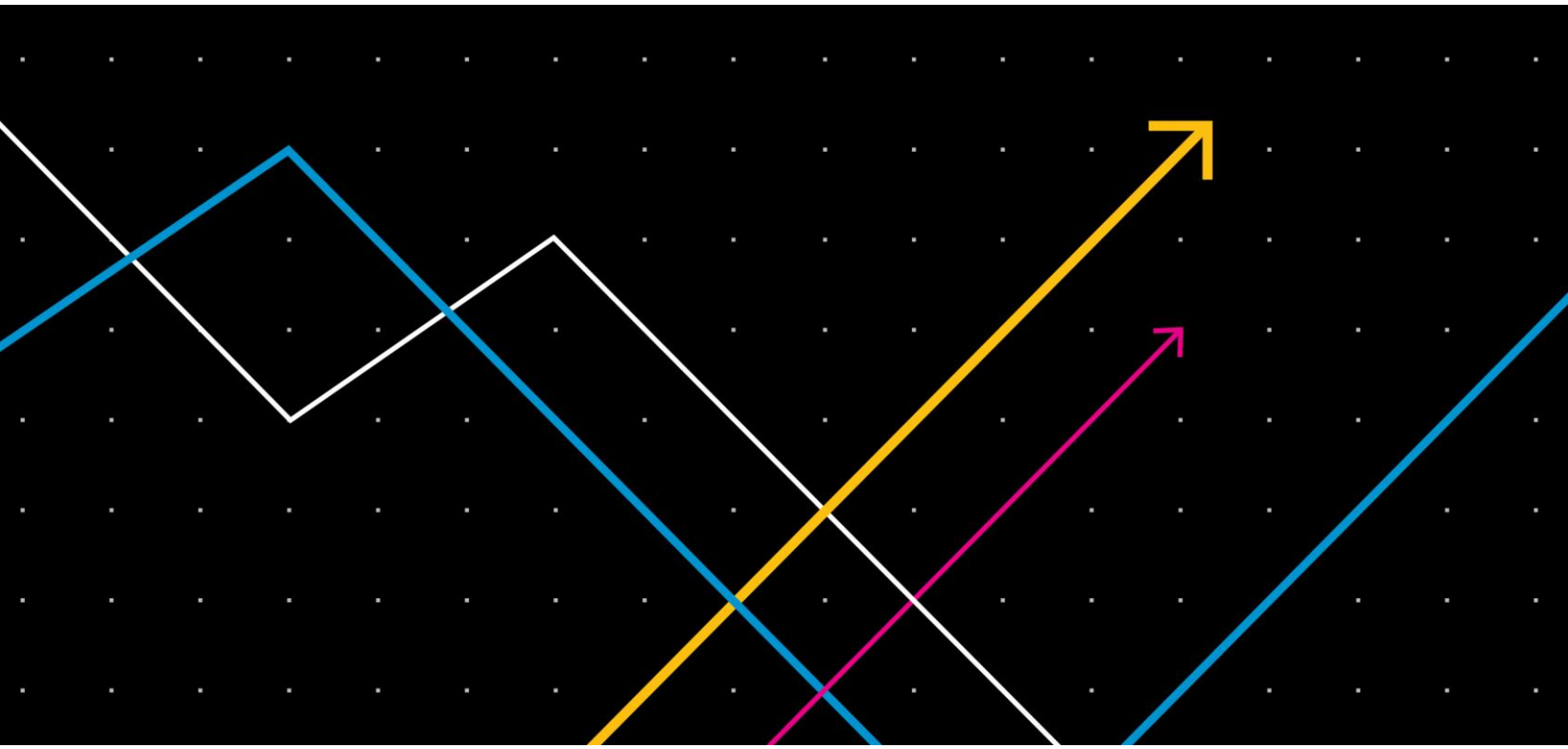

RESEARCH REPORT

Small and Sparse

Defining Rural School Districts for K–12 Funding

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Executive Summary

Across the United States, students attending rural school districts can face different obstacles than their urban counterparts, particularly rural students from households living below the federal poverty level. But how rural districts are defined can vary by federal, state, and local entity and can sometimes not capture the difficulties specific districts face. We examine the National Center for Education Statistics (NCES) definitions of rurality—the predominant avenue of federal funding for rural districts—and compare these definitions with how states define "rural" in their own funding formulas. We show that these definitions often identify different districts, and we investigate how summary data on district demographics, staffing, revenues, and expenditures vary across these different definitions.

Based on the findings in this report, we recommend the following:

1. **States should consider incorporating a "small" school district component into support systems, either for the first time or in addition to other components.** Districts that enroll relatively fewer students spend more per student to cover overhead costs, and "sparse" and NCES definitions of "rural" do not necessarily identify districts with low enrollments. Solely relying on sparse or NCES rural definitions might not direct dollars to districts most in need.
2. **States should reevaluate (or evaluate for the first time) which definitions determine eligibility for funding.** More than half of states provide additional monetary support to districts with rural characteristics, and federal programs offer states flexibility to use either NCES or state agency definitions of rurality. In some states, more districts can be eligible for funding under NCES definitions, while in others, more districts can be eligible under enrollment-based or density-based definitions. These definitions identify rural districts where students of color make up the majority differently and should be carefully considered to ensure equitable funding practices.
3. **Researchers should consider the geographic context of their research and which definitions of rurality are most appropriate.** Does the NCES definition of rurality, which is readily available in administrative datasets, describe the rural-urban differences researchers are interested in exploring, or would a definition based on relative enrollment sizes or sparsity measures be more appropriate?

The pandemic has had significant consequences for rural students, who often lacked internet and other supports necessary to learn from home. It is crucial that policymakers understand how state and

federal definitions of rurality affect their understanding of rural districts' needs and resources to support students who are often already at a disadvantage.

Defining Rural School Districts

The National Center for Education Statistics (NCES) has four categories for classifying school districts—city, suburban, town, and rural—that are largely defined by their distance from an urban center. City, suburban, and town designations fall under the general "urban" umbrella designation, while rural refers only to the rural designation, defined as "not urban." In contrast, many states use other definitions for additional funds that focus on size and lack of concentration of students. These categorizations can provide a more nuanced definition of need, and although many districts overlap (i.e., some vary across definitions), our main emphasis is on showing differences between NCES definitions of rural and our national definitions of "small" and "sparse," which are aligned with state-based definitions.

Forty-two percent of US school districts are designated as rural according to the NCES, and they serve 15 percent of students. They are districts with distinct needs and face obstacles related to their size and location. Rural districts are less likely than urban districts to be able to offer a broad set of curriculum offerings, are less able to fill job openings and retain teaching staff, and often spend more on transportation, as students in rural areas are more likely to live farther from school. Rural districts provide services for relatively fewer students and are therefore less likely to be able to spread costs across students. For example, a school always needs a principal, regardless of whether the school serves 10 students or 5,000 students. These higher overhead costs and lower enrollments can make it hard for rural districts to take advantage of economies of scale. Because of these unique needs, federal and state entities often allocate additional monetary support to rural districts, through different avenues using different definitions of rurality.

Almost everything we know from research about rural districts is based on definitions of rurality created by the NCES. This is likely because the NCES definitions are a readily available measure of rurality in administrative datasets such as the Common Core of Data. These definitions are widely used in research and analysis and are a critical avenue for federal funding. Despite the long-established use of NCES definitions, they mostly rely on proximity to urban areas and generally compare rurality across state lines. But the ways states understand and define their own rural districts are different, often relying on definitions based on enrollment sizes and student density.

This report details NCES rurality definitions, how those definitions play out across the country, and how they differ from state-specific definitions. We further identify the share of districts (and students served) under each type of definition, compare district characteristics across definitions, and outline

how defining rurality based on district-relevant characteristics can more precisely direct dollars to districts most in need.

Prior Research on Rural Districts

Rurality is defined in several ways across federal, state, and local entities, and the interest in better understanding the differences between rural and urban areas is not new. For more than a century, decennial census publications have provided statistics based on urban and rural designations. Over time, urban definitions (which include the NCES's city, suburban, and town designations) have changed based on technological advancements and data needs and to account for settlement patterns.[1] For example, the US Census Bureau updated its definition of "urban" in December 2022, causing more than 1,000 areas to be newly identified as rural.[2] What remains consistent is that rural definitions are consistently defined as "not urban." Standard definitions of rurality tend to focus on the challenges, deficits, or absences of an element rather than the assets or strengths of rural communities (Bennett et al. 2019).[3] These varying definitions, along with the many rural designations used across time and government agencies, make it difficult to arrive at a representative, inclusive, and consistent definition of rurality.

Rural District Characteristics and Outcomes

Rural districts often receive additional funding based on how rural district characteristics affect student outcomes. These funds aim to mitigate the additional challenges rural districts face, such as deep poverty, transportation costs, higher education costs, and lack of resources, that affect student outcomes (Irvin et al. 2012).

Who Are Rural Students?

Using NCES designations, we know almost 7.7 million students attend rural school districts. Rural students come from a range of socioeconomic backgrounds and racial and ethnic groups. In 23 states, most rural students come from low-income families (Showalter et al. 2017), and in rural areas, 13 percent of children younger than 6 experience deep poverty; this figure is 10 percent among their urban peers.[4]

What Do Rural Districts Offer?

Rural districts commonly serve small student populations. The median enrollment for rural districts is only 494 students, and at least half of rural districts in 23 states enroll less than the median (Showalter et al. 2019). Low enrollment frequently results in fewer teachers, which can limit course offerings (Hassel and Dean 2015). The average rural school offers half as many advanced mathematics courses as those in urban areas, and nearly half of rural students attend a school that offers only one to three advanced mathematics courses (Graham and Teague 2011). Rurality can especially affect advanced course offerings. Only 73 percent of schools in rural areas offer at least one Advanced Placement (AP) course, compared with 95 percent and 92 percent of schools in suburban and urban districts, respectively. The numbers are worse for AP courses focusing on STEM (science, technology, engineering, and mathematics) subjects. Sixty-two percent of rural schools offer at least one AP STEM course compared with 93 percent of suburban schools (Mann et al. 2017). Although the AP access gap has narrowed in recent years, the current gap remains among rural students and schools (Education Commission of the States 2017).

Who Works in Rural Districts?

There are strengths in rural areas that might better serve teachers, such as tighter, more transparent connections between community and schools.[5] But rural districts also face staffing and teacher turnover challenges. Teachers have higher retention rates overall in rural schools than in urban or suburban schools (Williams, Swain, and Graham 2021), but teachers in specifically sparsely populated states (i.e., those with fewer students that cover larger areas) are more likely to leave a school than teachers in densely populated states (Nguyen 2020). Rural schools are also more likely to report difficulty filling vacancies, particularly in STEM positions, and have a harder time recruiting faculty for their growing population of English language learners than nonrural schools (NCES 2012; Player 2015). Appalachian Kentucky teachers are increasingly more likely to leave the teaching profession entirely after their first year in a classroom, whereas teachers in non–Appalachian Kentucky classrooms become progressively less likely to do so (Cowen et al. 2012).

These vacancy issues are also intertwined with teacher quality issues. Rural teachers tend to receive their degrees from less selective colleges than teachers in all other locales and have lower academic qualifications compared with those employed in urban schools (Fowles et al. 2014; Player 2015). Rural districts are also likely to employ a high percentage (i.e., more than 17 percent) of new teachers, especially in districts with large populations of students of color and students in poverty,

suggesting that schools may struggle with high turnover (Gagnon and Mattingly 2012). Overall, rural teachers tend to be white, have lower rates of graduate degrees, attend less selective colleges, and earn less (Nguyen 2020). Rural staffing issues are not limited to teaching positions. Rural schools receive fewer applications for principal positions, and there are fewer female applicants and applicants of color in rural versus urban schools (Yang, Lee, and Goff 2021).

There are several reasons for these vacancies and quality issues. Rural teachers' salaries are lower than urban teachers' salaries, which can increase teacher turnover and might explain rural teacher shortages in key areas, such as STEM subjects and English learner instruction (Player 2015). Studies find that the rurality of a state overall, the degree of remoteness of rural schools within the state, and student characteristics all help explain the degree of challenge school districts face in hiring high-quality teachers and principals (Stoddard and Toma 2021). For example, rural districts in urban states such as California have higher teacher vacancy rates than other types of districts, causing these districts to have to hire more emergency-credentialed teachers (Goldhaber et al. 2020). Overall, teachers maintain close community ties, with 80 percent of teachers staying within 13 miles of their hometown when seeking employment—a much larger figure than that of other professionals (Miller 2012; Reininger 2012).

How Do Rural Students Fare?

These teacher turnover and quality challenges have consequences for student outcomes. Student outcomes are negatively associated with teacher attrition (Nguyen 2020), and teacher attrition disproportionately affects students of color (Williams, Swain, and Graham 2021). We also know that representation matters, and there are positive benefits for students assigned to demographically similar teachers. Students of color perform better when taught by at least one same-race teacher, likely because same-race teachers generally have higher expectations and a greater cultural understanding of their students (Gershenson, Holt, and Papageorge 2016).[6] More specifically, assigning students to same-race or same-ethnicity teachers positively influences academic outcomes, increasing math and reading scores and improving behavior and attendance (Ferguson 2003; Egalite and Kisida 2016; Goldhaber and Hansen 2010; Gershenson et al. 2016). But Black teachers who leave rural districts tend to move to urban and suburban districts rather than other rural districts, putting rural Black students at even more of a disadvantage (Williams, Swain, and Graham 2021).

There is a stark opportunity gap between urban and rural students, especially among students of color (Burdick-Will and Logan 2017).[7] Rural students enter kindergarten with lower reading skills than

their suburban peers (Clarke 2014), and substantial gaps remain even at graduation. Rural students have less access to AP exams, but even among those who take these assessments, rural students are less likely than their peers to receive a passing AP score or college credit (Showalter et al. 2019).

