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Introduction to Special Topic: Rural Education Finance and Policy

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This special topic takes stock of the current state of rural education finance and policy research. Taken together the articles in this special topic highlight a major point. Rural districts and schools not only differ from those in urban areas but also differ from one another. This is perhaps not surprising given the heterogeneity of school size, community size, demographics, and the degree of rurality of schools across the United States. The articles pose a challenge for policymakers. Policies that serve one state or one rural community may not be relevant or helpful to another. Policy solutions must recognize the diversity of education challenges across and within states.

Keywords: *correlational analysis, econometric analysis, economics of education, policy, policy analysis, rural education*

THIS special topic takes stock of the current state of rural education finance and policy research. In the call for papers for this special topic, the editors highlighted a couple of facts: Approximately one half of school districts, one third of schools, and one fifth of students in the United States are located in rural areas (White House Rural Council 2011; National Center for Educational Statistics [NCES], U.S. Department of Education, n.d.).¹ More students attend rural public schools than the Chicago, Los Angeles, and New York schools combined.^{2,3} In spite of these numbers, current research and policy attention focus almost entirely on urban areas. The reasons for the disparity in research interest are numerous, but not least is the lower cost of obtaining large-scale individual data for large urban districts given that rural districts and schools are smaller and often geographically remote.

Given the existing research gap, the editors placed this call for papers with some trepidation that there would be a small number of paper submissions. The number of submissions was at least triple that of expectations, and the special topic editors are pleased to present this set of selectively chosen articles focusing on rural education finance and policy.

Taken together the articles in this special topic highlight a major point. *Rural districts and schools not only differ from those in urban areas but also differ from one another.* This is perhaps not surprising, given the variation in rural economies and state contexts. For example, while the average size of an urban public school in the United States is 589 students, rural

schools enroll 362 students on average.⁴ But the average school size varies tremendously across rural areas, ranging from 165 in remote rural areas to 546 students in fringe rural areas. Looking within the context of specific states further highlights the heterogeneity among rural communities. Ninety-five percent of rural Montana districts are smaller than the U.S. rural districts that have a median size of 494 students; in West Virginia and Louisiana, no rural districts are that small. Rural expenditures per student in Wyoming are almost twice what they are in adjacent South Dakota. Almost 30% of rural school age children in New Mexico are poor. That is nearly 4 times the poverty rate compared with rural students in neighboring Colorado and almost 10 times that of rural Massachusetts students. Rural Georgia is highly racially diverse, while rural Vermont schools are overwhelmingly White. In Montana, 74% of schools are in rural areas, while in California, only 12% are. In Wisconsin, the average rural district is similar to the national average in terms of rurality, funding to rural districts, and rural poverty. In all states, the average obscures significant variation in remoteness (as opposed to rurality) within the state.

The articles in this special topic provide insights into the implications of this heterogeneity for policies on staffing, for school finances, and for improving education outcomes more generally. When asked about their biggest challenges, rural K–12 superintendents tend to identify two things: *staffing and finances.*⁵ The smaller size of communities means smaller local labor markets for recruiting teachers and other school personnel. Similarly, superintendents suggest that



they can capture fewer scale economies because of smaller school size, and this hinders diverse offerings of courses and specialized learning opportunities.

The four articles on staffing in this special topic add nuance by pointing to significant variation across geographies. These differences within and across these states matter. In the highly diverse state of Georgia, Williams et al. (2021) finds that racial diversity has important implications for teacher recruitment and retention. Looking at all states, Nguyen (2020) finds that the degree of rurality of a state overall affects staffing, and not just the location of the school or district. Goldhaber et al. (2020) and Yang et al. (2021) also find that remoteness (as opposed to simple rurality) exacerbates staffing challenges in both California and Wisconsin.

