

Rural Educational Attainment: The Importance of Context

Sarah Schmitt-Wilson
Jayne A. Downey
Ashley E. Beck
Montana State University

Citation: Schmitt-Wilson, S., Downey, J., & Beck, A.E. (2018). Rural educational attainment: The importance of cContext. *Journal of Research in Rural Education*, 33(1), 1-14.

Understanding patterns of educational attainment among rural youth is a critical concern for our nation as we seek to make postsecondary access and attainment more equitable across our increasingly diverse student population. The current study examines data collected in the Education Longitudinal Study of 2002 to identify contemporary patterns of educational attainment among rural youth, with a focus on associate degree attainment and bachelor's degree attainment. Findings reveal that education expected for occupation is a significant predictor for bachelor's degree attainment, with regional differences found among individuals earning a bachelor's degree. The results support a link between rural students' expectations for occupation and educational attainment and highlight differences in educational attainment by region of residence.

The study of educational attainment (EA) has taken on new significance against the complex backdrop of a rapidly changing globalized economy, an increasing need for a competitive and skilled workforce (Carnevale & Smith, 2013), and the enduring need for a well-educated citizenry who can develop local capacity and well-being (Schafft, 2016). EA is defined as the highest level of education that an individual completes (U.S. Census Bureau, 2010) and is viewed as a common indicator of life outcomes with significant implications for individuals, communities, and the nation (Howley, 2006).

Current EA research and policy discourse has typically treated the completion of a four-year bachelor's degree as the assumed ideal level of EA. While this view may have served as a useful heuristic in some cases, it does not fully reflect the employment realities in rural communities where a majority of residents are employed in middle-skill jobs that may not require a bachelor's degree (Young, 2013). Focusing solely on bachelor's degree attainment overlooks the value of postsecondary certificates and associate degrees and implies that the EA of rural students lags behind their urban and suburban counterparts. Thus, a more nuanced

definition of EA is needed that considers how specific rural contexts shape students' career expectations and, consequently, the postsecondary education they pursue. This study seeks to address this issue by examining how rural students' EA differs by region and whether rural student expectations about the level of education needed for desired occupation predicts their EA.

Literature Review

Educational Attainment

This study is grounded in the educational attainment literature regarding current perspectives on educational attainment in the United States, the educational attainment of rural youth, and how the rural context, notably the role of educational expectations and region of residence, influences the educational attainment of rural youth. Previous studies of EA have found a positive relationship between the completion of a four-year degree and economic outcomes such as increased individual earnings, economic prosperity, and improved regional economies (e.g., Carnevale, Smith, & Strohl, 2011; Pink-Harper, 2015). Studies have also found a relationship between the completion of a four-year degree and enhanced health outcomes such as improved individual well-being and life expectancy (e.g., Lleras-Muney, 2005; Zimmerman, Woolf, & Haley, 2015) as well as improved skills outcomes such as critical thinking and problem solving (e.g., Huber & Kuncel, 2016; McMillan, 1987) needed to make informed decisions regarding complex issues facing

All correspondence should be directed to Sarah Schmitt-Wilson, Assistant Teaching Professor of Education, Montana State University, 120 Reid Hall, Box 172880, Bozeman, MT 59717-2880 (sarah.schmitt@montana.edu).

The *Journal of Research in Rural Education* is published by the Center on Rural Education and Communities, College of Education, The Pennsylvania State University, University Park, PA 16802. ISSN 1551-0670

the world today.

Perhaps because of links between a four-year degree and the long-term outcomes shared above (Laditka & Laditka, 2015), significant research has been undertaken to understand the factors that contribute to postsecondary access and EA of a four-year degree for our increasingly diverse student population (Hatch, Mardock Uman, & Garcia, 2015). Studies have examined students' rates of high school completion, postsecondary participation, college enrollment, and degree completion/attainment in relationship to factors such as age, sex, race, ethnicity, and disability (e.g., Ryan & Bauman, 2016). Research has also investigated the relationship between EA of a four-year degree and variables such as socioeconomic status, parental education, family structure, student academic achievement, locale, and future aspirations. Broadly, factors that are positively correlated with bachelor's degree attainment include parental educational involvement (Benner, Boyle, & Sadler, 2016), high school GPA (French, Homer, Popovici, & Robins, 2015), two-parent family structure (Martin, 2012), parental encouragement and college preparatory coursework (Reynolds & Burge, 2008), and parental expectations as well as peer influence (Wells, Seifert, Padgett, Park, & Umbach, 2011). Some of these factors may also have conditional influences by gender and race/ethnicity (Reynolds & Burge, 2008; Wells, Seifert, Padgett, Park, & Umbach, 2011). This emphasis on four-year postsecondary education attainment has contributed to the perception of the four-year degree as the pinnacle of EA. This perception has implications for how EA among rural students is viewed by policy, practice, and research communities.

