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What political and administrative resources contribute to the realization of rights in the United States? We examine this puzzle in the context of rights to education for students with disabilities by measuring the administrative ease of accessing local special education information: the extent to which governments actively reduce learning costs and make information accessible. To measure administrative ease for special education information, we develop a novel web crawler that approximates the human experience of navigating school district websites and apply it to public school districts in four states. The crawler measures whether special education information is present, how long it takes to find the information, the length of the navigational pathway, and what terminology districts use to describe services. We use these measures in an assessment of administrative ease, finding wide variation across districts and states. We find that over 80 percent of districts provide at least one page referencing special education, however, the pathway complexity, search time, and terminology differ substantially. Situating these patterns within a political market framework, we show how supply-side capacity and demand-side pressures jointly contribute to the accessibility of rights-relevant information. We conclude by discussing implications for the design of administrative systems that support the realization of rights beyond education.

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## **Abstract**

What political and administrative resources contribute to the realization of rights in the United States? We examine this puzzle in the context of rights to education for students with disabilities by measuring the administrative ease of accessing local special education information: the extent to which governments actively reduce learning costs and make information accessible. To measure administrative ease for special education information, we develop a novel web crawler that approximates the human experience of navigating school district websites and apply it to public school districts in four states. The crawler measures whether special education information is present, how long it takes to find the information, the length of the navigational pathway, and what terminology districts use to describe services. We use these measures in an assessment of administrative ease, finding wide variation across districts and states. We find that over 80 percent of districts provide at least one page referencing special education, however, the pathway complexity, search time, and terminology differ substantially. Situating these patterns within a political market framework, we show how supply-side capacity and demand-side pressures jointly contribute to the accessibility of rights-relevant information. We conclude by discussing implications for the design of administrative systems that support the realization of rights beyond education.

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# 1 The Informational Foundation of Realizing Rights

Federal law establishes the right for students with disabilities to obtain free and appropriate education in the least restrictive environment, and families of those students are entitled to information about the services that their children are eligible to receive (IDEA, 2004). Nationwide, more than 7.5 million students currently receive special education services: approximately 15 percent of all U.S. public school students (NCES, 2024). The families of those students are entitled to information about the services for which their children are eligible (IDEA, 2004). These rights are guaranteed through the Individuals with Disabilities Education Act (IDEA) of 2004. Despite the need—and the right—of families to have access to information about special education services, navigating the path to that information poses notorious challenges. Research documents how families often confront burdensome terminology, difficult-to-locate resources, and administrative opacity that limit their engagement with special education services (Batz and Blanchard, 2025; Cowhy, 2024). These challenges manifest unevenly: families of color and multilingual families face especially steep barriers in understanding and accessing special education processes (Harry and Kalyanpur, 1994; Russell et al., 2023; Cowhy, 2024).

The challenges families encounter in their efforts to access information foregrounds a broader puzzle about the realization of rights. Realizing rights is partly a matter of political knowledge: awareness of social rights constitutes a core component of political knowledge (Cramer and Toff, 2017; Weaver et al., 2019; Weitz-Shapiro and Winters, 2023). Realizing rights is also a matter of administration: converting policy into practice and lived experiences. Government processes that generate administrative burdens produce learning, compliance, and psychological costs that shape individuals' abilities to engage with programs or exercise rights (Heinrich, 2016; Herd and Moynihan, 2019; Herd et al., 2023; Madsen et al., 2022). In particular, learning costs associated with finding information illuminate how families find, understand, and access services available to them. Importantly, the administrative burden framework similarly reveals paths to alleviate friction and promote access. Building on emerging applications of administrative burden theory in special education (Cowhy, 2024; Tefera and Fischman, 2024), we focus on administrative burden's

conceptual counterpart: administrative ease, which is the conditions under which governments' administrative choices facilitate rather than hinder individuals' ability to realize rights.

To investigate administrative ease in a federalist system where rights are nationally guaranteed but locally implemented, we examine whether and how school districts make information about special education accessible to families. Local school districts maintain the websites that many families use to initiate contact with the special education system. Recent research suggests that many parents of students with disabilities report using district websites to obtain information about services (Huscroft-D'Angelo et al., 2022). However, no scholarship systematically assesses how accessible this information is at scale. Previous work has explored state-level special education resources (Farley et al., 2020); but district websites, which are at the front line of implementation, remain understudied.

We address this gap by developing a novel web crawler that approximates the human experience of navigating district websites. The crawler mimics how an individual might search, click through menus to locate information on special education. We apply this tool to publicly available school district websites in four states: Rhode Island, Massachusetts, Indiana, and Florida. The crawler measures whether special education information exists, how long it takes to reach the information, how complex the pathway to the information is, and what terminology districts use to describe services.

We frame our analysis around the concept of administrative ease by asking: What political and administrative resources make information available? While administrative burden analyses typically identify obstacles, administrative ease directs attention to the institutional, political, and organizational conditions that facilitate access. Understanding these conditions is especially critical in special education, where the decentralized implementation of federally guaranteed rights generates geographic disparities in access and understanding. We flip the construct from burdens to ease for three primary reasons. For one, we do so to facilitate conversation between political theory and applied public policy as part of our commitment to research-practice partnerships: to inform district partners who want to improve service delivery. For another, we do so to identify potential

distributional disparities. The absence of burden, for instance, does not necessarily guarantee ease. While we begin from the baseline assumption that ease is the inverse of burden, this remains a matter for empirical assessment.<sup>1</sup> For yet another, we join other scholars in their call for research to attend not only to why and how government administration fails, but also how it can work better, for whom, and under what conditions (Barnes et al., 2023).

Our study advances scholarship in several key ways. Conceptually, we extend prevailing theories of administrative burdens to consider ease explicitly by identifying the political and organizational conditions that shape public access to information in a decentralized policy domain. Empirically, we contribute to emerging work that uses publicly available web data to assess accessibility in education governance, including studies of school board visibility and transparency (Nuñez et al., 2026). With an eye toward policy and applied practice, we offer the first large-scale empirical analysis of the accessibility of special education information on school district websites, a key portal through which families seek to realize educational rights.

Our findings reveal substantial variation in administrative ease across districts. Although over 80 percent of districts in our sample provide at least one webpage of information for special education, meaningful variation manifests in terms of how long it takes to reach that information, how many steps are required, and the terminology used. We find particularly notable variation by state and by district type (e.g., charter versus traditional local school districts). Although they represent a smaller proportion of our sample, charter districts had a notably lower rate of information availability, use of common terms, and administrative ease than traditional local school districts. Additionally, we found differences by state regarding the terminology used on special education webpages. While terms like “special education” were used relatively frequently (on about 30% of websites), other terms such as “exceptional students” were used frequently in some states but not others (e.g., on about 25% of websites in Florida but none in Rhode Island). Overall, the emerging portrait indicates that while some information on special education is nearly universally

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<sup>1</sup>Put differently, the distribution of benefits and ease may be nonlinear and multidimensional. Our logic is inspired by work on political responsiveness, documenting how the wealthiest Americans enjoy the most attentiveness from government, for example (Gilens, 2012).

available—meeting the letter of the law—differences manifest in how easy it is for families and other users of websites to locate that information based on their familiarity with different terms used in the state. Our deep dive into Massachusetts reveals additional correlates of ease, including positive correlations with investments in administrative staff and negative correlations with lawsuit settlements.

The paper proceeds as follows. We first develop a political market framework for administrative ease, outlining how supply-side and demand-side forces contribute to the accessibility of information. We then describe our web crawler and measurement strategy. Next, we present our findings on variation in administrative ease across states and districts. We conclude by discussing implications for the realization of educational rights, the design of administrative systems, and future research.

## **2 What Does it Take to Realize Rights?**

### **2.1 Informational Foundations to Realizing Rights**

Translating statutory rights into lived experiences depends in part on the public’s knowledge and awareness of those rights. Such knowledge matters to the claims the public can make on the state and to the public’s political knowledge of how the state sees and engages with the public (Cramer and Toff, 2017; Weaver et al., 2019; Weitz-Shapiro and Winters, 2023). Realizing rights is also a matter of administration: converting policy into practice and lived experiences. Public experiences of governmental programs emerge from the confluence of myriad sources including policy design (Barnes et al., 2023), agency design (Moe, 1989), agency resources (Lipsky, 1980; Dasgupta and Kapur, 2020), the context of implementation (Michener, 2018), individual-level characteristics, and a complex web of administrative processes (Herd and Moynihan, 2019; Cowhy, 2024). This complex web can accumulate in ways that reproduce, intensify and entrench racial and socioeconomic inequalities (Bell and Meyer, 2024; Chudnovsky and Peeters, 2021; Herd et al., 2023; Zuber et al., 2024).

Scholarship demonstrates how these administrative complexities manifest as administrative burdens or “costs” that governments impose on individuals when accessing public services (i.e., Herd and Moynihan (2019), Martin et al. (2024), and Halling and Baekgaard (2024)). These include learning costs (gathering information), compliance costs (completing procedures), and psychological costs (stress, stigma, loss of autonomy) (Herd and Moynihan, 2019). This project focuses on information costs because of their central importance to political knowledge and to the experience of citizenship. Information is essential for individuals to make choices, for individuals and groups to hold public servants accountable, and for agencies that aim to protect their turf or resources. Individuals also differ in their ability to navigate administrative processes. Recent research suggests that citizens draw on varying forms of “administrative capital” (Masood and Azfar Nisar, 2021) or “bureaucratic capacity” (Arnzen, 2026) to navigate administrative burden, as doing so requires knowledge of bureaucratic rules, processes, and institutional behaviors. Put differently, information costs may also have unequal implications for democratic governance through the experiences of individuals accessing their rights, and also for groups or public officials who represent those individuals.

While the emphasis on the costs or burdens of policy and administrative designs have yielded generative insights, we are persuaded by scholarship calling for a benefit-focused approach to analysis. As Barnes et al. (2023) argue: “Insights from studies with a benefit-focused analysis can yield useful insights into how to design policies that not only reduce costs but enhance client experiences beyond the material assistance provided. Doing so may increase program uptake and the effectiveness of policy interventions” (Barnes et al., 2023, p 33). Similarly, recent work in public administration has called for greater attention to strategies that governments can use to reduce burdens and facilitate access, identifying a range of approaches such as simplifying procedures, increasing communication, and improving administrative experiences (Benish et al., 2024). Put differently, we aim to generate scholarship that not only critiques prevailing practice but also contributes to constructing potential pathways forward to enhance democratic governance.

Focusing on the lived experience of social rights underscores the importance of adminis-

trative systems in shaping whether rights are meaningfully realized. As recent work on Medicaid Michener (2018) and housing (Michener and SoRelle, 2026) illustrates, the design and administration of public programs and civil systems influences how individuals experience the state and whether they are even able to access the rights and benefits to which they are formally entitled. Similarly, Barnes et al. (2023) demonstrate that interactions with social policy programs—including WIC, SNAP, and Medicaid—shape citizens’ understandings of the state and their ability to claim social rights. This work helps show that the realization of rights is more than simply reading statutory language or receiving material benefits. It is also shaped by the administrative processes that individuals must navigate to access them. Our concept of administrative ease builds on this insight by shifting attention toward how government institutions can be intentionally designed to facilitate citizens’ ability to access services, exercise rights, and engage with the state.

Administrative ease—in our conceptualization—is not just the absence of burden, but the presence of supportive structures. This aligns with the concept of Universal Design (UD) and, in the realm of education, Universal Design for Learning (UDL), which emphasizes the accessibility of services for all individuals. Universal Design is defined as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” Story (2001). In applying this concept to information accessibility, administrative ease would necessitate the presence of accessible features. Indeed, if websites are designed to provide universal access to special education information, it would be oriented towards users who may not be familiar with special education at all, rather than oriented primarily towards those already familiar with the system. In this application, that might include elements like universal terminology and simple pathways to information. If school districts are able to present this information using a more universal design, they may allow more individuals the opportunity to engage with services—including special education services—that would help them realize their rights to a free and appropriate public education.

We thus approach the puzzle of realizing rights through the lens of administrative ease, which captures the extent to which governments can support and enhance an individual’s ability to

claim and exercise their rights. We ask: What would it look like for governments to build systems that make the realization of rights easy, direct, and accessible?

Like administrative burdens, administrative ease varies systematically across political, bureaucratic, and structural environments (Herd et al., 2023; Nuñez et al., 2026; Zuber et al., 2024; Burden et al., 2012). Information provision itself can be a site of inequality in the realization of rights. Nuñez et al. (2026), for instance, demonstrate that local school districts vary widely in how they communicate information about access to democratic institutions, such as school boards and their meetings. Their web-scrape approach shows that information accessibility is shaped not only by institutional choices or administrative capacity but also by local political dynamics and resource constraints. Politics matter to informational accessibility.

## **2.2 Informational Access and Administrative Ease in Special Education Rights**

We extend this logic of administrative ease to special education, asking how bureaucratic, interest group, and electoral politics shape families' abilities to realize the federally-guaranteed right to special education services for their children when the implementation of that right unfolds through decentralized, local administrative structures: local school districts. School districts are not only the sites that pay for and provide special education services, but they are a primary site where families seek information about special education services (Huscroft-D'Angelo et al., 2022), making district websites a key portal through which social rights are accessed or denied.

Consistent with other policy domains, prevailing scholarship demonstrates the racialized correlates of administrative burdens for disability services, revealing more Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) burdens for programs for individuals living in a predominantly Black county relative to individuals living in a predominantly White county (Jang-Trettien and Bolger, 2024). In the context of special education, moreover, families seeking information and services are often met with complex information, high engagement expectations, and demoralizing experiences (Cowhy, 2024; Cowhy et al., 2024). While few published empirical

studies have examined the administrative burdens of K-12 special education in the U.S. context, scholarship from Norway exploring the experiences of caregivers seeking disability service access for their children, finds that all parents in the study “wished for someone who would make their lives easier by informing them of their rights and available services” (Jacobsen, 2023, p 395).

### **2.3 A Political Market Framework for Social Rights Information Provision**

To explain variation in administrative ease, we develop a political market applied to the administrative ease of accessing special education information. In this framework, public-facing information environments emerge from the interaction of supply-side pressures (including financial and bureaucratic capacities) and demand-side pressures (citizen needs, group mobilization, and political oversight). Similar work has used political market frameworks to understand environmental policies (Keohane et al., 1998), management decisions (Lubell et al., 2009), and transparency of local governments (Tavares and da Cruz, 2020). In our case, supply-side factors such as the school district’s program availability, financial resources, and administrative capacity shape the information that is available to families and the ease at which it can be accessed. On the demand-side, student needs, political mobilization, and partisan preferences can similarly shape the availability of information.

Applying this framework to special education information highlights two important arguments: (1) Rights implementation is politically produced. Even though IDEA guarantees the right to special education, the accessibility of information about those services is mediated by local decisions embedded in bureaucratic politics, electoral incentives, and interest group pressures. (2) Information provision is a strategic behavior. Local officials respond to pressures that either encourage openness (e.g., mobilized parent groups, high demand for services) or discourage it (e.g., fiscal constraints that make increased service utilization costly). Our argument builds on Tavares and da Cruz (2020), who demonstrate the supply-side and demand-side forces that jointly determine how governments construct their informational environment, and on Nuñez et al. (2026) who examine these forces in the context of local school districts providing information about school boards on their websites. We argue that these same dynamics shape whether families experience

administrative ease when searching for special education information.