Rural students are more likely to graduate from high school than their urban peers, but similar to low-income students in urban areas, low-income students in rural areas graduate at lower rates than their more advantaged classmates. Also rural students, on average, are less likely to enter and graduate from college and are particularly underrepresented in four-year degree programs and at selective schools (Jordan, Kostandini, and Mykerezi 2012; Koricich, Chen, and Hughes 2018; Showalter et al. 2017; US Department of Agriculture 2017).[8] Relatively lower entry and graduation rates are, in part, attributable to the lack of physical universities in rural areas (Rosenboom and Blagg 2018). In 2011, only 45 percent of high school graduates from rural schools attended four-year colleges immediately after graduating from high school, compared with 49 percent of urban high school graduates and 52 percent of suburban high school graduates (Education Commission of the States 2017).

Why Might Rural Districts Need More Help?

Education funding improves student outcomes, particularly for children in socioeconomically disadvantaged contexts (Lafortune, Rothstein, and Schanzenbach 2016). For example, high poverty rates in rural areas could yield stronger effects of revenue reduction because education funding has larger benefits for low-income students, and we know 48 percent of students in rural schools in 2016 were from low-income households (Showalter et al. 2017).

Rural economies are diverse and adaptive, with rich resources and strong community capital. K–12 and higher education institutions serve as local economies and provide valuable services to rural communities. But rural districts can be underfunded compared with other districts in a state, some severely so, because of lower revenues and higher costs (Strange 2011). Although property-wealthy places can generate plenty of resources locally, places without high property values—like many rural areas—cannot generate those same resources and therefore more heavily rely on state and federal sources (Tieken and Montgomery 2021). Nonrural districts (including cities, towns, and suburbs) allocate fewer dollars and a smaller share of their budgets to transportation, salaries, and general administration, yet the cost of achieving the same outcomes is higher in rural districts (Dhaliwal and Bruno 2021).

The cost concerns for rural districts generally fall within two veins: transportation (rural districts generally cover large geographic areas) and economies of scale (rural districts tend to serve fewer

students). School size—responsible for the difficulties of achieving economies of scale—and population density appear to be independent factors influencing education costs (Kolbe et al. 2021).

Economies of Scale: Small Districts

Rural districts serve relatively fewer students than nonrural districts, and districts or schools with limited enrollment may have a hard time achieving economies of scale (Andrews, Duncombe, and Yinger 2002). For example, districts with less than 100 students may be twice as expensive to operate than districts with more than 2,000 students and may be 50 percent more expensive than districts with 100 to 300 students (Baker and Duncombe 2004). Evidence from Vermont schools shows that educating less than 100 pupils is expected to cost about $1,059 more per pupil in total spending, compared with schools with more than 250 students (Kolbe et al. 2021). Other researchers find that doubling enrollment in a 300-pupil district may reduce operating costs per pupil by about 62 percent and doubling enrollment in a 1,500-pupil district would reduce costs by 50 percent (Duncombe and Yinger 2007). Although there may be cost savings from increasing enrollment and consolidation, these effects will vary based on how districts are designed. Differentiation in size or distance to other districts can lead to even higher transportation costs. Economies of scale also include staffing and capital costs, and research finds that rural teacher salary spending benefits achievement (Brehm, Imberman, and Lovenheim 2017; Cellini, Ferreira, and Rothstein 2010; Hanushek, Piopiunik, and Wiederhold 2018).

Transportation: Sparse Districts

Proportionately more of rural districts' educational budgets are spent on transporting children to and from school compared with nonrural districts (Alexander 1990). Rural students live farther from school, and the increased distance and fewer students can make it difficult to make transportation ends meet. Because education is a responsibility of the state and not the local government, questions of equity and appropriate costs of school transportation services must be recognized and properly addressed by legislative bodies, and rural districts must be provided the necessary funds to transport students.

On top of funding constraints associated with rural transportation, long school commutes affect student academic outcomes. Compared with their suburban counterparts, rural students are more likely to have bus rides of 30 minutes or longer. A systematic review of how transportation affects academic outcomes shows that longer travel times and transportation challenges are associated with adverse academic outcomes (Hopson et al. 2022). Moreover, rural districts have been

disproportionately affected by the pandemic, gas prices, and inflation, specifically regarding student transportation.[9]

State Funding Formulas

Despite the prevalence of cost adjustments in state education funding formulas for differences in educational costs attributable to scale, sparsity, and transportation, state policy is made largely without information on the actual differences in the costs of educating students who attend small and geographically remote districts (Duncombe, Nguyen-Hoang, and Yinger 2015; Malhoit 2005). Estimates for education costs are highly dependent on a state's selected measures of student performance and state context, making it difficult to generalize cost differentials across states (Duncombe, Nguyen-Hoang, and Yinger 2015).

According to Kolbe and coauthors (2021), at least 13 states provide some cost adjustment for rural districts in their state funding formula based on geographic location or population density. Other states provide monetary support for sparse districts based on the driving distances between districts. Twenty-six states recognize the loss of economies of scale and fund districts based on student enrollment thresholds, and 43 states provide supplemental funding for transportation. But there is little scholarly work on actual cost differences in rural and urban schools or on variations between rural schools (Kolbe et al. 2021; Stoddard and Toma 2021).

Attempts to cut costs include rural district consolidation (Lavalley 2018) and resorting to solutions such as four-day school weeks (Anglum and Park 2021). But an analysis shows that expenses are likely to remain stable or even rise after consolidation caused by increased expenses in transportation and midlevel administration (Howley, Johnson, and Petrie 2011; McGee, Mills, and Goldstein 2021).

Description of the Data

The analysis in this report uses school- and district-level characteristics, such as enrollment, student demographics, staffing information, and district-level F-33 financial survey data from the Common Core of Data for the 2018–19 school year. We measure student poverty by using the Urban Institute's Model Estimates of Poverty in Schools. Because the Common Core of Data local education agency (LEA) IDs do not necessarily include all schools (e.g., charter schools), we match our school-level data to the Urban Institute's geographic LEA IDs, created by linking schools' geographic locations to the geographic boundaries of school districts, as defined by the NCES's Education Demographic and Geographic

Estimates. We downloaded these datasets via the Urban Institute's Education Data Portal. Lastly, we match these data to the Missouri Census Data Center's Geocorr 2018 data to obtain land-per-square-mile data for each geographic LEA ID.

NCES Definitions and Federal Funding

Table 1 details how the NCES locale classifications are composed of four basic types (city, suburban, town, and rural) that fall within standard, dichotomous urban and rural definitions developed by the Census Bureau.[10] Each basic type contains three subtypes, where definitions rely on population size and proximity to urban areas (NCES, n.d.). According to the Census Bureau, urban areas represent densely developed territories and have either 50,000 or more people or at least 2,500 but less than 50,000 people. The NCES city, suburban, and town classification types are considered urban areas. Rural areas encompass all the remaining areas and align with the NCES's basic rural type. Although most students in the US attend suburban school districts, districts are most likely to be considered rural by NCES standards (table 2).

The NCES classifies rurality into three groups: fringe, distant, and remote. Each category varies by level of geographic isolation and relation to urbanized areas or urbanized clusters: fringe districts are the least rural, and remote districts are the most rural.

TABLE 1

NCES Locale Classifications

US Census Bureau	NCES basic types	NCES subtypes	Definition
Urban	City	Large	Territory inside an urbanized area and inside a principal city with a population of 250,000 or more.
		Midsize	Territory inside an urbanized area and inside a principal city with a population of less than 250,000 and greater than or equal to 100,000.
		Small	Territory inside an urbanized area and inside a principal city with a population of less than 100,000.
	Suburban	Large	Territory outside a principal city and inside an urbanized area with a population of 250,000 or more.
		Midsize	Territory outside a principal city and inside an urbanized area with a population of less than 250,000 and greater than or equal to 100,000.
		Small	Territory outside a principal city and inside an urbanized area with a population of less than 100,000.
	Town	Fringe	Territory inside an urban cluster that is less than or equal to 10 miles from an urbanized area.
		Distant	Territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area.
		Remote	Territory inside an urban cluster that is more than 35 miles from an urbanized area.
Rural	Rural	Fringe	Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as a rural territory that is less than or equal to 2.5 miles from an urban cluster.
		Distant	Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as a rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster.
		Remote	Census-defined rural territory that is more than 25 miles from an urbanized area and more than 10 miles from an urban cluster.

Sources: US Census Bureau and NCES.

Note: NCES = National Center for Education Statistics.

TABLE 2

Share of Districts and Students by NCES Classifications

US Census Bureau	Share of districts/ students	NCES designation	Share of districts/ students	NCES subdesignation	Share of districts/ students
Urban	58/85	City	19/31	Large	12/17
				Midsize	3/7
				Small	4/7
		Suburban	22/43	Large	19/37
				Midsize	2/4
				Small	2/2
		Town	15/11	Fringe	3/2
				Distant	7/5
				Remote	5/3
Rural	42/15	Rural	42/15	Fringe	11/8
				Distant	17/5
				Remote	13/2

Sources: US Census Bureau and NCES.
Notes: NCES = National Center for Education Statistics. Percentages may not sum to 100 percent because of rounding.

Federal Funding

Rural districts can receive additional federal aid through the Rural Education Achievement Program. In 2022, Congress approved $195 million to be split equally between its two subgrants to provide support for small districts (i.e., the Small, Rural School Achievement Program, or SRSA) and for rural low-income schools (i.e., the Rural and Low-Income School Program, or RLIS).[11]

Both SRSA and RLIS funds can be used toward select Title I, II, III, or IV operations. These supports can improve basic programs operated by school districts and support effective instruction such as Language Instruction for English Learners and Immigrant Students and the Student Support and Academic Enrichment Program. But some programs are grant specific. Only under the RLIS program can parental involvement activities can be supported, and only SRSA can support 21st Century Community Learning Center initiatives.

The RLIS program serves slightly larger rural districts with high concentrations of children from low-income families and provides a base amount of $25.08 per pupil across all eligible rural districts. Allocations in 2021 ranged from $3,492 in a Massachusetts district to $10.2 million in a Texas district.[12]

The SRSA program, on the other hand, is designed to give small and rural districts financial assistance to improve student academic outcomes. Unlike RLIS, SRSA uses an allocation formula based on average daily attendance and previous Title II-A and IV-A amounts.[13] Across all states, Delaware

received the lowest total allocation ($30,073), and Texas received the highest total allocation ($9.4 million). At the district level, the allocations range from $186 in a district in Maine to $66,309 in districts in Arizona, California, North Carolina, and Ohio.

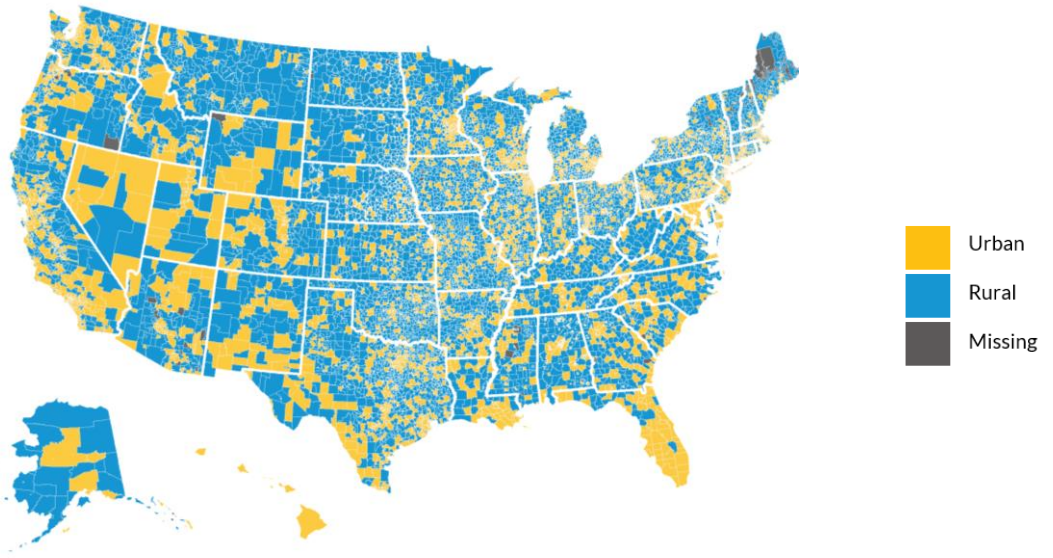
In addition to size or share of low-income students, eligibility for these programs is contingent upon rural status based on NCES rural classifications. For SRSA funding, all schools in a district must be classified as rural, and for RLIS funding, all schools must be classified as "rural" or "town" distant or remote. Districts can also be eligible if they are located in an area of the state designated rural by a state governmental agency.[14]

Rurality According to the NCES

According to the NCES definitions, which are consistent across states, 42 percent of districts across the nation are classified as rural, and of those, 27 percent are fringe (i.e., the classification closest to urban areas), 41 percent are distant, and 32 percent are remote (i.e., farthest from urban areas). Figure 1 demonstrates how these NCES definitions reflect district rurality across the nation. The ways states define their own district boundaries (e.g., by county lines versus town-based boundaries) means these definitions do not necessarily provide equal comparisons across the United States. States where districts cover greater areas of land (and more students) are more likely to include urban areas and are therefore less likely to be designated rural. The Midwest contains smaller districts, compared with states like Nevada, Utah, and other western states, where district boundaries cover greater areas.