The second set of articles focuses on school finance in Vermont, California, Kansas, Kentucky, and Iowa. Here again, simple summary statistics indicate potentially large differences within rural states and across rural districts with states. About 22% of rural Kentucky students are poor, but only 8% of rural students from Iowa have family income below the poverty line. Vermont schools receive 14 state dollars in revenue per local dollar, while in Iowa the state and local dollars are evenly matched. The authors collectively find that cost differences are affected by the specific attributes of a rural school beyond just rurality, including variation again for more remote areas, for areas with varying population density, and by school size. Furthermore, the articles find that the implications of local control, block funding, and tax base policies are complex and depend both on rurality as well as the specific features of the state school finance system.

An appreciation of the vast differences in the rural landscape of schools is necessary for future policy proposals aimed at improving rural educational outcomes. As case in point, one article looks at both the staffing and the finance arguments to explore why rural school districts are adopting a 4-day school week. The final article in the special topic examines educational outcomes in rural areas specifically focusing on college attainment and how it responds to variation in local labor markets. Again, the lesson is that a simple urban/rural divide is too coarse to capture the dynamics across rural areas. Policy prescriptions will require this kind of nuance to be effective.

What follows are more detailed descriptions of each of the articles in this special topic and their main conclusions. We end with some concluding thoughts about potential directions for future research on education in rural areas.

Staffing Issues

Nguyen (2020) builds on the large literature showing that teacher attrition is negatively associated with student outcomes. He provides a national perspective by using four waves of the School and Staffing Survey (SASS) to focus on

teacher turnover. The waves include nationally representative samples of public schools, principals, and teachers in the United States. A major contribution of the article is not only to compare teacher attrition in urban and rural schools but also to look at differences in attrition by degree of rurality of the state. On average, Nguyen (2020) finds that *teacher turnover rates are lower in rural schools than in urban-suburban schools. Teachers in sparsely populated states, however, are substantially more likely to exit compared with teachers in more densely populated states.*

Williams et al. (2021) continues the focus on teacher turnover in rural schools by looking at the state of Georgia. This article is an important contribution to the rural literature because of its focus on a racially diverse rural area. Studies that have focused on predominantly Black schools have typically looked at urban communities. Georgia is a state with a long history of rural segregated schools. Today, more than half of rural schools in the state have Black populations exceeding 20% of enrollment, and a quarter of the rural schools are majority Black.

Looking at a decade of Georgia administrative data on teachers, Williams et al. (2021) find that teachers' perceptions of school climate are better in rural schools than in urban schools and, supporting the national survey findings of Nguyen (2020), that teacher retention rates are higher in rural schools than in urban and suburban schools.⁶ Of significance, however, is that this rural advantage is not uniform. *Teacher retention is lower in rural schools with higher shares of Black and low-income students. Furthermore, Black teachers who leave rural schools tend to move to urban and suburban schools rather than to other rural districts.* These results control for student and teacher race, teachers' perception of the school climate, and other observable teacher and school characteristics such as student poverty and teacher salaries.

Goldhaber et al. (2020) takes us from a rural state to a more urbanized state, California. Although the state is largely urban, the number of students enrolled in rural schools in California is the fifth largest in the country. Following the categorization of schools described in Nguyen (2020), we may expect different challenges related to teacher staffing in the rural districts of this urban state than in more rural states like Georgia.

Goldhaber et al. (2020) use state administrative data over the academic years 2013–2014 to 2018–2019. They link district data with characteristics of students, teachers, and the districts to job postings by districts. They find that the reported challenges of staffing rural schools also apply to California even though it is more urban. *Rural districts have higher teacher vacancy rates than other district types.* Being in an urban state does not appear to alleviate the challenge of recruiting teachers to remote rural areas. One way the rural districts address this challenge is to hire more emergency-credentialed teachers.

The staffing issue switches from teachers to principals in the Yang et al. (2021) article. Here the focus is on the state of Wisconsin. Thirty-six percent of schools in Wisconsin are located in rural areas and 23% of students are enrolled in rural schools. Wisconsin is representative of other upper Midwest states in that smaller proportions of low-income and minority students are enrolled in rural schools than the national average. Using statewide vacancy and application data for 2014–2016 as well as characteristics of districts and teachers, Yang et al. (2021) find that, on average, *applications for principal positions do not differ significantly between the coarse categorizations of urban and rural areas*. Supporting a recurring theme in the articles in this special topic, however, applications do differ by the degree of rurality of a school district. Paralleling Goldhaber et al. (2020) for teachers, *remote rural districts have the fewest applicants*. Looking at the characteristics of applicants for principal positions in rural schools also provides insights. Applications from female candidates and from candidates of color decrease in rural districts relative to urban ones. And, again, rural remote districts are negatively affected more than other rural areas.

