What Matters Most for Recruiting Teachers to Rural Hard-to-Staff Districts: A Mixed Methods Analysis of Employment-Related Conditions

HENRY TRAN
University of South Carolina

DOUGLAS A. SMITH
Iowa State University

This study reports on findings from a convergent parallel mixed methods analysis examining the perspectives of college students concerning their teaching considerations at a rural district with severe teacher-staffing problems. Based on a framework of multiple attribute utility theory, a utility analysis was used to compare the relative importance of working characteristics for a sample of college students at a regional southeastern university. A heterogeneity analysis was then conducted to explore subgroup findings. Lastly, qualitative data were collected from survey and interviews and integrated with the quantitative results to identify points of convergence and divergence. Across the different modes of analyses, administrative support, strong connection with students, and self-confidence were identified as most salient for respondents' consideration of teaching employment at the hard-to-staff district. Results from our study suggest that these areas warrant prioritized attention in policy discussions.

Teacher-staffing problems are often exacerbated, across subject matters, based on geographic location. This is because school locale strongly influences job attractiveness for teacher applicants, even after accounting for proximity to an applicant's home and commute time for work (Engel et al. 2014). Results from the most recent National Center for Education Statistics (NCES) Schools and Staffing Survey showed that 7.7% of all public school teachers left teaching in 2012–13. By community type, this attrition breaks down to 6.4% of town, 7.3%

Electronically published March 10, 2020
American Journal of Education 126 (May 2020)

0195-6744/2020/12603-0004$10.00

of suburban, 7.9% of city, and 8.4% of rural teachers. As can be seen, schools in the rural context experience higher rates of teachers leaving the classroom, which results in a greater need to hire new teachers. In addition, there is an association between poverty and teacher shortages. For example, 9.8% of teachers left the profession annually in schools with 75% or more of students approved for free or reduced lunch compared with 6.9% in schools with 34% or less of students approved for free or reduced lunch in 2012–13 (Goldring et al. 2014). Coupled together, high-poverty rural districts experience magnified teacher-staffing issues. Although "hard-to-staff" schools are prevalent in both rural and urban contexts (Taie and Goldring 2017), rural schools often do not receive comparable policy or scholarly attention when compared with their urban counterparts (Corbett and White 2014).

Depressed salaries and geographic remoteness result in severe recruitment and retention obstacles for many rural schools, and like their urban counterparts, they often serve high concentrations of students who are minority, from low-income families, and underperform academically, all factors that have been linked to teacher-staffing challenges (Hammer et al. 2005). Azano and Stewart (2015, 1) explain that "[w]hile community closeness, small rural class sizes, and other attributes of rural communities are often noted as advantages for working in a rural school, realities of rural life can serve as barriers for recruiting highly qualified teachers." In fact, it has been argued that inadequate rural teacher staffing is the core "rural school problem" (Biddle and Azano 2016) and warrants more attention.

Research has consistently shown that teachers are the most important school resources for improving student outcomes (Goldhaber 2015; Stronge et al. 2007), yet nationally, 8.4% of rural teachers leave the profession annually (Goldring et al. 2014). Because of the severity of this attrition rate, the University Council for Educational Administration's (UCEA) top recommendation for addressing problems in rural schools is to stabilize the rural educator workforce by offering appropriate incentives to ameliorate these conditions (UCEA 2018). Unfortunately,

---

HENRY TRAN is an assistant professor at the University of South Carolina's Department of Educational Leadership and Policies and director of the Talent Centered Education Leadership Initiative. He serves on the Board of Trustees for the National Education Finance Academy and is the editor of the *Journal of Education Human Resources*. He studies issues related to education human resources and finance. DOUGLAS A. SMITH is an associate professor in the School of Education at Iowa State University. He is an associate editor of the *Journal of Education Human Resources*. He studies the areas of leadership development, talent recruitment, and issues around rural education across the P-20 spectrum.

it is largely unknown which incentives should hold priority when budgetary constraints necessitate that prioritization. Therefore, this study aims to provide findings to help with this by asking What is the relative importance of different workplace characteristics on college students' consideration for employment at a rural hard-to-staff school district? Many teacher recruitment strategies have been proposed to address the issue, but empirical evidence is currently lacking to support most of the proposed strategies.

Our study of teacher recruitment advances the literature by examining college students' perceptions of the relative importance of different employment factors for their consideration of teaching at a rural district with state-identified severe teacher-staffing problems. We begin the article by reviewing the scholarship on what influences rural teacher recruitment. We then describe our theoretical framework, research questions, and analytic strategies. Finally, we describe our findings, which draw on survey data from 404 college students and 10 subsequent interviews from a subsample of those student respondents.

What Influences Teacher Recruitment?

The teaching profession has been waning in popularity as a career option across the nation (Goldhaber 2015; Sutcher et al. 2016), with staffing issues exacerbated for many impoverished rural communities (Darling-Hammond and Ducommun 2007; Monk 2007). Sutcher et al. (2016) described that in 2016, the pool of individuals available to accept teaching positions was at its lowest point in 10 years, which coincides with a 35% decline in teacher education enrollment from 2009 to 2014. These districts often have increased proportions of minority, low-income, and low-performing students, characteristics found to be associated with more acute challenges in attracting teachers (Jacob 2007). The following sections on financial incentives, personal factors, school environment, and district characteristics highlight 25 of the most prevalent characteristics identified in the literature that have been found to influence teacher recruitment.

Financial Incentives

Considering the importance of compensation for employment in most occupations, it is not surprising that issues related to base salary (Milanowski 2003; Ulferts 2016) and annual raises (Allegretto and Mishel 2016; Lankford et al. 2002) are widely identified as significant employment influences in the teacher recruitment literature. Collins (1999) explains that a difference in wage offerings across school districts often pits rural schools against higher-paying urban schools in recruiting high-demand subject teachers. Jimerson (2003, 1) notes: "Rural districts

face a threefold disadvantage: teachers are not compensated as well as other rural professionals; rural states pay less than more populated states; and within states, rural teachers have lower salaries than their suburban and urban peers."

Related to base compensation, the literature has also focused on the influence of limited-duration monetary incentives on teacher recruitment. These have specifically included signing bonuses (Clotfelter et al. 2005; Rosenberg et al. 2014), the forgiveness of college student loans (Collins 1999; Ulferts 2016) for newly recruited teachers, and prepaid college tuition to develop new teachers locally (Tran et al. 2015).

Ongoing employee benefits such as medical and retirement benefits for teacher recruitment have also been identified as important (Handal et al. 2013; Ulferts 2016). The influence of these benefits is rooted not just in their provision but in the relative difference in the cost and quality of these benefits compared with the benefits offered by other employment positions. Similarly, forgivable home mortgage loans and housing assistance (Maranto and Shuls 2012; Ulferts 2016) have been identified as influential on employment decision making because they can help to overcome the rural barriers related to lack of housing or unaffordable housing options.

Personal Factors

Relatedly, commute time (Rosenberg et al. 2014) and distance to metropolitan area (Boyd et al. 2005) have been found to be important for rural employment consideration as many people consider geographic remoteness an obstacle for recruitment. The literature has also suggested that teachers' potential self-confidence in being effective in their role influences their employment decisions (e.g., Milanowski 2003). Tran et al. (2015) specifically found that preservice teachers' self-confidence in being able to effectively teach rural students was statistically related to their stated consideration of employment at a rural hard-to-staff district, highlighting the importance of context-specific teacher preparation for rural teacher recruitment. For the field in general, the teacher licensure process is addressed in the literature to be an intimidation point for teacher career entry (Milanowski 2003); however, the work schedule that provides for summers off is attractive to many (Ulferts 2016).

School Environment

The literature on teacher recruitment provides insight into the influence of school characteristics in employment decision making that include the availability and quality of sufficient textbooks and class materials (Handal et al. 2013; Harris

2001), up-to-date school technology (Milanowski 2003), clean or safe school facilities (Buckley et al. 2005; Darling-Hammond 2002; Hirsch and Emerick 2006), and parental involvement at school (Liu and Johnson 2006). Regardless of urban or rural setting, teachers prefer a workplace that provides the resources and environment necessary to be an effective classroom teacher (Goodpaster et al. 2012).

Moreover, relationships, connections, and involvement in school are important to potential teachers in their employment considerations. Specifically, the literature has focused on the influence of teachers having amicable colleagues, feeling connection to students (Goodpaster et al. 2012), and having the ability to provide input on school decisions (Hirsch and Emerick 2006; Howard 2003; Ingersoll 2002) as salient. Goodpaster et al. (2012) explains that small rural districts offer the advantage of teachers developing multiple close relationships and community among and with students, teachers, administrators, and parents. For example, with students, he describes the ability to develop relationships in a variety of roles (such as teacher, coach, parent's friend, and so on).

The literature has also focused on the influence of the academic performance of students (Goodpaster et al. 2012) and class sizes on teacher recruitment (Allen 2005; Lankford et al. 2002). Specifically, potential teachers are more likely to seek out employment in schools that have demonstrated higher student academic performance and smaller class sizes. In rural schools, class sizes are often smaller and attractive to potential teachers, but these schools often have lower performance scores on state-measured metrics (Goodpaster et al. 2012).

Finally, when it comes to working conditions, the literature widely addresses the topic of school administrative support as influential for teacher talent management (Boyd et al. 2011; Haynes 2014; Horng 2009; Robinson 2012; Rosenberg et al. 2014). While administrative support is often linked with teacher retention, it also influences teacher recruitment given that individuals want to be supported in their work and prefer a more supportive work environment than a less supportive one. Within the rural context, the development of teachers to best support the learning of rural students through the provision of ongoing coaching to teach rural students is critical (Biancarosa et al. 2010; Handal et al. 2013; Ulferts 2016). This is especially so for those who did not receive rural-specific teacher education and field placement opportunities.