FIGURE 1

National Center for Education Statistics Rural versus Urban Districts, 2018



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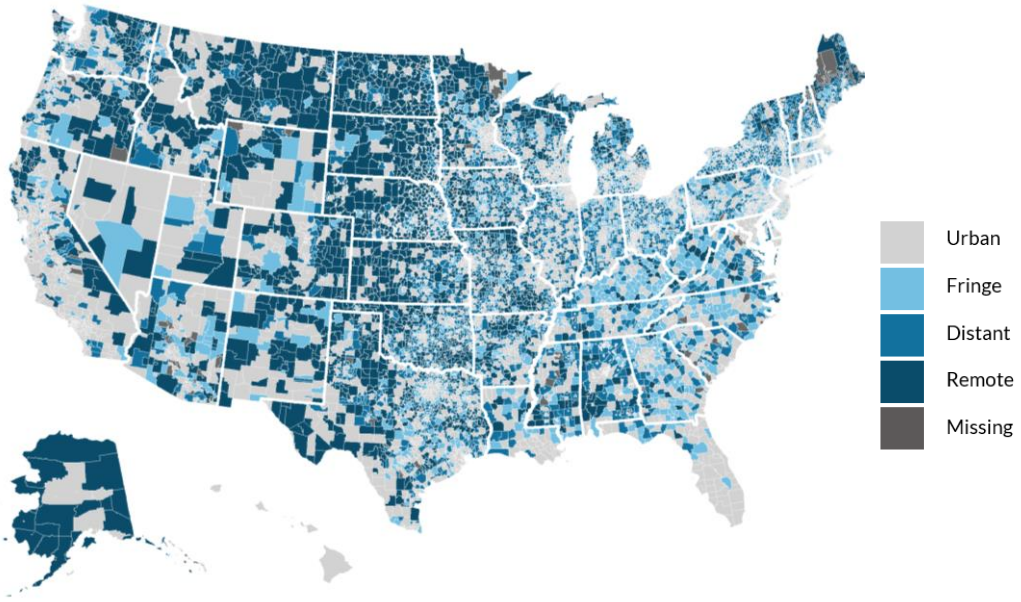
Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.

The prevalence of the three rural subgroups varies as well. Rural districts in the eastern United States are more likely than others to be closer to urban areas and are therefore more likely to be designated as fringe (figure 2). This is likely because of the small geographic size of districts and the relatively higher instances of population density. Starting in the middle of the United States and moving west and north, rural districts are more likely to be remote.

FIGURE 2

National Center for Education Statistics Detail of Rural Districts, 2018



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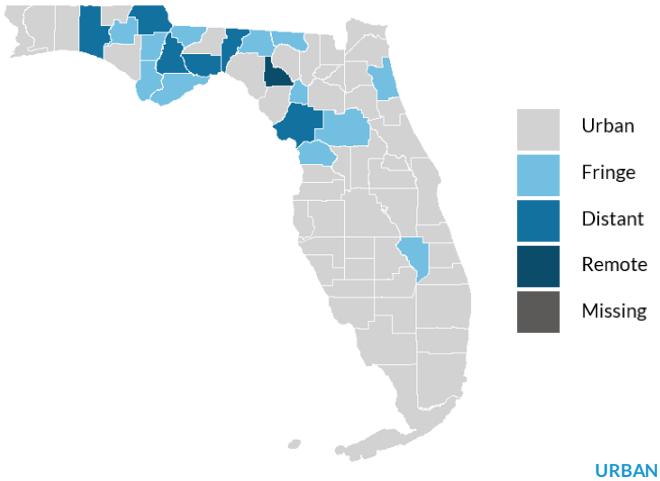
Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.

State-Specific NCES Differences

States' district boundaries greatly affect whether districts are designated rural by NCES standards. For example, Florida's school districts span entire counties and cover 800 square miles, on average, resulting in fewer NCES-designated rural districts (figure 3). School districts covering larger areas are more likely than school districts covering smaller areas to include an urban area. For example, New York State school districts are much smaller (i.e., 126 square miles, on average) (figure 4). It is worth noting that the largest geographic school district in Florida covers 1,998 square miles, and the largest in New York covers 639 square miles. In Florida, of the 19 rural districts, 63 percent are fringe, 32 percent are distant, and 5 percent are remote; of the 322 rural districts in New York, 34 percent are fringe, 56 percent are distant, and 10 percent are remote.

FIGURE 3

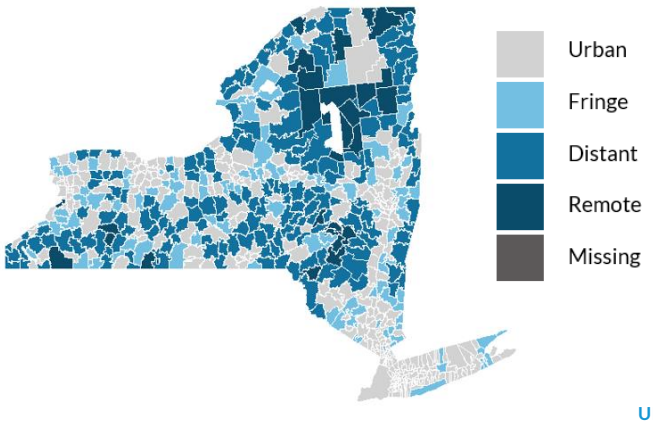
National Center for Education Statistics Rurality Designations in Florida, 2018



Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.

FIGURE 4

National Center for Education Statistics Rurality Designations in New York, 2018



Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.

State-Specific Definitions and State Funding

Although NCES definitions allow for district comparisons across the US, relative rurality, or the selection of districts for a rural definition within a local context, matters for state and local support. Schools generally receive only 8 percent of total funding from federal sources compared with 47 and 45

percent of funding from state sources and local sources.[15] Funding from the Rural Education Achievement Program makes up less than 1 percent of total federal revenue, but the program allocated almost $181 million to school districts in 2018, and every dollar counts for these small districts.[16] Yet research about rural districts (e.g., on demographics, enrollments, and educational achievement) generally relies on NCES definitions rather that state-specific definitions. And although there can be overlap between NCES designations and the characteristics states use to determine their own definitions, there can be considerable divergence.

State-Specific Definitions of Small, Sparse, and Isolated Districts

Because states determine their own district boundaries, districts in one state can have substantially different enrollment sizes and student density needs compared with districts in another state, meaning need is relative to the rest of the districts in the state. Most states have their own definitions of "rural" that are used for funding purposes and can account for the variation and history behind district formation.

BOX 1

Additional Definitions

In addition to the term "rural," states use "small," "sparse," and "isolated" to describe districts with unique characteristics in need of additional support.

- Small: based on an enrollment threshold (e.g., districts enrolling up to 200 students)
- Sparse: based on a student density threshold (e.g., districts serving 1 to 3 students for every square mile the district covers)
- Isolated: based on distance to other districts within the state (e.g., a district's schools are at least 30 miles from another in-state district with schools that teach the same grade level)

Although states may have more detailed and context-specific definitions, table 3 shows whether and how each state allocates additional funding for districts defined as rural, small, sparse, or isolated. Thirty-three states provide additional support to small, sparse, or isolated districts. Twenty-five states use the term "small," and 15 states use the term "sparse," and they rely on enrollment and student density thresholds. The enrollment thresholds range from 244 in Wyoming to 24,000 in Florida. On

average, states with small district measures set thresholds that are about 58 percent of the state's average district enrollment, but thresholds range from 8.5 percent in Washington to an outlier of 202 percent in Louisiana, where the enrollment threshold is 7,500 students. Student density thresholds range from 1.2 students per square mile in Arkansas to 35 in Massachusetts. On average, states with sparse district measures set thresholds that are about 17 percent of each state's average district student density, ranging from 7 percent in Arkansas to 30 percent in Pennsylvania. Ten states provide additional funding based on distance to the nearest other district or school, ranging from 7 miles to 30 miles. Forty-three states operate transportation grant aid programs, generally relying on measures of student density (Duncombe, Nguyen-Hoang, and Yinger 2015). More information about each state's mean and median enrollment and student density can be found in appendix table A.1.

TABLE 3

State-Specific Definitions of Sparse, Small, Isolated, or Rural Districts

State	Terms	Enrollment/ADA/ADM	Student density	Distance to nearest district
AK	Sparse	< 1022.5	-	-
AZ	Small and isolated	< 600	-	≥ 30 miles
AR[a]	Small, isolated, and sparse	< 500	< 1.2 students per square mile	≥ 12 miles
CO	Small	< 5,000	-	-
FL	Small	< 24,000	-	-
GA	Small	< 3,300	-	-
ID	Small	< 40 kindergarten < 300 elementary < 750 secondary	-	> 10 miles to kindergarten and elementary school > 15 miles to secondary school
KS	Small	< 1,622	-	-
LA	Small	< 7,500	-	-
MA	Sparse	-	≤ 22 to 35 students per square mile	-
MI	Small and remote, sparse	< 1,550	≤ 10 students per square mile	≥ 30 miles
MN	Sparse	< 960	-	Y
MI	Sparse	-	-	-
MO	Small	≤ 350	-	-
MT[b]	Small	< 800 high school district < 250 elementary or K–12 district		
NE	Small	< 900	-	≥ 7 miles to elementary school
NV[c]	Small	< 4,000	-	-
NM	Small	< 4,000	-	-
NY[d]	Sparse	-	< 25 students per square mile	-
NC	Small	< 3,000	-	-

State	Terms	Enrollment/ADA/ADM	Student density	Distance to nearest district
ND	Sparse, small	< 100 and > 275 square miles	-	≥ 19 miles
OH	Sparse	-	-	-
OK	Sparse, small	< 529	< 25% of state avg.	-
PA	Sparse, small	≤ 30% of state avg.	≤ 30% of state avg.	
SD	Sparse	< 600		≥ 15 miles to secondary school
TN	Sparse	-	-	-
TX	Small, remote	< 1,600	-	≥ 30 miles
UT	Small	< 2,000	-	
VT	Small, sparse	< 20 (in any grade)	-	Y
WA	Small	< 300 (district with more than two high schools)	-	-
WV	Small	< 1,400	-	-
WI	Small, sparse	< 1,000	< 10 students per square mile	-
WY	Small	< 244	-	-

Source: Authors' summarization of information from EdBuild, "FundEd: Sparsity and/or Small Size Policies in Each State" (EdBuild, n.d.); and "K–12 and Special Education Funding: Small Size or Isolated Funding Adjustment," Education Commission of the States, accessed February 20, 2023, https://reports.ecs.org/comparisons/k-12-and-special-education-funding-08.
Notes: ADA = average daily attendance; ADM = average daily membership. Cells with "Y" indicate "Yes," there is funding for that particular element, but there is not a simple threshold for eligibility. States without information are not included: Alabama, California, Connecticut, Delaware, the District of Columbia, Hawaii, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, New Hampshire, New Jersey, Oregon, Rhode Island, South Carolina, and Virginia.
[a] Ark. Code Ann. § 6-20-604 (2020), Additional funding.
[b] Mont. Code Ann. § 20-9-306 (2021), Definitions.
[c] Guinn Center, *Rural Education in Nevada* (Reno, NV: Guinn Center, 2020).
[d] Office of State Aid, *2021–22 State Aid Handbook: Formula Aids and Entitlements for Schools in New York State* (Albany: New York State Education, Office of State Aid, 2021).

The top panel of figure 5 shows the geographic distribution of small districts based on state-specific enrollment thresholds (listed in table 3), among states with enrollment thresholds. In some states, by their own definitions of small, most districts are small districts. More than 70 percent of districts in Alaska, Idaho, Kansas, Louisiana, Nebraska, New Mexico, and Utah are considered small by their state standards. This is because their enrollment thresholds are relatively closer to their state's average district enrollment. On the other hand, less than 20 percent of districts in Arkansas, North Dakota, and West Virginia are considered small by their state definitions. The enrollment thresholds for these states are much lower compared with their state's average district enrollment.

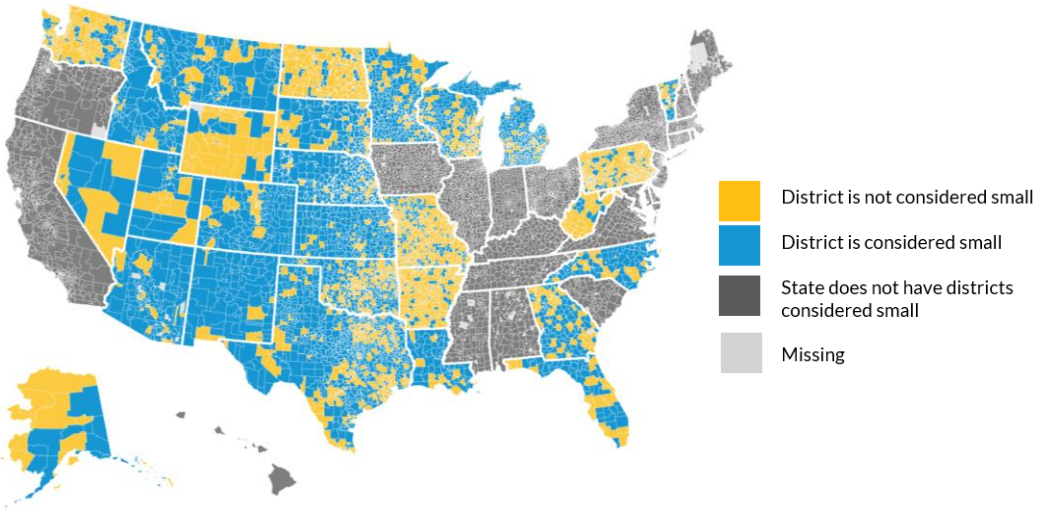
The bottom panel shows the distribution of sparse districts based on state-specific student density thresholds, among states with student density thresholds. Although states consider distance to other districts or a district's "isolated" characteristics, we incorporate this sentiment into our sparse definition, as sparsity generally requires both low student enrollment and large geographic areas.

Almost 50 percent of districts in Oklahoma and Wisconsin are considered sparse, compared with roughly 20 percent of districts in Massachusetts and Michigan. Even though Arkansas has a student density threshold, only 2 percent of its districts are considered sparse, and Arkansas uses several terms to allocate additional funding (table 3).