Educational Attainment and Rural Youth

Almost nine million of our nation's students are considered rural (Showalter, Klein, Johnson, & Hartman, 2017), in that they live in a locale that lies outside an urbanized area or urban cluster (Provasnik et al., 2007). Previous research on rural students' EA, using nationally representative data from the 1980s and 1990s, found that 30% of rural students had earned a bachelor's degree or higher (and 12% had earned an associate degree), 40% of suburban students had earned a bachelor's degree or higher (and 10% had earned an associate degree), and 43% of urban students had completed a bachelor's degree or higher (and 9% had earned an associate degree) (Byun, Meece, & Irvin, 2012). Other studies have found that rural high school graduates are more likely to delay entry into postsecondary education and are less likely to remain continuously enrolled in postsecondary education than their urban and suburban counterparts (e.g., Byun, Irvin, & Meece, 2015).

Explanations for rural students' EA often perpetuate a

deficit model, focusing on students' reluctance to leave their community, lack of academic preparation and advising, geographic distance between home and school, and/or family expectations to maintain the family farm or business (Byun, Irvin, & Meece, 2012; Irvin, Byun, Meece, Farmer, & Hutchins, 2012; McDonough & Gildersleeve, 2010). Another line of research that casts rural students' EA in a negative light is the concept of "undermatch," in which rural youth who are academically eligible to attend a more selective institution choose instead to attend an institution that does not match their academic qualifications. This notion of "presumptive eligibility and undermatching" (Burke, Davis, & Stephan, 2015, p. 2) reflects an urban-centric perspective, which assumes that students' academic indicators should be the primary drivers of their choice of postsecondary institution.

The above perspectives, however, fail to account for the importance of rural students' values and social connections in shaping their career and educational expectations. Some EA research, for example, has suggested that when compared to urban and suburban students, rural students have more social supports and benefits in their communities (Byun, Meece, & Irvin, 2012), which have been overlooked by educators and researchers alike (Howley, 2006). These strengths include rural identity (Schultz, 2004), unique experiences, opportunity structures, social constructs (Howley & Howley, 2014; McDonough & Gildersleeve, 2010), and "legitimate and conscious commitments to rural lifeways and to place" (Howley, 2006, p. 63). Some research suggests that these strengths give rural students higher degrees of social capital in the form of close-knit communities and social networks (e.g., Byun, Meece, & Irvin, 2012; Byun, Meece, Irvin, & Hutchins, 2012) and that connections to place, family, and community are important factors in rural students' career and educational expectations and the consequent postsecondary decisions (Howley, Harmon, & Leopold, 1996; Howley, 2006; Irvin et al., 2011).

Rural Context Issues Affecting EA

The role of educational expectations. The study of educational expectations is a body of literature that may further illuminate issues around rural students' EA as it explores students' ideas of what they realistically expect to achieve in their academic pursuits (Beal & Crockett, 2010). Previous studies have found that the stability of students' educational expectations is a key predictor of EA (Khatab, 2015) and that educational expectations are shaped by a host of factors including socioeconomic and demographic variables, as well as school resources and family social capital (Apostal & Bilden, 1991; Tieken, 2016). For example, rural students' educational expectations may

be influenced by occupational structures in their local communities. Further, some youth may desire to follow the line of work of their parents (Gandara, Gutiaez, & O'Hara, 2001). Others, especially rural youth living in geographically isolated areas, may lack exposure to diverse occupational opportunities (Petrin, Schafft, & Meece, 2014; Crockett, Shanahan, & Jackson-Newsom, 2000) leading to restricted vocational interests (Lapan, Hinkelman, Adams, & Turner 1999). Moreover, rural youth may be witnessing declining economies and widespread shifts in local employment opportunities that may lead to the adjustment of their career and educational expectations (Tieken, 2016).

The role of region of residence. A second issue that is important to consider in terms of both access to postsecondary education and EA is regionality, which may be an important variable that helps to explain differences in rural EA across the nation. For example, data from the American Community Survey revealed that the Midwest region reported the highest proportion of high school graduates, and the Northeast region reported the highest proportion of bachelor's degree holders (Crissey, 2009). Thus, just as rurality varies widely across the United States in terms of life experience, culture, economics, land use, geography, population density, and remoteness (Cromartie & Bucholtz, 2008), so do the available occupations differ by region. For example, according to occupational data obtained from the U.S. Census Bureau (Table 1), the Northeast region has a higher percentage of workers employed in professional and managerial positions compared to residents in the South, Midwest, and West regions. In contrast, a smaller percentage of residents from the Northeast region were employed in natural resources, construction, and maintenance occupations as well as production, transportation, and material moving jobs than residents in the South, Midwest, and West regions. Service and sales occupations were similar among the four regions. Thus, regionality may be an influential factor in rural students' EA due to the importance of regional culture and economies (Byun, Meece, Irvin, & Hutchins, 2012; Turley, 2009).