District Characteristics

On a more local level, districts can influence these factors, such as actively recruiting teachers with alternative certifications or offering alternative teaching pathways themselves. Districts can also increase applicant interest based on their responsiveness during the hiring process, because responsive districts are likely to

communicate more professionalism and organizational care to prospective teachers (Campbell et al. 2004; Liu and Johnson 2006).

Theoretical Framework

Given the multiple factors that influence teacher recruitment, in this study we rely on the theory of multiple attribute utility (MAU) to help guide our estimation of the utility of different employment characteristics. Originating from the broader decision theory, MAU suggests that multiple attributes (workplace characteristics in this study) affect individual's decisions and that they evaluate decisions based on the relative value of each of these attributes (Huber 1974). Importance weights can be multiplied by the values of the attributes to determine each attribute's overall weighted utility (Jansen 2011). In short, Importance Weights × Unweighted Attribute Values = Weighted Attribute Utility. The theory posits that individuals will make employment decisions that maximize their utility preferences, seeking to work in places that present favorable characteristics and avoiding places that present unfavorable ones. In our study, the attributes that "matter" more, or have more utility, will be of more importance for individuals' decision for employment at a particular rural hard-to-staff school district.

MAU theory and its corresponding multiple utility function are often used in a variety of social science fields, such as economics (Chen et al. 2017) and health care (Devlin et al. 2018), to quantify the overall utility for distinct attributes. Utility analysis has also been used in education, and more relatedly in the area of teacher employment preferences. Horng (2009), for instance, examined the influences of working conditions for teachers relative to their school employment. She found that teachers identified administrative support, working conditions, school facilities, and salaries as the most important characteristics. Robinson (2012) similarly found that preservice music teachers identified administrative support, parental and community support, and program sustainability as the most important factors in their consideration of employment at a school. In both studies, the importance of top-ranked attributes eclipsed student characteristics such as low-income status, underperformance, and ethnic minority background, which have been found to be influential for teacher movement in the literature (Hanushek et al. 2004; Scafidi et al. 2007).

Our study differs from prior studies in several important ways. First, prior studies either focused on current teachers in the field (Horng 2009) or preservice teachers (Robinson 2012). By contrast, our study focuses on college students across majors who may or may not be considering teaching as an occupation. We then inquire what characteristics are relevant for these students' consideration to teach at a rural hard to-staff district. Our focus on all college students, as opposed

to only teacher education majors, is supported by the fact that the focal state in the study (South Carolina) is not graduating a sufficient number of teachers to fulfill teacher demand, which necessitates drawing more people into the teaching profession, especially for the state's rural hard-to-staff schools (Garrett 2019). Unfortunately, recent data suggest that this is a national trend (Garcia and Weiss 2019). Second, while Horng's sample focused on teachers from a single district in California, and Robinson focused on preservice teachers in a single subject matter (music), our study focuses on students across subjects at a university in the state of South Carolina. Furthermore, as opposed to focusing on teachers being employed in districts in general, we emphasize employment considerations for a rural public school district identified by the state as experiencing severe teacher-staffing problems.

Research Context

The focus of our work is in South Carolina, a mostly rural state with a projected escalating teacher-shortage problem. The Center for Educator Recruitment, Retention, and Advancement projects an overall teacher shortage in South Carolina of 2,487 teachers by 2027–28 (Garrett 2019). If the shortage trend continues, South Carolina will increasingly face equity issues given the more severe teacher labor market problems in high poverty rural communities, many of which have a high proportion of minority and impoverished students (Schaefer et al. 2016).

Given the severity of their staffing needs, rural hard-to-staff districts were the focus of our study. While the literature has suggested that recruitment and retention are correlated, they are not synonymous (Ingersoll 2001; Opfer 2011). The district that we selected as the profile district for our study was chosen because not only is it within the top 10 percentile (a cutoff used by the state accountability system) of districts with the highest percentage of teacher vacancies of 9 weeks or more, but it is also the district with the highest teacher turnover in the state. Given South Carolina's documented challenges with recruiting and retaining teachers in high-poverty and high-minority schools, the profile district is appropriately a district demonstrating extreme poverty (approximately 95% on free or reduced lunch) and a very high concentration of students of color (approximately 98%, with 94% being African American).

Rural research is often complicated by the multiple definitions of "rurality." For example, rurality can be defined simply as nonmetropolitan, which allows for standardized comparisons across studies but may be overly broad and therefore miss the variation of different rural communities (Hawley et al. 2016). Rurality can also be defined at the community level, which allows for the capturing of rich contextual depth and nuances that may be neglected in a broader definition.

However, community-level definitions of rurality are unlikely to generalize to other rural communities. In our study, we relied on both a general and community definition of rurality.

Methodological Approach

A convergent parallel mixed methods design (Creswell and Plano Clark 2017) was used to address this study's research question (see fig. 1). This approach allowed the researchers to draw from two different but complementary data sources and served as an additional point of validation across the quantitative and qualitative findings. Specifically, the design included the collection and analysis of quantitative data from a utility analysis survey and qualitative data from open-ended survey responses and participant interviews. Analyses were conducted independently for the dual data sources, and the results were integrated at the point of interpretation of the findings to answer the same research question and identify their points of convergence and divergence (Teddlie and Tashakkori 2009).

To identify participants' rural background, we defined rural as all nonmetropolitan areas (i.e., area with population less than 50,000) following a standardized (but general) rural definition used by the US Census Bureau. We then relied on a more specific community-based description of the rural community via the vignette for our profile district to leverage the advantage of rich contextual depth of a specific rural locale. Rather than just focusing on the nonmetropolitan perspective, the inclusion of a community-level definition better captures the reality of rural hard-to-staff district employment. Because rurality is not monolithic, those with different rural backgrounds may still feel differently about working in other types of rural environments than nonrural individuals.

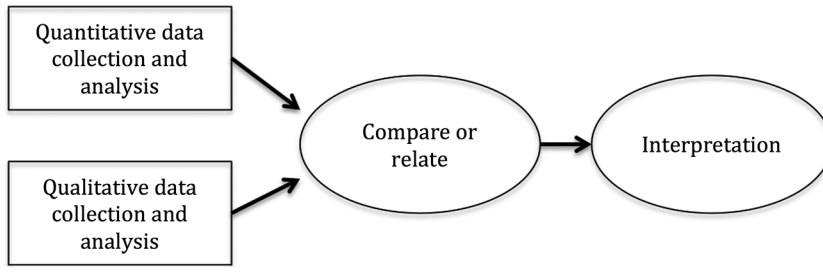


FIG. 1.—Convergent parallel design

Quantitative Method

We relied on a utility analysis to capture the comparative importance of respondents' preferences for 25 different working conditions in their consideration of employment at a rural hard-to-staff school. The method has been found to be more reliable and accurate than a noncomparative approaches. For example, in a Likert-type ranking, where each individual condition is ranked separately (Johnson 1995), respondents may rate all characteristics as "very important" (Horng 2009), when in reality the "perfect" place of employment is unlikely to exist and job searchers regularly make trade-offs between different types of workplace characteristics when considering a place of employment (Robinson 2012). Utility analysis assumes the values undergirding these trade-offs can be revealed by choices they make.

Vignettes and profiles are often used to assess utility (Flach and Diener 2004; Horng 2009), and in this study, we also used it to control for the districts' demographic variables, holding them constant by design. This allowed us to more accurately compare respondents' preferences to specified employment factors for the same employer. To operationally define a rural hard-to-staff district, we first created a profile for our sample district based on data obtained from South Carolina's department of education. The profile provided study respondents with the following demographic information: districts' number of schools, teachers, student-teacher ratio, percent of students in poverty, percent of students with disabilities, 4-year student graduation rates, students' ACT performance, per pupil spending, the racial demographics of teachers and students, and the percent of teachers with advanced degrees, on continuing contract, and returning from the previous year. These data were disaggregated by school level.

We supplemented the aforementioned information with the distance from the district to the nearest college (i.e., not the same college that respondents attended), metropolitan city, hospital, and Walmart, and listed the other major grocery shopping outlets in town given the importance of the availability of such amenities for employment considerations (Handal et al. 2013; Murphy and Angelski 1996–97). In addition, we provided community information including city population, median household income, median rent cost, and median home value and shared the price, square footage, and photographs for a sample median-valued home (and its surrounding neighborhood) obtained from a local community real estate listing.

Profile and Survey Validation

The profile was content validated by a panel of experts composed of teachers currently employed by school districts. The panel was split between 57 teachers,

who were either employed in a state identified hard-to-staff rural district ($n = 13$) or not ($n = 44$). We utilized an independent sample T test for unequal variances and found that the self-reported representativeness of the sample profile district to the respondent's own district was significantly greater for those from hard-to-staff rural districts ($M = 3.38$, SD = 1.19) than those not ($M = 1.90$, SD = .88), t (–4.14), $p < .001$. This finding gives us confidence that our profile district is more similar to a rural hard-to-staff district than dissimilar.

To content validate the survey, we conducted several smaller pilot studies with college students (two focus groups: $n_1 = 5$, $n_2 = 9$) to determine accuracy and wording clarity of the intended questions in the survey. Of particular focus was the potential cognitive complexity associated with the number of working conditions that needed to be ranked. Questions, instructions, and formatting were modified or reduced as a result of the focus groups to improve clarity of the instrument. Once the survey was validated and deemed to be understandable by our pilot groups, it was prepared for distribution.

Quantitative Sample

We sent electronic surveys and sample rural profiles to a randomly sampled group of college students from a midsize public university that offers a teacher education program. Entry into a raffle to win a $50 gift card was provided as an incentive to encourage survey participation. Our study collected data from college students across all majors in the sample university. Data for the rankings of the importance of the employment characteristics at the sample rural district were obtained for 404 students (i.e., 9% response rate).