### **2.3.1 Supply-Side Factors**

Supply-side pressures reflect school districts' internal characteristics, including financial resources, administrative capacity, and bureaucratic structure. Districts with more resources may have dedicated communications staff, more robust information technology infrastructure, and the administrative bandwidth to maintain active, accessible websites. Alternatively, resource-limited districts may lack capacity to update websites or may strategically limit information if higher special education enrollment creates fiscal strain (Garcy, 2011; Kaput and O'Neill Schiess, 2024). Similarly, bureaucratic structure matters. Well-resourced or professionalized bureaucracies may develop clearer pathways to information and they may be more likely to have consistent services to advertise (Andrews et al., 2017). School employees' unionization, moreover, may generate incentives to provide and promote services delivered in-house, akin to union incentives to discourage outsourcing (Potter, 2022). Yet overly complex or bureaucratic environments can also generate red tape (Bozeman and Feeney, 2014) making information harder to locate.

### **2.3.2 Demand-Side Factors**

Demand-side pressures arise from the communities that governments serve. School districts with higher proportions of students with disabilities may face stronger demand for accessible special education information, prompting clearer communication. Conversely, high demand may produce cost pressures that create incentives for local actors to obscure or complicate access (Garcy, 2011; Kaput and O'Neill Schiess, 2024). Electoral politics also matter. Higher civic engagement, more contested elections, or structures that increase accountability may increase incentives for transparency, as scholarship has demonstrated that elected officials are aware of the administrative burdens that policies can present (Burden et al., 2012). Additionally, interest group politics may shape how districts communicate services and information. Recent reporting on labor negotiations in California highlights how teachers' unions have increasingly focused on special education staffing

levels, caseloads, and service provision as central bargaining issues, reflecting the growing fiscal and administrative pressures associated with disability services (Gallegos, 2026). These negotiations underscore that special education administration is not only a matter of bureaucratic implementation but also a product of organized political pressures, which may influence information availability. More broadly, parent advocacy groups, disability rights organizations, and professional associations may pressure districts to share information, as Tavares and da Cruz (2020) and Nuñez et al. (2026) observe. Community partisanship and ideological preferences can also contribute to demand-side pressures.

Special education access is a federal right implemented through a decentralized governance system. This creates significant potential for geographic inequalities (Herd et al., 2023), as rights depend on local administrative structures beyond federal mandates alone. The political market framework helps us explain how local variation emerges despite federal guarantees: families encounter administrative systems shaped by the interaction of capacity, resources, electoral accountability, and community demand. Our framework therefore conceptualizes the ease of accessing special education information as a political and administrative outcome shaped by both supply and demand. This lens guides our expectations about when and where we should observe greater administrative ease.

### 2.3.3 Hypotheses

#### Supply-Side Hypotheses

- **H1 Resource Capacity—Ease:** School districts with greater financial or organizational resources will exhibit greater administrative ease in providing special education information (i.e., they will be more likely to provide information and make it easier to access).
  - **H1a Resource Constraint—Burden:** Alternatively, resource-poor districts may have incentives to limit or complicate information about costly services; thus, school districts with fewer resources will be less likely to provide special education information and/or will make it harder to access.

- **H2 Professionalized Bureaucracy—Ease:** School districts with more administrative support staff and more balanced bureaucratic workloads will exhibit greater administrative ease in providing special education information.
  - **H2a Bureaucratic Complexity—Burden:** Alternatively, as bureaucracies grow in size or complexity, red tape may increase; thus, school districts with more complex bureaucracies may provide less accessible information.
- **H3 Unionized Bureaucracy Advocacy—Ease:** School districts that incorporate special education explicitly in their union contracts will exhibit greater administrative ease to sustain in-house supply of special education services.
  - **H3a Unionized Bureaucracy Protections—Burden:** School districts that incorporate special education explicitly in their union contracts seek to minimize demands on union-protected staff, and may be more likely to obfuscate information on special education services.

### **Demand-Side Hypotheses**

- **H4 Service Need—Ease:** School districts serving populations with greater demand for special education services (e.g., higher proportions of students with disabilities) will provide more accessible and readily available information.
  - **H4a Service Costs Pressure—Burden:** Alternatively, districts with high special education utilization may have incentives to reduce service access by increasing informational barriers; thus, districts with higher special education identification rates may make information more difficult to find.
- **H5 Electoral Accountability—Ease:** School districts that are more electorally accountable—through higher civic engagement, competitive elections, or electoral structures that increase oversight—will make special education information more available and accessible.

- **H6 Interest Group Pressure—Ease:** School districts more influenced by organized parent groups, disability advocacy organizations, or other community-based interests will make special education information more accessible to the public.

### 3 Data and Methods

Measuring the administrative ease or burdens that individuals face as they interact with government processes and exercise rights poses a number of empirical challenges. Typically, quantitative scholarship on administrative burden focuses on outcomes such as take-up rates (Herd et al., 2013) or information availability (Nuñez et al., 2026). Such work links disparities in participation in government programs and public information about them to complex processes such as the “Medicaid maze” or changing complications in the process of voting (i.e., Hanoch and Rice (2006); Herd and Moynihan (2019); Herd et al. (2023); Arnzen (2026)). Qualitative work on administrative burdens offers a clear and nuanced portrait of how the onerous and bureaucratic processes can be (Zuber et al., 2024). Yet, nuance and clarity at scale are difficult to attain without also introducing the biases of surveys and self-reports. We attempt to attain greater nuance and clarity here through a novel approach: using a web crawler to approximate the human experience of finding information and resources. This approach also allows us to explore variation of information availability on local school district websites, building on the work of Nuñez et al. (2026) who find both political and structural factors shape access to information at the local level. Additionally, this approach allows us to expand on work exploring state-level special education information available to families (Farley et al., 2020) by examining information available at the local school district level. Local districts are the units responsible for providing the services as well as the places that many families report looking for information about such services (Huscroft-D’Angelo et al., 2022). Websites have become a primary vehicle for conveying public information, and they vary in their navigational ease and accessibility. Information might be widely available on websites, but it can differ in how easy it is to find and access this information. Scholarship examines the accessibility, completeness of

information, and clarity of government and education websites, and offers a discouraging portrait of websites that fail to meet the standards of the World Wide Web Consortium (W3C) for accessibility, buries disability information or fails to offer information at all (Meleo-Erwin et al., 2021; Klein et al., 2003; Campanile et al., 2022).

### **3.0.1 Web Crawler Development**

To systematically measure how easily families can locate information about special education services, we developed a custom Python-based web crawler that emulates human website navigation across school districts in our sample. Rather than scraping the underlying HTML or Document Object Model (DOM)—an approach that would not reflect the experience of humans in searching for information—we designed the crawler to replicate the steps a user might take when searching for information: loading a district homepage, scanning visible menus, hovering over navigation elements, and clicking sequential links that appear relevant. The crawler was built using the Selenium WebDriver library, which allows programmatic control of a standard web browser and supports realistic interaction patterns such as delays, hovering, and dynamic menu expansion. In this sense, the crawler functions as a standardized “automated research assistant” that mirrors user behavior. While doing this, it generates consistent measures of how a person might experience each website.

For each district, the crawler begins on the official school district website identified through the National Center for Education Statistics (NCES) directory and attempts to establish site access using multiple URL variants (e.g., http/https, with and without “www”).<sup>2</sup> Once loaded, the crawler proceeds through a multi-stage discovery process. First, it scans the homepage for any direct links containing clearly recognizable special-education-related terms (e.g., “Special Education,” “SPED,” “Disability Services”), which we refer to as a “Destination Term.” If no direct link is present, the crawler moves into a broader navigation phase, mimicking a user who then has to explore the site by other means such as opening drop down menus, selecting items in navigation bars, or following

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<sup>2</sup>If the school district did not have a website through NCES, research assistants located their website through either the state departments of education databases or by Googling the district.

pages nested under broader categories such as “Departments,” “Student Services,” or “Families.” This phase is guided by a term-search system: “Generic” terms represent broad navigation pathways (e.g., “About Us,” “Departments”), “Gateway” terms guide the crawler through other paths more commonly associated with student supports. Through either path, it looks for “Destination” terms which represent specific identifiers of special education content.<sup>3</sup>

When the crawler identifies a special education page, it validates the page by checking for relevant terminology in the text and then records several measures which we use as outcomes. These include: (a) whether special education information could be found at all; (b) the number of “clicks” required to reach the page from the homepage; (c) the total time, in seconds, required to navigate successfully; and (d) the terms present on the destination page, which allow us to assess accessibility through the language choices districts use.<sup>4</sup> These outputs allow us to construct both individual measures of administrative ease (e.g., quick vs. slow find, shallow vs. deep navigation path, presence of common terminology). Figure 1 illustrates the data collection process for the web crawler.

The crawler was developed iteratively and validated across multiple states during the pilot phase. Research assistants manually checked crawler outputs and verified all cases in which the crawler failed to identify special education content (293 school district websites). This facilitated updating of term lists, navigation rules, and measurement specification. The final version of the crawler was deployed across all district websites in Massachusetts, Rhode Island, Florida, and Indiana over several weeks in the Fall of 2025. We selected these four states due to their partisan and regional variation. Our web-crawler approach provides a scalable, behaviorally-grounded method of approximating the informational experience of families while retaining consistency and reliability across hundreds of school districts.

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<sup>3</sup>The Technical Appendix contains a more sophisticated description of the web crawler process, data collection process, and variable definitions.

<sup>4</sup>Because load times and bot-avoidance delays can inflate time measurements, we track separately baseline page-load time to isolate navigational effort. For each successful search, the crawler also stores the clicked navigation path, providing a record of the sequence of pages a typical user would have encountered.

### 3.1 Data Sources

We merge multiple external data sources with our web-crawler data to yield comprehensive school districts portraits.<sup>5</sup> Foundational school district information comes from the National Center for Education Statistics (NCES) Common Core of Data (CCD): a federal database of school- and district-level data. From the CCD, we merge on school district demographics including racial composition of each district, school district locale (urbanicity), school district resources (spending), and school type (traditional public or independent charter school district).<sup>6</sup> The CCD data also includes a characterization of each district type (i.e., whether it is a traditional public school district or an independent charter school district). We additionally include a measure of students who live in poverty from the U.S. Census Small Area Income and Poverty Estimates (SAIPE) data. We supplement this with state-level data from each state's department of education, which includes district-level enrollment rates for students with an individualized education program (IEP)<sup>7</sup> and rates for students identified with limited English proficiency. These data comprise our school district demographic factors and our school district structural factors.

Assessing administrative ease also depends on determining how political factors shape information availability and the administrative ease of accessing that information at the local level. To explore political factors, we include several school district-level electoral and interest group measures. To account for bureaucratic politics, we measure bureaucratic workload of school district staff through administrative support staff and administrative expenses data from the CCD. For

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<sup>5</sup>The Technical Appendix contains further details about the data sources and the merging process.

<sup>6</sup>For charter school districts in our sample, some of our other measures (e.g., poverty rates, partisan composition, and internet access) are structurally undefined because charter school districts do not have geographic boundaries like traditional public school districts. This means that some measures such as votes and poverty measures cannot be spatially aggregated up to the district level for charters. However, charter school districts nevertheless have the same legal obligation to provide students with disabilities the same services and information as traditional public school districts. To retain these observations, missing values on these measures were imputed to the sample mean and a charter district indicator is included in all models moving forward. Coefficients on geographically bounded covariates are therefore identified from variation among traditional public school districts and denoted as such, while the charter indicator captures institutional differences associated with charter governance.

<sup>7</sup>There is not an exact parallel between disability and eligibility for an IEP in schools. For example, a student may or may not be identified as eligible for special education services and that may or may not align with their own disability identity. Given data limitations, however, in this manuscript we use eligibility for special education services through an IEP to identify students with disabilities, consistent with prior literature. Thus, we use students with disabilities and students with IEPs interchangeably.

electoral politics, we use school district-level election data from Nuñez et al. (2026), including partisanship.<sup>8</sup> Our interest group politics measures are captured and analyzed in a single-state, deep-dive analysis of Massachusetts. This approach enables us to include measures of special education references in district collective bargaining agreements and measures of districts' special education lawsuits.

### 3.2 Summary Statistics

Table 1 contains summary statistics for our variables of interest displayed as averages for the districts within each state. Panel A details the average demographic composition of school districts in the sample and in each state respectively. These demographic statistics show that Florida and Rhode Island districts, on average, tend to be more diverse than districts in Indiana and Massachusetts, as illustrated by their higher percentages of students belonging to a racial or ethnic minority.<sup>9</sup> However, districts in Florida and Indiana also tend to have higher rates of students living in poverty. Notably districts in all states have comparable average rates of students on IEPs.

Panel B details the structural factors of school districts in each state. Massachusetts and Rhode Island have a greater share of suburban school districts than Florida and Indiana, which both have a greater share of rural districts. Florida shows no independent charter school districts, because they authorize charter schools differently than the other states (more commonly through the state, universities, or public school districts rather than as their own districts). Florida districts, which are also counties, are also considerably larger than those in other states, with an average of over 40,000 students and 62 operational schools compared to roughly just over 2,000 students and 5 schools on average for the other states. Massachusetts and Rhode Island far outpace the other states in both local funding for education and per pupil spending.

Panel C illustrates the measures of political factors associated with districts in each state.

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<sup>8</sup>This data is from the MIT Election Lab precinct-level returns and is aggregated up to the school district level to generate measures of partisanship and civic engagement.

<sup>9</sup>Additional analyses using the percentages of students who are Black, Hispanic, or belonging to another racial or ethnic group are included in Technical Appendix Table 11, but are not included here, as they are collinear with other variables in our data.

In terms of *Bureaucratic Politics*, Florida school districts, which are considerably larger entities, employ far more staff on average than the those in other states. These are the people who work for the school district office, supporting district administration and operations. Florida also outspends other states, on average, on district operations. In terms of *Electoral Politics*, Massachusetts districts have the most civically engaged citizens, with an average rate of 22 votes cast in a district per student, followed by Rhode Island. School Districts in Massachusetts and Rhode Island tend to skew Democratic on average, while those in Florida and Indiana tend to skew Republican. Descriptive statistics for additional measures included in the Massachusetts-specific analyses (i.e., union contracts and lawsuits), appear in the Technical Appendix.

### **3.3 Analytic Approach**

#### **3.3.1 Administrative Ease Measures & Index Development**

In accessing information, individuals do not experience one dimension of ease or burden in isolation. Our web crawler measures various aspects associated with burden initially: the time it takes to find information, the depth of that information on the website, the terms used to find that information, and the complexity of that information. Given that most districts do make this information available in some form and most districts make it relatively easy to access, we are primarily interested in the factors that facilitate *ease* in access.

Initially, we construct a series of dependent variables approximating administrative ease rather than administrative burden such that greater values of our outcomes measure easy experiences that families might have in accessing information about special education rather than burdensome experiences. Table 2 illustrates the various measures of burden (Panel A) and their equivalent measures of ease (Panel B). The first measure shows the rates at which information is available on district websites across states.

The *Number of Clicks* measure is an average of the number of clicks that it takes to find the information (conditional on it being available in the first place).<sup>10</sup> To convert this measure to ease,

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<sup>10</sup>The distribution of Number of Clicks as well as transformations of it and their distributions can be seen in Appendix

we count any website that makes special education information available in less than three clicks as an *Easy Path* in Panel B.

The *Time Taken* measure is an average of the seconds it takes to find the special education information on a school district website.<sup>11</sup> To convert this measure to ease, we count any website that takes less than average time for parents to find information as a *Quick Find* in Panel B.

The terminology measures are a bit more complicated, as they vary greatly from state to state and from website to website. They are also not mutually exclusive, as many terms can be on a webpage. The *Special Education Term Found* and the *Disability Term Found* account for whether each of those terms are found on the web page. *Exceptional Student Term Found*, *Advisory Council Page Found*, *Services Term Found*, and *Jargon/Acronym Found* all account for comparable factors of whether or not terms in those categories appear on the special education page to illustrate the broad frequencies of each category. To construct a measure of administrative ease, we count whether a webpage uses the two most common terms, essentially measuring whether web page has a term like “Special Education,” “SPED,” or “Disability” found on it. This is measured in *Common SPED Terminology* in Panel B as it makes it easier for families to access information via search and/or navigation, and requires less expert and localized knowledge.

