002 *** (0.001)
Speech and Language Imp.	-0.032 *** (0.002)	-0.026 *** (0.002)	-0.009 *** (0.001)	-0.002 *** (0.000)	0.000 * (0.000)	0.000 (0.000)
Severe Multiple Impairments	-0.027 *** (0.006)	-0.017 *** (0.005)	-0.008 *** (0.002)	-0.002 (0.001)	-0.002 *** (0.000)	-0.001 *** (0.000)
Autism Spectrum Disorder	-0.033 *** (0.006)	-0.030 *** (0.005)	-0.004 (0.002)	0.000 (0.000)	-0.003 *** (0.000)	-0.002 *** (0.000)
Other Health Impairments	0.036 *** (0.002)	0.032 *** (0.002)	0.008 *** (0.001)	0.002 *** (0.000)	0.000 (0.000)	0.002 *** (0.000)
Low Incidence Disabilities	-0.030 *** (0.004)	-0.027 *** (0.003)	-0.004 ** (0.002)	-0.001 (0.000)	-0.001 *** (0.000)	0.000 (0.000)
<u>Student Demographics</u>						
Male	0.048 *** (0.001)	0.039 *** (0.001)	0.012 *** (0.001)	0.002 *** (0.000)	0.002 *** (0.000)	0.002 *** (0.000)
Limited English Proficient	-0.012 *** (0.004)	-0.009 ** (0.004)	-0.003 (0.002)	0.000 (0.000)	-0.001 ** (0.000)	-0.001 *** (0.000)
Economically Disadvantaged	0.033 *** (0.001)	0.029 *** (0.001)	0.005 *** (0.001)	0.001 *** (0.000)	0.001 *** (0.000)	0.001 *** (0.000)
Black	0.045 *** (0.003)	0.039 *** (0.003)	0.015 *** (0.002)	0.003 *** (0.000)	0.000 (0.000)	-0.002 *** (0.000)
Hispanic	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.001)	0.000 (0.001)	0.001 * (0.000)	-0.001 (0.000)
Asian	-0.002 (0.004)	0.000 (0.004)	0.000 (0.002)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)
Native Hawaiian/Pacific Islander	0.010 (0.013)	0.007 (0.013)	-0.003 (0.007)	0.011 (0.006)	0.000 (0.002)	-0.001 (0.002)
Native American/Alaska Native	0.020 *** (0.006)	0.019 *** (0.006)	0.004 (0.003)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)
Two or More Races	0.019 *** (0.003)	0.015 *** (0.003)	0.005 *** (0.001)	0.002 *** (0.001)	0.000 (0.000)	0.000 (0.000)
Constant	0.025 *** (0.002)	0.019 *** (0.002)	0.003 ** (0.001)	0.000 (0.000)	0.001 ** (0.000)	0.000 (0.000)
Observations	684,151	684,151	684,151	684,151	684,151	684,151
Adj. R-Sq.	0.249	0.234	0.114	0.044	-0.003	0.006

Note. Robust standard errors, clustered at the district level, are in parentheses. Reference disability type is specific learning disabilities. Reference race/ethnicity is White. All models include school-grade-year fixed effects.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.

Table 3. Predicting receipt of at least one consequence in school year, by consequence type