Response rates for survey research have been declining over the past few decades, commonly dropping significantly below 50% in cross-sectional survey research (Brick and Williams 2013; Rindfuss et al. 2015). Low response is problematic if it biases the representativeness of the results; that is, if survey participation is correlated with the outcomes (Groves et al. 2006). Therefore, we obtained population data to adjust case sampling weights to corresponding totals in the population via a procedure known as iterative proportional fitting or raking (Battaglia et al. 2009). Prior research has suggested that weighting procedures are effective at reducing nonresponse bias (Dey 1997).

To increase the alignment between the sample and the population, appropriate weights are identified via characteristics that are likely to be related to survey variables and response (Pike 2008). In some aspects, our sample data already mirrored population. For instance, 1.5% of our sample was composed of international students, which is the same as in the population. For characteristics that were not the same as in the population, such as gender, race, residency, and class

standing (freshman, sophomore, junior, senior, graduate student, postgraduate), population demographics were obtained from the institution and used in the raking process to sequentially balance the sample one variable at a time. These variables are important to weight given that past studies on college students have found characteristics such as age and gender to be related to survey response (Porter and Umbach 2006) and teacher employment decisions (Engel et al. 2014; Hanushek and Pace 1995; Taie and Goldring 2017). Residency and class standing were also weighted because research has suggested teachers tend to apply and choose to teach in close proximity to their hometown (Engel et al. 2014) and because class standing reflects differences in how close respondents are to actually making employment decisions (Hanushek and Pace 1995). Descriptive statistics for our sample can be found in table 1. The percentage breakdown of respondents' academic majors can be seen in figure 2.

We asked respondents to indicate "How likely would you consider employment at a district similar to the one in the sample school district profile at any school level?" on a 5-point Likert scale ranging from very unlikely to very likely. The average response was 2.62 (SD = .68), with the modal response (31%) being 3, indicating they were neutral on the topic. The distribution for the remaining categories includes 26% for very unlikely, 18% for unlikely, 17% for likely, and 8% for very likely. This information was used in our final analysis. It is promising that this likelihood is not statistically related to students' grade point average, a rough proxy for quality. But, because these respondents are not yet teachers we cannot measure actual teaching performance.

The goal of the survey is to obtain college students' preference rankings of 25 employment characteristics in their consideration of employment at the sample rural hard-to-staff school district. To begin, we utilized the direct method of gaining preferences from stakeholders to determine the importance weights of the characteristics. Direct method is a widely used measure of utility preferences in the field of health care (Hong et al. 2018) and has been found to be preferable and "more representative of underlying preferences" than indirect methods of utility estimation (Taylor et al. 2017, 229).

Utilities represent cardinal values that capture an individual's preference, and "vignettes" are often used as tools for a frame of reference to elicit those preferences via direct methods. Levin and McEwan (2001) explain that "there are many variants of the direct method" (201), including one that "calls for individuals to rank the attributes in order of their importance" (202). One variant is the ratio-estimation method, which has a strong historical foundation (Fischer and Peterson 1972) and therefore was used in our study. Specifically, respondents were first asked to allocate 10 points to the most important employment factor influencing their consideration of employment at the sample rural hard-to-staff district, then asked to provide points to rank the remaining conditions relative to

TABLE 1

Descriptive Statistics for Respondents

	Percentage	Mean[a]	SD
Gender:		(.03)	
Male	24		
Female	76		
Race:		(.11)	
White or Caucasian	60.64		
Black	26.24		
American Indian or Alaska Native	0		
Asian	4.7		
Native Hawaiian or Pacific Islander	0		
Bi/multiracial	3.96		
Hispanic	3.47		
Refuse to state	.99		
Residency:		(.04)	
In-state	88.47		
Out-of-state	10.03		
International	1.50		
First-generation college student:		(.04)	
Yes	42.33		
No	56.44		
Refuse to state	1.24		
Grew up in rural area:		(.03)	
Yes	60.95		
No	39.05		
Age		23.52 (.04)	6.00
Dependents		.23 (.05)	.74
College GPA		3.48 (.11)	1.59
High school GPA		3.69 (.04)	.54
Parents' annual income ($)		68,670.34 (3,729.42)	51,499.96

[a] Linearized standard errors that account for the design weights are located within the parentheses. GPA = grade point average.

that most important condition. Therefore, if a factor is one-tenth as important as the most important condition, it would be allocated 1 point, if it is half as important it would be allocated 5 points, and so on. This process resulted in preference weights for each employment condition and has been long relied upon in the importance weights estimation literature (Fischer and Peterson 1972). All responses were checked for validity by the researchers to ensure the questions were answered correctly (e.g., that there was only one factor that received the 10-point allocation).

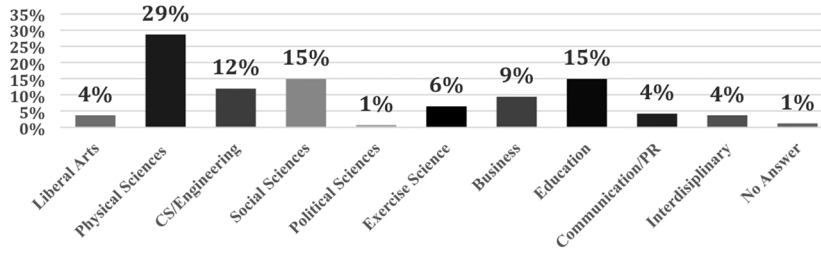


FIG. 2.—Respondents' academic major

Quantitative Analysis and Findings

Scholarship has suggested that weights derived from direct and statistical methods of estimation "yield high convergent validity . . . [and have] strong evidence of criterion validity" (John and Edwards 1978, i). Consequently, we used both in a three-part process that first relies on direct estimation of the importance of the working conditions (step 1, calculating importance weights), then uses statistical methods (i.e., standardized regression coefficients) to enhance the direct preference estimates (step 2, producing unweighted attribute scores), and finally multiplies both to derive the final overall utility weights (step 3). Whereas the regression coefficients represent correlations between participants' Likert scale of ratings of the employment factors and their likelihood to consider employment in the sample profile district, the utility rankings not only include the benefit of the regression (by its inclusion in the calculation for the attribution score) but make the ranking of employment factors explicit to respondents. More details concerning the calculation of the estimates are explained in the following text.

The first step to deriving our results was to normalize the preference values, provided by respondents via the direct method of preference obtainment, so that the sum of the values was equal to 1. This resulted in the importance weight. Second, to determine the unweighted attribute score, we regressed the ratings for each respondent's likelihood of considering employment at the sample rural district on respondents' ranking of each employment attribute with a statistical procedure known as ordinal logistic regression. Others in the literature (e.g., Horng 2009) have used regression-based techniques to determine teacher employment preference values. The coefficients were standardized for comparative purposes. Results from the model can be seen in table 2.

Readers may wonder why some coefficients are negative. Recall that respondents were only asked to rank factors by their importance, but each factor

TABLE 2

Ordinal Regression Results of Working Conditions on Likelihood of Teaching at Rural Hard-to-Staff District

Variables	Standardized Logistic Coefficient
Medical benefits	−.113
Retirement benefits	−.088
Base salary	−.239
Annual raises	.073
Forgiveness of college student loans	−.025
College tuition prepaid	−.029
Forgivable home mortgage loans	.024
Signing bonus	.162
Responsiveness during hiring process	.334**
Commute time	−.069
Distance to closest metropolitan area	−.176
Class size	.196
School administrative support	.268*
Opportunity to give input on school decisions	−.131
Sufficient textbooks and class materials	−.324**
Up-to-date school technology	−.120
Clean and safe school facilities	.028
Academic performance of students at school	.005
Parental involvement at school	−.071
Colleagues that respondents get along with	−.192
Strong sense of connection to students	.168
Self-confidence in being an effective teacher in profile district	.272*
Work schedule that provides summers off	.080
Teacher licensure requirements	.120
Ongoing coaching to help with teaching rural students	.078

NOTE.—The purpose of the regression was to produce standardized coefficients to aide with determining the relative importance of each working condition for ranking purposes.

* $p < .10$.

** $p < .05$.

may be an important attractor or deterrent. For instance, medical benefits have a negative coefficient, which suggests that it has a deterrent effect for respondents' likelihood of teaching at the profile school district. This makes sense considering that 75% of respondents indicated that they expected to receive better benefits from their current chosen occupation or career of choice than benefits provided by the profile district. In sum, the medical benefits offered by the profile district may be an important detractor. Similarly, the sufficiency of textbooks and class materials can serve as a detracting factor as well, presumably if there is an insufficient supply of them. Other negative coefficients can be interpreted similarly.

Afterward, we rescaled each of the attribute scores into a standard utility scale via the proportional scoring method as suggested by Levin and McEwan (2001, 195) to linearly rescale "each attribute to a common utility scale." The formula for this conversion is as follows:

$$A(x) = \left(\frac{x - \text{min. possible value}}{\text{max. possible value} - \text{min. possible value}}\right) \times 100,$$

where the $A(x)$ represents the attribute of x, and x represents the standardized ordinal regression coefficient for each employment attribute's preference weight. The minimum and maximum possible values represent –1 and 1 respectively, to capture the possible range of the standardized coefficient. The computation will yield the unweighted scores for each of the attribute.

Finally, in our third step, the overall utility of each employment characteristic was calculated by multiplying each unweighted attribute score by its importance weight (Jansen 2011). Each employment importance weight, attribute score, and overall utility is listed in table 3. The conditions are ranked by overall utility, from largest to smallest. As can be seen in table 3, according to respondents, the most important attribute was school administrative support.