Finally, we construct an additive *Administrative Ease Index* from the various components of administrative ease outlined above, illustrated in Panel C. Such methods are commonly used to capture various measures into a single outcome for analysis (Long and Freese, 2006; Greene and Hensher, 2010; Kling et al., 2007). This measure is constructed starting with 0 for each website, then adding 1 for each binary measure of ease that the school district meets: *Easy Path*, *Quick Find*, and *Common Term*.<sup>12</sup> This measure of ease allows us to examine districts that have and do not have information on special education together, rather than analyzing only those that provide information. Including districts that do not provide information in the analysis is important, as (Bell and Jilke,

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Table 9 for comparison.

<sup>11</sup>The distribution of Time Taken in Seconds as well as transformations of it and their distributions can be seen in Appendix Table 11 for comparison.

<sup>12</sup>The distribution of Administrative Ease as well as transformations of it and their distributions can be seen in Technical Appendix Table 11 for comparison.

2024) theorize that administrative burdens can appear in either the initial stage of access *or* the second stage of interaction. Thus, we use the measure of ease as our primary outcome moving forward, though we additionally explore the various features of ease for descriptive purposes.

### 3.3.2 Descriptive Analyses & Regression Models

For a portion of our analyses, we focus on variation in our primary outcome of interest: whether or not a local school district makes special education information available to families. We also conduct separate descriptive analysis for the state of Massachusetts because we can examine more covariates in this state than our full sample of states allows.

We use regression analysis to explore the full sample of data. Given the variation in state approaches to education policy, and school districts are nested within states, we use ordinary least square regression models with state-level fixed effects and state-clustered standard errors to explore how structural and political factors shape access to special education information at the local level.

For this analysis, we use a model in the following form:

$$Y_{ds} = \beta \text{DemographicFactors}X_{ds} + \beta \text{StructuralFactors}X_{ds} + \beta \text{PoliticalFactors}X_{ds} + \gamma_s + \varepsilon_{ds} \quad (1)$$

$Y_{ds}$  represents our main outcome of interest (e.g., *Success*, *Easy Path*, *Quick Find*, *Common Term*, and *Administrative Ease*) for district  $d$  in state  $s$ . Additionally,  $\text{DemographicFactors}X_{ds}$  is a vector of district demographic characteristics, including total students enrolled, enrollment by race/ethnicity, poverty status, and the percentage of students on an IEP or with limited English proficiency.  $\text{StructuralFactors}X_{ds}$  accounts for the influence of locale (i.e., urbanity), school size, district finances (e.g., local revenues per pupil), and local availability of high speed internet access.  $\text{PoliticalFactors}X_{ds}$  accounts for the influence of Bureaucratic Politics (i.e., administrative workload and spending), Electoral Politics (e.g., election structure, civic engagement, etc.), and Interest Group Politics. Finally,  $\varepsilon_{ds}$  is the stochastic error term and  $\gamma_s$  is a fixed effect for state.

Most models are linear probability models given that our outcomes are binary measures, meaning that coefficients can be interpreted as percentage point increases or decreases in the likelihood of an outcome given the coefficient. The only exception is *Administrative Ease Index*, which is an ordinal outcome (0 - 3) with greater values meaning greater ease in finding information and a 0 meaning no information was available. For this outcome, we use ordinal logistic regression models also with state fixed effects and state-clustered standard errors. For these models, we display results as odds ratios.

## **4 Results**

We organize our findings in two stages. First, we review findings for school districts in all four states. Then, we present results for Massachusetts only to examine an expanded group of political measures.

### **4.1 Administrative Ease in Public School Districts**

#### **4.1.1 Where is Special Education Information Available?**

Descriptively, we find that the web crawler was able to identify a web page that included a reference to terms related to special education services in over 80% of districts in our four-state sample. Table 1, Panel C details the success rate of finding a special education page on a district website across the full sample and each state. We found the highest rate of success in Massachusetts, with over 93% of districts containing a web page referencing special education. The lowest success rate was found in Indiana, in which we found a special education web page among only 70% of districts using our web crawler.

#### **4.1.2 What Factors Facilitate SPED Information Availability?**

For our first measure of administrative ease, we measure the binary presence or absence of special education information on a school district website, as identified by our web crawler. We take

a stepwise approach to estimating the relationship between the availability of special education information and district covariates, the results of which can be found in Table 3. Starting first with school district demographics, we find that student diversity is negatively associated with information availability. Next, including school district structural factors (e.g., locale, internet access, finance, charter school indicator), the relationship washes out, with no variables showing statistical significance. Finally, adding school district political factors into our model, we find that voter turnout is positively associated with information availability, while Democratic vote share is negatively associated with information availability, both with statistical significance.

In our fully specified model (Table 3, column 3 or Table 4, column 1), controlling for the demographics, structural factors, and political factors of a school district, political factors emerge as most salient in terms of the presence of a special education web page on a school district website. A one-unit increase in the votes-to-students ratio is associated with a 0.1 percentage point increase in the likelihood of information availability, while a one-percentage-point increase in Democratic vote share is associated with a 0.1 percentage point decrease in the likelihood of special education information availability. These political variables, both statistically significant, appear to work in opposite directions.

#### **4.1.3 The Administrative Ease of Accessing SPED Information**

Across our three components of administrative ease, we find that each set of covariates is differentially associated with each component, as well as our overall measure of administrative ease. Full regression estimates can be found in Table 4, columns 2-4. Results in Table 4 reflect linear probability estimates for a binary measure of each component of administrative ease. Appendix Tables 8, 9, and 10 show results for various other calculations of each measure (e.g., continuous measure of time rather than binary measure of “Quick Find”). Importantly, when looking at other estimates for different measures of clicks and time in columns 1-3 of each table, those measures actually reflect burden rather than ease (i.e., more clicks and time are more burdensome), so it is promising that the coefficients for some estimates, particularly those that are statistically significant,

are reversed in direction when our binary measure of ease is used as the primary outcome (column 4 in Tables 8 and 9, and columns 2 and 3 of Table 4).

Looking first at pathway complexity (“Easy Path”; Table 4, column 2), we find that charter schools in our sample have a more difficult path to the special education webpage. Specifically, we find that charter schools are about 21.4 percentage points less likely to have an easy path to the information than traditional public schools. This variable, however, relates to the organization of a webpage, which may systematically vary across district type.

Turning next to the time it takes to arrive at a special education website (“Quick Find”; Table 4, column 3), we find that there appears to be no statistically significant relationships observable in our models.

Next, we look at the relationship between district covariates and the use of common special education terminology (“Common SPED Terminology”; Table 4, column 4). Here, we find that charter school districts are about 12 percentage points less likely to use common terminology. Finally, districts that prioritize administrative spending in their budgets are more likely to use common SPED terminology on their websites.

In addition to logistic regression modeling of our binary outcome of common terms, we explored the terms found on each website in more depth descriptively. Our team explored the universe of terms found by our web crawler and thematically identified groups of terms that represent what might be different levels of expertise or familiarity with special education terminology. Figure 2 shows the variation in the use of each group of terms by state, demonstrating that there are distinct patterns in the terms that districts in each state uses. For example, districts in Florida are much more likely to use terms that we identified as jargon or acronyms (e.g., “E.S.E” for “Exceptional Student Education”). Over 40% of districts in Florida and Indiana use such terms on their web pages, compared to less than 30% of districts in Massachusetts or Rhode Island. Comparatively, around 30% of districts in all four states use terms related to “special education” while about 15-20% use terms related to “disability.” There appear to be regional differences in other terms used as well. For example, districts in Florida and Indiana use “exceptional student” terminology relatively frequently

while those in Massachusetts and Rhode Island use them very infrequently. In contrast, districts in Massachusetts and Rhode Island use “advisory council” as a term (e.g., “parent advisory council”) with relative frequency while those terms were not found on websites for districts in Florida or Indiana. Across all four states, around 10% of websites used the somewhat vague terminology of “student services.”

Descriptively, there also appear to be distinct differences in the administrative ease of accessing special education information from charter school district websites compared to traditional local districts. Indeed, charter districts tend to show less administrative ease overall across measures. Charter districts have a 11 percentage point lower rate of success (73%) than traditional local districts (84%). The probability of an easy path is similar among both types of districts, with 48% of charters having an easy path compared to 51% of traditional districts. While most districts have a quick find, the proportion is slightly lower among charter districts (91% compared to 97%). Only 77% of charter districts use a common term, compared to 90% of traditional local district.

Finally, we use an index measure of administrative ease as our primary outcome, which incorporates our individual binary measures of easy path, quick find, and common use of special education terms. Column 5 illustrates the odds ratios from an ordinal logistic regression for the administrative ease index. In the fully-specified model using our administrative ease index, we find multiple statistically significant relationships. Districts with greater proportions of students with IEPs and those with limited English proficiency tend to have lower levels of ease. In terms of district’s structural factors, both charter schools and schools that spend less per pupil also typically exhibit lower levels of administrative ease. Finally, as with information availability in general, Democratic vote share is negatively associated with administrative ease of special education information accessibility.

## **4.2 Interest Group Politics: Massachusetts**

Finally, we explore Massachusetts school districts as a separate stratified sample because the high availability of information on political factors in the state allows us to estimate models with a more

robust set of political measures. We present district summary statistics in Table 5 and estimates of our five regression models (each with a different outcome variable) in Table 6. Overall, our findings provide a foundation for future work and data collection. Notably, the addition of interest group mobilization measures related to special education settlements and the mention of paraprofessionals in teachers' collective bargaining agreements appear largely unrelated to most measures of ease. The one exception is that the mention of paraprofessionals in collective bargaining agreements is particularly salient among the group of political covariates, and is associated with a 3 percentage point increase in the likelihood of common terminology use. However, it is notable that special education information is most available in Massachusetts of the four states in our sample, perhaps suggesting that the general lack of variation in ease should not be entirely surprising.

## **5 Discussion**

Overall, we find variation in the administrative ease of accessing special education information on school district websites, particularly in the terms used on a special education webpage and the overall ease of access. Promisingly, our web crawler was able to locate a web page that included key words related to special education for the vast majority —82%—of the district websites we analyzed across four states (i.e., Rhode Island, Massachusetts, Indiana, and Florida). We do, however, find a relatively high amount of variation across states in terms of the terminology used on special education websites. Further, we find variation between charter and traditional local districts regarding availability of information, use of common terminology, and overall administrative ease.

The most notable variation in our results came from the terms that districts used on the webpages that we analyzed. For example, there are distinct differences by state in the terms used on special education webpages: about 40% of websites in Florida use jargon or acronyms, while only about 20% of websites in Massachusetts or Rhode Island do the same. Additionally, about 25% of districts in Florida use terms related to “exceptional students” but that term is not found on any webpages in Rhode Island. Once again promisingly, about 30% of websites in all states use words

related to special education and about 10-20% use those related to disability, which are the most clear and precise terms that we found.

We found another clear point of variation in multiple measures of administrative ease between charter and traditional local school districts. While our web crawler identified special education webpages within 84% of traditional public district websites, we identified the same in only 73% of charter district websites. Additionally, while 90% of traditional public district websites used a common term, only 77% of charter districts did the same. Based on our administrative ease index and several components of the index, special education information is typically less accessible on independent charter district websites. Notably, charter school districts do not have the same public accountability that traditional public schools do, and civic engagement both in terms of voter turnout and Democratic vote share are associated with SPED information accessibility. These variables, as well as the poverty measures and internet measures we use, do not apply to charter districts because of their governance structures.

## **5.1 Implications and Limitations**

### **5.1.1 Implications**

This work contributes to scholarship on administrative burdens, public administration, and special education through the development and application of a novel web crawler that replicates the human experience of navigating a school district website in search of information on special education services for students with disabilities. One clear implication of our research is that there are measurable differences in the ease with which special education information is accessible on school district websites.

While we found a high rate of success among the district websites that we studied, our preliminary results also suggest more can be done to provide transparent, comprehensive, and accessible information about special education services to families, caregivers, and other potential consumers of special education services (including students themselves). Extant literature indicates that there are benefits of information-related interventions focused on increasing support program

take-up, especially when they are integrated with more personalized support strategies (e.g., Carbuccia et al., 2025). Additionally, public administration scholarship indicates that reducing the workload of street-level bureaucrats can support more equitable administration of public services (e.g., Bell and Meyer, 2024). While our findings do not show that additional administrative expenditures per school significantly shape administrative ease, they do underscore that voter turnout and public accountability appear to shape information availability in some manner, though we cannot speak to any potential causal relationships. Future work may take up this task using measures of administrative ease and related subject matter inquiry.

Additionally, our results complement burgeoning scholarship on the challenges federalism poses to realizing rights by revealing how more unified policies around information sharing could enhance the accessibility and comprehensiveness of information related to special education. We found differences across states, particularly regarding the terminology used in district websites.

### **5.1.2 Limitations and Future Directions**

The web-crawler we developed to capture our measures of administrative ease constitutes both a unique asset of this work, as well as a limitation. We took numerous steps to validate our data collection process, including validating over 30% ( $n = 293$ ) of our sample by hand. Yet, the dynamic nature of websites in combination with our large sample makes it so that we could not feasibly validate the full sample. Thus, while the web crawler is able to approximate the human experience and our data is able to speak to a meaningful measure of administrative ease in some ways, we anticipate further nuance would emerge if we were able to extract data from human-initiated searches.

Relatedly and promisingly, the web crawler allowed us to collect data for a very sizable sample. Given the balance between precise measurement of human behavior and the importance of gathering data across a large sample, we prioritized establishing a framework for measuring administrative ease across a large sample. In future studies, we plan to supplement this work by developing a baseline comparison for other types of information available on local district websites

such as school calendars. We also plan to measure true human navigational experiences using qualitative data.

One of our more unexpected findings was that, holding all other covariates constant, school districts with more Democratic voters were less likely to provide special education information and had less overall administrative ease. We did not initially hypothesize how partisanship might shape administrative ease prior to our analysis because there is limited empirical work on the relationship between partisanship and special education. Despite some historical work on special education and democracy (Skrtic, 2005), as well as political participation among individuals with disabilities (Johnson and Powell, 2024), there is still limited work in this area (Heffernan, 2024). Future research could explore the relationship between political partisanship and special education services more precisely.

## **6 Conclusion**

The informational foundation of social rights—for example, the right to free and appropriate public education in the least restrictive setting—varies by political, bureaucratic, and demographic context. In our analysis of information regarding social rights to educational services, we find that considerable variation appears across district type, with charter school district websites posing less administrative ease than traditional public schools. We emphasize ease over burdens to heed the call from Barnes et al. (2023) to identify designs and practices with potential to “enhance client experiences beyond the material assistance” (Barnes et al., 2023, p 33). Our novel measure of ease underscores the importance of time-savings, simple pathways, and common terms of reference to support the efforts of students with disabilities and their families to realize their rights. While prevailing scholarship has emphasized the compliance costs associated with special education, our study further elucidates the importance of information central to political knowledge and social rights.

In this study, we focus on access to information about special education services. Information

is not a proxy for services themselves but is an important, necessary condition to receiving services that provides a unique window into the experiences surrounding access to services. While we have focused here on administrative ease to minimize learning costs, we anticipate and encourage future work to assess the psychological benefits associated with reduced time and labor it takes to navigate websites.