	At Least One Expulsion	At Least One Removal to Alternative Placement	At Least One OSS	At Least One ISS
Disciplined Prior Year	0.0040 *** (0.0004)	0.0003 *** (0.0001)	0.2680 *** (0.0056)	0.0955 *** (0.0079)
<u>Disability Types</u>				
Cognitive Impairment	-0.0003 ** (0.0001)	0.0000 (0.0001)	-0.0043 (0.0039)	-0.0060 *** (0.0014)
Emotional Impairment	0.0003 (0.0004)	0.0002 (0.0001)	0.1100 *** (0.0037)	0.0290 *** (0.0024)
Speech and Language Imp.	0.0001 (0.0001)	0.0000 (0.0000)	-0.0268 *** (0.0017)	-0.0084 *** (0.0008)
Severe Multiple Impairments	-0.0001 (0.0001)	0.0000 (0.0000)	-0.0211 *** (0.0064)	-0.0061 *** (0.0021)
Autism Spectrum Disorder	-0.0006 *** (0.0002)	0.0000 (0.0000)	-0.0249 *** (0.0061)	-0.0125 *** (0.0015)
Other Health Impairments	0.0003 (0.0002)	0.0000 (0.0000)	0.0326 *** (0.0018)	0.0117 *** (0.0013)
Low Incidence Disabilities	0.0000 (0.0002)	0.0000 (0.0000)	-0.0241 *** (0.0041)	-0.0065 *** (0.0018)
<u>Student Demographics</u>				
Male	0.0007 *** (0.0001)	0.0001 ** (0.0000)	0.0409 *** (0.0015)	0.0149 *** (0.0010)
Limited English Proficient	-0.0003 (0.0002)	0.0000 (0.0001)	-0.0122 ** (0.0045)	-0.0009 (0.0014)
Economically Disadvantaged	0.0004 *** (0.0001)	0.0000 (0.0000)	0.0283 *** (0.0011)	0.0113 *** (0.0009)
Black	0.0006 *** (0.0002)	0.0000 (0.0001)	0.0400 *** (0.0028)	0.0134 *** (0.0021)
Hispanic	0.0000 (0.0002)	-0.0001 (0.0000)	-0.0020 (0.0022)	0.0031 ** (0.0014)
Asian	0.0002 (0.0002)	0.0000 (0.0001)	-0.0004 (0.0040)	-0.0004 (0.0018)
Native Hawaiian/Pacific Islander	-0.0010 * (0.0005)	-0.0001 (0.0001)	0.0068 (0.0135)	0.0127 (0.0097)
Native American/Alaska Native	0.0007 (0.0008)	-0.0002 *** (0.0001)	0.0184 *** (0.0053)	0.0027 (0.0041)
Two or More Races	0.0003 (0.0002)	-0.0001 (0.0001)	0.0156 *** (0.0027)	0.0076 *** (0.0020)
Constant	-0.0002 (0.0002)	0.0000 (0.0000)	0.0170 *** (0.0021)	0.0039 * (0.0020)
Observations	684,151	684,151	684,151	684,151
Adj. R-Sq.	0.032	0.008	0.235	0.150

Note. Robust standard errors, clustered at the district level, are in parentheses. Reference disability type is specific learning disabilities. Reference race/ethnicity is White. All models include school-grade-year fixed effects.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.