Taken together, the set of articles on staffing challenges makes the important point that policies designed to help rural districts cannot be “one size fits all.” *The rurality of the state overall, the degree of remoteness of the rural schools within the state, and the characteristics of the students in the schools all help explain the degree of challenge faced by school districts in hiring high-quality teachers and principals for their students.*

Financial Resources

The second major issue discussed for rural schools revolves around finances. There are several concerns in this area. The first consideration is cost of providing education in rural areas. The underlying assumption in the broader literature is that smaller schools and smaller districts mean fewer economies of scale for operations within the schools and for transportation of students to and from school. However, funding formulae for schools differ significantly across states, making it valuable to look within states to understand rural nuances. Articles with state administrative data from Vermont, California, Kansas, Kentucky, and Iowa provide insights into educational finances for rural schools and rural districts.

Kolbe et al. (2021) provides a framework for estimating the cost differences for rural schools. 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 adjust for driving distances between districts and schools. Twenty-six states recognize the loss of economies of scale in their funding for rural districts and 43 provide supplemental funding for transportation. Despite

these formula adjustments, there is little scholarly work on actual cost differences in rural and urban schools or for the variance in rural schools.

Illustrating again the importance of context, Vermont is a rural state where more than half of the students attend school in rural districts. Most of these districts are geographically isolated. Kolbe et al. (2021) matches the finance data for Vermont from a 10-year period (FY 2009–2018) to other national data sets on characteristics of students, schools, and communities. *Kolbe et al. (2021) find that both economies of scale and population are real cost factors for rural districts. School size and population density appear to be independent factors influencing costs of education provision*. With excellent data from many sources, the Vermont cost paper serves as a model for other states that wish to adopt a finance policy based on cost differences across their school districts.

In contrast, Dhaliwal and Bruno (2021) examine the school funding formula in a highly urban state, California, to generate more insights into rural school finance. They focus explicitly on the allocation of expenditures by districts. California adopted a Local Control Funding Formula purportedly to enhance equity and increase local flexibility over the use of funds. It provided increased funding for disadvantaged students while simultaneously removing restrictions on categories of funding. Dhaliwal and Bruno (2021) look at 15 years of detailed finance data to assess how expenditure levels and distribution between rural and nonrural districts differ post the implementation of the Local Control Funding Formula, whether spending progressivity changed under the new formula, and whether the rural and nonrural districts spend the new funds differently.

The authors recognize that academics and policymakers typically assume that rural district spending patterns are different from urban in the ways described earlier in this article. With respect to overall expenditures, they find that it is *only the remote rural districts in California that spend more*. These remote districts also differ in the specific categories (instruction, capital and facilities, etc.) of spending. This analysis suggests additional factors that should be included in cost analyses for school districts because rural school districts appear to innovate to address some of the economies of scale issues generally assumed to be challenges. The California case calls into question some of the conventional wisdom about rural school finance but supports the major theme of this issue. All rural is not the same.

In one of the few articles in this special topic that looks directly at rural student achievement, Rauscher (2020) examines another funding formula change. Kansas switched to a block grant funding formula in 2015 following a 6-year period of state funding reductions for K–12 schools. The formula froze funding levels and reduced levels for districts whose enrollment increased. Rauscher (2020) examines the differences across rural and nonrural student outcomes

resulting from the transition to block funding by using both between-state and within-state comparisons. Twelve comparison states are chosen based on similar pretreatment achievement trends.