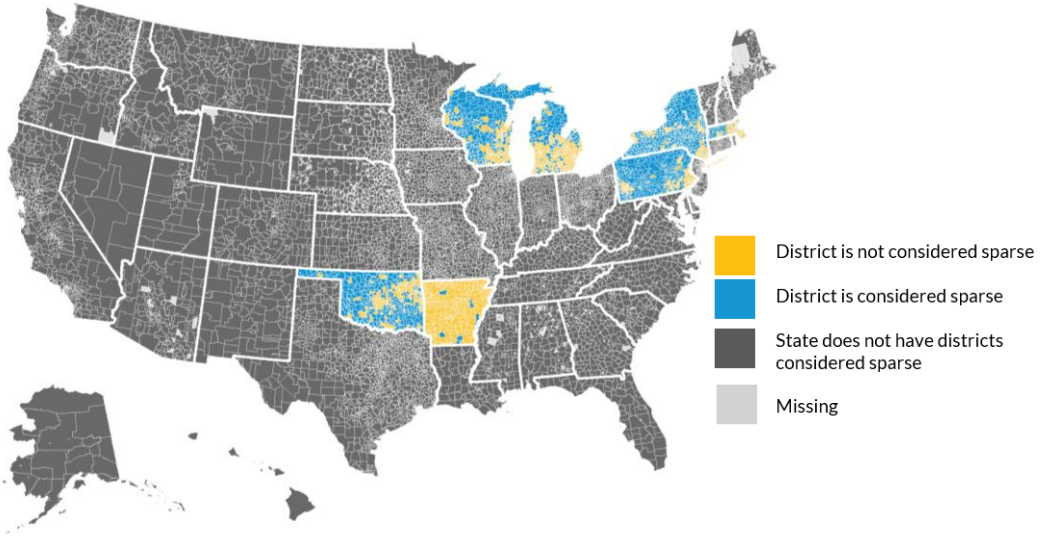
FIGURE 5

State-Specific Small and Sparse Districts, 2018

Small districts



Sparse districts



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Source: Authors' analysis of FundEd's information on small and rural districts using data from the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.
Notes: Among states with enrollment and sparsity thresholds noted in table 3.

National Definitions Based on States' Context

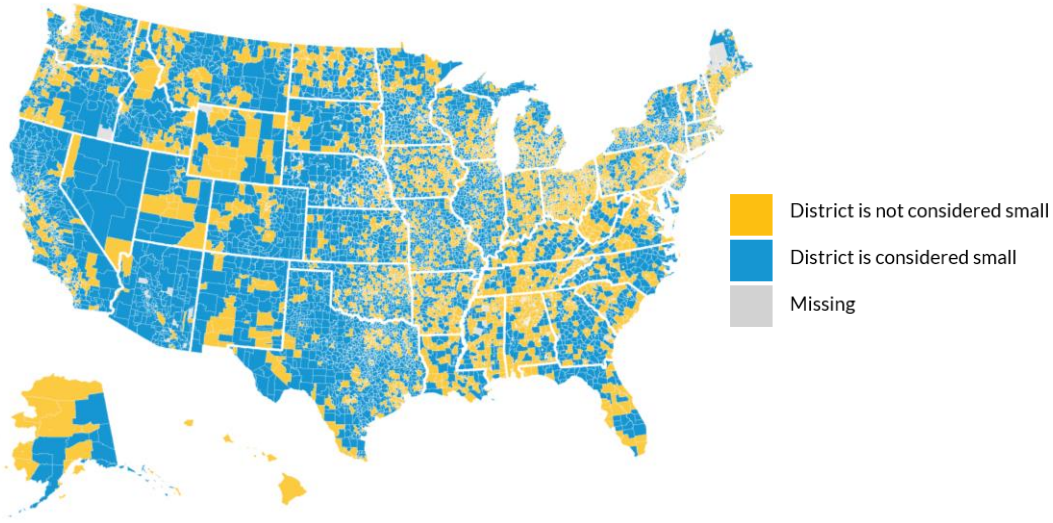
Because states identify districts with rural characteristics in substantially different ways, we aim to build national definitions of "small" and "sparse" that rely on states' relative characteristics to compare with the NCES rurality definitions. Based on average values we discussed from table 3, we consider a district small if the district's enrollment is less than half the state's average district enrollment. Similarly, we consider a district sparse if the district's number of students per square mile is less than one-fourth the size of each state's average student density. These definitions allow us to see how districts identified as rural via an enrollment or density threshold overlap with NCES classifications. We considered using each state's median enrollment and student density, but when assessing the current enrollment and student density thresholds in practice against state medians, we found that state averages are more in line with thresholds currently in place. More information on both mean and median analyses can be found in appendix table A.1. We also acknowledge that charter school districts are often, by nature, small, and we note that roughly a third of the small districts identified using this definition are charter districts. We provide descriptive statistics for small noncharter districts in appendix table A.2.

Forty-two percent of districts nationwide are rural districts according to NCES definitions compared with 55 percent that are considered small and 41 percent that are considered sparse. Of districts the NCES considers rural, 70 percent are small, and 74 percent are sparse. Only 53 percent of small districts are considered rural according to the NCES, and only 75 percent of sparse districts are considered rural according to the NCES (hereafter, "NCES rural" districts). State-by-state shares of districts that are considered NCES rural, small, and sparse can be found in appendix table A.3. The top panel of figure 6 shows the geographic distribution of small districts, while the bottom panel shows the distribution of sparse districts.

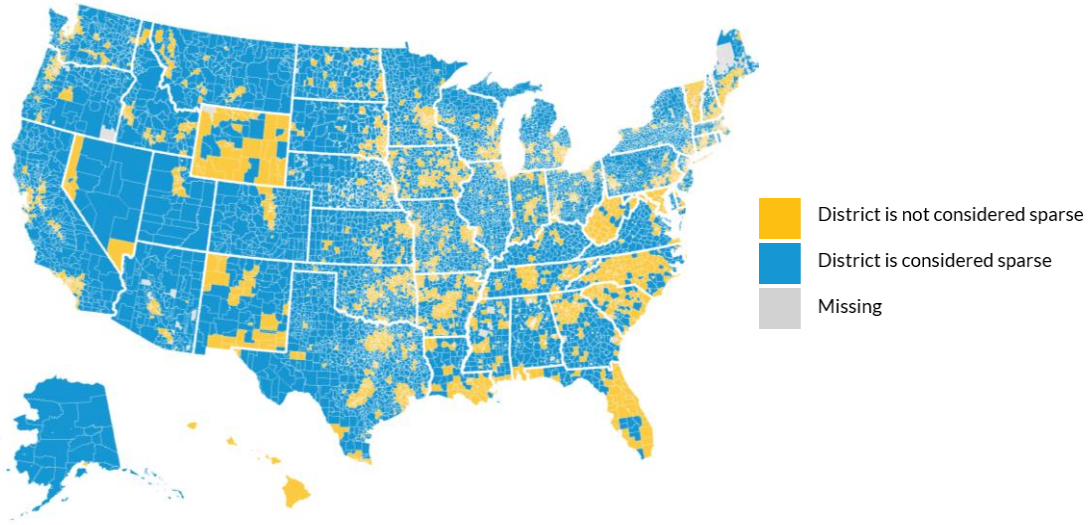
FIGURE 6

Geographic Distribution of Small and Sparse Districts

Small districts



Sparse districts



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Source: Authors' analysis of small and sparse districts based on the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.

Comparison of NCES Rural, Small, and Sparse District Characteristics

Using data from the Common Core of Data via the Education Data Portal, we examine demographic characteristics of districts by different definitions of rurality. We expect there to be at least some differences, as the NCES rural definition is based on population density and geographic distances to populated areas. States have substantial variation regarding these two components, combined with the fact that states can have different school district boundaries. Identifying differences in districts according to these definitions can shed light on how districts can have similar needs but different supports across national and state perspectives.

Table 4 shows the average demographic characteristics of NCES urban, NCES rural, small, and sparse districts. NCES rural districts, on average, have 15 students per square mile; small districts have 264, and sparse districts have 8. NCES rural districts have similar average enrollment numbers as sparse districts, whereas small districts have half that enrollment. Sparse districts cover large geographic areas, and small districts have statistically significantly lower enrollments than districts designated rural by NCES standards. Small districts have, on average, relatively larger shares of Asian, Black, and Hispanic students and lower shares of white students compared with NCES rural districts. Sparse districts have larger shares of Hispanic students compared with NCES rural districts. Both small and sparse districts have higher shares of students from low-income households and English language learners.

TABLE 4

Summary Statistics of Districts' Demographic Characteristics, 2018

	All	NCES urban	NCES rural	Small	Sparse
District means					
Student density	244	408	15	264*	8*
Enrollment	2,846	4,201	1,017	541*	1,028
Land (square miles)	277	223	353	294*	423*
Percentages (%)					
Race or ethnicity					
Asian	2.5	3.8	0.7	1.8*	0.8
American Indian/Alaska Native	2.5	1.2	4.2	2.9*	3.6*
Black	12.1	17.9	4.2	13.8*	4.3
Hispanic	19.0	24.6	11.3	19.8*	13.8*
Native Hawaiian/Pacific Islander	0.2	0.2	0.1	0.2*	0.1
Two or more races	3.7	4.1	3.2	3.6*	3.2
White	60.0	48.0	76.2	57.9*	74.1*
Poverty (MEPS)	17.7	18.1	17.2	19.3*	17.5*
Students with disabilities	15.4	15.2	15.7	15.7	15.8
English language learners	8.0	9.3	5.4	9.1*	5.9*
Number of districts	19,700	11,469	8,231	10,819	8,157

Source: Authors' analysis of school district data from the Common Core of Data via the Urban Institute's Education Data Portal.
Note: MEPS = Model Estimates of Poverty in Schools; NCES = National Center for Education Statistics.
* indicates a *p*-value < 0.05 difference from NCES rural districts.

Table 5 summarizes the staffing characteristics per 100 students across the different definitions of rural. In line with our discussion on economies of scale (and the potential lack thereof among rural districts), we find NCES rural, small, and sparse districts have relatively more teachers per 100 pupils compared with NCES urban districts. But small and sparse districts have fewer teachers per 100 pupils (7.9 and 8.3 compared with 8.5). Small districts have fewer guidance counselors (0.2) and overall staff members (17.2) and more school administrators (0.6) and district staff members (1.3) compared with NCES rural districts. Sparse and small districts have slightly more student staff support (0.8 and 0.9) compared with NCES rural districts (0.7).

TABLE 5

Summary Statistics of Staffing Characteristics, 2018

District means per 100 pupils

	All	NCES urban	NCES rural	Small	Sparse
FTE teachers	7.4	6.5	8.5	7.9*	8.3*
Instructional aides	2.1	2.0	2.3	2.3	2.3
FTE guidance counselors	0.2	0.2	0.3	0.2*	0.3
FTE school counselors	0.1	0.1	0.2	0.1	0.2
FTE school administrators	0.5	0.5	0.5	0.6*	0.5
FTE school staff	4.1	3.9	4.4	4.4	4.4
FTE student support staff	0.8	0.9	0.7	0.9*	0.8*
FTE staff	15.9	14.4	17.9	17.2*	17.7
FTE district administrators	0.4	0.3	0.5	0.5	0.5
FTE district staff	1.1	1.0	1.2	1.3*	1.2
Number of districts	19,700	11,469	8,231	10,819	8,157

Source: Authors' analysis of school district data from the Common Core of Data via the Urban Institute's Education Data Portal.
Note: FTE = full-time equivalent; NCES = National Center for Education Statistics.
* indicates a *p*-value < 0.05 difference from NCES rural districts.

Similarly regarding economies of scale, we find that NCES rural, small, and sparse districts receive, on average, more total revenue per pupil compared with the average district, but sparse districts receive almost $700 more per pupil in total revenue and almost $500 more per pupil in local revenue compared with NCES rural districts. Small districts, on the other hand, receive more Title I and Individuals with Disabilities Education Act (IDEA) revenue per pupil and less state transportation revenue compared with NCES rural districts. Small districts spend more on student transportation and federal funds per pupil, whereas sparse districts spend almost $600 more per pupil on instruction (table 6).

TABLE 6

Summary Statistics of Revenues and Expenditures, 2018

District means per pupil

	All	NCES urban	NCES rural	Small	Sparse
Revenue ($)					
Total	17,412	16,824	18,165	18,415	18,868*
Federal	1,332	1,243	1,446	1,528	1,475
Title I	296	293	300	330*	313
IDEA	216	242	183	236*	211
Other direct	68	52	88	82	85
State	8,281	7,973	8,676	8,958	8,852
Formula assistance	5,985	5,671	6,386	6,560	6,340
Special education	409	455	350	437	399
Transportation	110	83	144	111*	156
Local	7,799	7,608	8,043	7,929	8,542*
Transportation revenue	1.79	2.02	1.49	1.21	1.59
Expenditures ($)					
Total	17,064	17,757	16,523	17,848	18,266
State and local funds	12,054	12,695	11,444	12,694	12,989
Federal funds	1,011	1,047	976	1,143*	1,082
Instructional	8,247	8,471	8,071	8,403	8,666*
Student transportation	626	780	506	646*	796
Number of districts	19,700	11,469	8,231	10,819	8,157

Source: Authors' analysis of school district data from the Common Core of Data via the Urban Institute's Education Data Portal.
Note: IDEA = Individuals with Disabilities Education Act; NCES = National Center for Education Statistics.
* indicates a *p*-value < 0.05 difference from NCES rural districts.