Table 4. Predicting infraction referrals, with student fixed effects

	Overall	Female	Male	White/ Asian	Non-white Non-Asian	Non Econ. Dis.	Econ. Dis.
<u>Dep. Var. = At Least One Discipline Referral</u>							
General Ed. Classroom 40-79%	0.006 ** (0.002)	0.002 (0.003)	0.009 *** (0.002)	0.007 ** (0.002)	0.004 (0.004)	0.007 ** (0.002)	0.005 (0.002)
General Ed. Classroom < 40%	0.004 (0.004)	0.002 (0.006)	0.006 (0.005)	0.010 ** (0.004)	-0.005 (0.007)	0.007 (0.005)	0.003 (0.005)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.020 *** (0.005)	0.015 (0.008)	0.023 *** (0.006)	0.020 ** (0.006)	0.022 ** (0.008)	0.025 *** (0.007)	0.018 ** (0.006)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.362	0.324	0.370	0.338	0.375	0.322	0.363
<u>Dep. Var. = At Least One Other Non-Specified Referral</u>							
General Ed. Classroom 40-79%	0.006 ** (0.002)	0.001 (0.002)	0.008 ** (0.002)	0.007 *** (0.002)	0.002 (0.003)	0.005 (0.002)	0.005 (0.002)
General Ed. Classroom < 40%	0.001 (0.003)	0.003 (0.004)	0.001 (0.004)	0.007 (0.003)	-0.007 (0.006)	0.003 (0.004)	0.000 (0.004)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.014 ** (0.005)	0.015 (0.007)	0.014 * (0.006)	0.017 ** (0.006)	0.009 (0.008)	0.019 ** (0.006)	0.012 (0.006)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.343	0.307	0.352	0.319	0.357	0.305	0.345
<u>Dep. Var. = At Least One Violence without Injury Referral</u>							
General Ed. Classroom 40-79%	0.002 (0.001)	0.001 (0.001)	0.002 (0.001)	0.002 (0.001)	0.001 (0.002)	0.002 (0.001)	0.001 (0.001)
General Ed. Classroom < 40%	0.002 (0.003)	-0.001 (0.003)	0.003 (0.003)	0.006 ** (0.002)	-0.003 (0.005)	0.006 * (0.003)	0.001 (0.003)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.010 ** (0.003)	0.001 (0.003)	0.014 *** (0.004)	0.008 * (0.003)	0.015 * (0.006)	0.007 (0.004)	0.011 ** (0.004)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.165	0.142	0.173	0.138	0.181	0.143	0.169
<u>Dep. Var. = At Least One Violence with Injury Referral</u>							
General Ed. Classroom 40-79%	0.001 (0.001)	0.000 (0.001)	0.002 (0.001)	0.001 (0.001)	0.002 (0.001)	0.001 (0.001)	0.001 (0.001)
General Ed. Classroom < 40%	0.003 ** (0.001)	0.002 (0.001)	0.004 ** (0.001)	0.003 * (0.001)	0.004 (0.002)	0.002 (0.001)	0.004 ** (0.001)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.007 ** (0.002)	0.003 (0.003)	0.008 ** (0.002)	0.006 * (0.002)	0.008 (0.004)	0.006 ** (0.002)	0.007 * (0.003)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.067	0.045	0.075	0.062	0.075	0.088	0.066
<u>Dep. Var. = At Least One Tobacco Referral</u>							
General Ed. Classroom 40-79%	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)	0.000 (0.000)
General Ed. Classroom < 40%	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.001 (0.001)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.080	0.071	0.085	0.088	0.053	0.087	0.080
<u>Dep. Var. = At Least One Illicit Drug Referral</u>							
General Ed. Classroom 40-79%	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)
General Ed. Classroom < 40%	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	-0.001 (0.001)	0.000 (0.001)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.001 (0.001)	0.002 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.002)	-0.001 (0.002)	0.002 (0.001)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.060	0.048	0.066	0.064	0.061	0.080	0.058

Note. Robust standard errors, clustered at the district level, are in parentheses. Reference educational setting is general education classroom for 80% or more of the day. Econ. Dis. = economically disadvantaged. All models include school fixed effects, student fixed effects, academic year fixed effects (with 2012-13 as reference group), grade level fixed effects (with kindergarten as the reference group), and demographic indicators for limited English proficiency. A time-varying indicator of economic disadvantage status is controlled for in the first five columns. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.

Table 5. Predicting discipline referrals by student disability type, with student fixed effects