We also conducted a sensitivity analysis to determine if our results were robust to different specifications of our model. For example, in the conversation formula, we used minimum and maximum possible values, but we could have also used minimum and maximum within sample values. We used this alternate method of calculating the importance weight for the entire sample and found some changes in the rankings, but the top two factors, school administrative support and self-confidence in being an effective teacher in the profile district, remained, providing support for the robustness of our findings. The results can be seen in table 4.

Heterogeneity Analysis

Our study sample was designed intentionally to include students who may or may not currently express interest in teaching because we believed their input on the relative importance of employment attributes at the profile district would be enlightening, especially given the fact that the state does not currently prepare enough teachers to meet its demands (Garrett 2019). However, we recognize some may not agree that this is the relevant population of focus. For example, some may argue that we should not focus on the preference list of individuals who are unlikely to teach if their preferences vary greatly from those who demonstrate at least moderate interest. From a compensating differential perspective, policy makers may not want to focus on individuals who are unlikely to consider the job and require large compensating differentials to be attracted to work in the profile district.

TABLE 3

Utility Rankings of Different Working Conditions

Attribute	Importance Weights	Unweighted Attribute	Weighted Attribute Utility
School administrative support	.0472	63.4	2.990
Self-confidence in being an effective teacher in profile district	.047	63.6	2.974
Strong sense of connection to students	.046	58.4	2.666
Clean and safe school facilities	.049	51.4	2.508
Responsiveness during hiring process	.035	66.7	2.330
Annual raises	.041	53.7	2.189
Teacher licensure requirements	.039	56.0	2.186
Ongoing coaching to help with teaching rural students	.040	53.9	2.176
Class size	.036	59.8	2.169
Medical benefits	.047	44.4	2.093
Academic performance of students at school	.042	50.3	2.090
Forgiveness of college student loans	.041	48.8	2.017
Retirement benefits	.044	45.6	1.999
College tuition prepaid	.038	48.6	1.851
Up-to-date school technology	.041	44.0	1.815
Work schedule that provides summers off	.033	54.0	1.774
Parental involvement at school	.038	46.5	1.754
Base salary	.045	38.1	1.724
Commute time	.037	46.6	1.706
Colleagues that respondents get along with	.042	40.4	1.680
Opportunity to give input on school decisions	.038	43.5	1.664
Signing bonus	.028	58.1	1.622
Forgivable home mortgage loans	.031	51.2	1.580
Sufficient textbooks and class materials	.045	33.8	1.509
Distance to closest metropolitan area	.029	41.2	1.176

Consequently, we conducted heterogeneity analysis with several subgroups to determine the consistency in our findings with the overall sample. The subsamples include those (a) with at least a neutral (≥3) likelihood of teaching at the profile district, (b) who identified as having a rural upbringing, and (c) who are education majors.

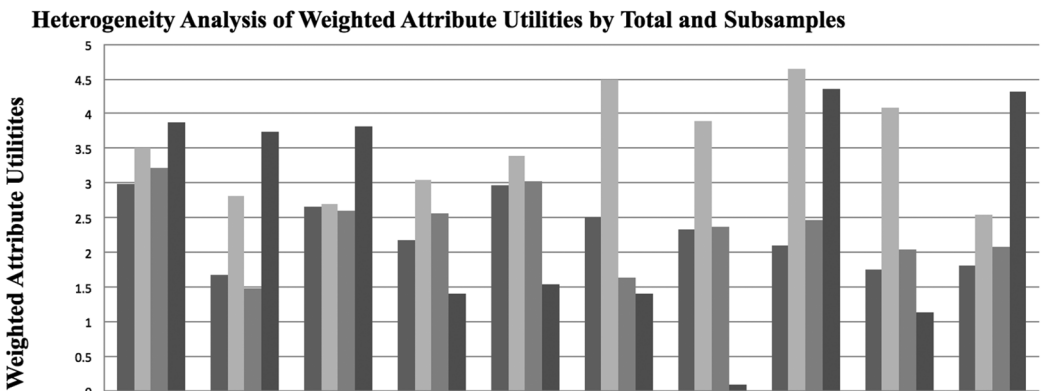
Analysis of the education majors group has an advantage in that it does not focus both on recruitment into the profession and employer, but rather just the latter, which can mitigate confounding influences. Results from the heterogeneity analysis can be found in figure 3. Furthermore, the top five ranked attributes and likelihood of consideration of employment at the profile district by the total sample and aforementioned subgroups are summarized in tables 5 and 6.

TABLE 4

Alternate Utility Rankings of Different Working Conditions

Attribute	Weighted Attribute Utility
School administrative support	4.243
Self-confidence in being an effective teacher in profile district	4.236
Responsiveness during hiring process	3.493
Strong sense of connection to students	3.413
Class size	2.867
Teacher licensure requirements	2.632
Clean and safe school facilities	2.610
Ongoing coaching to help with teaching rural students	2.467
Annual raises	2.461
Academic performance of students at school	2.079
Signing bonus	2.062
Work schedule that provides summers off	2.017
Forgiveness of college student loans	1.880
College tuition prepaid	1.709
Forgivable home mortgage loans	1.632
Retirement benefits	1.572
Medical benefits	1.514
Parental involvement at school	1.452
Commute time	1.421
Up-to-date school technology	1.279
Opportunity to give input on school decisions	1.123
Colleagues that respondents get along with	.834
Distance to closest metropolitan area	.642
Base salary	.585
Sufficient textbooks and class materials	.000

As can be seen, depending on the subgroup, either school administrative support (for total sample and rural subsample) or medical benefits (for the at least neutral or education subsample) ranked as the most important attribute. That said, among the top 5 rated attributes for the total sample and three subgroups, only 10 independent working condition attributes were identified in the 20 potential slots. And of those 10, only school administrative support, responsiveness during the hiring process, and self-confidence in being an effective teacher in the profile district were statistically significant, providing another layer of evidence concerning the importance of these attributes.



	School Administrative Support	*Colleagues that respondents get along with	&Strong sense of connection to students	5Ongoing Coaching to Help with Teaching Rural Students	@Self Confidence in being an Effective Teacher in Sample District	Clean and Safe School Facilities	$Responsiveness During Hiring Process	Medical Benefits	Parental Involvement at School	Up to Date School Technology
Total Sample	2.98802	1.68008	2.66766	2.17619	2.97196	2.51034	2.32793	2.09788	1.75621	1.81481
At least Neutral Likelihood to work at District Subsample	3.5011	2.81145	2.70275	3.0503	3.38432	4.48557	3.88367	4.64597	4.09127	2.55142
Rural Subsample	3.22421	1.48852	2.60927	2.57062	3.02264	1.64038	2.37774	2.47275	2.03365	2.07975
Education Subsample	3.86954	3.74791	3.81736	1.41248	1.53725	1.39904	0.095617	4.36377	1.12869	4.30882

FIG. 3.—Heterogeneity analysis

TABLE 5

The Top Five Likelihood of Considering Employment at the Rural Sample School District by Total and Subgroups

	Very Unlikely (%)	Unlikely (%)	Neutral (%)	Likely (%)	Very Likely (%)
Total sample	26	18	13	17	18
At least neutral subsample	N/A	N/A	56.73	26.82	16.35
Rural subsample	24.8	24.8	24.8	17.6	8
Education subsample	N/A	21.88	31.25	31.25	15.62

Qualitative Method

The qualitative component of this study included responses to open-ended survey questions collected concurrently with the quantitative data collection, and follow-up semistructured in-depth interviews conducted with a randomly sampled subset ($n = 10$) of the survey sample 2 months after the initial survey. Their

TABLE 6

The Top Five Ranked Attributes by Total and Subgroups

Total sample	1. School administrative support 2. Self-confidence in being an effective teacher in profile district 3. Strong sense of connection to students 4. Clean and safe facilities 5. Responsiveness during hire
At least neutral subsample	1. Medical benefits 2. Clean and safe facilities 3. Parental involvement at schools 4. Responsiveness during hiring 5. School administrative support
Rural subsample	1. School administrative support 2. Self-confidence in being an effective teacher in profile district 3. Strong sense of connection to students 4. Ongoing coaching 5. Medical benefits
Education subsample	1. Medical benefits 2. Up-to-date school technology 3. School administrative support 4. Strong sense of connection to students 5. Colleagues that respondents get along with

purpose was to understand the importance of workplace characteristics for the college student samples' consideration of employment at the profile rural hard-to-staff school district. The semistructured interview prompts focused on the rural hard-to-staff district, and they included questions asking participants to explain the importance of the working condition factors examined in the survey (see table 2 for list). Specifically, participants were probed for their rationale of the importance they placed on various working conditions that would influence their consideration of employment as a teacher in a rural South Carolina school district similar to the sample profile district in the survey. Participants were also provided an opportunity to discuss important factors not contained within the list of working characteristics identified from the scholarly literature.

Interview transcripts and open-ended survey responses were transcribed, and qualitative analysis followed Creswell's (2009) steps of: (1) organizing and preparing the data, (2) reading through the data, (3) coding the data, (4) developing descriptions and themes, (5) interrelating themes, and (6) interpreting results. This analysis specifically utilized a conventional, descriptive, simultaneous coding strategy (Saldaña 2015) to break down, examine, and categorize the data. These resulting descriptions are presented thematically in the following section.

Participants for the approximately 1-hour follow-up interviews were 50% female, 80% Caucasian, 80% in-state residents, 60% identifying as growing up in rural areas with a population less than 50,000, 40% community college transfer students, 70% academic seniors, with an average age of 24 and parent income of $54,000. Their majors included business, criminal justice, biology, physical education, exercise science, commercial music, elementary education, computer science, and communications. Interview participants were selected randomly from survey respondents. The random sample of interview participants approximately reflected the survey participant demographics (table 1) and the student demographics of the university we sampled from, including a higher representation of participants with nontraditional experiences and ages.