Comparisons across Rural, Small, and Sparse Districts, 2018

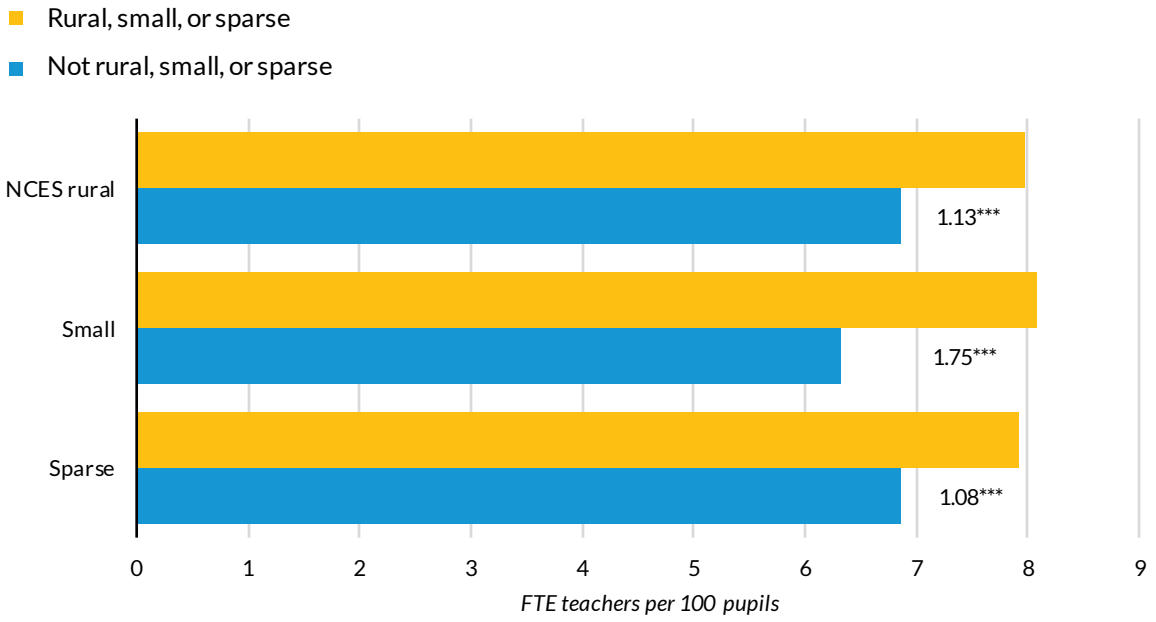
We take a closer look at staffing, revenues, and expenditures between NCES rural, small, and sparse districts and their counterparts through a regression framework. In this analysis, we control for the share of students coming from households living in poverty, the share of students with disabilities, and whether districts are charter districts.[17] As a robustness check, we run the regressions without charter districts and find the results are substantively unchanged. Districts often receive additional monetary support for these characteristics, and they may therefore affect the estimated relationships between rural-designated districts and staffing or fiscal outcomes. We also implement state fixed effects so that we compare district outcomes with those of other districts within each state and to control for any idiosyncrasies across states.

Staffing

We find small districts have substantially more staff members per 100 pupils compared with their counterparts. Small districts have, on average, 1.75 more full-time equivalent staff members per 100 students than nonsmall districts (figure 7). This is expected, as small districts have smaller student enrollments but still have a floor on the total number of teachers and staff members required for the district to function. For example, just because a district has fewer third- and fourth-graders, it still requires a third-grade teacher and a fourth-grade teacher. In high school, districts still need teachers certified in various subjects to teach the classes separately. Small districts have more total staff members per pupil (3.6) compared with nonsmall districts, and NCES rural and sparse districts have relatively fewer student support staff members compared with their urban and nonsparse counterparts (0.15 and 0.11, respectively). See appendix table A.4A.

FIGURE 7

FTE Teachers per 100 Pupils



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Source: Authors' analysis of school district data from the Common Core of Data via the Urban Institute's Education Data Portal.
Notes: FTE = full-time equivalent; NCES = National Center for Education Statistics. Each set of bars indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, whether the district is a charter district, and state fixed effects.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Revenues

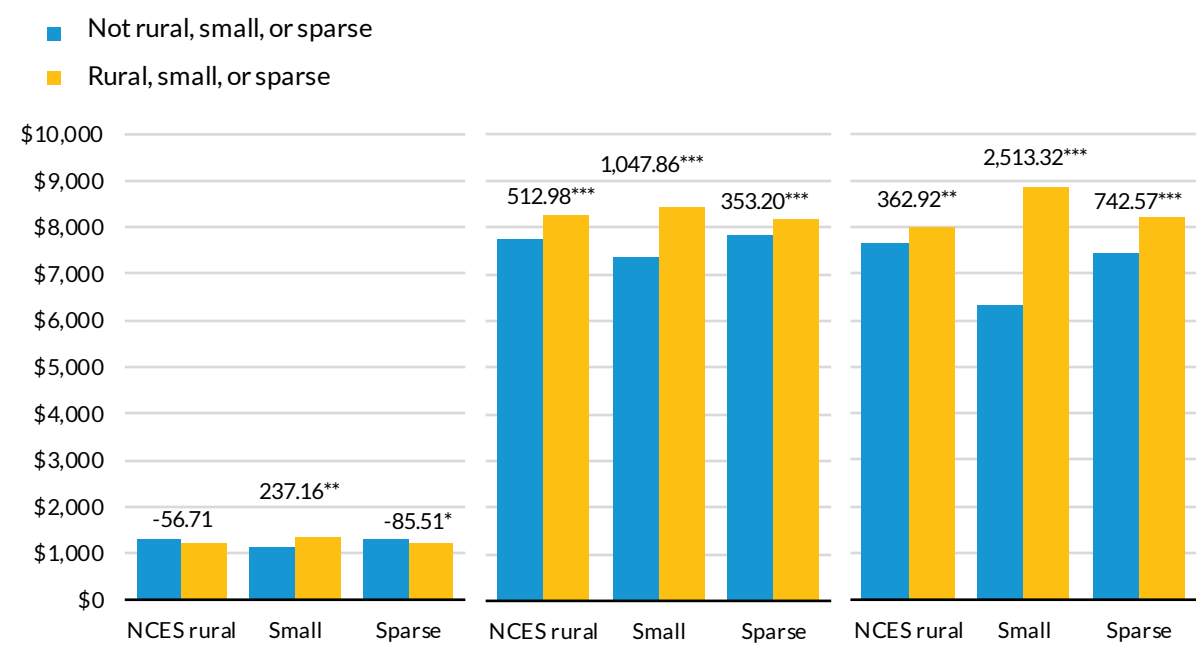
Small districts have more overall revenue per pupil compared with their nonsmall counterparts and compared with NCES rural and sparse districts. Because these revenues are per pupil, it is expected that small districts, with fewer students, will see higher per pupil revenues and expenditures, supporting the economies of scale consideration. Small districts receive $237 more federal revenue per pupil than nonsmall districts, whereas NCES rural districts do not receive different amounts from nonrural districts (figure 8). This is an interesting finding, as federal grant programs use NCES rural designations as one of the eligibility requirements. Other results demonstrate that NCES rural and sparse districts receive $31 to $40 less in Title I funding per pupil and $63 to $93 less in IDEA funding per pupil compared with NCES urban and nonsparse districts (appendix table A.4B). Small districts, on the other hand, receive $30 more in Title I funding and $77 more in IDEA funding per pupil than nonsmall districts. This could be because small districts have relatively higher poverty rates relative to NCES rural and sparse districts, though they have the same share of students with disabilities (table 3). But the differences in poverty rates do not suggest such large differences in Title I funding. This could be partly attributable to the relatable reduction process in the Title I formulas and how it interacts with small state minimum and hold harmless requirements, which leads to large variations across districts and states with similar poverty rates (Gordon 2016).

All three types of districts receive more state revenue than their counterparts, but small districts receive relatively more compared with nonsmall districts. Interestingly, NCES rural and sparse districts receive relatively less state special education funding per pupil than NCES urban and nonsparse districts ($171 and $175 less, respectively), even though all three types of districts have the same shares of students with disabilities (appendix table A.4B). We note that all three types of districts receive $44 to $61 more per pupil in state transportation revenue.

In terms of local revenue, small districts receive more than $2,500 per pupil more than nonsmall districts, compared with $362 in NCES rural districts and $742 in sparse districts. Each receives fewer dollars in transportation fee revenue than their counterparts.[18]

FIGURE 8

Federal, State, and Local Revenue per Pupil



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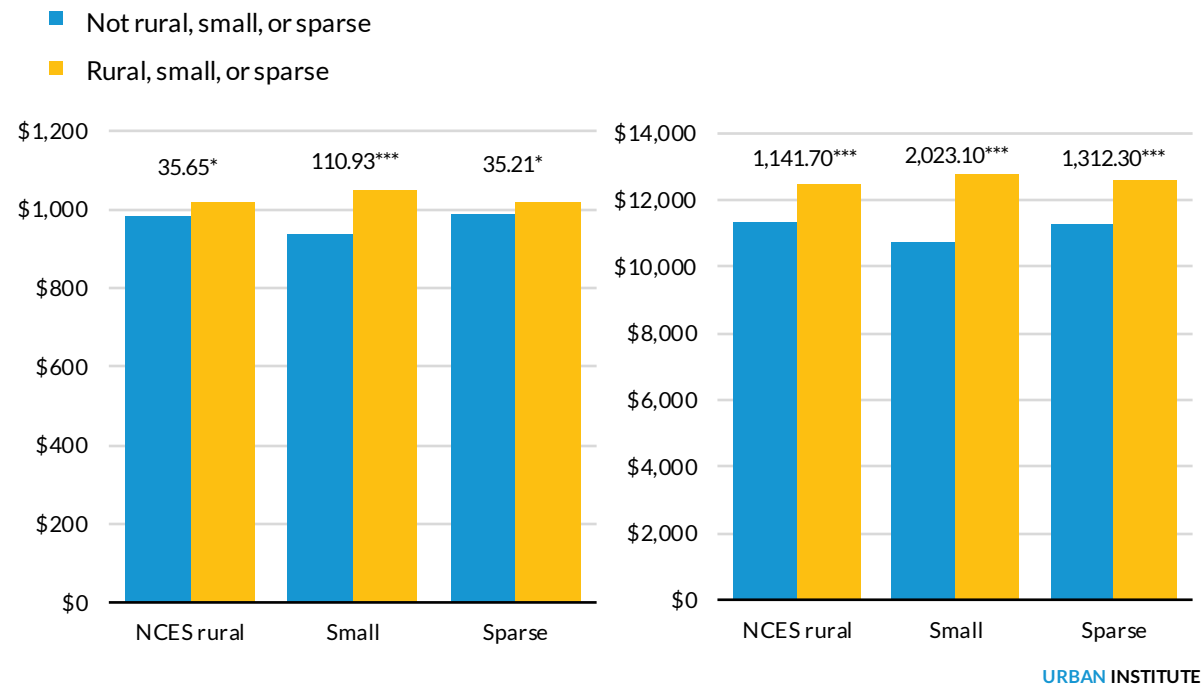
Source: Authors' analysis of school district data from the Common Core of Data via the Urban Institute's Education Data Portal.
Notes: NCES = National Center for Education Statistics. Each set of bars indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, whether the district is a charter district, and state fixed effects.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Expenditures

Small districts spend almost $3,500 more per pupil compared with nonsmall districts, whereas NCES rural districts spend $516 more per pupil and sparse districts spend $719 more per pupil (appendix table A.4C). Figure 9 demonstrates differences in federal and state and local expenditures across the three types of districts. The difference in federal spending per pupil between small and nonsmall districts is almost three times that of NCES rural and sparse districts and their counterparts. At the state and local level, the difference between small and nonsmall districts ($2,023) is almost twice the difference of NCES rural and sparse districts and their counterparts ($1,147 and $1,312, respectively). Small districts also spend more than $1,000 per pupil on instruction compared with nonsmall districts, whereas NCES rural and sparse districts spend only $165 and $171 more than their counterparts, again likely because of the floor on the number of teachers required for a district to support the variety of subjects to teach and students' ages.

FIGURE 9

Federal and State and Local Expenditures per Pupil



Source: Authors' analysis of school district data from the Common Core of Data via the Urban Institute's Education Data Portal.
Notes: NCES = National Center for Education Statistics. Each set of bars indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, whether the district is a charter district, and state fixed effects.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Rural America and Students of Color

Throughout history, rural America has been home to large numbers of people of color, despite common perceptions of rural America as primarily white (Lichter 2012). Rural students of color are often excluded from the rural American narrative, resulting in the misrepresentation of their district needs, challenges, and contributions to rural communities. With growing racial and ethnic diversity and increased immigration in rural areas, it is imperative to not only highlight but distinguish the unique experiences among rural students of color.