	All SWD	Specific Learning Dis.	Other Health Imp.	Emotional Imp.
<u>Dep. Var. = At Least One Discipline Referral</u>				
General Ed. Classroom 40-79%	0.006 ** (0.002)	0.003 (0.002)	0.006 (0.006)	0.010 (0.009)
General Ed. Classroom < 40%	0.004 (0.004)	-0.002 (0.007)	0.008 (0.010)	0.020 (0.012)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.020 *** (0.005)	-0.003 (0.016)	0.016 (0.023)	0.086 *** (0.018)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.362	0.341	0.381	0.357
<u>Dep. Var. = At Least One Other Non-Specified</u>				
General Ed. Classroom 40-79%	0.006 ** (0.002)	0.003 (0.002)	0.003 (0.005)	0.014 (0.008)
General Ed. Classroom < 40%	0.001 (0.003)	-0.001 (0.007)	0.002 (0.009)	0.014 (0.011)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.014 ** (0.005)	-0.002 (0.016)	0.005 (0.021)	0.061 ** (0.018)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.343	0.329	0.365	0.347
<u>Dep. Var. = At Least One Violence without Injury</u>				
General Ed. Classroom 40-79%	0.002 (0.001)	-0.001 (0.001)	0.005 (0.003)	0.007 (0.005)
General Ed. Classroom < 40%	0.002 (0.003)	-0.005 (0.005)	0.007 (0.005)	0.011 (0.009)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.010 ** (0.003)	-0.001 (0.008)	0.013 (0.012)	0.045 ** (0.014)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.165	0.141	0.192	0.226
<u>Dep. Var. = At Least One Violence with Injury</u>				
General Ed. Classroom 40-79%	0.001 (0.001)	0.000 (0.001)	0.002 (0.001)	0.003 (0.003)
General Ed. Classroom < 40%	0.003 ** (0.001)	0.002 (0.001)	0.007 * (0.003)	0.013 ** (0.005)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.007 ** (0.002)	0.002 (0.004)	-0.004 (0.009)	0.029 ** (0.008)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.067	0.051	0.106	0.093
<u>Dep. Var. = At Least One Tobacco Referral</u>				
General Ed. Classroom 40-79%	0.000 (0.000)	0.000 (0.001)	0.001 (0.001)	0.000 (0.002)
General Ed. Classroom < 40%	0.001 (0.001)	0.000 (0.002)	0.001 (0.002)	0.004 (0.003)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.000 (0.001)	-0.004 (0.004)	0.004 (0.005)	-0.002 (0.004)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.080	0.075	0.082	0.115
<u>Dep. Var. = At Least One Illicit Drug Referral</u>				
General Ed. Classroom 40-79%	0.000 (0.000)	0.000 (0.001)	0.000 (0.001)	-0.002 (0.002)
General Ed. Classroom < 40%	0.000 (0.001)	0.003 (0.001)	0.000 (0.002)	-0.004 (0.002)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.001 (0.001)	0.003 (0.005)	0.003 (0.005)	0.001 (0.005)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.060	0.053	0.073	0.087

Note. Robust standard errors, clustered at the district level, are in parentheses. Reference educational setting is general education classroom for 80% or more of the day. All models include school fixed effects, student fixed effects, academic year fixed effects (with 2012-13 as reference group), grade level fixed effects (with kindergarten as the reference group), and demographic indicators for economic disadvantage status and limited English proficiency. Disability types are based on the first labelled primary disability type. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.

Table 6. Predicting disciplinary consequences, by student subgroup, with student fixed effects

At Least One Expulsion							
	Overall	Female	Male	White or Asian	Non-white Non-Asian	Not Econ. Dis.	Econ Dis.
In General Ed. 40-79%	-0.0005 (0.0002)	-0.0004 (0.0002)	-0.0004 (0.0003)	-0.0003 (0.0002)	-0.0006 (0.0003)	-0.0002 (0.0002)	-0.0005 (0.0002)
In General Ed. < 40%	0.0013 (0.0006)	0.0011 (0.0006)	0.0015 (0.0009)	0.0017 (0.0007)	0.0008 (0.0009)	0.0015 (0.0008)	0.0012 (0.0007)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.0015 (0.0009)	0.0033 (0.0013)	0.0009 (0.0011)	0.0017 (0.0010)	0.0011 (0.0016)	0.0009 (0.0012)	0.0019 (0.0012)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.059	0.046	0.066	0.074	0.055	0.074	0.062
At Least One Removal to Alternative Placement							
	Overall	Female	Male	White or Asian	Non-white Non-Asian	Not Econ. Dis.	Econ Dis.
In General Ed. 40-79%	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	0.0000 (0.0001)
In General Ed. < 40%	0.0000 (0.0001)	0.0001 (0.0001)	0.0000 (0.0002)	0.0002 (0.0001)	-0.0002 (0.0002)	-0.0002 (0.0002)	0.0001 (0.0002)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.0001 (0.0002)	0.0001 (0.0001)	0.0001 (0.0003)	0.0000 (0.0001)	0.0003 (0.0005)	-0.0001 (0.0001)	0.0002 (0.0003)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.030	0.027	0.037	0.021	0.039	0.064	0.031
At Least One OSS							
	Overall	Female	Male	White or Asian	Non-white Non-Asian	Not Econ. Dis.	Econ Dis.
In General Ed. 40-79%	0.0050 ** (0.0017)	0.0011 (0.0025)	0.0073 ** (0.0022)	0.0054 ** (0.0018)	0.0040 (0.0035)	0.0071 ** (0.0021)	0.0034 (0.0022)
In General Ed. < 40%	0.0073 (0.0039)	0.0032 (0.0052)	0.0094 (0.0043)	0.0130 *** (0.0035)	-0.0021 (0.0064)	0.0118 * (0.0044)	0.0052 (0.0046)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.0214 *** (0.0050)	0.0109 (0.0075)	0.0262 *** (0.0060)	0.0212 ** (0.0062)	0.0234 ** (0.0075)	0.0292 *** (0.0064)	0.0178 ** (0.0062)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.348	0.314	0.354	0.317	0.362	0.302	0.349
At Least One ISS							
	Overall	Female	Male	White or Asian	Non-white Non-Asian	Not Econ. Dis.	Econ Dis.
In General Ed. 40-79%	0.0028 (0.0012)	0.0012 (0.0017)	0.0038 (0.0016)	0.0032 (0.0013)	0.0013 (0.0020)	0.0019 (0.0017)	0.0028 (0.0015)
In General Ed. < 40%	-0.0041 (0.0017)	-0.0028 (0.0025)	-0.0045 (0.0021)	-0.0056 * (0.0022)	-0.0022 (0.0025)	-0.0053 (0.0028)	-0.0043 (0.0020)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	-0.0002 (0.0027)	0.0012 (0.0037)	-0.0011 (0.0036)	-0.0027 (0.0034)	0.0027 (0.0042)	-0.0003 (0.0038)	-0.0008 (0.0035)
Observations	951,079	325,135	625,820	638,465	312,434	323,143	627,772
Adj. R-Sq.	0.221	0.188	0.233	0.215	0.237	0.209	0.226