Scholarship convincingly demonstrates that, “for many, the experience of the state is the experience of burdens” (Herd and Moynihan, 2019). The experience of special education is often the experience of burdens (Cowhy, 2024), but there are very few at-scale measures of how individuals experience this entity of the state. This is despite the fact that 7.5 million students are eligible for special education services, and those students become citizens who may or may not be eligible consumers or users of disability services in adulthood, which indeed come with their own burdens. Our study contributes to multiple literatures, including those on administrative burden, political knowledge, the politics of public bureaucracy, and special education, by developing a novel measure of administrative ease to access information about special education services from public school district websites. We find measurable differences in the administrative ease of accessing information essential to the realization of social rights, and we set the stage for future work to explore these differences in more depth with the aspiration to augment the public’s ability to realize their social rights.

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# Tables

Table 1: District Summary Statistics by State

	All (1)	FL (2)	IN (3)	MA (4)	RI (5)
<b>(A) School District Demographics</b>					
Pct. of Racial/Ethnic Minority Students	35.14	46.88	32.60	34.22	45.14
Pct. of Students in Poverty	11.37	19.25	13.16	7.99	9.43
Pct. of Students on IEPs	19.23	17.89	18.65	20.48	16.34
Pct. of Students w. Limited English	8.03	6.92	7.66	7.82	13.28
<b>(B) School District Structural Factors</b>					
Urban District	0.19	0.13	0.27	0.11	0.22
Suburban District	0.41	0.36	0.17	0.63	0.55
Town/Rural District	0.41	0.51	0.56	0.26	0.22
Independent Charter District	0.22	0.00	0.27	0.18	0.38
Total Students in District	5344.44	41872.93	2602.38	2320.35	2355.38
Number Operational Schools	8.97	62.30	4.75	4.68	5.34
Internet Access (FCC Recommended Speed)	65.45	68.55	61.67	67.27	75.59
Local Funding Per Pupil (Log)	8838.65	5515.24	3923.50	13946.46	11799.45
Per Pupil Spending	20862.57	12757.12	14380.53	28518.33	22851.81
<b>(C) School District Political Factors</b>					
<i>Bureaucratic Politics</i>					
Number FTE District Support Staff	13.53	89.09	6.99	7.89	9.07
Administrative Expenditures (in Thousands)	1174.30	5727.61	648.29	992.28	745.12
<i>Electoral Politics</i>					
Votes to Students Ratio	14.19	7.46	7.75	21.99	15.88
Pct. Votes Democrat	46.71	35.54	30.76	63.96	57.57
Pct. Votes Republican	53.29	64.46	69.24	36.04	42.43
<b>(D) Administrative Ease of Accessing SPED Info</b>					
Special Education Information Available	0.82	0.88	0.70	0.93	0.78
Common SPED Terminology	0.96	0.97	0.93	0.98	0.96
Number of Clicks to SPED Info.	1.44	1.22	1.56	1.38	1.42
Time Taken to find SPED Info.	31.56	23.94	32.67	32.26	28.96
<i>N</i>	914	67	397	392	58

Notes: This table details the summary statistics of our sample of school districts for each state separately. The Poverty Rate comes from the SAIPE. The internet measure is a weighted average percentage of the proportion of households in a school district with access to the FCC-recommended internet speed based on FCC data.

Table 2: Measures of Administrative Ease by State

	All (1)	FL (2)	IN (3)	MA (4)	RI (5)
<b>(A) Administrative Burdens Measures (Raw Counts)</b>					
Special Education Information Available	0.82	0.88	0.70	0.93	0.78
Number of Clicks to SPED Info.	1.44	1.22	1.56	1.38	1.42
Time Taken to find SPED Info.	31.56	23.94	32.67	32.26	28.96
'Special Education' Term Found	0.48	0.03	0.30	0.72	0.59
'Disability' Term Found	0.42	0.46	0.23	0.62	0.40
'Exceptional Student' Term Found	0.62	0.73	0.51	0.73	0.52
Advisory Council Page Found	0.23	0.00	0.01	0.47	0.28
'Services' Term Found	0.32	0.15	0.22	0.44	0.29
Jargon/Acronym Found	0.77	0.82	0.65	0.89	0.71
<b>(B) Administrative Ease Measures</b>					
Easy Path (Fewer Clicks)	0.88	0.93	0.80	0.92	0.89
Quick Find (Less Time)	0.50	0.42	0.55	0.49	0.40
Common SPED Terminology	0.96	0.97	0.93	0.98	0.96
<b>(C) Administrative Ease Index</b>					
Administrative Ease Index	1.91	2.04	1.60	2.23	1.74
<i>N</i>	914	67	397	392	58

Notes: This table details the summary statistics for the various measures generated from the web crawler used to explore school district web pages for special education information. By default, the web crawler tracks measures more aligned with administrative burdens of accessing information, such as the number of clicks it takes to find information, the time it takes to find information, and the terms that are required to find information. We code the variables as measures of administrative ease to better understand the factors that reduce burden and increase access for families: Panel B contains measures generated from those in Panel A. Specifically, Easy Path is a binary variable for whether the information is less than three clicks deep in a website; Quick Find accounts for whether it takes less than average time for the web crawler to find the information; and Common Term accounts for whether the web page uses a commonly-understood special education term such as special education or disability. We then construct an additive index of overall Administrative Ease from these measures with 0 representing that no information was present and 3 meaning that the district met all indicators of ease represented in Panel C.

Table 3: Availability of Special Education Information in School District Websites

	SPED Info. Available		
	(1)	(2)	(3)
<b>School District Demographic Factors</b>			
Pct. of Racial/Ethnic Minority Students	-0.001** (0.000)	-0.001 (0.000)	-0.000 (0.000)
Poverty Rate (Public School Districts)	0.001 (0.001)	0.001 (0.002)	0.001 (0.001)
Pct. of Students on IEPs	-0.001 (0.003)	-0.001 (0.002)	-0.001 (0.002)
Pct. of Students w. Limited English	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)
<b>School District Structural Factors</b>			
Urban District		0.001 (0.047)	-0.003 (0.043)
Town/Rural District		-0.019 (0.016)	-0.033 (0.019)
Internet Access (Public School Districts)		0.000 (0.000)	0.001 (0.000)
Local Funding Per Pupil (Log)		0.000 (0.000)	0.000 (0.000)
Expenditures Per Pupil (Log)		-0.059 (0.097)	-0.062 (0.105)
Independent Charter District		-0.059 (0.077)	-0.116 (0.069)
<b>School District Political Factors</b>			
Voter Turnout (Public School Districts)			0.001*** (0.000)
Democratic Vote Share (Public School Districts)			-0.001*** (0.000)
Pct. Budget Spent on Admin Expenses			-0.003 (0.005)
State Fixed Effects	Yes	Yes	Yes
State-Clustered SE	Yes	Yes	Yes
R-Squared	0.085	0.090	0.092
N	883	883	883

Notes: This table displays results from various linear probability models of whether a district provides special education information on their website. The outcome variable is a binary variable accounting for access to any such information. For charter school districts, geographically bounded covariates (poverty rates, partisan composition, voter turnout, and internet access) are structurally undefined; to retain these observations, missing values on these measures were imputed to the sample mean and a charter district indicator is included in all models. Coefficients on the geographically bounded covariates are only interpretable for traditional public school districts, while the charter indicator captures the aggregate institutional differences between traditional public and charter school districts. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: Administrative Ease of Accessing SPED Information on Public School District Websites

	(1) SPED Information Available	(2) Easy Path (Fewer Clicks)	(3) Quick Find (Less Time)	(4) Common SPED Terminology	(5) Admin. Ease Index
<b>School District Demographic Factors</b>					
Pct. of Racial/Ethnic Minority Students	-0.000 (0.000)	0.002 (0.001)	0.001 (0.002)	0.000 (0.001)	0.004 (0.003)
Poverty Rate (Public School Districts)	0.001 (0.001)	0.001 (0.003)	-0.003 (0.004)	-0.004 (0.002)	-0.008 (0.008)
Pct. of Students on IEPs	-0.001 (0.002)	-0.005 (0.002)	-0.003 (0.002)	0.002 (0.001)	-0.013** (0.006)
Pct. of Students w. Limited English	0.000 (0.001)	-0.005 (0.003)	-0.004 (0.003)	-0.000 (0.001)	-0.011** (0.005)
<b>School District Structural Factors</b>					
Urban District	-0.003 (0.043)	-0.006 (0.032)	-0.072 (0.037)	0.016 (0.021)	-0.135 (0.152)
Town/Rural District	-0.033 (0.019)	0.036 (0.059)	-0.001 (0.082)	0.009 (0.013)	-0.067 (0.227)
Internet Access (Public School Districts)	0.001 (0.000)	-0.000 (0.001)	-0.003 (0.002)	-0.000 (0.000)	-0.004 (0.005)
Local Funding Per Pupil (Log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Expenditures Per Pupil (Log)	-0.062 (0.105)	0.016 (0.113)	-0.026 (0.050)	0.025 (0.074)	-0.245** (0.119)
Independent Charter District	-0.116 (0.069)	-0.214** (0.065)	-0.214 (0.140)	-0.120* (0.049)	-1.266*** (0.284)
<b>School District Political Factors</b>					
Voter Turnout (Public School Districts)	0.001*** (0.000)	-0.001 (0.001)	0.000 (0.001)	-0.000 (0.000)	0.002 (0.001)
Democratic Vote Share (Public School Districts)	-0.001*** (0.000)	-0.000 (0.001)	-0.001 (0.001)	-0.000 (0.000)	-0.007*** (0.001)
Pct. Budget Spent on Admin Expenses	-0.003 (0.005)	-0.005 (0.004)	-0.003 (0.004)	0.011** (0.003)	-0.009 (0.014)
Cut 1					-4.795*** (0.818)
Cut 2					-4.138*** (0.838)
Cut 3					-2.749*** (0.931)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
State-Clustered SE	Yes	Yes	Yes	Yes	Yes
R-Squared	0.092	0.075	0.022	0.057	
Log-Likelihood					-1101.457
Pseudo R-Squared					0.031
N	883	720	720	720	883

Notes: This table displays results from various models of administrative ease of accessing special education information on public school district websites. Models 1 through 4 display coefficients from linear probability models, while Model 5 displays odds ratios from an ordinal logistic regression model. The DV in Model 1 is an indicator variable for whether a website makes special education information available. The remaining models only include those districts that make such information available, focusing on the ease of access for that information. The DV in Model 2 is an indicator for whether the information was more than two "clicks" deep in the website. The DV in Model 3 is an indicator variable for whether it took the web crawler above average time to find the information. The DV in Model 4 is an indicator for whether or not the "found term" on the destination page was a commonly-used term of either "special education" or "disability". However, the DV in Model 5 is an additive index of overall Administrative Ease with 0 representing that no information was present and 3 meaning that the district met all indicators of ease outcome variables of Models 2, Model 3, and Model 4 to account for overall administrative ease of locating special education information. For charter school districts, geographically bounded covariates (poverty rates, partisan composition, voter turnout, and internet access) are structurally undefined; to retain these observations, missing values on these measures were imputed to the sample mean and a charter district indicator is included in all models. Coefficients on the geographically bounded covariates are only interpretable for traditional public school districts, while the charter indicator captures the aggregate institutional differences between traditional public and charter school districts. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5: District Summary Statistics for Massachusetts

	All (1)	MA (2)
<b>(A) School District Demographics</b>		
Pct. of Racial/Ethnic Minority Students	35.14	34.22
Pct. of Students in Poverty	11.37	7.99
Pct. of Students on IEPs	19.23	20.48
Pct. of Students w. Limited English	8.03	7.82
<b>(B) School District Structural Factors</b>		
Urban District (Binary)	0.19	0.11
Suburban District (Binary)	0.41	0.63
Town District (Binary)	0.10	0.05
Town/Rural District (Binary)	0.41	0.26
Independent Charter District (Binary)	0.22	0.18
Total Students in District	5344.44	2320.35
Number Operational Schools	8.97	4.68
Internet Access (FCC Recommended Speed)	65.45	67.27
Local Funding Per Pupil (Log)	8838.65	13946.46
Per Pupil Spending	20862.57	28518.33
<b>(C) School District Political Factors</b>		
<i>Bureaucratic Politics</i>		
Number FTE District Support Staff	13.53	7.89
Administrative Expenditures (in Thousands)	1174.30	992.28
<i>Electoral Politics</i>		
Votes to Students Ratio	14.19	21.99
Pct. Votes Democrat	46.71	63.96
Pct. Votes Republican	53.29	36.04
<i>Interest Group Politics</i>		
Settlements	3.02	7.04
CBA Mentions SPED (Binary)	0.58	0.58
Count of CBA Mentions of SPED	3.18	3.18
CBA Mentions Paraprofessionals (Binary)	0.16	0.16
Count of Mentions of Paraprofessionals	2.94	2.94
<b>(D) Administrative Ease of Accessing SPED Info</b>		
Special Education Information Available	0.82	0.93
Common SPED Terminology	0.96	0.98
Number of Clicks to SPED Info.	1.44	1.38
Time Taken to find SPED Info.	31.56	32.26
<i>N</i>	58	392

Notes: This table details the summary statistics of our sample of school districts for Massachusetts and the whole sample separately. The Poverty Rate comes from the SAIPE. The internet measure is a weighted average percentage of the proportion of households in a school district with access to the FCC-recommended internet speed based on FCC data. The SPED Settlements comes from a count of the special education settlements a district has between 2013 and 2023, gathered and made public by the Boston Globe. The Collective Bargaining Agreement (CBA) data comes from an original analysis of the most recent collective bargaining agreements on the MA Department of Elementary and Secondary Education website.