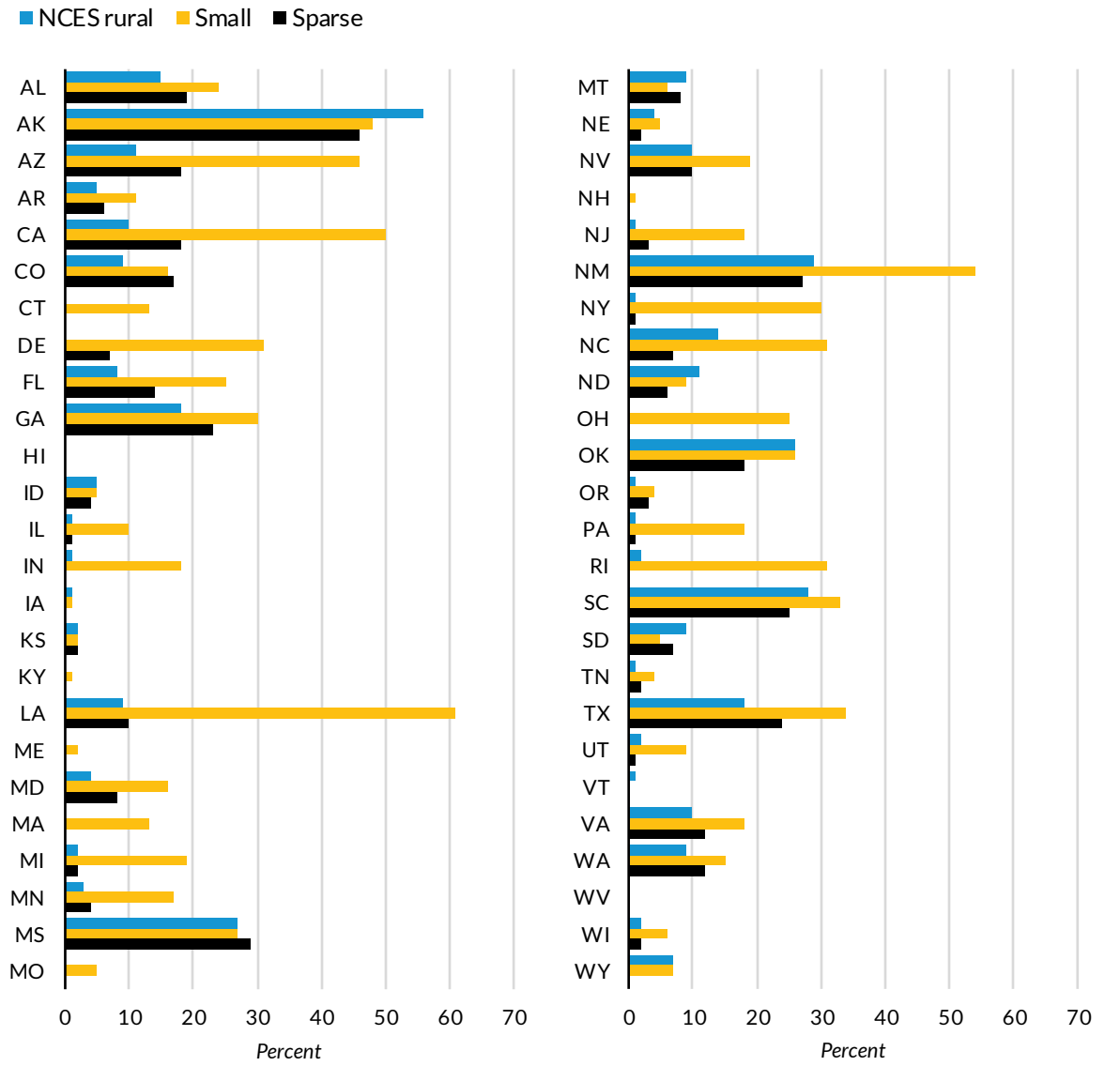
Districts of color vary in representation among the three definitions of rurality. In only 15 percent of NCES rural districts do students of color make up the majority, compared with 37 and 18 percent of small and sparse districts, respectively. Research tells us that just over one in four rural students is nonwhite, though this portion varies significantly by region and by state (Showalter et al. 2017). To

investigate this further, we examine the share of rural, small, and sparse districts where students of color make up the majority, by state (figure 10). Many states tend to have a greater share of districts of color using small and sparse definitions. Only in a few states, such as Alaska, Mississippi, New Mexico, Oklahoma, and South Carolina, do more than 20 percent of NCES rural districts have students of color make up the majority. It is more likely that students of color make up the majority in states' small and sparse districts. In 17 states, students of color make up the majority in more than 20 percent of small districts, and they make up the majority in at least 50 percent of small districts in California, Louisiana, and New Mexico. Students of color make up the majority of students in sparse districts more than 20 percent of the time in 6 states, but 16 states have higher shares of sparse districts where students of color make up the majority compared with NCES rural districts.

Upon closer examination, we find that small districts where most students are students of color are charter districts. This is expected, as charter schools are often individual entities that serve fewer students and therefore have their own geographic LEA IDs. The demographic makeup of charter schools depends on the school—the goal of the charter school and whether it is seen as an alternative to public schools. Once we exclude charter districts from the analysis, the shares of districts where students of color make up the majority are more similar across definitions, and when we exclude charter districts from our small definition, we find students of color make up the majority in just 20 percent (figure 11). It is worth noting that states where the majority of their small districts are mostly students of color and largely charter districts, such as Louisiana and Nevada, do not provide the same level of federal and state funding to charter districts as they do to traditional school districts (NSBA 2021).

FIGURE 10

Share of Rural, Small, and Sparse Districts Where Students of Color Make Up the Majority



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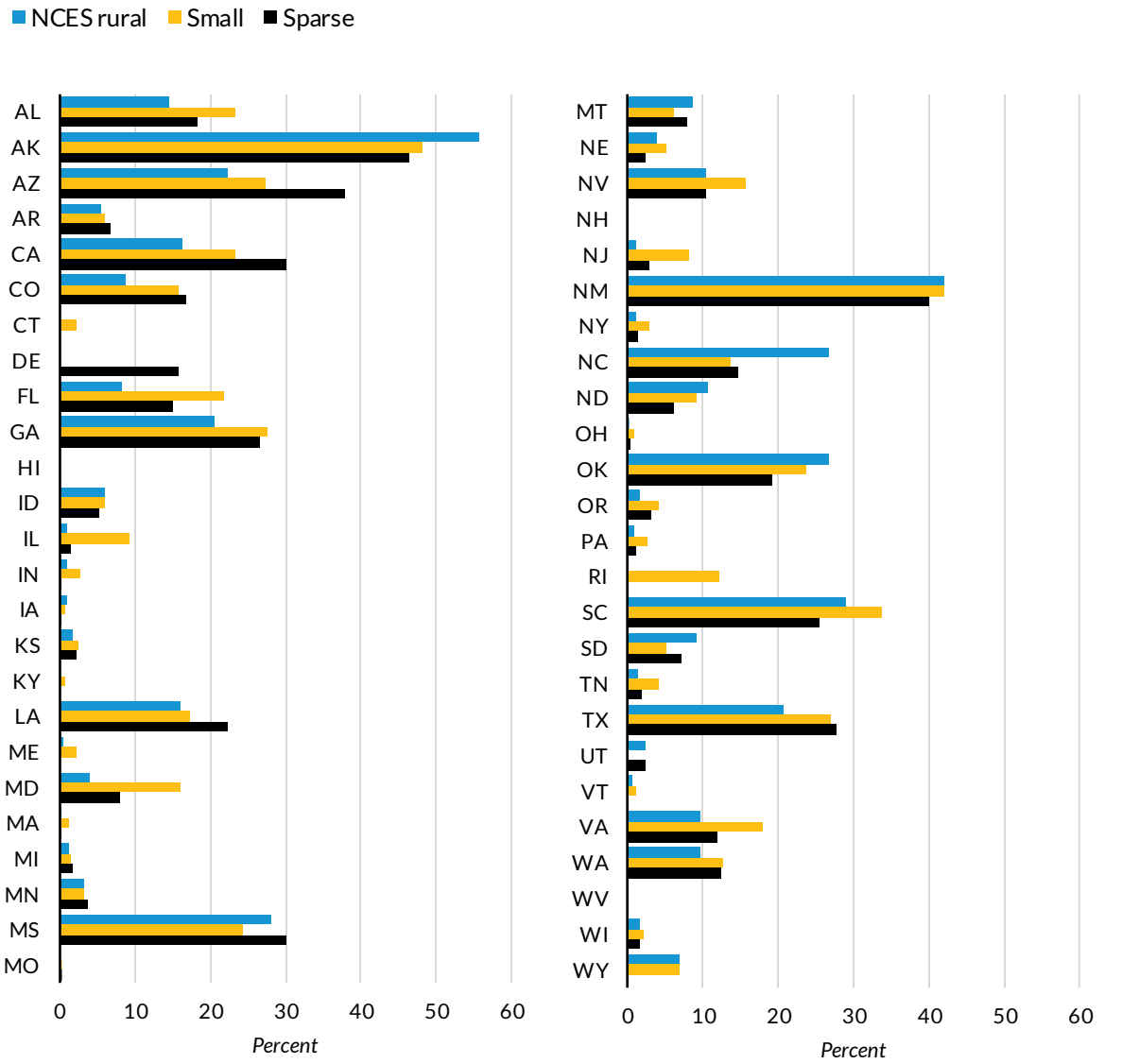
Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.
Note: NCES = National Center for Education Statistics.

FIGURE 11

Share of Rural, Small, and Sparse Districts Where Students of Color Make Up the Majority, Excluding Charter Districts



Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.

Note: NCES = National Center for Education Statistics.

Race- and Ethnicity-Specific Rural, Small, and Sparse Districts

Rural populations of color are highly regionalized in geographic areas tied to historical, social, and economic dynamics.[19] These residential patterns between history and geographic clustering of people of color are evident in areas with high shares of Black residents in the "southern Black Belt," primarily within Alabama, Georgia, Mississippi, North Carolina, South Carolina, and Virginia.[20] Hispanic rural residents typically reside in four states where immigration rates are high: Texas, California, New Mexico, and Arizona. Clusters of Indigenous populations reside in or near reservations and trust lands in the Midwest plains, the Southwest plains, and Alaska.

These small, regionalized populations have distinct experiences and tend to have higher poverty rates than white rural residents, with Black rural residents experiencing twice as much poverty (30.7 percent) as white rural residents (13.3 percent). Similarly, Indigenous rural residents experience higher poverty rates (29.6 percent), and Hispanic rural residents have the third-highest poverty rate (21.7 percent).[21] These demographic trends also translate to education within rural settings with long-established racial gaps (Yull 2014).

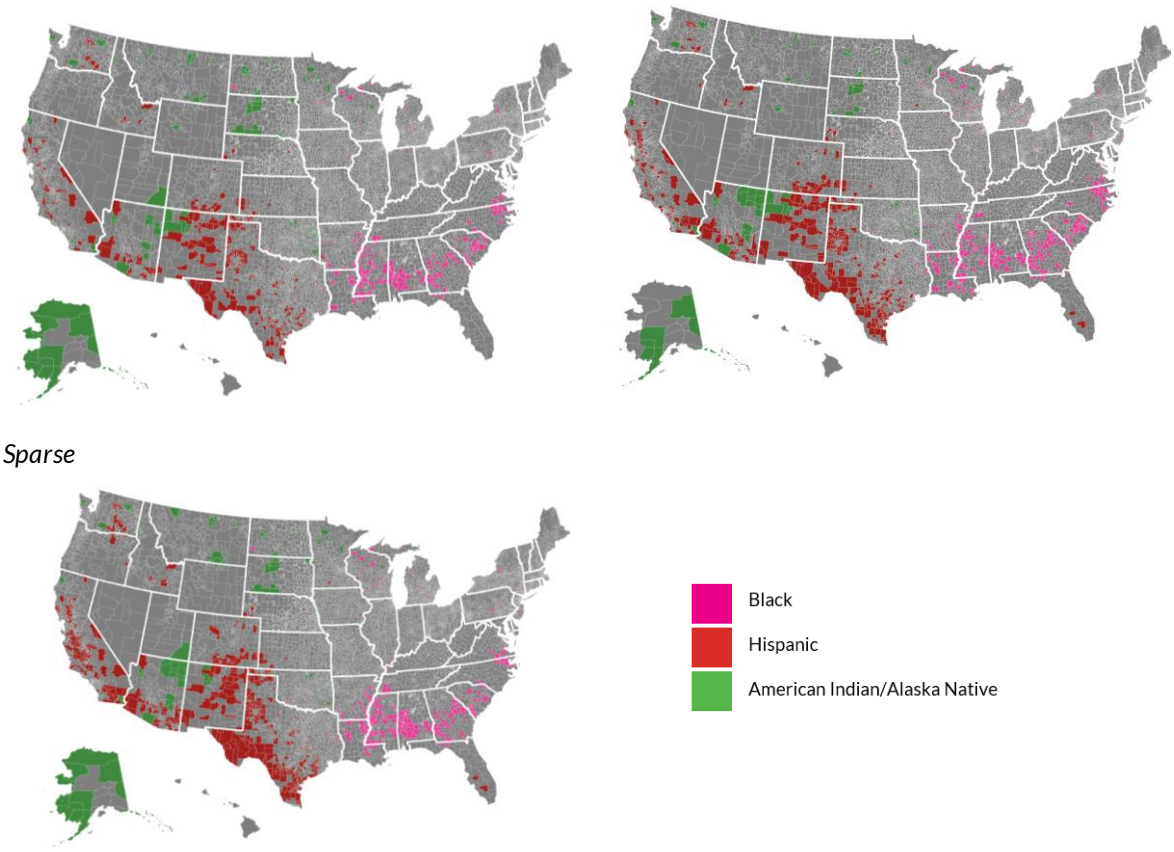
In line with historic regionalized patterns of racial distribution, figure 12 shows where NCES rural, small, and sparse districts have student populations where the majority of students are American Indian or Alaska Native, Black, and Hispanic. The more detailed our geographic breakdown gets, the more apparent it is that students of color are highly prevalent within rural communities. When considering different definitions of rural, it is clear that some definitions highlight higher concentrations of students of color. As we progress from the NCES definition to small districts, it is evident that more districts are identified as having more students of color. Similarly, as we move to sparse districts, we capture higher shares of students of color. The level of representation within rural districts is highly dependent on the definitions used.

FIGURE 12

Districts Where Students of Color Make Up the Majority, by Rural Definition

NCES rural

Small



Sparse

Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.
Note: NCES = National Center for Education Statistics.

Policy Recommendations

Rural school districts face additional challenges associated with deep student poverty, high transportation costs, high education costs, and a frequent lack of resources. Small enrollment sizes and increased transportation needs can make it more challenging for these school districts to make ends meet. Policymakers and researchers often rely on NCES definitions to identify, understand, and support the needs of rural districts. But in practice, there are circumstances in which the NCES might not be the best way to identify relative rurality within states, leading some states to identify rural districts using unique definitions based on enrollment sizes and student density.