Note. Robust standard errors, clustered at the district level, are in parentheses. Econ. Dis. = economically disadvantaged. All models include school fixed effects, student fixed effects, school year fixed effects (with 2012-13 as reference group), grade level fixed effects (with kindergarten as the reference group), and limited English proficiency. All models except those conditioning on economic disadvantage also control for time-varying economic disadvantage status. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.

Table 7. Predicting disciplinary consequences, by student disability type, with student fixed effects

At Least One Expulsion				
	All SWD	Specific Learning Dis.	Other Health Imp.	Emotional Imp.
In General Ed. 40-79%	-0.0005 (0.0002)	-0.0006 (0.0003)	-0.0006 (0.0006)	-0.0009 (0.0011)
In General Ed. < 40%	0.0013 (0.0006)	0.0036 (0.0017)	0.0029 (0.0018)	0.0014 (0.0017)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.0015 (0.0009)	0.0130 (0.0058)	-0.0009 (0.0029)	0.0001 (0.0028)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.059	0.063	0.091	0.093
At Least One Removal to an Alternative Placement				
	All SWD	Specific Learning Dis.	Other Health Imp.	Emotional Imp.
In General Ed. 40-79%	0.0000 (0.0001)	0.0000 (0.0001)	-0.0001 (0.0002)	0.0003 (0.0005)
In General Ed. < 40%	0.0000 (0.0001)	-0.0004 (0.0003)	-0.0001 (0.0005)	0.0010 (0.0007)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.0001 (0.0002)	0.0003 (0.0003)	-0.0001 (0.0007)	0.0012 (0.0011)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.030	0.061	0.073	0.029
At Least One Out-of-School Suspension				
	All SWD	Specific Learning Dis.	Other Health Imp.	Emotional Imp.
In General Ed. 40-79%	0.0050 ** (0.0017)	0.0020 (0.0022)	0.0072 (0.0049)	0.0050 (0.0088)
In General Ed. < 40%	0.0073 (0.0039)	0.0032 (0.0067)	0.0140 (0.0095)	0.0235 (0.0123)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.0214 *** (0.0050)	-0.0030 (0.0156)	0.0250 (0.0225)	0.0854 *** (0.0199)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.348	0.329	0.369	0.351
At Least One In-School Suspension				
	All SWD	Specific Learning Dis.	Other Health Imp.	Emotional Imp.
In General Ed. 40-79%	0.0028 (0.0012)	0.0023 (0.0017)	0.0016 (0.0036)	0.0055 (0.0057)
In General Ed. < 40%	-0.0041 (0.0017)	-0.0043 (0.0043)	-0.0072 (0.0055)	-0.0066 (0.0072)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	-0.0002 (0.0027)	-0.0084 (0.0095)	0.0050 (0.0117)	0.0068 (0.0126)
Observations	951,079	322,421	116,135	56,328
Adj. R-Sq.	0.221	0.219	0.260	0.258