In response to the call for a new approach to policy making (Tieken & San Antonio, 2016) that honors rural students' career desires and educational expectations (Howley, Harmon, & Leopold, 1996) and supports the development of a well-educated citizenry who can develop local capacity and well-being (Schafft, 2016), a more nuanced definition of rural EA is needed that takes into account ways in which the regional context and rural student expectations about the level of education needed for desired occupation predicts their EA.

Guiding Research Questions

To understand and support rural students' postsecondary

pursuits, it is important to understand the ways in which rural youths' expectations for education needed for future occupations differ by region of residence and predicts their EA in young adulthood. Thus, the current study sought to update and extend previous research by using the most recent data available from the Education Longitudinal Study of 2002 (U.S. Department of Education, ELS:2002) to examine patterns in rural youths' EA. We used data collected in 2012 to investigate whether two contextual factors, region of residence and education expected for future occupation, predicted rural students' postsecondary degree attainment. The following research questions guided the data analyses.

1. Among rural students, does education expected for occupation predict educational attainment in adulthood?
2. Are there differences in educational attainment among rural students according to region of residence in the United States?

Method

The current study used restricted access data from the Education Longitudinal Study of 2002 (ELS:2002), a longitudinal study that followed a nationally representative sample of 10th graders from 2002 to 2012 ($N = 16,200$). Participants were initially surveyed in 2002 and then re-surveyed at three follow-up sessions in 2004 (when participants were high school seniors), 2006 (approximately two years into postsecondary education), and 2012 (eight years following high school graduation). High school transcripts provided academic achievement data; postsecondary transcripts were not available in the data set. The current study used data from individuals who were members of the senior cohort in 2004 ($N = 13,370$), had valid data for their postsecondary educational attainment in 2012 ($N = 11,170$), had a valid sample weight (F3BYPNLWT) ($N = 11,060$), and were classified as rural following the NCES three-category classification for urbanicity (urban, suburban, and rural). The sample was composed of 2,010 participants with predictive analyses based on 1,120 individuals after cases with missing data were deleted. This 2012 data set represents the most current, nationally representative longitudinal data available on rural students' EA.

Dependent Variables

The purpose of the current study was to examine whether region of residence and perception of the education expected for future occupation predicted postsecondary degree attainment among rural students. Thus, rural students' EA in young adulthood was coded into three categories: (a)

Table 1
Occupations by Region: Average Occupations of Sampled Populations (Percentages)

Occupation Category	Northeast	Midwest	South	West
Management, business, science, and arts occupations	45	29	31	32
Service occupations	19	17	16	20
Sales and office occupations	23	22	22	26
Natural resources, construction, and maintenance occupations	6	13	15	13
Production, transportation, and material moving occupations	7	18	16	10
Total	100	100	100	100

Note. Adapted from “C24010 - sex by occupation for the civilian employed population 16 years and over universe: civilian employed population 16 years and over,” by U.S. Census Bureau, 2012 (https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_C24010&prodType=table). In the public domain. For each region, the percent of total population employed in each occupational category was averaged across the zip codes sampled by ELS:2002 to obtain the average percentage by region in each category.

no postsecondary credential, (b) postsecondary certificate or associate degree, (c) bachelor’s degree and higher (i.e., master’s, doctoral, and professional degree holders).

Explanatory Variables

Previous studies have investigated the EA of rural youth by examining variables such as socioeconomic background, family composition, number of siblings at home, parental discussion of future plans, parent expectations for the future, and academic achievement while controlling for gender and ethnicity (e.g., Byun, Meece, & Irvin, 2012). The current study sought to extend previous work by examining whether *education expected for future occupation* and *region of residence* predicted postsecondary degree attainment among rural students beyond the contribution of socioeconomic, family, and academic achievement variables. Thus, we also controlled for gender and ethnicity and examined the variables of socioeconomic background, family composition, number of siblings at home, parental discussion of future plans, parent expectations for the future, and academic achievement.

Education expected for occupation. We explored participants’ perception of the education expected for the job they wanted to have at age 30, as measured during their senior year of high school. This measure consisted of the question, “how much education do you think you will need to get the job you expect or plan to have when you are 30

years old?” Responses were coded into four categories (no postsecondary credentials, a postsecondary certificate or associate degree, a bachelor’s degree, and beyond a bachelor’s degree). The last two categories were combined for predictive analyses.

Region of residence. Region of residence consisted of four regions (Northeast, South, Midwest, and West). The Northeast served as the control group for the current study.