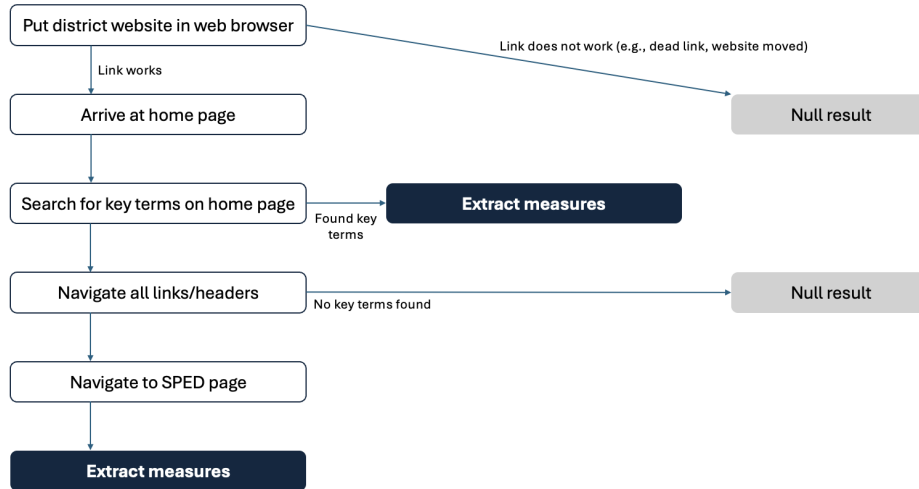
Table 6: Accessing SPED Information on Massachusetts School District Websites

	(1) SPED Information Available	(2) Easy Path (Fewer Clicks)	(3) Quick Find (Less Time)	(4) Common SPED Terminology	(5) Admin. Ease Index.
<b>School District Demographic Factors</b>					
Pct. of Racial/Ethnic Minority Students	-0.000 (0.001)	-0.000 (0.001)	-0.001 (0.002)	0.001 (0.001)	-0.003 (0.009)
Poverty Rate (Public School Districts)	0.002 (0.004)	-0.006 (0.004)	-0.011 (0.008)	-0.002 (0.004)	-0.034 (0.029)
Pct. of Students on IEPs	0.001 (0.004)	-0.003 (0.003)	0.002 (0.007)	-0.001 (0.003)	-0.000 (0.028)
Pct. of Students w. Limited English	0.001 (0.003)	0.002 (0.003)	0.002 (0.005)	-0.001 (0.002)	0.010 (0.023)
<b>School District Structural Factors</b>					
Urban District	-0.092* (0.055)	0.067 (0.054)	-0.108 (0.119)	0.039 (0.025)	-0.398 (0.391)
Town/Rural District	-0.001 (0.033)	0.107*** (0.031)	-0.022 (0.078)	0.027* (0.016)	0.177 (0.286)
Internet Access (Public School Districts)	0.001 (0.001)	-0.003* (0.002)	-0.005* (0.003)	-0.001 (0.001)	-0.019 (0.012)
Local Funding Per Pupil (Log)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Expenditures Per Pupil (Log)	0.086** (0.040)	-0.052 (0.070)	-0.062 (0.114)	-0.041 (0.033)	-0.038 (0.424)
Independent Charter District	-0.089 (0.135)	0.126 (0.167)	-0.729** (0.332)	-0.135 (0.115)	-2.554* (1.309)
<b>School District Political Factors</b>					
Voter Turnout (Public School Districts)	0.001 (0.001)	-0.002 (0.001)	0.000 (0.002)	-0.000 (0.000)	0.000 (0.008)
Democratic Vote Share (Public School Districts)	-0.002 (0.002)	0.003* (0.002)	-0.005 (0.004)	0.000 (0.001)	-0.016 (0.013)
Pct. Budget Spent on Admin Expenses	0.001 (0.006)	-0.019* (0.010)	0.004 (0.014)	0.006 (0.005)	-0.004 (0.069)
Settlements	-0.000 (0.001)	-0.000 (0.001)	-0.001 (0.001)	0.000 (0.000)	-0.002 (0.005)
CBA Mentions Paraprofessionals (Binary)	-0.012 (0.044)	-0.002 (0.054)	0.000 (0.083)	0.032** (0.015)	0.027 (0.330)
CBA Mentions SPED (Binary)	-0.034 (0.029)	-0.035 (0.034)	-0.033 (0.067)	-0.002 (0.017)	-0.256 (0.236)
Cut 1					-5.618 (4.200)
Cut 2					-4.678 (4.162)
Cut 3					-2.676 (4.148)
<i>R</i> -Squared	0.032	0.081	0.047	0.046	
Log Likelihood					-389.168
Pseudo <i>R</i> -Squared					0.018
<i>N</i>	357	334	334	334	357

Notes: This table displays results from various models of administrative ease of accessing special education information on school district websites in Massachusetts. Models 1 through 4 display coefficients from linear probability models, while Model 5 displays odds ratios from an ordinal logistic regression model. The DV in Model 1 is an indicator variable for whether a website makes special education information available. The remaining models only include those districts that make such information available, focusing on the ease of access for that information. The DV in Model 2 is an indicator for whether the information was more than two "clicks" deep in the website. The DV in Model 3 is an indicator variable for whether it took the web crawler above average time to find the information. The DV in Model 4 is an indicator for whether or not the "found term" on the destination page was a commonly-used term of either "special education" or "disability". However, the DV in Model 5 is an additive index of overall Administrative Ease with 0 representing that no information was present and 3 meaning that the district met all indicators of ease outcome variables of Models 2, Model 3, and Model 4 to account for overall administrative ease of locating special education information. For charter school districts, geographically bounded covariates (poverty rates, partisan composition, voter turnout, and internet access) are structurally undefined; to retain these observations, missing values on these measures were imputed to the sample mean and a charter district indicator is included in all models. Coefficients on the geographically bounded covariates are only interpretable for traditional public school districts, while the charter indicator captures the aggregate institutional differences between traditional public and charter school districts. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

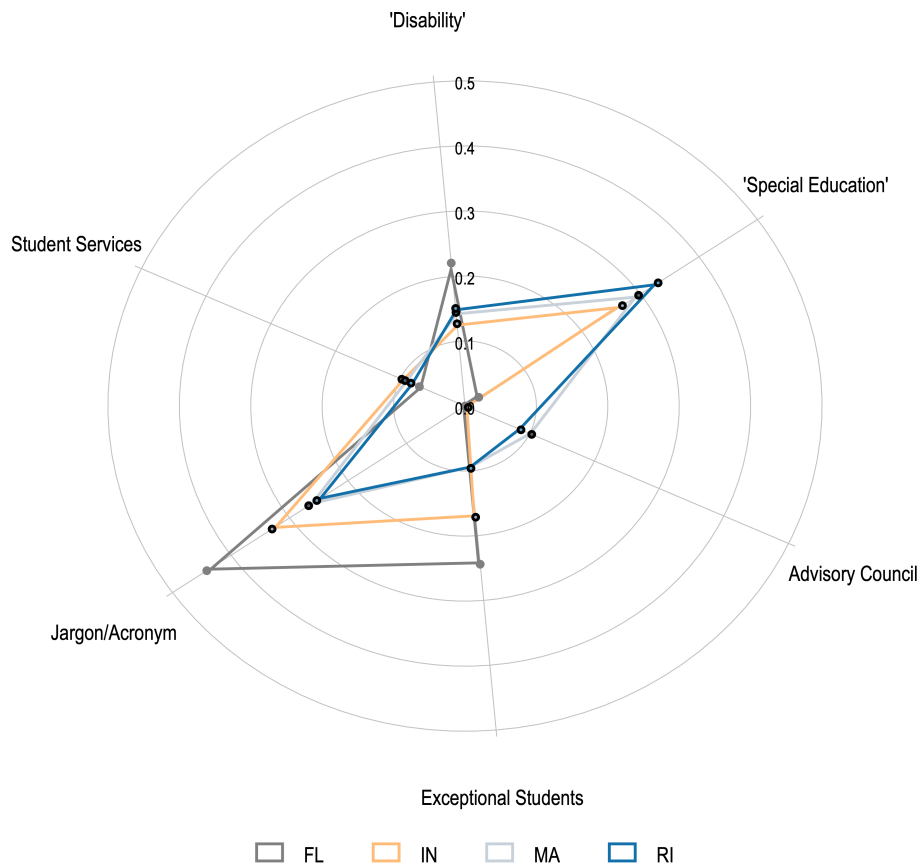
# Figures

Figure 1: Flow Chart of Data Collection Process



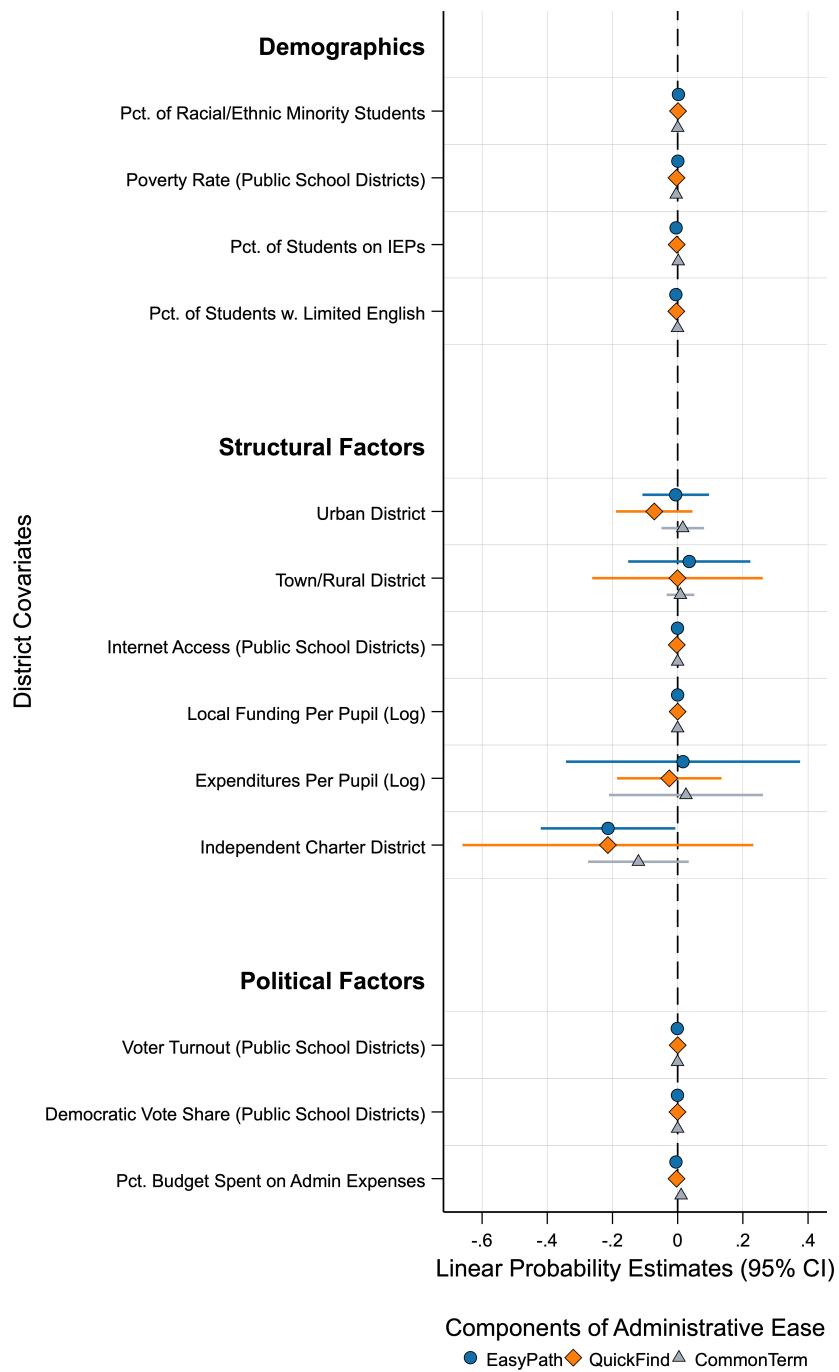
*Notes:* This figure illustrates the process of data collection through the web crawler. The measures collected at the “Extract measures” stage include time in seconds, number of clicks, and terms found on the successful page. Success is a measure derived from the presence or absence of a special education webpage (i.e., “Null result” is a failure and “Extract measures” is a success).

Figure 2: Variation in Found Terms by State



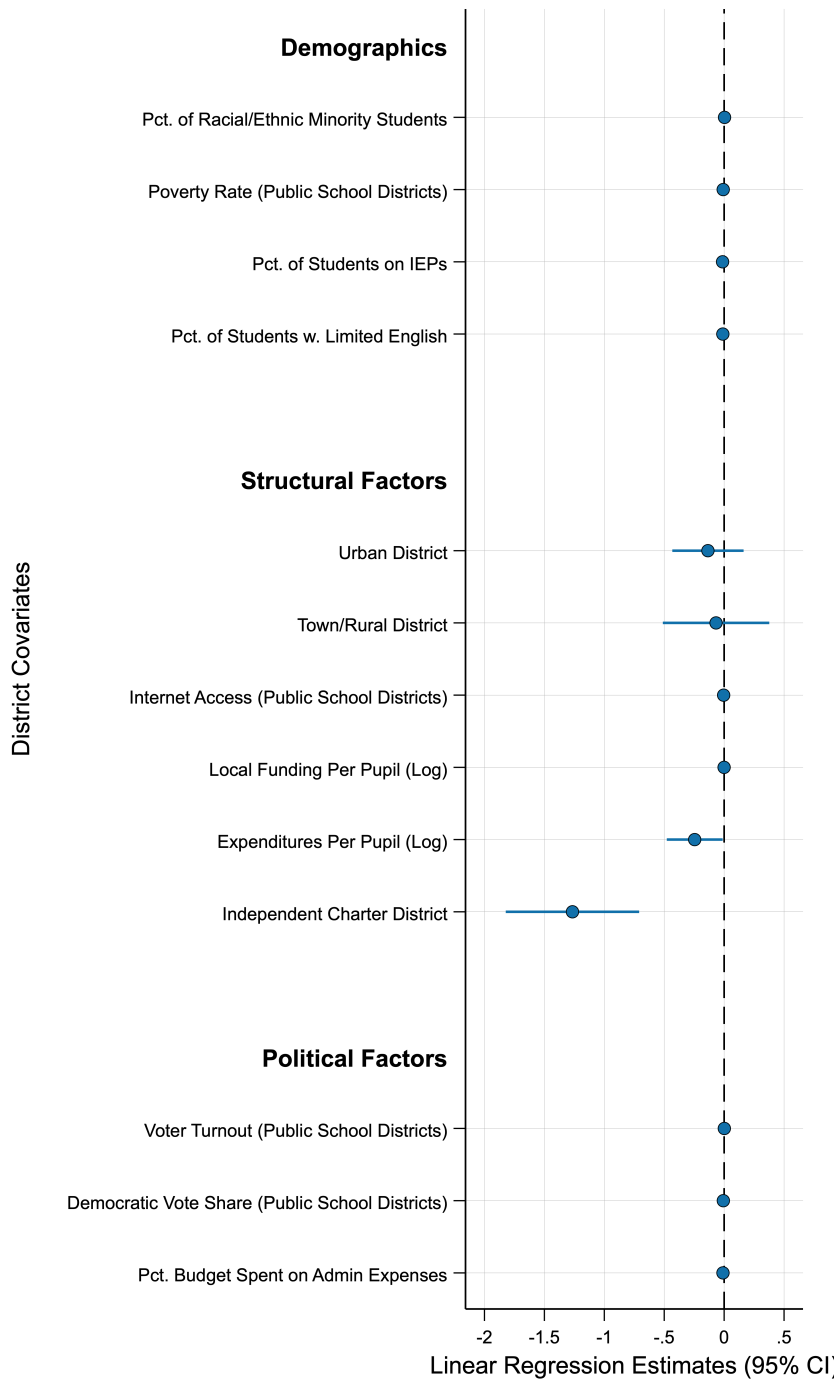
*Notes:* This figure illustrates the proportion of terms found on local school district web pages in each state. Some district web pages have multiple terms, so the terms are not mutually exclusive. “Disability” refers to any term that contains a variation of the term disability such as disabled or disabilities. Special education refers to any related term such as SPED or special needs. Advisory councils refer to special education advisory councils that some states require by law. Jargon/Acronym is a flag created to note the usage of some sort of shorthand such as “E.S.E.” or “S.P.E.D.” or “S.E.P.A.C.” which can increase the difficulty in identifying relevant information. Student services refers to terms used that indirectly led to special education information such as “student support services”.