Qualitative Analysis and Findings

The qualitative data focused on understanding important key influences on respondents' consideration for teaching in the rural hard-to-staff sample profile district. The focus of the qualitative component of this mixed methods study was to better understand college students' perceptions of the known factors that influence teacher employment in the hard-to-staff rural context. Most prior research on teacher employment decision influences is not context specific. To fill the need for understanding rural hard-to-staff contexts, the result of our work identified several major themes, including (1) school administrative support and resources,

(2) school safety and crime rates, (3) ability to relate to students, and (4) altruistic motivations.

School Administrative Support and Resources

Considering that administrative support was found to be the most important factor to participants in the quantitative analysis of work characteristics in the rural hard-to-staff context, it is not surprising that this also was identified as a significant theme in the qualitative analysis. It was clear from participant responses that many participants prioritized working in a job in which they feel supported and have the resources they deem necessary to be successful, regardless of community context. However, several participants were specifically skeptical that a rural hard-to-staff district like the one in the sample profile would be able to provide these supports and resources. In part, these concerns stem from a general perception several participants shared that rural districts were smaller in size, were isolated in location, and had fewer district resources (human, physical, and financial) available to support teachers. For example, a senior criminal justice major who had recently changed her major from special education explained, "There are a lot of changes going on in the school atmospheres and the way they handle stuff. I know from when I worked in a special education classroom [as an aide] that nothing is really the same from day-to-day because of the type of students we were dealing with. A lot of the decisions that the teacher had to make working with the students, you really need that school administration back up to be supportive because things change so often in the special education field." When asked about employment in a rural school district, she explained that if she were to pursue a teaching career, she would do so only in a school where she could sense administrative support for teachers and their decisions. Her statement seemed to imply that a rural employer in a high-poverty area would be less able or likely to offer that type of support.

Similarly, a 30-year-old senior who returned to college from a career in banking to study elementary education noted, "Supportive administration is a huge factor when choosing a school to teach at because they [administrators] become a middleman between the district and the school themselves. They are the ones that go to bat for you [as a teacher]. With families, if you have a supportive school administration and have a problem, they should be the ones you [as a teacher] should be able to go to." He explained that school administrative support was particularly important in resource-limited rural districts for lessening some of the noninstructional duties and tasks placed on teachers.

A senior biology major described teaching high school biology as a backup plan if she was unable to pursue veterinarian school. She noted that a lack of administrative support does not help the perception that teachers are overworked and

undervalued and causes hesitation in her pursuit of teaching, and she especially emphasized this in rural contexts where teachers are more isolated from professional support. A 20-year-old political science major noted, "If the school's administration has a reputation of habitually invading the teacher's classroom and enforcing counterproductive, or ineffective teaching strategies, that would hinder me from applying." While administrative support was of concern across all locales, interview participants specifically focused on their perceived lack of financial and human resources of the rural hard-to-staff district of focus in this study as contributing to an anticipated lack of administrative support for them as teachers in the district.

School Safety and Crime Rates

Related to administrative support, respondents expressed concerns about safety issues as a major influence in their employment considerations at the sample hard-to-staff district. For example, a 55-year-old information management major noted that "I do not want to have my house or residence in a crime area" and also had concerns about the number of students with disciplinary issues in the school. A 39-year-old nursing major also commented on the importance of "school discipline policy and how much security, what type of security and how much support teachers have and how consistently administration upholds their policies and procedures." Similarly, a 23-year-old business administration major asked, "How safe is the place? Am I putting myself at risk by working in this area?" Likewise, a 20-year-old criminal justice major listed among his concerns: "The area around the school district. If it is safe? Welcoming? If I would be able to start a family in the future here, etc.," and that the answer to these questions would affect whether he would consider a teaching position in a district similar to the profile district. The concerns about safety and crime were expressed both generally in participants' willingness to accept any teaching position (urban, suburban, or rural) and in response to the specific characteristics of the rural hard-to-staff district and community profile presented to participants. While crime is often considered an issue in large urban environments, many rural areas in South Carolina share that occupational deterrent.

Ability to Relate to Students

Many comments about the rural sample profile district were focused on participants' ability to relate to students in the classroom. This included three primary relational areas: racial, socioeconomic, and cultural. For example, a 20-year-old chemistry major noted, "I wouldn't teach kids I couldn't understand enough

to communicate with." Similarly, a 22-year-old physical education major commented, "One of my main factors is connection with students. Besides that a lot is not important. If you cannot connect with students they will not be engaged and cannot learn as well as others."

A 52-year-old art education major stated, "I would mostly be afraid of 'culture clash,' maybe a school of mostly black students and teachers might not accept me as an older white female or I would be uncomfortable if we had less in common." Others directly referred to issues of race and concerns that they would be a "minority" in a school of predominately African American students. For example, a 19-year-old nursing major frankly stated, "The issue that the school is majority black and I am white." A 21-year-old psychology major noted, "The students I would be teaching are mostly African American, [and] I am white so I do not know if they would learn effectively if they have a racial bias."

The sample profile presented to participants was based on an actual district with 94% African American students and 95% of students eligible for free or reduced lunches. While no respondents described that they were opposed to or concerned about working with diverse students individually, many Caucasian participants expressed a general concern that they would be uncomfortable relating to students on a personal and cultural level and questioned their potential effectiveness in a district in which they would be a Caucasian teacher teaching students that are 94% African American and 98% nonwhite. Although racial diversity is often associated with urban locales and not rurality, in many small rural communities in South Carolina, it is quite common.

Altruistic Motivations

Several participants made comments that were altruistic in nature in relation to their willingness to seek employment in a rural hard-to-staff school district like the profile district. For example, a 29-year-old computer information systems major noted the importance of his "Willingness to help out others with learning different subjects. Helping students build strengths, and understand and overcome weakness" in his consideration of a teaching career in a rural hard-to-staff district. Similarly, a 48-year-old mass media major commented on his "ability to give students a chance to learn more than just academics … the ability to teach topics most schools wouldn't think of: Robotics, Filmmaking, [e]tc." as influential for his employment consideration. A 22-year-old early childhood major noted she wanted "to be able to help the students and guide them to be something more than what they may think that they are. To help them grow into an adult and achieve anything that they want." Likewise, a 19-year-old elementary education major explained, "I would be happy to teach anywhere that I am needed in order to watch students succeed, so there are no other factors that would strongly influence

my decision to become a teacher at the sample [district]." In part, these comments originated from a deficit perspective and the assumption that the rural hard-to-staff district lacks resources, opportunity, and knowledge and that the elevated needs in this environment are more likely to benefit from respondents' presence to help fill these gaps. This motivates consideration for teacher employment in a context like the sample district, at least for some participants.

Discussion

Consistent with the objective of this study's convergent parallel mixed methods design, this section will discuss the findings through an integration of the quantitative and qualitative results, focusing on points of convergence and divergence from the two strands of data collected. In this study's education labor context, MAU theory predicts that college students make decisions based on the relative importance of employment attributes and that each individual has different utility values for the different workplace characteristics that may influence their employment decision (i.e., some workplace characteristics are more important than others). Per the study's design, both the quantitative and qualitative analyses are considered simultaneously to identify the most salient workplace characteristics.

From a holistic perspective, our quantitative and qualitative findings suggest several areas that warrant more attention. Specifically, in their consideration of employment in the rural hard-to-staff profile district, across the main utility, heterogeneity, and qualitative analyses, college students prioritized the need to (1) feel prepared and confident to teach in the context, (2) have strong relationships with students of the district, and (3) be supported by their employers.

Findings from the multiple methods that were employed in this study highlighted the importance of students' self-confidence to teach in the profiled district in their consideration of employment there. This echoes the findings of others in the literature (Milanowski 2003; Tran et al. 2015). To help develop this confidence and better prepare individuals for rural teaching, the literature has suggested the importance of embedding "place-conscious pedagogy" that emphasizes contextually relevant preparation (Azano and Stewart 2015; Eppley 2011). This includes a blend of both rural place-based curricula and field placement to promote teacher candidates' familiarity with rural schools and communities. This will broaden candidates' perceptions of rurality beyond the usual simplified deficit perspectives and therefore "increase the likelihood that they will choose rural teaching appointments" (Eppley 2015).

Furthermore, as demonstrated in the literature (Hess 2010; Tran and Dou 2019) and in our findings, the strength of student relationships to teachers has much potential for rural teacher recruitment. Because of the size and closeness

of most rural communities, rural teachers often are able to develop close relationships with their students, see them grow to adulthood, and maintain contact with them afterward. Unfortunately, many rural school employers do not advertise these student-centered attributes, which results in missed opportunities for recruitment (Maranto and Shuls 2012). To capitalize on the fact that many enter teaching for altruistic reasons, in their hiring process, rural districts should emphasize the ability for their teachers to make a meaningful impact on the lives of their students, who would benefit most from quality teachers given that they are often marginalized and from economically disadvantaged backgrounds (Shuls and Maranto 2014; Tran et al. 2020).