Note. Robust standard errors, clustered at the district level, are in parentheses. All models include school fixed effects, student fixed effects, school year fixed effects (with 2012-13 as reference group), grade level fixed effects (with kindergarten as the reference group), limited English proficiency, and economic disadvantage. Disability types are based on the first labelled primary disability type. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.

Table 8. Predicting discipline referrals and consequences, by student move type

All Students					
	Any Referral	Other Non-Specified	Violence w/out Injury	Violence with Injury	OSS
In General Ed. 40-79%	0.006 ** (0.002)	0.006 ** (0.002)	0.002 (0.001)	0.001 (0.001)	0.005 ** (0.002)
In General Ed. < 40%	0.004 (0.004)	0.001 (0.003)	0.002 (0.003)	0.003 ** (0.001)	0.007 (0.004)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.020 *** (0.005)	0.014 ** (0.005)	0.010 ** (0.003)	0.007 ** (0.002)	0.021 *** (0.005)
Observations	951,079	951,079	951,079	951,079	951,079
Adj. R-Sq.	0.362	0.343	0.165	0.067	0.348
Students with only moves to less inclusive settings					
	Any Referral	Other Non-Specified	Violence w/out Injury	Violence with Injury	OSS
In General Ed. 40-79%	0.010 (0.004)	0.010 * (0.003)	0.001 (0.002)	0.004 * (0.001)	0.011 * (0.004)
In General Ed. < 40%	0.001 (0.007)	-0.002 (0.006)	0.004 (0.004)	0.008 ** (0.002)	0.008 (0.007)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.008 (0.011)	0.001 (0.010)	0.007 (0.007)	0.011 (0.004)	0.014 (0.011)
Observations	111,162	111,162	111,162	111,162	111,162
Adj. R-Sq.	0.387	0.366	0.219	0.105	0.375
Students with only moves to more inclusive settings					
	Any Referral	Other Non-Specified	Violence w/out Injury	Violence with Injury	OSS
In General Ed. 40-79%	-0.006 (0.004)	-0.005 (0.004)	0.000 (0.002)	0.001 (0.001)	-0.004 (0.004)
In General Ed. < 40%	-0.004 (0.009)	-0.006 (0.010)	0.001 (0.005)	0.003 (0.002)	0.001 (0.009)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.004 (0.012)	0.004 (0.011)	0.010 (0.007)	0.009 (0.003)	0.011 (0.012)
Observations	96,551	96,551	96,551	96,551	96,551
Adj. R-Sq.	0.374	0.356	0.186	0.106	0.364
Students with a mix of more and less inclusive moves					
	Any Referral	Other Non-Specified	Violence w/out Injury	Violence with Injury	OSS
In General Ed. 40-79%	0.006 (0.003)	0.005 (0.003)	0.002 (0.002)	0.001 (0.001)	0.002 (0.003)
In General Ed. < 40%	0.008 (0.006)	0.007 (0.005)	0.001 (0.003)	0.002 (0.002)	0.007 (0.006)
In Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.023 (0.010)	0.016 (0.009)	0.009 (0.005)	0.006 (0.003)	0.023 (0.009)
Observations	115,758	115,758	115,758	115,758	115,758
Adj. R-Sq.	0.381	0.363	0.191	0.0970	0.368

Note. Robust standard errors, clustered at the district level, are in parentheses. All models include school fixed effects, student fixed effects, school year fixed effects (with 2012-13 as reference group), grade level fixed effects (with kindergarten as the reference group), limited English proficiency, and economic disadvantage. Disability types are based on the first labelled primary disability type. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.