Rauscher (2020) leverages district data in Kansas where 64% of districts are classified as rural. On average fewer districts in the other states were classified as rural based on county population density. She conducted within-state difference-in-difference analyses over the period 2010–2018 and then compared Kansas district differences with those of the comparison states using 2009–2016 data. Both the in-state and between-state analyses suggest that *block funding had the most negative effect on funding in districts where enrollment increased*. While the dollar amounts of revenues declined similarly in rural and nonrural districts, the *decline as a proportion of the revenue base were substantially greater in rural schools than nonrural*. Subsequent negative effects on achievement were found. This study confirms that state funding design is an important element in public outcomes.

The final two school finance articles each address specific state policies that influence the property tax base for schools. The question in each is whether these tax base policies disproportionately affect property tax revenues in rural districts compared with urban areas. Combs and Foster (2021) focus on Kentucky and look at a policy known as homestead exemptions. Kentucky is one of roughly 20 states that provide homestead exemptions (i.e., property value reductions) to seniors or households with disabilities without directly reimbursing localities for the resulting lost revenue. Both disability and senior households are disproportionately located in rural counties nationally as they are in Kentucky. Because these exemptions affect the tax price of the median voter in a county, the policies are expected to affect educational resources and student achievement.

The Kentucky case is interesting because it has one of the most generous homestead exemption policies but also one of the strongest school finance equalization programs in the United States. On average, as expected, rural counties experience substantially higher erosions of local property tax base from the homestead exemption than do nonrural counties. In Kentucky, the top decile of the base erosion was in counties of the Appalachian region which tend to be remote rural counties.

Counties and school districts, however, can alter tax rates in response to the base erosion to mitigate net revenue losses from base erosion. Combs and Foster (2021) construct a panel of data from 1999 to 2013 to measure the effects of the homestead exemptions on school expenditures. *The results suggest that homestead exemption does not significantly alter the resource distribution between rural and nonrural districts because of the ways in which districts and the state react to the larger base erosion in the rural districts*. The article holds policy implications for other states. Policies

that negatively affect resources at the local level can be mitigated by state funding formula design.

Nguyen-Hoang (2021) looks at tax increment financing (TIF) in Iowa and whether it potentially affects rural districts differently than urban ones. All states, except Arizona, allow TIFs. These policies designate zones that are given special tax breaks. They were initially designed to address issues of urban blight by encouraging businesses to relocate or invest in neighborhoods by compensating them with property tax relief. TIFs have expanded to rural areas especially in the Midwest. Over 20% of rural communities in Michigan, Illinois, and Wisconsin have initiated a TIF and over 50% in Wisconsin alone. Iowa is the state with the highest number of TIF districts. By 2017, over 83% of districts in Iowa had invoked a TIF at some point.

Despite the widespread use of TIF in rural communities in multiple states, previous studies have focused on their effects only in urban areas. Similar to Combs and Foster (2021), Nguyen-Hoang (2021) uses Iowa data to ask not only what effects the TIF benefit generates on local tax bases but also what type of behavioral responses it sparks through changes in local property tax rates. Determining the expected effects of TIF on property tax base is complicated by Iowa districts' ability to use alternative measures of their base value and the way in which the state returns revenues to the TIF localities. After modeling these institutional elements, Nguyen-Hoang (2021) estimates the TIF effects using school district data from FY 2002 to 2017.

Again, in line with Combs and Foster (2021), Nguyen-Hoang (2021) finds that the local effects of TIFs are interconnected to details of the state policy. The effects on rural local property tax base were mostly positive and small and effects on rates were mixed. Positive effects for the most part occurred several years after initiation of the TIF. Iowa's policy for calculating property value increments has differentially affected the revenues available to the rural districts for operating and capital expenditures. In the spirit of each of the finance articles in this special topic, institutional details matter for the financing of school districts.

Staffing and Finance Policy Implications

Anglum and Park (2021) pull together the staffing and finance issues to explain the growing trend in 4-day school weeks (4DSW) in rural school districts. Previous work has shown that 90% of the districts nationally adopting the 4DSW are in rural locales. There are now over 600 school districts in 24 states that have adopted the 4DSW (Thompson et al., 2020).⁷ Anglum and Park (2021) focus on the state of Missouri where two thirds of school districts are rural. Following the passage of a law in the 2010–2011 school year allowing 4DSW, 16% of rural districts adopted the 4DSW.