Moreover, the issue of racial matching of students and teachers is becoming increasingly prevalent in the literature. While Gershenson (2019) and Egalite et al. (2015) have pointed to the academic benefits and achievement gains of having at least one same-race teacher for African American students, teachers of color are more likely to teach in urban school districts (Béteille and Loeb 2012) as opposed to rural or suburban environments. Furthermore, for hard-to-staff contexts facing severe teacher shortages, such as the sample rural profile district, increasing the overall pool of teachers is paramount. However, our findings are consistent with the literature in that Caucasian teachers often express concerns about feeling comfortable teaching in schools in which they are in a significant minority. Indeed, it recognized that teachers are attracted to familiarity and comfort, which often leads them to prefer to work at schools with students who are similar to them in terms of race and class (Cannata 2010). Because members of the pool of Caucasian teachers are likely to prefer teacher employment in districts that are more similar to them, and because the vast majority of teachers are Caucasian (NCES 2017), employers that have a concentrated mass of students of color from high-poverty backgrounds, like the sample profile district, continuously struggle to fill vacancies with a stable body of teachers. These issues have led some rural hard-to-staff districts to rely on stop-gap measures year after year to fill teaching vacancies through programs not intended to be permanent staffing solutions, such as Teach for America and international teachers on temporary H-1B visas.

Lastly, consistent with prior research (Horng 2009; Robinson 2012), school administrative support was identified as the most important employment characteristic in our main quantitative findings and was further supported by our qualitative findings. While Robinson (2012) and Horng (2009) focused on current or preservice teachers and their consideration for employment, our sample focused on college students who may or may not be contemplating a career in education and asked what factors would influence their consideration to teach at a rural hard-to-staff school district. The consistency of our findings, despite the difference in population, makes sense as one might picture scenarios in which teachers who have left the profession warn others not to pursue a career in

teaching. For example, one of our interview participants was dissuaded from pursuing teaching because of a current teacher venting about a lack of administrative support. Likewise, high school students considering careers in teaching may develop negative perceptions of the teaching profession from observations of their own teachers and schools and from potentially negative outlooks on the profession expressed by some of these teachers. The empirical evidence provided by this study concerning the potential promise of administrative support for rural teacher recruitment offers mixed methods evidence to support what has been argued primarily qualitatively in the teacher recruitment literature.

In addition to identifying points of convergence (self-confidence, ability to relate to students, administrative support), we also identified points of divergence in our integration of the multimodal findings. These points included qualitative responses emphasizing the importance of safety and crime rates in their employment decision-making and altruistic motivations. Also, the importance of medical benefits was found to be of greater importance to the quantitative sample's education subgroup, as well as the subgroup indicating at least moderate likelihood of teaching in the profile district or a similar type of employer.

Furthermore, the qualitative results emphasized the importance of school safety and community crime rates much more strongly than the quantitative findings. While school safety is often affected by administrative support for school discipline policy and enforcement, many qualitative participants emphasized additional safety issues (such as community crime rates) that were influential in their consideration of employment in the rural hard-to-staff district. The qualitative results also captured the desire of some participants to enter teaching in a district similar to the rural profile presented if they felt they would be making a difference (altruistic reasons), even knowing there are conditions of the workplace that would be undesirable to them.

Lastly, given that nonwage benefits compose a larger (and growing) percentage of total compensation for teachers than other professionals (Allegretto and Mishel 2018), it is not surprising that medical benefits was deemed the most important to our subgroups that indicated the most likelihood of considering teaching at the profiled district (i.e., the at least neutral and education subgroup). From the subgroup analysis, those who felt motivated to consider teaching at the profile district viewed the benefit offerings favorably and noted the advantage of public sector benefits. However, participants in the qualitative strand of data minimally addressed this emphasis on medical benefits, and it was not ranked as highly by the full sample.

Employee benefits have long been found to be influential for the recruitment of public employees like teachers (Bergmann et al. 1994), often eclipsing other forms of compensation in their ability to attract individuals to particular employers because the detracting elements of low salaries can be offset by higher

benefits. This likely influenced the importance of medical benefits, which were ranked as the most important workplace characteristic for the education major subsample. While the policy implications for these may seem straightforward—that is, raise the value of medical benefit offerings—prior research (Jennings et al. 2003) suggested that college students often lack an understanding of benefit offerings. This was also supported by findings in the present study. For example, while the importance of medical benefits was acknowledged, some participants in our qualitative interviews admitted they did not understand details about the benefits, and still others did not realize that districts could offer different plans. Given this lack of understanding, it may be advantageous for districts to communicate the dollar value of their benefit offerings to provide prospective and current employees with a more accurate reflection of their total compensation offerings (Brimley et al. 2015; Jennings et al. 2003).

Limitations and Future Research

This study's findings advance our understanding of the relative importance of various working characteristics for college students' consideration of employment at rural hard-to-staff school districts, but there are still many questions left unaddressed. Consequently, this line of research should be extended by future studies. For instance, instead of focusing on one sample district profile, multiple employer profiles (with varying attributes and their associated levels) can be used to determine the relative importance of these attributes across different employers and contexts (e.g., nonrural districts, organizations outside of education) within a discrete choice experiment framework. The relative importance of these preferences can then be analyzed by mixed logit models. This would build on the current study by providing the ability to make better inferences concerning why administrative support, for example, might matter more for a poor rural school district than for other types of districts. Comparison of attributes across multiple contexts will allow for assessment of whether fixed characteristics of the districts interact with the working characteristics to influence respondent preferences.

Furthermore, we used the direct method of gaining the preferences of potential teachers, but we could have used other methods, such as the variable probability method (Levin and McEwan 2001). We did consider the use of the latter but made a decision based on the trade-offs between the two methods. A major advantage of the variable probability method is that it captures risk aversion because respondents are asked to compare and contrast between various levels of the same attribute, balancing between outcomes of interest that are certain (riskless) or uncertain (risky). For instance, respondents may have a difference in

preference for an annual salary of $50,000 as compared with an annual salary of $70,000 relative to a class size of 30. While this would definitely be a more informative method, the downside is the cognitive complexity associated with it and the increased threat to the validity of responses received. In fact, our initial pilot sessions with the variable probability method resulted in much confusion and invalid responses, causing us to instead rely on the direct method, which is much more easily understood by participants (Gold et al. 1996).

Finally, while our study focuses on factors that would be more immediately amenable to policy influence, we did not discuss infrastructure changes in the community that would undoubtedly have an impact on recruitment as well. For instance, many potential teacher candidates refuse to apply to jobs in rural communities because of the lack of amenities associated with such contexts. Government-sponsored incentives to build up the community so that it becomes an attractive home for prospective teachers may yield positive returns to such investments in the form of saved expenditures on constant teacher replacement and recruitment, as well as educational benefits to the community.

Implications

The results from this mixed methods study help to improve our understanding of college students' preferences for different working characteristics in a rural hard-to-staff school districts and shed light on how to recruit teachers into similar districts. This study has implications for practice at the local, university, and state levels. At the local level, school districts can focus their recruitment efforts on emphasizing the strong sense of connection to students that exists at rural schools given the small communities (Maranto and Shuls 2012; Tran et al. 2020). In addition, districts can prioritize and fund programs in which expert teachers formally mentor and guide early career teachers with navigating the rural school community. Similarly, schools can focus on providing adequate administrative support and providing proper guidance and direction to accompany the expectations of teachers. These support systems should mitigate new teachers' feelings of having to sink or swim in the classroom, increasing the attractiveness of the work environment (Tran and Smith 2020).

At the university level, colleges of education also have an important role to play. Teacher preparation programs, for example, can prepare future educators with knowledge and competency to teach in rural communities (Harrison and Tran 2020). To support this, classes can include a component on how to educate in a rural hard-to-staff community, helping prepare preservice teachers' expectations and confidence with working effectively in such a setting. In-service training should include courses on cultural responsiveness and awareness and

practicum field experience in diverse settings so that teachers can better connect with a broader spectrum of students. This is especially critical if teachers' racial backgrounds differ from that of the students, as our qualitative findings suggest these cultural divides may potentially deter white individuals from working at hard-to-staff districts with a large population of students of color. Specifically, our study revealed concern among potential teachers that they may not be accepted by students or able to build meaningful student-faculty relationships based on their dissimilar backgrounds. Some participants expressed discomfort at the idea of teaching in classrooms with students that do not "look" like them and teaching in schools in which they would be a significant minority. These sentiments are aligned with prior literature on racial matching of teachers and should be actively addressed so that teacher candidates feel better prepared to work with a diverse array of students.

New teacher induction programs can work with teacher preparation to provide ongoing consultation and support to new entrants to the profession during their first years of teaching. Educational leadership programs, on the other hand, can play a critical role in training future administrators to provide the necessary administrative support for new teachers to succeed in rural high-need schools. Working in tandem with new teacher induction programs, administrators can be specifically trained to help new teachers transition into their new work environment by providing support such as teacher mentors to model problem identification, pedagogical approach, and classroom management behavior, thereby mitigating feelings of isolation early on. They can also learn to utilize scheduling to lighten the teaching load of new teachers to build their confidence in the classroom, provide consistent communication and feedback to new teachers to keep expectations clear, and ensure that faculty and staff feel safe on campus (Lunenburg and Ornstein 2012). Currently, there is a lack of research on successful rural school leadership and how leaders can support teachers; therefore, future research should examine this area more thoroughly to guide policy decisions (Preston and Barnes 2017).

Greater emphasis should also be placed on recruiting, preparing, and retaining quality educational leaders, given the importance of administrative support in our findings. Indeed, similar to teacher induction programs, colleges of education can evolve their role from one of preparation to one of both preparation and transitional support of future school and district leaders. Additional research is needed to better understand these opportunities.

Finally, at the state level, states can facilitate and financially support both colleges of education and K–12 schools in helping ensure that these targeted resources are provided to specifically address the most critical employment factors that influence recruitment to teaching in rural hard-to-staff schools. Working with intention and in tandem, local and state government can better address the teacher-supply problem for the most hard-to-staff schools in the state.

Note

Funding for this study was provided by the University of South Carolina's Center for Educational Partnerships.