Appendix Table A. Disability types over time

	2012-13	2013-14	2014-15	2015-16	2016-17	Total	%	Growth Over Time
Specific Learning Disability	76,099	73,763	71,891	70,238	69,253	361,244	35.4%	-9.0%
Speech & Language Impairment	44,531	43,422	42,210	42,339	42,542	215,044	21.1%	-4.5%
Other Health Impairment	23,680	25,005	26,215	27,220	28,322	130,442	12.8%	19.6%
Cognitive Impairment	21,806	21,524	21,065	20,930	20,587	105,912	10.4%	-5.6%
Autism Spectrum Disorder	16,520	17,258	17,921	18,631	19,590	89,920	8.8%	18.6%
Emotional Impairment	13,329	12,966	12,839	12,602	12,783	64,519	6.3%	-4.1%
Severe Multiple Impairment	3,314	3,264	3,191	3,155	3,084	16,008	1.6%	-6.9%
Low-Incidence Disabilities	7,471	7,248	7,127	7,311	7,180	36,337	3.6%	-3.9%
Hearing Impairment	2,535	2,438	2,417	2,399	2,359	12,148	1.2%	-6.9%
Early Childhood Developmental Delay	1,610	1,641	1,717	1,997	2,022	8,987	0.9%	25.6%
Physical Impairment	1,932	1,809	1,663	1,551	1,480	8,435	0.8%	-23.4%
Other LID	1,394	1,360	1,330	1,364	1,319	6,767	0.7%	-5.4%
Total	206,750	204,450	202,459	202,426	203,341	1,019,426	100.0%	-1.6%

Note. Limited to the 97% of students in the four most common primary educational settings (general education classroom 80% or more of the day, general education classroom 40-79% of the day, general education classroom less than 40% of the day, or a public or private special education school building at public expense. Other LID = other low-incidence disabilities including visual impairments, traumatic brain injury, and deaf-blindness.

Appendix Table B. Disability types, as defined by the Michigan’s Administrative Rules for Special Education (MARSE)

Disability Type	Description
Specific Learning Disability	A "disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia" not including "learning problems that are primarily the results of visual, hearing, or motor disabilities, of cognitive impairment, of emotional impairment, of autism spectrum disorder, or of environmental, cultural, or economic disadvantage." (MDE, 2018, p. 36-37)
Speech & Language Impairment	"A communication disorder that adversely affects educational performance, such as a language impairment, articulation impairment, fluency impairment, or voice impairment." (MDE, 2018, p. 34)
Other Health Impairment	"Limited strength, vitality or alertness, including a heightened alertness with respect to environmental stimuli, which results in limited alertness with respect to the educational environment," that "adversely affects a student's educational performance" and is due to at least one of the following health problems: asthma, attention deficit disorder, attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, or sickle cell anemia (MDE, 2018, p. 34)
Cognitive Impairment	Demonstrated through the demonstration of all of the following behavioral characteristics: (A) development at a rate at or below approximately 2 standard deviations below the mean as determined through intellectual assessment, (B) scores approximately within the lowest 6 percentiles on a standardized test in reading and arithmetic. This requirement will not apply if the student is not of an age, grade, or mental age appropriate for formal or standardized achievement tests, (C) lack of development primarily in the cognitive domain, (D) impairment of adaptive behavior, (E) adversely affects a student's educational performance." (MDE, 2018, p. 28)
Autism Spectrum Disorder	"A lifelong developmental disability that adversely affects a student's educational performance in 1 or more of the following performance areas: (A) academic, (B) behavioral, (C) social... Autism spectrum disorder is characterized by qualitative impairments in reciprocal social interactions, qualitative impairments in communication, and restricted range of interests/repetitive behavior." (MDE, 2018, p. 44)