Accounting for local district characteristics can better direct dollars to districts in need. Our analysis comparing definitions, characteristics, revenues, and expenditures point to the following recommendations:

- **States should consider incorporating a "small" school district component into support systems, either for the first time or in addition to other components.** Districts that enroll fewer students spend more per student to cover overhead costs, and NCES rural and sparse definitions of rurality do not necessarily identify districts with low enrollments. Solely relying on NCES rural or sparsity definitions might not direct dollars to districts most in need.
  - » Small districts have significantly different demographic characteristics compared with NCES rural districts, and even though NCES rural and sparse districts have similar district enrollments, on average, sparse districts also tend to serve different student populations compared with NCES rural districts. Small districts receive more revenue per pupil across federal, state, and local contexts and spend more per pupil than their nonsmall counterparts.
- **States should reevaluate (or evaluate for the first time) which definitions determine eligibility for funding.** More than half of states provide additional monetary support to districts with rural characteristics, and federal programs offer states flexibility to use either NCES or state agency definitions of rurality. In some states, more districts can be eligible for funding under NCES definitions, while in others, more districts can be eligible under enrollment or density-based definitions. These definitions identify rural districts where students of color make up the majority differently and should be carefully considered to ensure equitable funding practices.
  - » Districts with rural characteristics allocate more dollars and a higher share of their budgets to transportation, salaries, and general administration to achieve similar outcomes as urban districts. Eligible rural districts have the flexibility to use the Rural Education Achievement Program for hiring additional teachers and aides, purchasing new technology, extending course offerings for students, and increasing the focus on closing the achievement gap.
  - » Our analysis finds that both small and sparse districts have higher shares of students from low-income households and English language learners. Increased support for flexible resources is needed to overcome barriers associated with geographic isolation.

- We find NCES rural, small, and sparse districts have relatively more teachers per 100 pupils compared with the average district. But small and sparse districts have fewer teachers per 100 pupils compared with NCES rural districts.
- Under all three definitions, districts receive more state revenue than their counterparts, but small districts receive the most. NCES rural and sparse districts receive less state special education funding per pupil than NCES urban and nonsparse districts ($171 and $175 less, respectively), even though all three types of districts have the same shares of students with disabilities (appendix table A4). We note that all three types of districts receive $44 to $61 more per pupil in state transportation revenue.

- **Researchers should consider the geographic context of their research and which definitions of rurality are most appropriate.** Does the NCES definition of rurality, which is readily available in administrative datasets, describe the rural-urban differences researchers are interested in exploring, or would a definition based on relative enrollment sizes or sparsity measures be appropriate?
  - Our national-level definitions of "small" and "sparse" show differences in representation compared with NCES definitions. Forty-two percent of districts nationwide are rural according to NCES definitions compared with 55 percent that are small and 41 percent that are sparse. Overlap across definitions is not necessarily a given.
  - If researchers are interested in state-specific contexts, they should aim to incorporate standard definitions that rely on enrollment or density thresholds that states already have in place either via funding formula factors or state agency definitions. If researchers are instead interested in comparing districts with rural characteristics across state lines, we suggest relying on either enrollment or density thresholds from a national perspective. Having uniform definitions built from measures used in practice that also account for differences relative to other districts in a state can help policymakers better understand how to allocate resources to districts with rural characteristics.
  - The level of racial and ethnic representation within rural districts is highly dependent on the definitions used. Rural populations of color are highly regionalized in geographic areas tied to historical, social, and economic dynamics, which the sparse definition is more likely to encompass.

If states want to better assess the needs of districts with rural characteristics (i.e., low enrollment sizes and increased transportation), states should examine their policies for information on the actual differences in the costs of educating students who attend small and geographically remote districts. Our

analysis breaks down staffing, revenues, and expenditures using enrollment sizes and student density, but further analysis is needed to consistently assess cost variation in rural school types.

Appendix

On average, states with small district measures set thresholds that are about half (56 percent) of the state's median district enrollment, but thresholds can range from 34 percent to 1,101 percent. On average, states with sparse district measures set thresholds that are about 81 percent of each state's median district student density, ranging from 20 percent to 131 percent.

TABLE A.1

State-by-State Mean and Median Enrollment and Student Density Details

	Enrollment				Density			
	Mean	Med.	Min.	Max.	Mean	Med.	Min.	Max.
AL	5,322	2,868	298	53,967	78.1	20.3	0.7	513.3
AK	2,425	436	12	46,115	20.0	0.3	0.0	331.5
AZ	1,721	379	2	63,124	95.6	2.4	0.0	1,584.8
AR	1,876	942	59	23,368	17.4	5.9	0.7	368.4
CA	3,112	497	3	495,255	188.1	24.2	0.0	3,237.3
CO	4,927	577	44	92,039	48.7	1.4	0.0	913.7
CT	2,607	1,427	1	21,075	137.6	63.0	1.4	1,550.9
DE	3,295	1,220	120	15,414	104.8	43.5	17.7	346.2
DC	1,379	431	33	49,489	1,442.7	1,442.7	1,442.7	1,442.7
FL	37,453	9,987	524	350,434	49.6	23.5	1.3	368.4
GA	8,258	3,019	24	179,758	68.8	13.1	0.8	1,339.1
HI	181,278	181,278	181,278	181,278	27.5	27.5	27.5	27.5
ID	1,879	506	1	40,205	14.2	1.9	0.0	323.8
IL	2,058	748	1	359,476	127.1	19.3	0.6	2,195.3
IN	2,607	1,294	5	29,404	75.9	18.1	3.1	718.7
IA	1,560	747	57	33,623	20.9	4.9	0.5	554.2
KS	1,716	525	16	49,885	20.3	2.1	0.1	410.5
KY	3,851	2,269	9	97,936	104.9	12.5	0.3	798.0
LA	3,574	802	35	48,254	35.9	8.9	0.7	316.2
ME	791	290	1	6,770	20.1	6.5	0.0	336.4
MD	35,873	15,936	404	162,680	119.2	50.0	5.9	984.6
MA	2,344	1,360	2	51,433	213.9	91.1	0.2	2,842.9
MI	1,690	769	2	49,931	122.6	18.8	0.0	2,785.2
MN	1,681	573	5	38,802	52.6	4.7	0.2	1,064.7
MS	3,060	2,068	11	34,392	38.0	7.2	1.0	324.8
MO	1,637	579	20	25,641	36.1	4.4	0.4	838.2
MT	367	111	1	11,453	2.9	0.2	0.0	134.0
NE	1,306	369	6	53,194	21.5	1.9	0.1	660.0
NV	23,744	1,655	60	335,331	7.8	0.4	0.0	56.8
NH	918	408	1	13,522	32.5	13.0	0.2	430.3
NJ	2,141	999	17	40,448	443.5	209.2	0.0	9,861.2
NM	2,285	363	18	89,788	5.1	0.7	0.0	118.4
NY	2,655	913	1	62,417	188.7	24.4	0.2	3,520.1
NC	5,041	827	26	161,784	48.6	17.7	1.0	429.0
ND	647	232	7	13,209	5.4	0.6	0.0	224.9
OH	1,806	945	6	48,925	109.2	29.3	1.4	1,017.2
OK	1,282	430	25	37,530	24.8	4.7	0.1	2,395.2
OR	2,857	791	2	48,710	45.4	3.2	0.0	905.5
PA	2,397	1,375	22	132,520	146.5	41.4	0.8	6,167.5

	Enrollment				Density			
	Mean	Med.	Min.	Max.	Mean	Med.	Min.	Max.
RI	2,351	1,290	52	23,955	319.5	98.5	5.4	3,230.1
SC	8,873	3,973	121	76,158	35.4	16.2	1.9	298.7
SD	924	346	14	25,018	6.2	1.2	0.0	338.8
TN	6,846	3,387	6	112,125	57.6	15.0	2.5	513.1
TX	4,513	896	13	209,772	66.6	6.2	0.0	1,842.5
UT	4,368	624	40	81,715	102.3	2.8	0.1	1,000.4
VT	539	247	1	4,259	144.8	49.5	3.4	604.3
VA	9,622	3,743	81	187,797	137.6	14.8	0.5	1,469.7
WA	3,527	825	5	55,271	66.6	6.8	0.0	789.1
WV	4,872	3,735	814	25,764	13.9	7.8	1.1	60.8
WI	1,927	855	31	75,431	50.2	8.6	0.4	1,408.1
WY	1,626	712	7	14,312	1.4	0.7	0.1	9.0

Source: Authors' analysis of the Common Core of Data via the Urban Institute's Education Data Portal.

TABLE A.2

Descriptive Statistics, Including Small, Noncharter Districts

	NCES rural	Small	Sparse	Small noncharters
District means				
Student density	14	263	8	37
Enrollment	1,017	541	1,032	607
Land (square miles)	357	292	424	305
Race or ethnicity				
Asian	0.7	1.8	0.8	1.0
American Indian/Alaska Native	4.2	2.9	3.6	3.7
Black	4.2	13.8	4.3	5.6
Hispanic	11.3	19.8	13.9	13.7
Native Hawaiian/Pacific Islander	0.1	0.2	0.1	0.1
Two or more	3.2	3.6	3.2	3.3
Unknown	0.0	0.0	0.0	0.0
White	76.2	57.9	74.1	72.5
Poverty (MEPS)	17.2	19.3	17.5	17.5
Students with disabilities	15.7	15.7	15.8	16.7
English language learners	5.4	9.1	5.9	6.4
District means per 100 pupils				
FTE teachers	8.5	7.9	8.3	9.1
Instructional aides	2.3	2.3	2.3	2.6
FTE guidance counselors	0.3	0.2	0.3	0.3
FTE school counselors	0.2	0.1	0.2	0.2
FTE school administrators	0.5	0.6	0.5	0.6
FTE school staff	4.4	4.4	4.4	5.0
FTE student support staff	0.7	0.9	0.8	0.9
FTE staff	17.9	17.2	17.7	19.5
FTE district administrators	0.5	0.5	0.5	0.6
FTE district staff	1.2	1.3	1.2	1.5
Revenue				
Total	$18,165	$18,415	$18,847	$20,901
Federal	$1,446	$1,528	$1,469	$1,670
Title I	$300	$330	$311	$351
Individuals with Disabilities Education Act	$183	$236	$201	$294
Other direct	$88	$82	$83	$99
State	$8,676	$8,958	$8,857	$9,420
Formula assistance	$6,386	$6,560	$6,336	$6,474
Special education	$350	$437	$406	$528
Transportation	$144	$111	$156	$161
Local	$8,043	$7,929	$8,521	$9,811
Transportation revenue	$1.49	$1.21	$1.60	$1.45
Expenditures				
Total	$16,523	$17,848	$18,248	$20,204
State and local funds	$11,444	$12,694	$12,995	$13,767
Federal funds	$976	$1,143	$1,080	$1,142
Instructional	$8,071	$8,403	$8,670	$9,326
Student transportation	$506	$646	$793	$818
Number of districts	8,231	10,819	8,165	7,100

Source: Authors' analysis of the Common Core of Data via the Urban Institute's Education Data Portal.

Note: FTE = full-time equivalent; MEPS = Model Estimates of Poverty in Schools; NCES = National Center for Education Statistics.

TABLE A.3

State-by-State Shares of Districts under Each Definition

	Totals			Percentages					
	Enrollment	Districts	Charter districts	NCES rural (%)	Rural fringe (%)	Rural distant (%)	Rural remote (%)	Small (%)	Sparse (%)
Alabama	739,716	177	2	41	12	19	11	36	40
Alaska	130,963	54	0	80	2	0	78	70	70
Arizona	1,141,106	727	453	22	9	7	7	69	35
Arkansas	495,291	296	29	55	11	28	16	44	31
California	6,180,188	2,198	1,071	21	9	8	4	66	34
Colorado	911,536	270	2	48	4	12	31	51	54
Connecticut	526,583	207	24	32	24	8	0	47	29
Delaware	138,405	47	25	15	13	2	0	51	9
DC	93,741	71	69	0	0	0	0	0	0
Florida	2,846,444	78	3	24	15	8	1	60	37
Georgia	1,767,202	234	31	51	30	16	5	59	48
Hawaii	181,278	1	0	0	0	0	0	0	0
Idaho	310,044	173	52	53	13	18	21	61	45
Illinois	1,969,470	1,063	9	33	8	23	3	54	47
Indiana	1,055,706	444	111	37	14	22	1	46	36
Iowa	514,833	342	0	70	9	36	24	50	52
Kansas	497,733	321	0	65	5	22	38	61	59
Kentucky	677,821	186	0	50	17	20	13	38	59
Louisiana	711,235	206	125	18	5	9	4	67	21
Maine	180,461	287	9	77	9	31	36	44	26
Maryland	896,827	25	0	24	12	12	0	52	36
Massachusetts	951,631	435	83	19	16	3	0	41	27
Michigan	1,504,194	912	309	38	12	17	9	53	43
Minnesota	889,304	592	185	44	8	16	20	57	47
Mississippi	471,298	161	5	55	15	23	17	36	45
Missouri	913,441	567	39	64	7	35	23	63	65
Montana	147,709	491	0	78	4	15	59	53	58
Nebraska	326,392	279	0	73	4	21	48	66	73
Nevada	498,614	21	2	33	10	5	19	86	62
New Hampshire	178,114	308	27	61	24	27	10	34	20
New Jersey	1,399,947	693	91	15	14	2	0	49	31
New Mexico	333,537	158	60	41	6	6	29	68	37
New York	2,699,732	1,069	298	30	10	17	3	58	39
North Carolina	1,552,497	348	202	38	20	15	3	63	17

	Totals			Percentages					
	Enrollment	Districts	Charter districts	NCES rural (%)	Rural fringe (%)	Rural distant (%)	Rural remote (%)	Small (%)	Sparse (%)
North Dakota	113,845	225	0	79	3	16	61	52	66
Ohio	1,695,762	1,074	350	30	14	16	0	43	31
Oklahoma	698,891	598	30	72	13	34	25	59	49
Oregon	582,913	222	20	49	8	15	26	58	61
Pennsylvania	1,730,757	792	182	27	16	10	2	41	36
Rhode Island	143,436	64	20	20	17	3	0	45	27
South Carolina	780,784	103	2	53	26	26	1	46	29
South Dakota	138,671	166	0	80	2	16	61	60	55
Tennessee	1,006,309	147	0	49	19	22	7	51	49
Texas	5,433,471	1,235	187	53	10	25	18	71	57
Utah	677,031	164	117	18	11	3	4	74	29
Vermont	87,359	326	0	77	12	41	24	26	2
Virginia	1,289,367	217	0	45	16	23	6	39	57
Washington	1,125,076	337	13	47	9	18	19	61	57
West Virginia	267,976	60	0	55	17	27	12	35	12
Wisconsin	859,329	467	25	52	13	24	16	51	54
Wyoming	94,313	62	0	63	16	13	34	52	24

Source: Authors' analysis using the Common Core of Data via the Urban Institute's Education Data Portal and Missouri Census Data Center's Geocorr 2018 data.
Note: NCES = National Center for Education Statistics.