References

Allegretto, Sylvia A., and Lawrence Mishel. 2016. *The Teacher Pay Gap Is Wider Than Ever: Teachers' Pay Continues to Fall Further behind Pay of Comparable Workers*. Washington, DC: Economic Policy Institute.

Allegretto, Sylvia A., and Lawrence Mishel. 2018. "The Teacher Pay Penalty Has Hit a New High." Washington, DC: Economic Policy Institute.

Allen, Michael B. 2005. "Eight Questions on Teacher Recruitment and Retention: What Does the Research Say?" Denver, CO: Education Commission of the States.

Azano, Amy P., and Trevor T. Stewart. 2015. "Exploring Place and Practicing Justice: Preparing Pre-Service Teachers for Success in Rural Schools." *Journal of Research in Rural Education* 30 (9): 1–12.

Battaglia, Michael P., David C. Hoaglin, and Martin Frankel. 2009. "Practical Considerations in Raking Survey Data." *Survey Practice* 2 (5): 1–10.

Bergmann, Thomas J., Marilyn A. Bergmann, and Joyce L. Grahn. 1994. "How Important Are Employee Benefits to Public Sector Employees." *Public Personnel Management* 23 (3): 397–406.

Béteille, Tara, and Susan Loeb. 2012. "Teacher Quality and Teacher Labor Markets." In *Handbook of Education Policy Research*, ed. G. Sykes, B. Schneider, and D. Plank. New York: Routledge.

Biancarosa, Gina, Anthony S. Bryk, and Emily R. Dexter. 2010. "Assessing the Value-Added Effects of Literacy Collaborative Professional Development on Student Learning." *Elementary School Journal* 111 (1): 7–34.

Biddle, Catharine, and Amy Price Azano. 2016. "Constructing and Reconstructing the 'Rural School Problem': A Century of Rural Education Research." *Review of Research in Education* 40 (1): 298–325.

Boyd, Donald, Pamela Grossman, Marsha Ing, Hamilton Lankford, Susanna Loeb, and James Wyckoff. 2011. "The Influence of School Administrators on Teacher Retention Decisions." *American Educational Research Journal* 48 (2): 303–33.

Boyd, Donald, Hamilton Lankford, Susanna Loeb, and James Wyckoff. 2005. "Explaining the Short Careers of High-Achieving Teachers in Schools with Low-Performing Students." *American Economic Review* 95 (2): 166–71.

Brick, J. Michael, and Douglas Williams. 2013. "Explaining Rising Nonresponse Rates in Cross-Sectional Surveys." *Annals of the American Academy of Political and Social Science* 645 (1): 36–59.

Brimley, Vern B., Deborah A. Verstegen, and Rulon R. Garfield. 2015. *Financing Education in a Climate of Change*. 12th ed. New York: Pearson.

Buckley, Jack, Mark Schneider, and Yi Shang. 2005. "Fix It and They Might Stay: School Facility Quality and Teacher Retention in Washington, D.C." *Teachers College Record* 107 (5): 1107–23.

Campbell, Christine, Michael DeArmond, and Abigail Schumwinger. 2004. "From Bystander to Ally: Transforming the District Human Resources Department." Seattle, WA: Center on Reinventing Public Education.

Cannata, Marisa. 2010. "Understanding the Teacher Job Search Process: Espoused Preferences and Preferences in Use." *Teachers College Record* 112 (12): 2889–934.

Chen, Chialin, Guyves Achtari, Kevin Majkut, and Jiuh-Biing Sheu. 2017. "Balancing Equity and Cost in Rural Transportation Management with Multi-Objective Utility Analysis and Data Envelopment Analysis: A Case of Quinte West." *Transportation Research Part A: Policy and Practice* 95:148–65.

Clotfelter, Charles, Helen F. Ladd, and Jacob Vigdor. 2005. "Who Teaches Whom? Race and the Distribution of Novice Teachers." *Economics of Education Review* 24 (4): 377–92.

Collins, Timothy. 1999. "Attracting and Retaining Teachers in Rural Areas." Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools.

Corbett, Michael, and Simone White. 2014. "Introduction: Why Put the 'Rural' in Research?" In *Doing Educational Research in Rural Settings: Methodological Issues, International Perspectives and Practice Solutions*, ed. Simone White and Michael Corbett. New York: Routledge.

Creswell, John W. 2009. *Research Design: Qualitative and Mixed Methods Approaches*. Thousand Oaks, CA: Sage.

Creswell, John W., and Vicki L. Plano Clark. 2017. *Designing and Conducting Mixed Methods Research*. Thousand Oaks, CA: Sage.

Darling-Hammond, Linda. 2002. "Access to Quality Teaching: An Analysis of Inequality in California's Public Schools." *Santa Clara Law Review* 43 (4): 1045–184.

Darling-Hammond, Linda, and Charles E. Ducommun. 2007. "Recruiting and Retaining Teachers: What Matters Most and What Can Government Do." Washington, DC: The Forum for Education and Democracy.

Devlin, Nancy J., Koonal K. Shah, Yan Feng, Brendan Mulhern, and Ben van Hout. 2018. "Valuing Health-Related Quality of Life: An EQ-5 D-5 L Value Set for England." *Health Economics* 27 (1): 7–22.

Dey, Eric L. 1997. "Working with Low Survey Response Rates: The Efficacy of Weighting Adjustments." *Research in Higher Education* 38 (2): 215–27.

Egalite, Anna J., Brian Kisida, and Marcus A. Winters. 2015. "Representation in the Classroom: The Effect of Own-Race Teachers on Student Achievement." *Economics of Education Review* 45:44–52.

Engel, Mimi, Brian A. Jacob, and F. Chris Curran. 2014. "New Evidence on Teacher Labor Supply." *American Educational Research Journal* 51 (1): 36–72.

Eppley, Karen. 2011. "Teaching Rural Place: Pre-service Language and Literacy Students Consider Place-Conscious Literacy." *Pedagogies: An International Journal* 6 (2): 87–103.

Eppley, Karen. 2015. "'Hey, I Saw Your Grandparents at Walmart': Teacher Education for Rural Schools and Communities." *Teacher Educator* 50 (1): 67–86.

Fischer, Gregory W., and Cameron R. Peterson. 1972. "Ratio versus Magnitude Estimates of Importance Factors." Ann Arbor: University of Michigan, Engineering Psychology Laboratory.

Flach, Stephen D., and Alan Diener. 2004. "Eliciting Patients' Preferences for Cigarette and Alcohol Cessation: An Application of Conjoin Analysis." *Addictive Behaviors* 29 (4): 791–99.

Garcia, Emma, and Elaine Weiss. 2019. "The Teacher Shortage Is Real, Large and Growing, and Worse Than We Thought." Washington, DC: Economic Policy Institute.

Garrett, Jennifer. 2019. "South Carolina Annual Educator Supply and Demand Report (2018–19 School Year)." Rock Hill, SC: Center for Educator Recruitment, Retention, and Advancement.

Gershenson, Seth. 2019. "Student-Teacher Race Match in Charter and Traditional Public Schools." Washington, DC: Thomas B. Fordham Institute.

Gold, Marthe R., Donald L. Patrick, George W. Torrance, Dennis G. Fryback, David C. Hadorn, Mark S. Kamlet, Norman Daniels, and Milton C. Weinstein. 1996. "Identifying and Valuing Outcomes." In *Cost-Effectiveness in Health and Medicine*, ed. M. R. Gold, J. E. Siegel, L. B. Russell, and M. C. Weinstein. New York: Oxford University Press.

Goldhaber, Dan. 2015. "Teachers Clearly Matter, but Finding Effective Teacher Policies Has Proven Challenging." In *Handbook of Research in Education Finance and Policy*, ed. H. F. Ladd and M. E. Goertz. New York: Routledge.

Goldring, Rebecca, Soheyla Taie, and Minsun Riddles. 2014. "Teacher Attrition and Mobility: Results from the 2012–13 Teacher Follow-up Survey." Washington, DC: National Center for Educational Statistics.

Goodpaster, Kasey P., Omolola A. Adedokun, and Gabriela C. Weaver. 2012. "Teachers' Perceptions of Rural STEM Teaching: Implications for Rural Teacher Retention." *Rural Educator* 33 (3): 9–22.

Groves, Robert M., Mick P. Couper, Stanley Presser, Eleanor Singer, Roger Tourangeau, Giorgina Piani Acosta, and Lindsay Nelson. 2006. "Experiments in Producing Nonresponse Bias." *International Journal of Public Opinion Quarterly* 70 (5): 720–36.

Hammer, Patricia Cahape, Georgia Hughes, Carla McClure, Cynthia Reeves, and Dawn Salgado. 2005. "Rural Teacher Recruitment and Retention Practices: A Review of the Research Literature, National Survey of Rural Superintendents, and Case Studies of Programs in Virginia." Charleston, WV: Appalachia Educational Laboratory at Edvantia (NJ1).

Handal, Boris, Kevin Watson, Peter Petocz, and Marguerite Maher. 2013. "Retaining Mathematics and Science Teachers in Rural and Remote Schools." *Australian and International Journal of Rural Education* 23 (3): 13–27.

Hanushek, Eric A., John F. Kain, and Steven G. Rivkin. 2004. "Why Public Schools Lose Teachers." *Journal of Human Resources* 39 (2): 326–54.

Hanushek, Eric A., and Richard R. Pace. 1995. "Who Chooses to Teach (and Why)?" *Economics of Education Review* 14 (2): 101–17.

Harris, Mary M. 2001. "Lessons from Prairie Teachers." *Action in Teacher Education* 23 (1): 19–26.

Harrison, Theresa, and Henry Tran. 2020. "How Can Higher Education Engage with Rural Communities to Address Teacher Shortages?" In *Stakeholder Engagement: Improving Education through Multi-Level Community Relations*, ed. Henry Tran, Douglas A. Smith, and David G. Buckman. Lanham, MD: Rowman & Littlefield.