Figure 3: Correlates of Administrative Ease



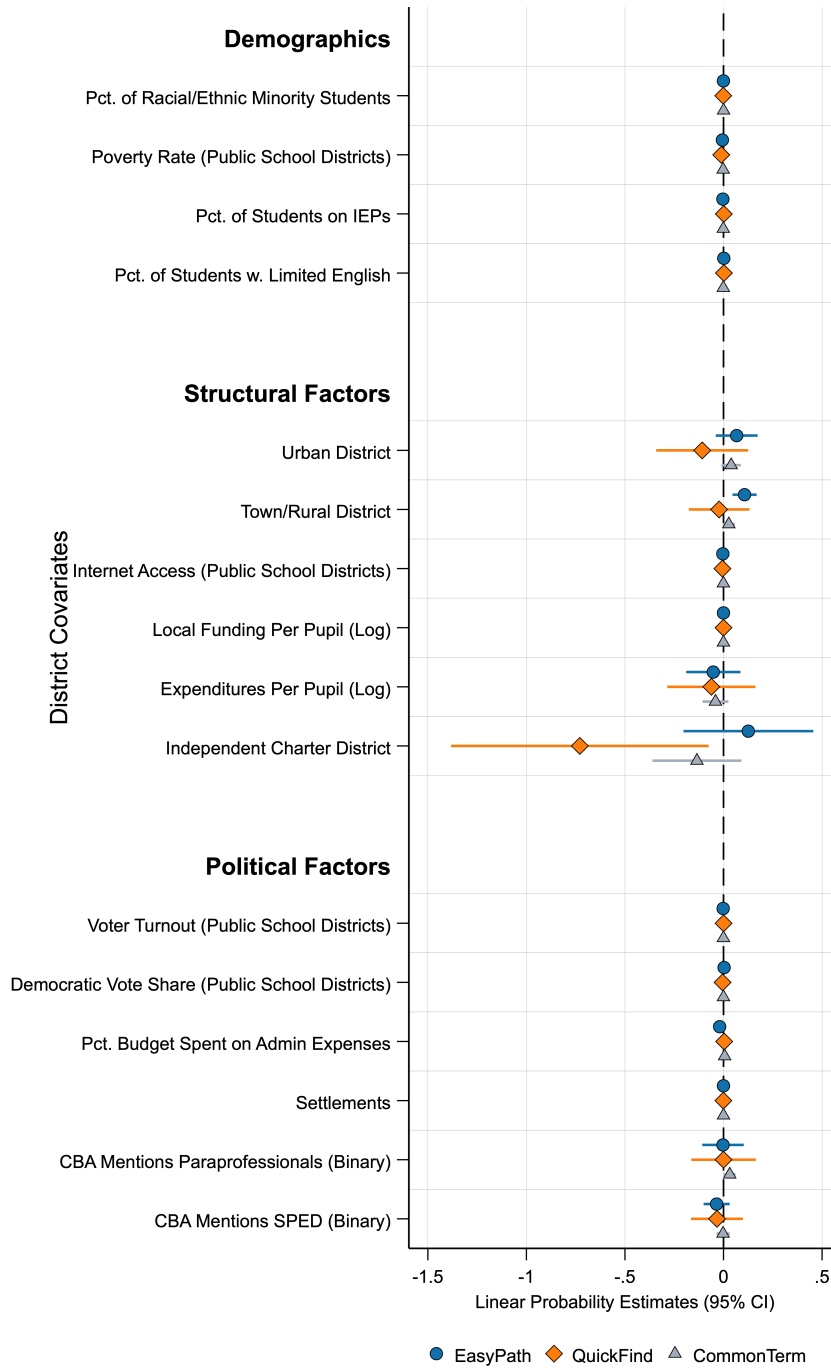
*Notes:* This figure displays the coefficients of the various models of administrative ease outcomes. Quick Find accounts for whether it took the web crawler above average time to find the information. Easy Path accounts for whether the information was more than two “clicks” deep in the website. Common Term accounts for whether or not the “found term” on the destination page was a commonly-used term of either “special education” or “disability”.

Figure 4: Administrative Ease Index



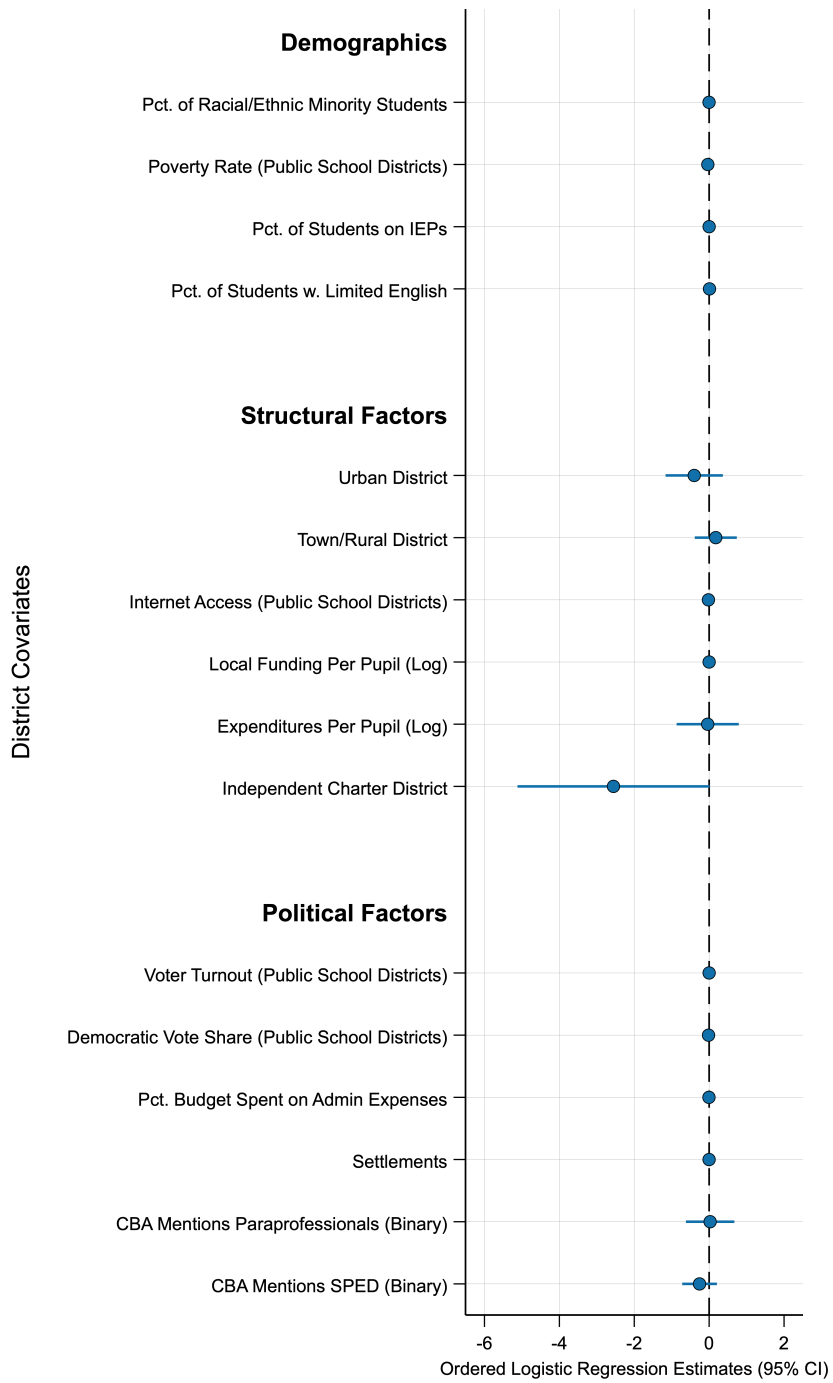
Notes: This figure displays the coefficients of the administrative ease index.

Figure 5: Determinants of Administrative Ease - Massachusetts



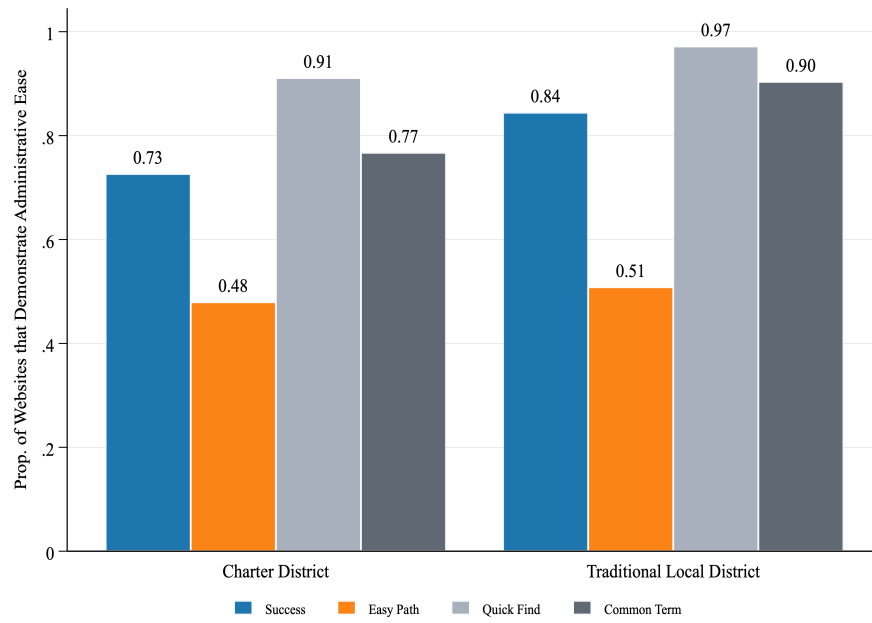
Notes: This figure displays the coefficients of the various models of administrative ease outcomes. Easy Path accounts for whether the information was more than two “clicks” deep in the website. Common Term accounts for whether or not the “found term” on the destination page was a commonly-used term of either “special education” or “disability.”

Figure 6: Administrative Ease Index - Massachusetts



Notes: This figure displays the coefficients of the administrative ease index for school districts in Massachusetts.

Figure 7: Administrative Ease Components - Charter vs. Traditional Public School Districts



*Notes:* This figure displays the various components of the administrative ease index for charter school districts and traditional public school districts separately.

# Appendix

Table 7: Data Dictionary

Variable	Source	Year	Mean	SD	Min	Max	N
Pct. of Students Black	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.12	0.20	0.00	0.95	914.00
Pct. of Students White	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.64	0.30	0.00	0.99	914.00
Pct. of Students Hispanic	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.16	0.18	0.00	0.99	914.00
Pct. of Student Other/Mixed Race	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.07	0.07	0.00	0.67	914.00
Pct. of Students in Poverty	U.S. Census Bureau, Small Area Income and Poverty Estimates Program	11.37	2023	6.94	0.00	43.94	682.00
Pct. of Students on IEPs	State Departments of Education	2024-25	0.19	0.06	0.00	0.54	914.00
Pct. of Students w. Limited English	State Departments of Education	2024-25	0.08	0.11	0.00	0.78	914.00
Urban District	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.19	0.39	0.00	1.00	914.00
Suburban District	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.41	0.49	0.00	1.00	914.00
Town/Rural District	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.41	0.49	0.00	1.00	914.00
Independent Charter District	National Center for Education Statistics Common Core of Data (CCD)	2021-22	0.22	0.41	0.00	1.00	914.00
Total Students in District	National Center for Education Statistics Common Core of Data (CCD)	2021-22	5344.44	20611.60	29.00	328589.00	914.00
Number Operational Schools	National Center for Education Statistics Common Core of Data (CCD)	2021-22	8.97	29.66	1.00	522.00	914.00
Internet Access (FCC Recommended Speed)	Federal Communications Commission	2025	0.65	0.13	0.15	0.99	682.00
Local Funding Per Pupil	National Center for Education Statistics Common Core of Data (CCD)	2021-22	8838.65	7499.93	1.00	44093.00	914.00
Per Pupil Spending	National Center for Education Statistics Common Core of Data (CCD)	2021-22	20862.57	10911.24	5668.00	90849.00	914.00
Number FTE District Support Staff	National Center for Education Statistics Common Core of Data (CCD)	2021-22	13.53	43.30	0.00	705.75	914.00
Administrative Expenditures (in Thousands)	National Center for Education Statistics Common Core of Data (CCD)	2021-22	1174.30	3175.50	0.00	46905.00	914.00
Votes to Students Ratio	MIT Election Data and Science Lab	2021-22	14.19	17.19	1.10	219.00	682.00
Democratic Vote Share	MIT Election Data and Science Lab	2021-22	0.47	0.20	0.14	0.93	682.00
Republican Vote Share	MIT Election Data and Science Lab	2021-22	0.53	0.20	0.07	0.86	682.00
Settlements	Boston Globe	2013-23	14.37	22.45	0.00	183.00	192.00
CBA Mentions SPED (Binary)	Massachusetts Department of Elementary and Secondary Education	2025	0.58	0.48	0.00	1.00	389.00
Count of CBA Mentions of SPED	Massachusetts Department of Elementary and Secondary Education	2025	3.18	5.35	0.00	41.00	389.00
CBA Mentions Paraprofessionals (Binary)	Massachusetts Department of Elementary and Secondary Education	2025	0.17	0.38	0.00	3.00	387.00
Count of Mentions of Paraprofessionals	Massachusetts Department of Elementary and Secondary Education	2025	2.94	24.04	0.00	316.00	387.00
Special Education Information Available	Web Crawler	2025	0.82	0.39	0.00	1.00	387.00
Common SPED Terminology	Web Crawler	2025	0.96	0.20	0.00	1.00	748.00
Number of Clicks to SPED Info.	Web Crawler	2025	1.44	0.79	1.00	5.00	748.00
Time Taken to find SPED Info.	Web Crawler	2025	31.56	49.74	0.00	188.36	748.00
Administrative Ease (Index)	Web Crawler	2025	1.91	1.11	0	3	914.00

Notes: This table displays each variable name, source, years available, and summary statistics (i.e., mean, standard deviation (SD), maximum, minimum, and number of observations (n)).

Table 8: Various Measures of Clicks to Access SPED Info on School District Websites

	(1) Number of Clicks to SPED Info.	(2) Clicks (Natural Log)	(3) Clicks (z-score)	(4) Easy Path ( $< 3$ Clicks)
Pct. of Racial/Ethnic Minority Students	-0.004* (0.002)	-0.001* (0.001)	-0.006* (0.002)	0.002 (0.001)
Poverty Rate (Public School Districts)	0.005 (0.005)	0.002 (0.002)	0.006 (0.006)	0.001 (0.003)
Pct. of Students on IEPs	0.012*** (0.002)	0.004* (0.001)	0.015*** (0.003)	-0.005 (0.002)
Pct. of Students w. Limited English	0.009 (0.005)	0.003 (0.002)	0.011 (0.006)	-0.005 (0.003)
Urban District	0.107 (0.089)	0.042 (0.029)	0.134 (0.111)	-0.006 (0.032)
Town/Rural District	0.038 (0.125)	0.018 (0.037)	0.047 (0.157)	0.036 (0.059)
Internet Access (Public School Districts)	0.002 (0.001)	0.001 (0.000)	0.003 (0.002)	-0.000 (0.001)
Local Funding Per Pupil (Log)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Expenditures Per Pupil (Log)	-0.071 (0.275)	-0.020 (0.091)	-0.089 (0.345)	0.016 (0.113)
Independent Charter District	0.569** (0.103)	0.208*** (0.034)	0.716** (0.130)	-0.214** (0.065)
Voter Turnout (Public School Districts)	0.001 (0.001)	0.001 (0.000)	0.002 (0.001)	-0.001 (0.001)
Democratic Vote Share (Public School Districts)	0.000 (0.003)	0.000 (0.001)	0.001 (0.003)	-0.000 (0.001)
Pct. Budget Spent on Admin Expenses	0.011 (0.005)	0.003 (0.002)	0.014 (0.006)	-0.005 (0.004)
State Fixed Effects	Yes	Yes	Yes	Yes
State-Clustered SE	Yes	Yes	Yes	Yes
R-Squared	0.065	0.072	0.065	0.075
N	720	720	720	720

Notes: This table displays comparisons of various ways of measuring “clicks” to special education information on school district websites. The DV in Model 1 is a raw count of clicks, with higher values indicating higher burden/lower ease. The DV in Model 2 is the natural log of clicks, with higher values indicating higher burden/lower ease. The DV in Model 3 is a standardized score (z-score) of the number of clicks, given the leftward-skew of the outcome. The DV in Model 4 is an indicator for whether the information can be found on the website in less than three clicks. For charter school districts, geographically bounded covariates (poverty rates, partisan composition, voter turnout, and internet access) are structurally undefined; to retain these observations, missing values on these measures were imputed to the sample mean and a charter district indicator is included in all models. Coefficients on the geographically bounded covariates are only interpretable for traditional public school districts, while the charter indicator captures the aggregate institutional differences between traditional public and charter school districts. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 9: Various Measures of Time to Access SPED Info on School District Websites