TABLE A.4A

Comparisons across NCES Rural, Small, and Sparse Districts

Staffing

	NCES rural	Small	Sparse
FTE teachers	1.13***	1.75***	1.08***
	(0.07)	(0.07)	(0.07)
Instructional aides	0.08**	0.44***	0.12***
	(0.04)	(0.04)	(0.04)
FTE guidance counselors	-0.00	0.01**	0.01**
	(0.01)	(0.01)	(0.01)
FTE school counselors	0.01*	0.03***	0.01**
	(0.01)	(0.01)	(0.01)
FTE school administrators	0.07***	0.12***	0.05***
	(0.01)	(0.01)	(0.01)
FTE school staff	0.10	0.74***	0.17***
	(0.07)	(0.07)	(0.07)
FTE student support staff	-0.15***	0.03	-0.11***
	(0.03)	(0.03)	(0.03)
FTE staff	1.74***	3.58***	1.92***
	(0.17)	(0.16)	(0.16)
FTE district administrators	0.14***	0.28***	0.14***
	(0.01)	(0.01)	(0.01)
FTE district staff	0.08***	0.44***	0.14***
	(0.03)	(0.03)	(0.03)

Source: Authors' analysis of school district data from the Common Core of Data.

Notes: FTE = full-time equivalent; NCES = National Center for Education Statistics. Each cell indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, whether the district is a charter district, and state fixed effects. Standard errors are in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE A.4B

Comparisons across NCES Rural, Small, and Sparse Districts

Revenues

	NCES rural	Small	Sparse
Total	819.19***	3,798.35***	1,010.26***
	(257.30)	(254.60)	(254.05)
Federal			
Total	-56.71	237.16***	-85.51*
	(49.05)	(48.82)	(48.43)
Title I	-40.28***	30.95**	-31.73**
	(14.41)	(14.36)	(14.23)
Individuals with Disabilities Education Act	-93.16***	77.07***	-63.38***
	(23.24)	(23.16)	(22.96)
Direct other	14.82	26.06**	4.96
	(11.84)	(11.79)	(11.69)
State			
Total	512.98***	1,047.86***	353.20***
	(96.81)	(96.15)	(95.64)
Formula assistance	553.46***	478.67***	346.07***
	(49.94)	(49.80)	(49.43)
Special education	-171.79***	78.05*	-175.63***
	(41.09)	(40.95)	(40.58)
Transportation	61.24***	44.76***	61.31***
	(3.80)	(3.80)	(3.75)
Local			
Total	362.92**	2,513.32***	742.57***
	(178.84)	(177.05)	(176.54)
Transportation	-0.58**	-0.79***	-0.49**
	(0.23)	(0.23)	(0.23)

Source: Authors' analysis of school district data from the Common Core of Data.

Notes: NCES = National Center for Education Statistics. Each cell indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, whether the district is a charter district, and state fixed effects. Standard errors are in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE A.4C

Comparisons across NCES Rural, Small, and Sparse Districts

Expenditures

	NCES rural	Small	Sparse
Total	516.58**	3,454.55***	719.25***
	(240.88)	(238.41)	(237.85)
State and local	1,141.70***	2,023.10***	1,312.30***
	(183.96)	(181.26)	(183.21)
Federal	35.65*	110.93***	35.21*
	(18.96)	(18.74)	(18.90)
Instructional	165.07**	1,081.78***	171.34**
	(81.69)	(80.93)	(80.67)
Student transportation	180.74***	170.13***	179.10***
	(17.42)	(17.36)	(17.21)

Source: Authors' analysis of school district data from the Common Core of Data.

Notes: NCES = National Center for Education Statistics. Each cell indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, whether the district is a charter district, and state fixed effects. Standard errors in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE A.5A

Comparisons across NCES Rural, Small, and Sparse Districts, Using a Subsample with Share of English Language Learners Data

Staffing

	NCES rural	Small	Sparse
FTE teachers	0.88***	1.42***	0.97***
	(0.07)	(0.07)	(0.07)
Instructional aides	0.11***	0.53***	0.24***
	(0.04)	(0.04)	(0.04)
FTE guidance counselors	0.00	0.01	0.02***
	(0.01)	(0.01)	(0.01)
FTE school counselors	0.01	0.03***	0.02**
	(0.01)	(0.01)	(0.01)
FTE school administrators	0.05***	0.08***	0.05***
	(0.01)	(0.01)	(0.01)
FTE school staff	0.16**	0.80***	0.38***
	(0.07)	(0.07)	(0.07)
FTE student support staff	-0.10***	0.06**	-0.04
	(0.02)	(0.02)	(0.02)
FTE staff	1.43***	3.14***	1.98***
	(0.17)	(0.17)	(0.17)
FTE district administrators	0.12***	0.22***	0.12***
	(0.01)	(0.01)	(0.01)
FTE district staff	0.07**	0.41***	0.14***
	(0.03)	(0.03)	(0.03)

Source: Authors' analysis of school district data from the Common Core of Data.

Notes: FTE = full-time equivalent; NCES = National Center for Education Statistics. Each cell indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, share of English language learners, whether the district is a charter district, and state fixed effects. Standard errors in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE A.5B

Comparisons across NCES Rural, Small, and Sparse Districts, Using a Subsample with Share of English Language Learners Data

Revenues

	NCES rural	Small	Sparse
Total	594.14*	4,036.26***	1,005.15***
	(319.21)	(319.83)	(315.60)
Federal			
Total	-62.66	334.29***	-65.38
	(61.80)	(62.24)	(61.11)
Title I	-27.27	60.48***	-7.20
	(18.17)	(18.31)	(17.97)
Individuals with Disabilities Education Act	-98.43***	122.19***	-59.83**
	(30.00)	(30.24)	(29.67)
Direct other	2.61	17.14	-6.11
	(14.91)	(15.04)	(14.75)
State			
Total	293.75***	914.79***	140.04
	(110.23)	(110.86)	(109.03)
Formula assistance	378.15***	268.62***	176.15***
	(52.48)	(52.97)	(51.98)
Special education	-138.39***	154.49***	-157.19***
	(48.32)	(48.72)	(47.78)
Transportation	44.82***	24.01***	47.21***
	(3.07)	(3.11)	(3.03)
Local			
Total	363.06*	2,787.18***	47.21***
	(218.27)	(218.66)	(3.03)
Transportation	-0.29	-0.66**	-0.51*
	(0.27)	(0.27)	(0.26)

Source: Authors' analysis of school district data from the Common Core of Data.

Notes: NCES = National Center for Education Statistics. Each cell indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, share of English language learners, whether the district is a charter district, and state fixed effects. Standard errors in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE A.5C

Comparisons across NCES Rural, Small, and Sparse Districts, Using a Subsample with Share of English Language Learners Data

Expenditures

	NCES rural	Small	Sparse
Total	366.51	3,673.50***	724.72**
	(297.41)	(298.05)	(294.06)
State and local	990.71***	1,706.14***	1,125.95***
	(222.80)	(227.74)	(226.26)
Federal	38.47*	124.58***	31.59
	(22.03)	(22.53)	(22.38)
Instructional	160.96	1,168.97***	243.23**
	(98.41)	(98.67)	(97.31)
Student transportation	153.64***	155.27***	154.58***
	(21.55)	(21.72)	(21.31)

Source: Authors' analysis of school district data from the Common Core of Data.

Notes: NCES = National Center for Education Statistics. Each cell indicates separate regression results, controlling for the share of students with disabilities, share of students in poverty, share of English language learners, whether the district is a charter district, and state fixed effects. Standard errors in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Notes

[1] "Urban and Rural Areas," US Census Bureau, accessed February 12, 2023, https://www.census.gov/history/www/programs/geography/urban_and_rural_areas.html.

[2] Mark Schneider, "US Census Bureau Redefines Meaning of 'Urban' America," Associated Press, December 29, 2022, https://apnews.com/article/census-bureau-urban-rural-redefining-smaller-areas-322bb1a04109bd7eda8c6994e3456bd0.

[3] See also Corianne Payton Scally, Amanda Gold, Yipeng Su, Jorge Morales-Burnett, Eric Burnstein, Patrick Spauster, and Wesley Jenkins, "Reenvisioning Rural America: How to Invest in the Strengths and Potential of Rural Communities," Urban Institute, September 21, 2021, https://reenvisioning-rural-america.urban.org/.

[4] "Rural Poverty and Well-Being," US Department of Agriculture, Economic Research Service, last updated November 29, 2022, https://www.ers.usda.gov/topics/rural-economy-population/rural-poverty-well-being/.

[5] Michael Q. McShane and Andy Smarick, "To Improve Rural Schools, Focus on Their Strengths," *Education Next*, last updated April 8, 2019, https://www.educationnext.org/improve-rural-schools-focus-on-strengths-facilitate-school-choice-charter-conversions-solutions/.

[6] See also Constance Lindsay and Erica Blom, "Diversifying the Classroom: Examining the Teacher Pipeline," Urban Institute, October 5, 2017, https://www.urban.org/features/diversifying-classroom-examining-teacher-pipeline.

[7] See also "2015 Mathematics and Reading Assessments," The Nation's Report Card, accessed February 20, 2023, https://www.nationsreportcard.gov/reading_math_2015/#?grade=4.

[8] See also, McShane and Smarick, "To Improve Rural Schools."

[9] Kendall Crawford, "Some Rural Schools Are Dipping into Savings to Keep Up with Inflation," NPR, May 9, 2022, https://www.npr.org/2022/05/09/1097673855/some-rural-schools-are-dipping-into-savings-to-keep-up-with-inflation.

[10] "Urban and Rural," US Census Bureau, last updated January 9, 2023, https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html.

[11] Additionally, rural districts with no more than 20,000 residents can apply for the competitive Distance Learning and Telemedicine Grants program, which helps "rural communities use advanced telecommunications technology to connect to each other—and the world—overcoming the effects of remoteness and low population density." See "Distance Learning and Telemedicine Grants," US Department of Agriculture Rural Development, accessed February 15, 2023, https://www.rd.usda.gov/programs-services/telecommunications-programs/distance-learning-telemedicine-grants.

[12] "SRSA Eligibility," US Department of Education, Office of Elementary and Secondary Education, last updated February 7, 2023, https://oese.ed.gov/offices/office-of-formula-grants/rural-insular-native-achievement-programs/rural-education-achievement-program/small-rural-school-achievement-program/eligibility/.

[13] "Awards," US Department of Education, Office of Elementary and Secondary Education, last updated July 27, 2022, https://oese.ed.gov/offices/office-of-discretionary-grants-support-services/innovation-early-learning/investing-in-innovation-i3/awards/.

[14] Although some states designate their districts as rural based on a government agency within the state, they often use definitions of rurality based on state statutes, which do not necessarily align with state definitions of small or sparse in their funding formulas. For example, Alaska uses a state definition from a State of Alaska statute in which "rural" means a community with a population of 5,500 or less that is not connected by road or rail to Anchorage or Fairbanks, or a community with a population of 1,500 or less that is connected by road or

rail to Anchorage or Fairbanks. But the state funding formula is based on a school enrollment factor, where small schools receive a funding factor of 1.62 compared with 0.84 for the largest schools for each student beyond the base student count for each size range.

In Texas, a district is classified as rural for federal purposes if it either (1) enrolls between 300 students and the median district enrollment for the state and has an enrollment growth rate over the past years of less than 20 percent, or (2) enrolls less than 300 students. The following formulas are used to determine annual state allotment: for small districts, ((1,600 − average daily attendance) x 0.0004) x the base amount; for districts with less than 300 students, ((1,600 − average daily attendance) x 0.00047) x the base amount; and for midsize districts, ((1,600 − average daily attendance) x 0.0004) x the base amount, if the school qualifies for the formula; or ((5,000 − average daily attendance) x 0.000025) x the base amount.

[15] "Public School Revenue Sources," US Department of Education, Institute of Education Sciences, National Center for Education Statistics, accessed February 12, 2023, https://nces.ed.gov/programs/coe/indicator/cma/public-school-revenue.

[16] "REAP Funding Status," US Department of Education, Office of Elementary and Secondary Education, last updated July 1, 2022, https://oese.ed.gov/offices/office-of-formula-grants/rural-insular-native-achievement-programs/rural-education-achievement-program/small-rural-school-achievement-program/funding-status/.

[17] English language learner data are not available for all districts and are therefore excluded from this analysis. Regression results including these data are available in table A.5A–C.

[18] Items under local revenue, such as property taxes, income taxes, and sales taxes, are nonrandomly unavailable for 20 percent of districts and are therefore not included in this analysis.

[19] "The United States Is Becoming More Racially Diverse—and So Is Rural America," Housing Assistance Council, September 28, 2021, https://ruralhome.org/united-states-becoming-more-racially-diverse-so-is-rural-america/.

[20] "The United States Is Becoming More Racially Diverse," Housing Assistance Council.

[21] "Data Show U.S. Poverty Rates in 2019 Higher in Rural Areas Than in Urban for Racial/Ethnic Groups," US Department of Agriculture, Economic Research Service, last updated August 23, 2021, https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=101903.

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