Emotional Impairment	"Determined through manifestation of behavioral problems primarily in the affective domain, over an extended period of time, which adversely affect the student's education to the extent that the student cannot profit from learning experiences without special education support," including: inability to build or maintain positive relationships, inappropriate behavior, feelings, or moods related to unhappiness, depression, and fear." (MDE, 2018, p. 29)
Severe Multiple Impairment	"Determined through the manifestation of either of the following: (A) development at a rate of 2 to 3 standard deviations below the mean and 2 or more of the following conditions: (i) a hearing impairment so severe that the auditory channel is not the primary means of developing speech and language skills, (ii) a visual impairment so severe that the visual channel is not sufficient to guide independent mobility, (iii) a physical impairment so severe that activities of daily living cannot be achieved without assistance, (iv) a health impairment so severe that the student is medically at risk. (B) development at a rate of 3 or more standard deviations below the mean or students for whom evaluation instruments do not provide a valid measure of cognitive ability and 1 or more of the following conditions: (i) a hearing impairment so severe that the auditory channel is not the primary means of developing speech and language skills, (ii) a visual impairment so severe that the visual channel is not sufficient to guide independent mobility, (iii) a physical impairment so severe that activities of daily living cannot be achieved without assistance, (iv) a health impairment so severe that the student is medically at risk." (MDE, 2018, p. 42-43)
Hearing Impairment	"An impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance" (MDE, 2018, p. 31)
Early Childhood Developmental Delay	"A child through 7 years of age whose primary delay cannot be differentiated through existing criteria within [other sections of the regulations] and who manifests a delay in 1 or more areas of development equal to or greater than 1/2 of the expected development." (MDE, 2018, p. 36)
Physical Impairment	"Severe orthopedic impairment that adversely affects a student's educational performance." (MDE, 2018, p. 32)

Appendix Table C. Student fixed effect models, by student grade band

Grades K-5					
	Any Referral	Other Non-Specified	Violence w/out Injury	Violence with Injury	OSS (At Least One)
General Ed. 40-79%	0.005 (0.003)	0.006 (0.003)	0.001 (0.002)	0.002 (0.001)	0.006 (0.003)
General Ed. < 40%	0.009 (0.005)	0.005 (0.005)	0.005 (0.003)	0.004 (0.002)	0.011 (0.005)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.029 ** (0.008)	0.0123 (0.008)	0.020 *** (0.006)	0.012 * (0.004)	0.029 ** (0.008)
Observations	388,612	388,612	388,612	388,612	388,612
Adj. R-Sq.	0.355	0.322	0.214	0.083	0.351
Grades 6-8					
	Any Referral	Other Non-Specified	Violence w/out Injury	Violence with Injury	OSS (At Least One)
General Ed. 40-79%	-0.002 (0.005)	-0.003 (0.005)	0.000 (0.003)	0.001 (0.001)	-0.004 (0.004)
General Ed. < 40%	-0.009 (0.008)	-0.012 (0.007)	0.000 (0.006)	0.005 (0.003)	-0.002 (0.008)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.016 (0.017)	0.0106 (0.017)	0.025 (0.013)	0.006 (0.008)	0.016 (0.016)
Observations	192,989	192,989	192,989	192,989	192,989
Adj. R-Sq.	0.431	0.419	0.218	0.112	0.422
Grades 9-12					
	Any Referral	Other Non-Specified	Violence w/out Injury	Violence with Injury	OSS (At Least One)
General Ed. 40-79%	0.000 (0.004)	0.001 (0.003)	0.001 (0.002)	0.000 (0.001)	-0.001 (0.003)
General Ed. < 40%	0.011 (0.008)	0.010 (0.007)	0.000 (0.004)	0.001 (0.002)	0.007 (0.007)
Pub./Priv. Spec. Ed. Sch. At Pub. Exp.	0.012 (0.013)	0.005 (0.011)	-0.001 (0.006)	0.006 (0.003)	0.012 (0.012)
Observations	192,989	192,989	192,989	192,989	192,989
Adj. R-Sq.	0.431	0.419	0.218	0.112	0.422

Note. Robust standard errors, clustered at the district level, are in parentheses. All models include school fixed effects, student fixed effects, school year fixed effects (with 2012-13 as reference group), grade level fixed effects, limited English proficiency, and economic disadvantage. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, adjusted using Benjamini-Hochberg (1995) correction for multiple hypothesis testing, assuming a false discovery rate of 0.05.