	(1) Time Taken to SPED Info.	(2) Time Taken (Natural Log)	(3) Time (z-score)	(4) Quick Find (Less Average Time)
Pct. of Racial/Ethnic Minority Students	-0.062 (0.095)	-0.002 (0.006)	-0.001 (0.002)	0.001 (0.002)
Poverty Rate (Public School Districts)	0.924** (0.179)	0.019 (0.012)	0.019** (0.004)	-0.003 (0.004)
Pct. of Students on IEPs	0.013 (0.273)	0.010 (0.013)	0.000 (0.005)	-0.003 (0.002)
Pct. of Students w. Limited English	0.139 (0.095)	0.013 (0.009)	0.003 (0.002)	-0.004 (0.003)
Urban District	8.320 (4.227)	0.307 (0.164)	0.168 (0.085)	-0.072 (0.037)
Town/Rural District	2.837 (5.561)	0.164 (0.267)	0.057 (0.112)	-0.001 (0.082)
Internet Access (Public School Districts)	0.206*** (0.033)	0.012 (0.005)	0.004*** (0.001)	-0.003 (0.002)
Local Funding Per Pupil (Log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Expenditures Per Pupil (Log)	-0.832 (4.666)	-0.056 (0.256)	-0.017 (0.094)	-0.026 (0.050)
Independent Charter District	17.995* (6.074)	0.981 (0.469)	0.362* (0.122)	-0.214 (0.140)
Voter Turnout (Public School Districts)	0.039 (0.045)	0.001 (0.002)	0.001 (0.001)	0.000 (0.001)
Democratic Vote Share (Public School Districts)	-0.074 (0.109)	-0.001 (0.003)	-0.001 (0.002)	-0.001 (0.001)
Pct. Budget Spent on Admin Expenses	0.014 (0.478)	0.004 (0.020)	0.000 (0.010)	-0.003 (0.004)
State Fixed Effects	Yes	Yes	Yes	Yes
State-Clustered SE	Yes	Yes	Yes	Yes
R-Squared	0.024	0.022	0.024	0.022
N	720	720	720	720

Notes: This table displays comparisons of various ways of measuring “time” to find special education information on public school district websites. The DV in Model 1 is a raw time in seconds, with higher values indicating higher time i.e., higher burden/lower ease. The DV in Model 2 is the natural log of time, with higher values indicating higher burden/lower ease. The DV in Model 3 is a standardized score (z-score) of the time, given the leftward-skew of the outcome. The DV in Model 4 is an indicator for whether the information can be found on the website in less than average time. For charter school districts, geographically bounded covariates (poverty rates, partisan composition, voter turnout, and internet access) are structurally undefined; to retain these observations, missing values on these measures were imputed to the sample mean and a charter district indicator is included in all models. Coefficients on the geographically bounded covariates are only interpretable for traditional public school districts, while the charter indicator captures the aggregate institutional differences between traditional public and charter school districts. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 10: Various Measures of Term Availability via SPED Info on School District Websites

	(1) Special Education Term Found	(2) Disability Term Found	(3) Common Term Found
Pct. of Racial/Ethnic Minority Students	0.008 (0.091)	-0.098 (0.141)	0.024 (0.059)
Poverty Rate (Public School Districts)	-0.006* (0.002)	-0.003 (0.003)	-0.004 (0.002)
Pct. of Students on IEPs	0.004 (0.003)	-0.006 (0.003)	0.002 (0.001)
Pct. of Students w. Limited English	0.001 (0.001)	0.003 (0.002)	-0.000 (0.001)
Urban District	0.035 (0.029)	-0.130** (0.031)	0.016 (0.021)
Town/Rural District	-0.024 (0.019)	-0.051 (0.041)	0.009 (0.013)
Internet Access (Public School Districts)	-0.085 (0.088)	-0.150 (0.198)	-0.005 (0.040)
Local Funding Per Pupil (Log)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Expenditures Per Pupil (Log)	0.040 (0.094)	0.143*** (0.022)	0.025 (0.074)
Independent Charter District	-0.137* (0.053)	-0.081 (0.085)	-0.113** (0.021)
Voter Turnout (Public School Districts)	-0.000 (0.000)	-0.001** (0.000)	-0.000 (0.000)
Democratic Vote Share (Public School Districts)	0.005 (0.027)	-0.095 (0.148)	-0.009 (0.049)
Pct. Budget Spent on Admin Expenses	1.064** (0.234)	-0.079 (0.449)	1.069** (0.307)
State Fixed Effects	Yes	Yes	Yes
State-Clustered SE	Yes	Yes	Yes
R-Squared	0.072	0.133	0.057
N	720	720	720

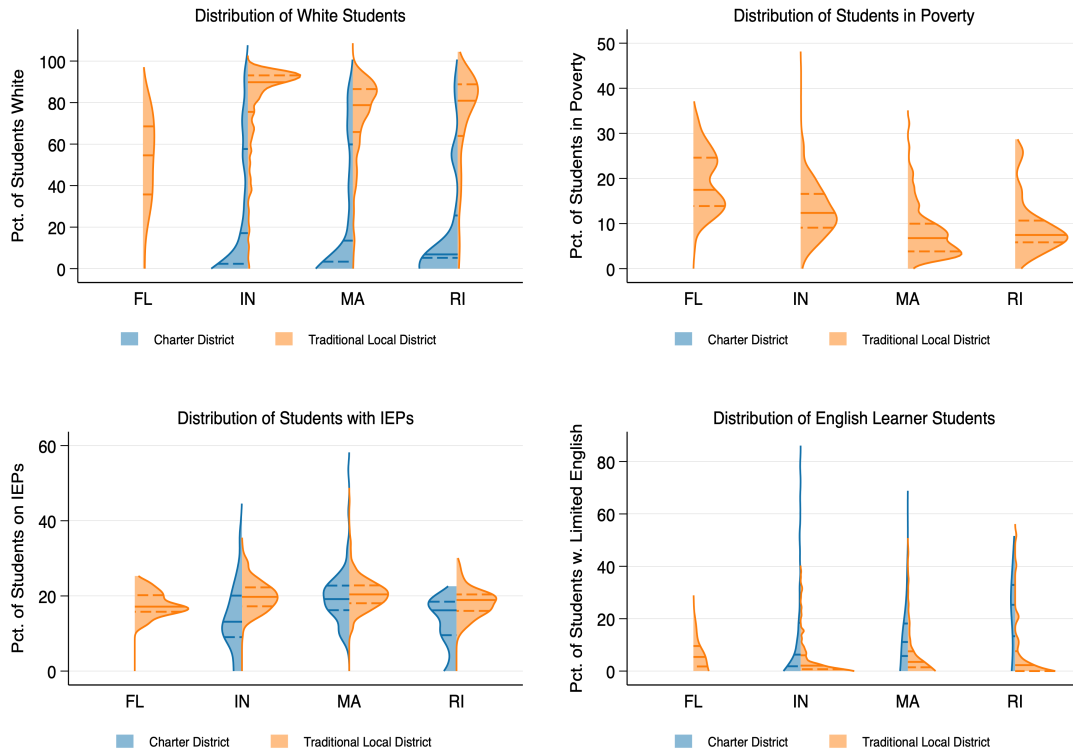
Notes: This table displays comparisons of the availability of terminology on a school district webpage. Outcomes are binary variables in linear probability models. Model 1 accounts for whether a district website mentions a term related to “special education” in some capacity. Model 2 accounts for whether a district mentions “disability” in some capacity. Model 3 mentions for whether either term shows up on a school district website, as both terms are most commonly used in associate with special education services. For charter school districts, geographically bounded covariates (poverty rates, partisan composition, voter turnout, and internet access) are structurally undefined; to retain these observations, missing values on these measures were imputed to the sample mean and a charter district indicator is included in all models. Coefficients on the geographically bounded covariates are only interpretable for traditional public school districts, while the charter indicator captures the aggregate institutional differences between traditional public and charter school districts. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 11: Ordinal Logistic Regression. Administrative Ease of Accessing SPED Info

	Administrative Ease Index (0 - 3)				
	(1)	(2)	(3)	(4)	(5)
Pct. of Racial/Ethnic Minority Students	0.371 (0.305)		0.324 (0.388)	0.291 (0.314)	0.415 (0.293)
Poverty Rate (Public School Districts)	-0.008 (0.008)	-0.010 (0.012)	-0.009 (0.012)	-0.006 (0.008)	-0.006 (0.008)
Pct. of Students on IEPs	-0.013** (0.006)	-0.016* (0.009)	-0.013* (0.007)	-0.013** (0.006)	-0.013** (0.006)
Pct. of Students w. Limited English	-0.011** (0.005)	-0.016** (0.007)	-0.010** (0.005)	-0.011** (0.005)	-0.012** (0.005)
Urban District	-0.135 (0.152)			-0.135 (0.148)	-0.163 (0.148)
Town/Rural District	-0.067 (0.227)			-0.044 (0.213)	-0.065 (0.232)
Internet Access (Public School Districts)	-0.382 (0.457)	-0.287 (0.460)	-0.353 (0.469)	-0.424 (0.460)	-0.372 (0.444)
Local Funding Per Pupil (Log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Expenditures Per Pupil (Log)	-0.245** (0.119)	-0.227 (0.155)	-0.263** (0.123)	-0.177 (0.173)	-0.205 (0.135)
Independent Charter District	-0.712*** (0.240)	-0.703*** (0.264)	-0.746*** (0.225)	-0.679*** (0.255)	-0.716*** (0.233)
Voter Turnout (Public School Districts)	0.002 (0.001)	0.001 (0.002)	0.001 (0.003)	0.003** (0.001)	0.002 (0.001)
Democratic Vote Share (Public School Districts)	-0.662*** (0.085)	-0.512* (0.263)	-0.615** (0.276)	-0.413* (0.238)	-0.806*** (0.184)
Pct. Budget Spent on Admin Expenses	-0.935 (1.414)	-1.220 (1.804)	-0.740 (1.561)		
Pct. of Students Black		0.001 (0.004)			
Pct. of Students Hispanic		0.009 (0.006)			
Pct. of Student Other/Mixed Race		0.001 (0.014)			
Admin Staff Per Pupil (Log)				-0.124 (0.155)	
Admin Expenses Per Pupil (Log)					-0.076 (0.060)
Cut 1	-4.795*** (0.818)	-4.547*** (1.246)	-4.924*** (0.781)	-3.349 (2.537)	-4.773*** (0.817)
Cut 2	-4.138*** (0.838)	-3.890*** (1.235)	-4.267*** (0.789)	-2.691 (2.514)	-4.115*** (0.815)
Cut 3	-2.749*** (0.931)	-2.498** (1.092)	-2.878*** (0.792)	-1.300 (2.281)	-2.724*** (0.797)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
State-Clustered SE	Yes	Yes	Yes	Yes	Yes
Log Likelihood	-1101.457	-1100.657	-1101.661	-1100.759	-1100.681
Pseudo R-Squared	0.031	0.032	0.031	0.032	0.032
N	883	883	883	883	883

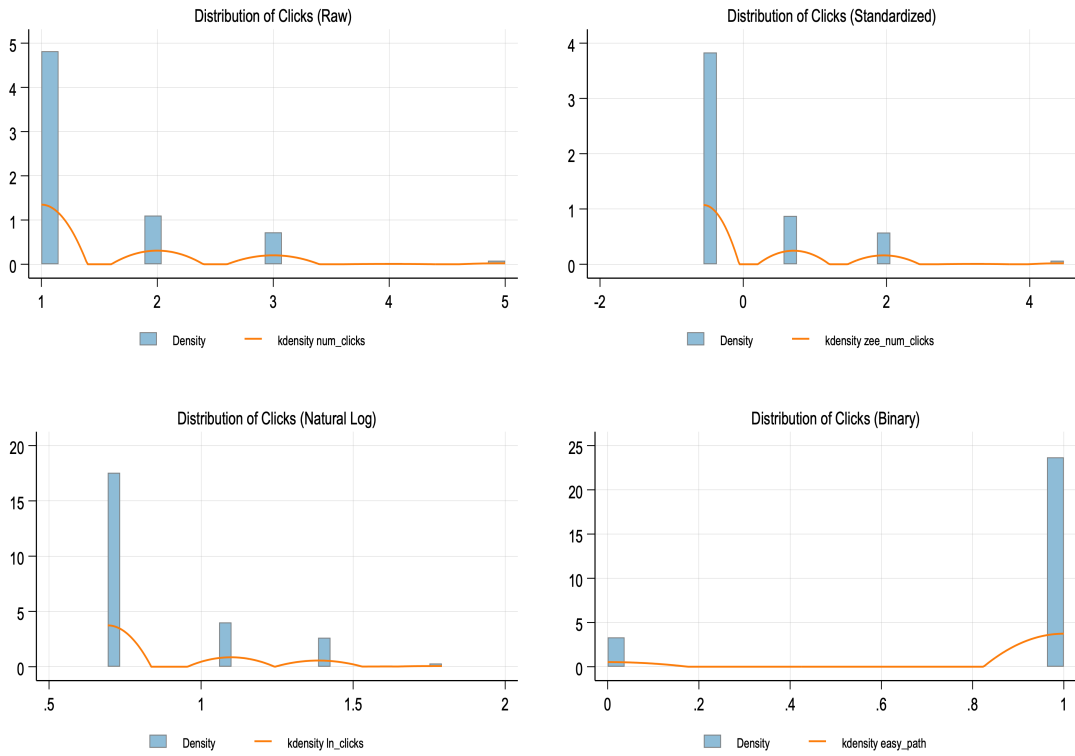
Notes: This table displays various alternative specifications of the Administrative Ease model in Table 4. Model 1 is the primary model for the dependent variable. Models 2 through 5 contain alternative measures.

Figure 8: School District Determinants of Administrative Ease Index: Student Demographics



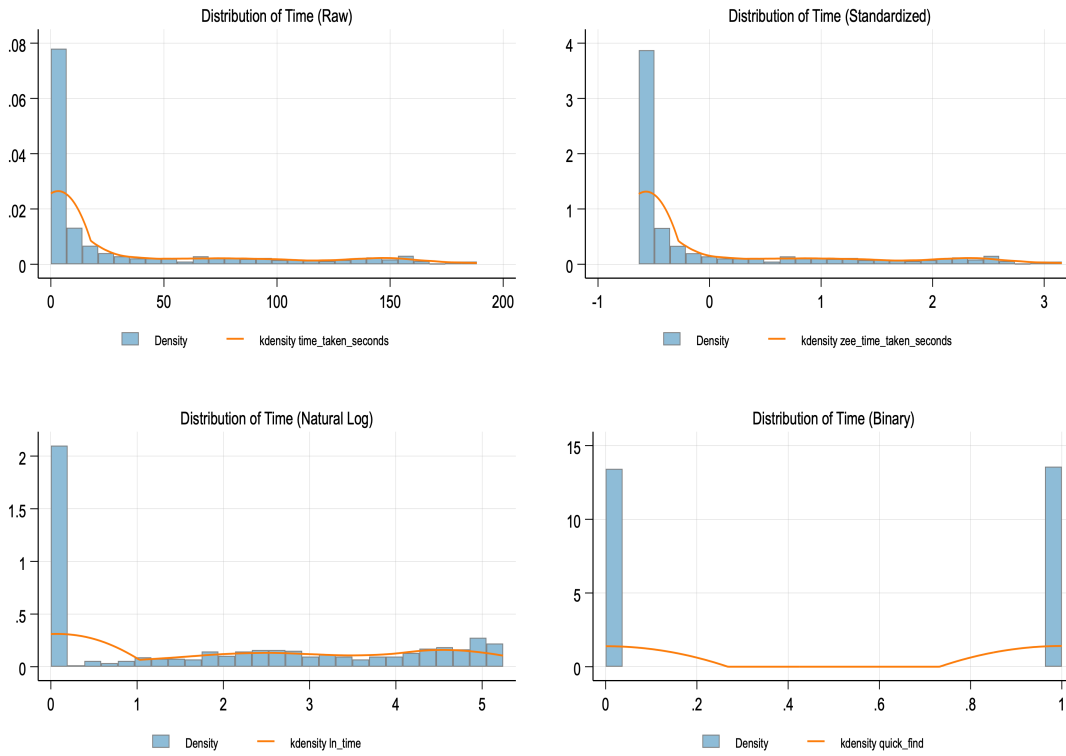
*Notes:* This figure displays the distribution of student demographics by state and district type (i.e., charter or traditional local district). The distribution of students in charter districts is in blue on the left side of each violin plot, while the distribution of students in traditional local districts is in orange on the right side of each violin plot. From left to right and top to bottom, the panels display the distribution of: (1) percent of White students, (2) percent of students in poverty, (3) percent of students with an IEP, and (4) percent of English learner students.