Hawley, Leslie R., Natalie A. Koziol, James A. Bovaird, Carina M. McCormick, Greg W. Welch, Ann M. Arthur, and Kirstie Bash. 2016. "Defining and Describing Rural: Implications for Rural Special Education Research and Policy." *Rural Special Education Quarterly* 35 (3): 3–11.

Haynes, Mariana. 2014. "On the Path to Equity: Improving the Effectiveness of Beginning Teachers." Washington, DC: Alliance for Excellent Education.

Hess, Frederick M. 2010. *Education Unbound: The Promise and Practice of Greenfield Schooling.* Alexandrea, VA: ASCD.

Hirsch, Eric, and Scott Emerick. 2006. "Arizona Teacher Working Conditions: Designing Schools for Educator and Student Success. Results of the 2006 Phase-In Teacher Working Conditions Survey." Carrboro, NC: Center for Teaching Quality.

Hong, Sung-Hyun, Jae-Yeon Lee, Sun-Kyeong Park, Jin Hyun Nam, Hyun Jin Song, Sun-Young Park, and Eui-Kyung Lee. 2018. "The Utility of 5 Hypothetical Health States in Heart Failure Using Time Trade-Off (TTO) and EQ-5D-5L in Korea." *Clinical Drug Investigation* 38 (8): 727–36.

Horng, Eileen L. 2009. "Teacher Tradeoffs: Disentangling Teachers' Preferences for Working Conditions and Student Demographics." *American Educational Research Journal* 46 (3): 690–717.

Howard, Tyrone C. 2003. "Who Receives the Short End of the Shortage? Implications of the U.S. Teacher Shortage on Urban Schools." *Journal of Curriculum and Supervision* 18 (2): 142–60.

Huber, George P. 1974. "Multi-Attribute Utility Models: A Review of Field and Field-like Studies." *Management Science* 20 (10): 1393–402.

Ingersoll, Richard M. 2001. "Teacher Turnover and Teacher Shortages: An Organizational Analysis." *American Educational Research Journal* 38 (3): 499–534.

Ingersoll, Richard M. 2002. "The Teacher Shortage: A Case of Wrong Diagnosis and Wrong Prescription." *National Association of Secondary School Principals Bulletin* 86 (631): 16–31.

Jacob, Brian A. 2007. "The Challenges of Staffing Urban Schools with Effective Teachers." *Future of Children* 17 (1): 129–53.

Jansen, Sylvia J. T. 2011. "The Multi-Attribute Utility Method." In *The Measurement and Analysis of Housing Preference and Choice*, ed. S. Jansen, H. Coolen, and R. Goetgeluk. Dordrecht: Springer.

Jennings, Melody, James D. Werbel, and Mark L. Power. 2003. "The Impact of Benefits on Graduating Student Willingness to Accept Job Offers." *Journal of Business Communication* 40 (4): 289–302.

Jimerson, Lorna. 2003. "The Competitive Disadvantage: Teacher Compensation in Rural America." Washington, DC: The Rural School and Community Trust, March.

John, Richard S., and Ward Edwards. 1978. "Importance Weight Assessment for Additive, Riskless Preference Functions: A Review." McLean, VA: Decisions and Designs Inc.

Johnson, R. Burke. 1995. "Estimating an Evaluation Utilization Model Using Conjoint Measurement and Analysis." *Evaluation Review* 19 (3): 313–38.

Lankford, Hamilton, Susanna Loeb, and James Wyckoff. 2002. "Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis." *Educational Evaluation and Policy Analysis* 24 (1): 37–62.

Levin, Henry M., and Patrick J. McEwan. 2001. *Cost-Effectiveness Analysis: Methods and Applications*. Thousand Oaks, CA: Sage.

Liu, Edward, and Susan M. Johnson. 2006. "New Teachers' Experiences of Hiring: Late, Rushed, and Information-Poor." *Educational Administration Quarterly* 42 (3): 324–60.

Lunenburg, Fred C., and Allan C. Ornstein. 2012. *Education Administration: Concepts and Practices*. 6th ed. Belmont, CA: Wadsworth, Cengage Learning.

Maranto, Robert, and James V. Shuls. 2012. "How Do We Get Them on the Farm? Efforts to Improve Rural Teacher Recruitment and Retention in Arkansas." *Rural Educator* 34 (1): 32–40.

Milanowski, Anthony. 2003. "An Exploration of the Pay Levels Needed to Attract Students with Mathematics, Science and Technology Skills to a Career in K–12 Teaching." *Education Policy Analysis Archives* 11 (50): 1–27.

Monk, David H. 2007. "Recruiting and Retaining High-Quality Teachers in Rural Areas." *Future of Children* 17 (1): 155–74.

Murphy, Peter J., and Kas Angelski. 1996–97. "Rural Teacher Mobility: A Report from British Columbia." *Rural Educator* 18 (2): 5–11.

NCES (National Center for Education Statistics). 2017. "Fast Facts. Teacher Trends 2017." Washington, DC: National Center for Education Statistics.

Opfer, Darleen. 2011. "Defining and Identifying Hard-to-Staff Schools: The Role of School Demographics and Conditions." *Educational Administration Quarterly* 47 (4): 582–619.

Pike, Gary R. 2008. "Using Weighting Adjustments to Compensate for Survey Nonresponse." *Research in Higher Education* 49 (2): 153–71.
Porter, Stephen R., and Paul D. Umbach. 2006. "Student Survey Response Rates across Institutions: Why Do They Vary?" *Research in Higher Education* 47 (2): 229–47.
Preston, Jane, and Kristopher E. R. Barnes. 2017. "Successful Leadership in Rural Schools: Cultivating Collaborations." *Rural Educator* 38 (1): 6–15.
Rindfuss, Ronald R., Minja K. Choe, Noriko O. Tsuya, Larry L. Bumpass, and Emi Tamaki. 2015. "Do Low Survey Response Rates Bias Results? Evidence from Japan." *Demographic Research* 32: 797–828.
Robinson, Nicole. 2012. "Preservice Music Teachers' Employment Preferences: Consideration Factors." *Journal of Research in Music Education* 60 (3): 294–309.
Rosenberg, Linda, Megan D. Christianson, Megan H. Angus, and Emily Rosenthal. 2014. "A Focused Look at Rural Schools Receiving School Improvement Grants." Washington, DC: Institute of Education Sciences.
Saldaña, Johnny. 2015. *The Coding Manual for Qualitative Researchers.* Thousand Oaks, CA: Sage.
Scafidi, Benjamin, David L. Sjoquist, and Todd R. Stinebrickner. 2007. "Race, Poverty, and Teacher Mobility." *Economics of Education Review* 26 (2): 145–59.
Schaefer, Andrew, Marybeth J. Mattingly, and Kenneth M. Johnson. 2016. "Child Poverty Higher and More Persistent in Rural America." Durham: University of New Hampshire Carsey School of Public Policy.
Shuls, James, and Robert Maranto. 2014. "Show Them the Mission: A Comparison of Teacher Recruitment Incentives in High Need Communities." *Social Science Quarterly* 95 (1): 239–52.
Stronge, James. H., Thomas J. Ward, Pamela D. Tucker, and Jennifer L. Hindman. 2007. "What Is the Relationship between Teacher Quality and Student Achievement? An Exploratory Study." *Journal of Personnel Evaluation in Education* 20 (3–4): 165–84.
Sutcher, Leib, Linda Darling-Hammond, and Desiree Carver-Thomas. 2016. "A Coming Crisis in Teaching? Teacher Supply, Demand, and Shortages in the US." Palo Alto, CA: Learning Policy Institute.
Taie, Soheyia, and Rebecca Goldring. 2017. "Characteristics of Public Elementary and Secondary School Teachers in the United States: Results from the 2015–16 National Teacher and Principal Survey. First Look." Washington, DC: National Center for Education Statistics.
Taylor, Mathew, Susan Chilton, Sarah Ronaldson, Hugh Metcalf, and Jytte Seested Nielsen. 2017. "Comparing Increments in Utility of Health: An Individual-Based Approach." *Value in Health* 20 (2): 224–29.
Teddlie, Charles, and Abbas Tashakkori. 2009. *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences.* Thousand Oaks, CA: Sage.
Tran, Henry, and Jingtong Dou. 2019. "An Exploratory Examination of What Types of Administrative Support Matter for Rural Teacher Talent Management: The Rural Educator Perspective." *Educational Leadership Review* 20 (1): 133–49.
Tran, Henry, Suzy Hardie, Simone Gause, Peter Moyi, and Rose Ylimaki. 2020. "Leveraging the Perspectives of Rural Educators to Develop Realistic Job Previews for Rural Teacher Recruitment and Retention." *Rural Educator.* In Press.
Tran, Henry, Alison M. Hogue, and Amanda M. Moon. 2015. "Attracting Early Childhood Teachers to South Carolina's High Needs Rural Districts: Loan Repayment vs. Tuition Subsidy." *Teacher Education Journal of South Carolina* 8:98–107.

Tran, Henry, and Douglas Smith. 2020. "The Strategic Support to Thrive beyond Survival Model: An Administrative Support Framework for Improving Student Outcomes and Addressing Educator Staffing in Rural and Urban High-Needs Schools." *Research in Educational Administration & Leadership*. In Press.

UCEA (University Council for Educational Administration). 2018. "UCEA's Comments and Recommendations about U.S. Department of Education Report on Rural Education." Charlottesville, VA: UCEA.

Ulferts, John D. 2016. "A Brief Summary of Teacher Recruitment and Retention in the Smallest Illinois Rural Schools." *Rural Educator* 37 (1): 14–24.