Building on the policy adoption literature, Anglum and Park (2021) examine characteristics of districts to provide

insight into the factors leading to districts' adoption of the 4DSW. They find a strong spatial element to adoption. In Missouri, 95% of districts choosing the 4DSW are in rural areas. A neighboring district choosing the 4DSW increases the probability of a given district's adoption of the policy. *This evidence supports the idea that districts compete with their neighbors to attract and retain teachers. The 4DSW is one amenity that rural districts can provide without increasing district budgets.*

Postsecondary Enrollment

Rural communities have experienced relatively high economic stagnation and decline in recent years. Sorensen and Hwang (2021) build upon previous literature to consider the effects the economic conditions have had on postsecondary enrollment and graduation in rural communities. There is a gap in education attainment between rural and urban areas that previous authors have noted and tried to explain (Sorensen & Hwang, 2021). According to the U.S. Department of Agriculture (2017), 19% of adults in rural areas held bachelor's degrees or higher compared with 33% in urban areas. Explanations for the gap include variation in geographical distance to institutions of postsecondary schooling, socioeconomic barriers, and cultural expectations.

There are opposing conceptual arguments about the expected effects of changes in local economic conditions on the choice to enroll in institutions of higher education. Loss of jobs may encourage individuals to choose more schooling as a means of retraining or for preparing for new careers. The opportunity costs of enrolling are lower when jobs decline so, in this respect, declining rural economic conditions could potentially shrink the gap between rural and urban postsecondary enrollment and attainment. On the other hand, lower incomes may reduce the demand for postsecondary enrollment and increase the gap.

Sorensen and Hwang (2021) identify exogenous changes in local labor markets and examine their differential effects on postsecondary enrollment for young adults in remote rural areas from those in or near metropolitan areas. They combine annual county-level labor market data with postsecondary enrollment data for all types of institutions from the Integrated Education Data System across the United States between 2000 and 2017. *The results suggest that young adults in rural areas have responded to negative economic shocks differently than those in or near metropolitan areas. There has been a greater increase in postsecondary enrollment for populations in more remote rural counties, which could potentially shrink the urban-rural gap in enrollment.* A next research step is to examine whether the college-educated students return to the rural communities after graduation or whether the higher enrollment from rural populations means more migration to urban areas.

Concluding Comments

Rural public schools are an important part of the American landscape. They serve as a major source of social capital production (Fischel, 2009; Putnam, 2006).⁸ The identity of rural communities often centers on school sports teams, high school bands, and arts events. Rural teachers, principals, and school superintendents enjoy an elevated status often not found in large metropolitan areas. A challenge for policy-makers is to develop policies that preserve these positive attributes of rural schools and, at the same time, address challenges surrounding the recruitment of high-quality staff into rural areas. The articles of this special topic demonstrate that solutions can be developed to address real or perceived financial disadvantages if the political will exists in a state. At the same time, the articles serve as a call for more interventions and experiments. For example, 4-year postsecondary institutions tend to be disproportionately located in urban areas. More research is needed to identify how communities can attract the graduates of these institutions to the rural locales and to the K–12 schools of those locales.

This special topic has not covered all aspects of rural education policy. How can technology be effectively used in rural schools? Can more flexibility in pay structures alleviate the staffing challenges? Does school consolidation help or hurt rural communities? Can education policy and social policy be linked to address poverty and its attendant issues in rural communities? Many of the issues are similar to those of urban areas. But an important conclusion from the articles of this special topic is that no single policy can improve the whole of schools, be they in large urban, small metropolitan, fringe rural, or remote rural areas.

Notes

1. Lavelley (2018), p. 1.
2. NCES, U.S. Department of Education (n.d.-b).
3. NCES, U.S. Department of Education (n.d.-c).
4. NCES, U.S. Department of Education (n.d.-a).
5. Responses from invited superintendents to a conference on rural education policy held at the University of Kentucky, May, 2018.
6. This retention difference had earlier been found in the state of Kentucky, a state with largely White rural population. See Cowen et al. (2012).
7. Thompson et al. (2020).
8. Fischel (2009) and Putnam (2000).

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