Figure 9: Distribution of Clicks Taken to Find Special Education Information



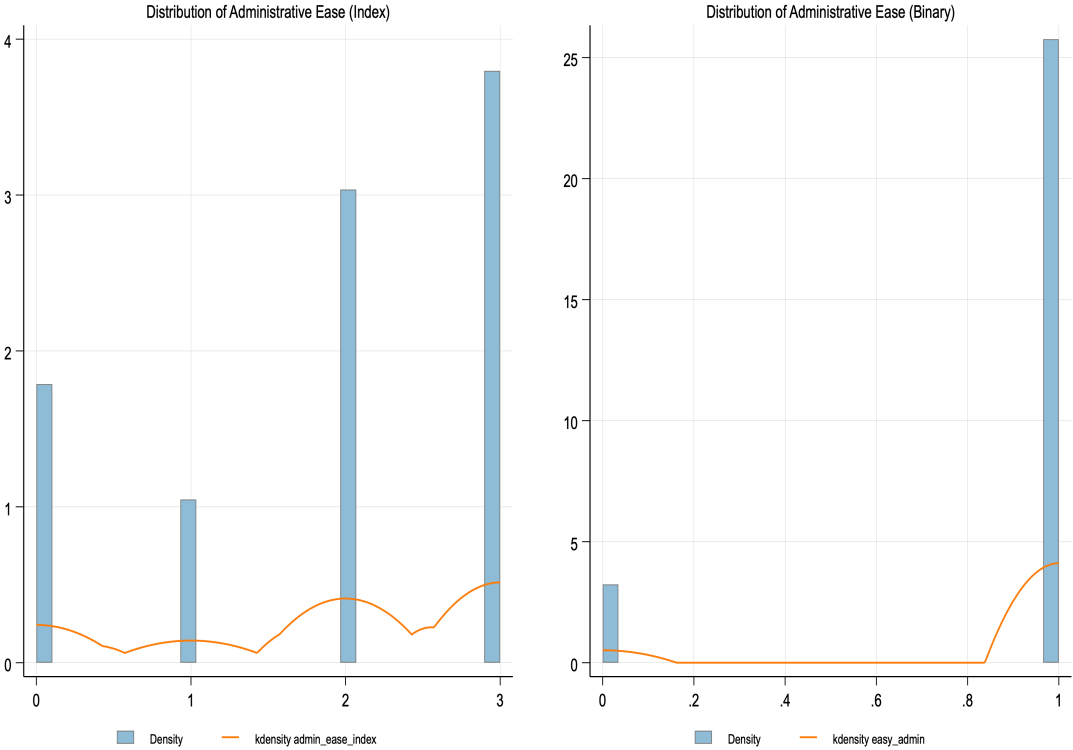
*Notes:* This figure displays the distribution of clicks, a measure of ease in finding SPED information, as well as various transformations of the measure.

Figure 10: Distribution of Time Taken to Find Special Education Information



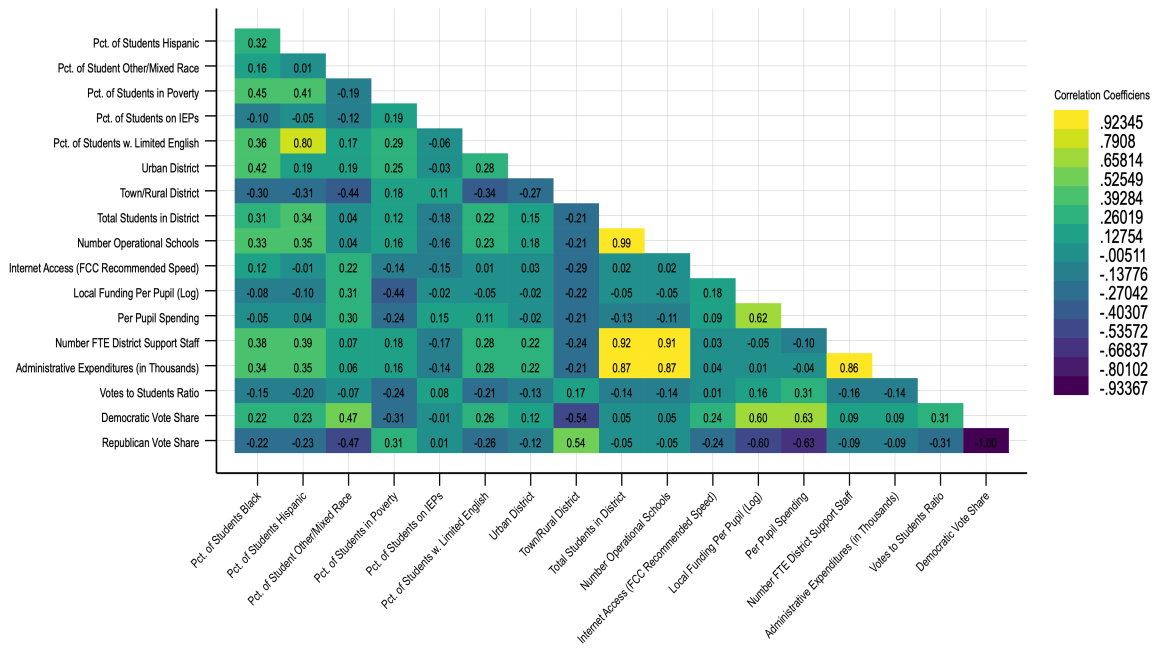
*Notes:* This figure displays the distribution of time, a measure of ease in finding SPED information, as well as various transformations of the measure.

Figure 11: Distribution of Administrative Ease Index: Finding Special Education Information



*Notes:* This figure displays the distribution of the Administrative Ease Index, an overall measure of ease in finding SPED information constructed as the first principal component of the ease measures for clicks, time, and terms.

## Correlation Heatplot of Primary Variables



*Notes:* The shows size of correlation coefficients (i.e., using color to show a scale from 0 to 1) between the primary variables in our data. We consider variables above 0.8 or below -0.8 for their collinear relationship with other predictor variables, prioritizing theoretical importance and ease of interpretation inclusion in our final models.

# Technical Appendix.

## Description of Web Crawler

### Overview and Primary Function

This python-based web crawler is designed to automatically locate special education web pages on school district websites. The primary objective is to systematically navigate through school district websites to locate each district's webpage containing special education services, while measuring the efficiency and accessibility of finding such content. This process of data collection is accomplished via the use of the Selenium library from the Python language.

To accomplish this task, the researchers provide the web crawler with a .csv file of the school district websites. The web crawler then begins by accessing the home webpage of a given school district website. It then analyzes the information on the web page, including information in the navigation menu and embedded links. Specifically, the web crawler searches for terms related to special education (related terms detailed below) while documenting the amount of time in seconds that is needed to reach the target content. This process attempts to replicate the natural navigation patterns of a human who would be navigating a school district's website in search of special education support for a student. We focus on the use of specified terms to similarly align with a human's experience navigating a website, as opposed to analyzing the Document Object Model (DOM) of a website. It is not representative to expect a majority of parents to understand the infrastructure of a website.

Put simply, the crawler functions as an automated research assistant that mimics human behavior when searching for special education resources on school district websites. Ultimately, the data provides information on how easily parents, students, and stakeholders can locate critical special education information through standard website navigation patterns.

### Technical Terminology

- Website vs. Web Page: A website is a collection of related web pages, while a web page is a

single document displayed in a web browser. In this context, each school district operates a website composed of multiple web pages that provide district-specific information. Common examples of web pages include "About Us," "Resources," and "Contact Us" pages.

- **Web crawler/Crawler:** A web crawler (also called a crawler) is a specialized tool that allows for the systematic navigation of webpages. In this project, the crawler is programmed to simulate how a human might search through a school district's website, moving from webpage to webpage in search of special education information. Unlike a human, the crawler does this according to pre-set rules and instructions, allowing for consistency and scalability across thousands of district websites.
- **Clicks:** A click represents the action of selecting a link, button, or other interactive element to move from one web page to another. Each click is counted as a step in the navigation process.
- **Navigation Element:** A navigation element is any part of a website that helps users move from one page to another. Examples include menu bars, dropdown lists, sidebars, tabs, and buttons. These elements are designed to guide visitors through the website's structure and content. For this project, the crawler analyzes navigation elements to determine whether they provide clear and accessible paths to special education information, mirroring the way a parent or student would use menus and links to find resources.

### **Web crawler Logistics**

The websites for our web crawler come from a dataset of school district websites for all school districts in Rhode Island, Massachusetts, Indiana, and Florida obtained from the National Center for Education Statistics (NCES). This list of websites provided the crawler with websites to search.

The crawler was developed iteratively over the course of several months between June 2025 and September 2025 to ensure maximum accuracy with website structure and format. Specifically, the webcrawler was trained and observed through Rhode Island and Massachusetts school district

websites to ensure that it was locating the correct special education information. This was validated by research team members or research assistants.

## **Web Crawler Operational Process**

### **Initial Setup**

The crawler begins by loading a dataset of school district websites to search. In total, four datasets were uploaded, which corresponded to the four states used in the study: Florida, Indiana, Massachusetts, and Rhode Island.

### **Establishing Site Access**

After the dataset is uploaded, the web crawler begins by attempting to establish a connection with the website. During this task, the webcrawler will process different URL variations (with/without www, http/https protocols) in order to access the website. Additionally, the web crawler is integrated with human-like delays and stealth measures to avoid detection as an automated bot. These delays and stealth measures were byproducts of an iterative process: one that began with the development of the crawler as solely a machine accomplishing a task, then evolving into a process that closely resembles the process of exploring a website manually. Importantly, the time taken to complete this process of bot-avoidance - for the purposes of increased replicability and ease of data collection - is measured by the web crawler and this time is subtracted from our primary outcome (i.e., time taken to reach a special education webpage).

### **Multi-Phase Discovery Strategy**

The crawler implements a sophisticated three-phase approach to locate special education content. Throughout the different phases, our primary outcome measures the amount of time for the webcrawler to encounter the desired information.

- Phase 1: Quick Hit Detection - The system first performs a rapid scan for direct special education links, including specialized overlays (like Apptegy navigation systems) commonly used by school districts. This phase can immediately identify sites with prominent special education navigation. This immediate phase is meant to replicate the goal of identifying

information about special education services as quickly as possible via the terminology available on the home page (i.e., clearly labeled links/headings).

- Phase 2: Comprehensive Navigation Crawling - If no direct links are found, the crawler engages in deep navigation simulation, following dropdown menus, hovering over navigation elements, and systematically exploring website hierarchies. Specifically, it prioritizes navigation paths containing specified terminology. This second phase considers the reality that a user may not locate the desired information quickly, and thus, requires more in depth exploration of where information regarding special education services may be found. The use of a tiered-term system accounts for the reality that necessary information may be located in unassuming places (i.e., “About Us” leading to “Departments” leading to “Special Education”).
  - Generic Terms: Generic navigation scaffolding (e.g., “About Us,” “District Information”)
  - Gateway Terms: Service-oriented hubs (e.g., “Student Services,” “Support Services,” “Families”)
  - Destination Terms: Specific special education terminology (e.g., “Special Education,” “Student Support Services,” “IEP,” “504 Plans”)
- Phase 3: Interactive Navigation - For each identified navigation element, the crawler simulates human interaction through hover events and clicks, capturing any dynamically-revealed sub-menus. It maintains a complete path from the homepage to potential target content, though this navigation complexity is only recorded when special education content is successfully located. The system handles various menu implementations including CSS-hidden dropdowns, JavaScript-triggered overlays, and AJAX-loaded content.
- Phase 4: Content Validation and Data Collection - Upon reaching a potential special education page, the web crawler:

- Validates presence of special education terminology in the page content
- Extracts contact information (emails, phone numbers, staff roles)
- Captures page structure metrics (headers, paragraphs, interactive elements)
- Records the complete navigation path and counts user actions required (if successful)

## **Search Terms**

### **Pathways Terms**

”about”, ”about us”, ”our school”, ”our district”, ”our mission”, ”district”, ”district information”, ”district administration”, ”administration”, ”offices”, ”departments (district)”, ”departments & offices”, ”menu”, ”more”, ”faculty”, ”schools”, ”school info”, ”educator directory”, ”forms & policies”, ”policy, plans & guidelines”, ”important documents”, ”resources”, ”curriculum”, ”classrooms”, ”what we do”, ”our approach”

### **Gateway Terms**

”pupil personnel services”, ”pupil services”, ”student personnel services”, ”student services”, ”student support”, ”student supports”, ”office of student support services”, ”office of pupil services”, ”department of student services”, ”pupil personnel services home”, ”student experience”, ”service areas”, ”support services”, ”special services office”, ”central office”, ”parents”, ”parents & students”, ”for families”, ”families”, ”students”, ”students & families”, ”students and families”, ”family resources”, ”families & students”, ”our programs”, ”programs”, ”academic programs”, ”academic & programs”, ”academics”, ”academics & learning”, ”learning services”, ”enroll”, ”enrollment”, ”enrollment overview”, ”admission”, ”important documents”, ”depts/programs”, ”departments”, ”departments/grade level”, ”services”, ”counseling”, ”educational services”

### **Destination Terms**

”educational support services”, ”student support services”, ”special populations”, ”comprehensive year-round support”, ”selac”, ”special education”, ”bfccps counseling center”, ”special education parent advisory council”, ”sped and ell services”, ”students with disabilities”, ”special education services”, ”special education & student services”, ”special ed”, ”office of special ed-

ucation", "special education & student supports", "sped and ell services", "sepac", "student & special education services", "special education parent advisory council (sepac)", "office of special education and s.e.l", "office of special education and social emotional learning", "district curriculum accommodation plan", "support services", "tapa student handbook", "special education procedural safeguards", "special services", "enrollment policy", "students with disabilities right to attend notice", "persons with disabilities", "special needs", "special education: state and federal laws and related document", "student & family handbook", "vgv personal literacy plan", "student services dept./special education", "special education dept.", "seac", "special education resources", "special education needs", "disabilities"

## **Web Crawler Primary Outcomes & Descriptions**

- lead: Local Education Agency Identifier
- District Website: Home webpage of School District
- Special Education Page URL: Special Education URL of School District
- Number of Clicks: Number of clicks required to get to special education URL
- Navigation Path: Navigation path from home webpage to special education URL
- Alt Navigation Shortest: Alternative navigation path
- Contact Info: Contact info that is provided to user seeking more information on special education at the school district
- Page Content Summary: Special Education webpage content summary
- Time Taken Seconds: Time take for webcrawler to navigate from home webpage to special education URL
- Found Term: What search terms were found
- Element Count: Number of elements

- Baseline Page Load Time: Time taken to load home page
- Tier Terms Binary: Tier 1 or 2 terms found
- Tier 2 Terms Found: What tier 2 terms were found