Family socioeconomic background. The measure of socioeconomic background for the current study consisted of mothers’ and fathers’ EA in three categories, along with family income, similar to previous protocols (Byun, Meece, & Irvin, 2012) used to explore EA of rural youth. The family income variable consisted of four categories: less than \$25,000, \$25,001-\$50,000, \$50,001-\$75,000, and greater than \$75,000 per year. Mothers’ and fathers’ EA was comprised of a high school education or less, some college/associate degree, and a bachelor’s degree or higher.

Family composition. The current study used a collapsed composite measure of family composition to compare two groups: participants who lived in a two-parent family and participants who lived in any other type of family composition, including single parents or other relatives. We also explored number of siblings at home.

Parent expectations. Parental expectations for the youth were included (high school or less, some college/associate degree, and bachelor’s or higher).

Parent discussion. A parent discussion variable was

created from four variables including discussion of: grades, jobs the child would like to have, preparation for the ACT/SAT, and going to college. Each of these four variables was based on a three-category scale (never, sometimes, and often) with an average of these four scores used to indicate parent discussion of future plans.

Academic achievement. Academic achievement was measured as grade point average (GPA) in the 12th grade with higher scores indicating increased academic achievement. In addition, we incorporated the base year standardized test scores for math and reading.

Data Analysis

We conducted a weighted analysis using SPSS Complex Samples due to the nested nature of the data and multi-stage sampling. A failure to account for stratification and clustering effects can inflate test statistics and increase likelihood of committing type I error (Hahs-Vaughn, 2005). To account for stratification and clustering effects, our analyses included strata and clustering variables along with the appropriate sample weight (Ingels et al., 2014).

Descriptive statistics were calculated for the independent and explanatory variables. A series of multinomial logistic regression analyses was then conducted using SPSS Complex Samples incorporating weighted analyses to examine the role of *education expected for future occupation* and *region of residence* among rural students in the prediction of associate and bachelor's degree attainment beyond the contribution of socioeconomic, family, and academic achievement variables related to EA of rural students. Multinomial logistic regression is appropriate when the criterion variable has more than two levels (Wright, 1995). The first model incorporated *education expected for future occupation* and *region of residence* along with controls (gender and ethnicity). The second model added socioeconomic background, the third model added family composition and resources, and the final model added academic achievement.

We conducted a chi-square analysis (Peng, Lee, & Ingersoll, 2002) for each model along with the pseudo (McFadden's) R-square to explore model significance. We also examined the odds ratios of model coefficients predicting EA (Wright, 1995). Multinomial logistic regressions were tested for the assumption of independence of dependent variables (Starkweather & Moske, 2011). The current study utilized a complete case analysis; hence, no imputations were used for missing data (Bennett, 2001).

Results

Descriptive Analysis

Weighted descriptive statistics were computed (Table 2). The two variables of interest in this study were education

expected for occupation and region of residence. An analysis of youths' education expected for their future occupation revealed that 16% thought their future occupation required no postsecondary credentials, 17% believed their future occupation required a postsecondary certificate or associate degree, 33% thought their future occupation required a bachelor's degree, and 34% thought their future occupation required credentials beyond a bachelor's degree. When examining region of residence, 16% were from the rural Northeast, 28% were from the rural Midwest, 42% were from the rural South, and 14% were from the rural West.

Among participants, 52% were female and 81% were White. In terms of socioeconomic background, 42% of mothers had a high school education, 37% of mothers had some college, and 21% of mothers in the sample earned a bachelor's degree or higher. Among fathers, 48% had a high school education, 28% had some college, and 24% earned a bachelor's degree or higher. Seventy-nine percent of participants lived in a two-parent family, and 42% of the participants had one sibling in the house. Parents had relatively high educational expectations for their children. Only 3% of parents expected their youth to earn only a high school education, while 12% of parents expected their youth to earn an associate degree, and almost 85% of parents expected their youth to earn a bachelor's degree or higher. Parent discussion scores ranged from 1 to 3 ($M = 2.34$, $SE = 0.01$). Two measures of academic achievement were used: average GPA was 2.88 ($SE = 0.03$), and standardized test scores for math and reading ranged from 24 to 77 with a mean of 52.09 ($SE = 0.32$).

Educational Attainment of Rural Youth

Among this national sample of rural youth, 44% reported EA of a high school degree, 21% reported EA of an associate degree or certificate, 28% reported EA of a bachelor's degree, and 7% reported EA of a master's, doctoral, or professional degree (i.e., 35% of the respondents earned a bachelor's degree or higher) (Table 2). In other words, a majority of rural youth (56%) reported attainment of a postsecondary certificate or degree.

Predictors of Educational Attainment Among Rural Youth

Multinomial logistic regression analyses were conducted to explore predictors of associate and bachelor's degree attainment among rural students, focusing on the role of *education expected for future occupation* and *region of residence* (Table 3). The first model included control variables (gender and ethnicity) along with *education expected for future occupation* and *region of residence*. The overall model was significant, $\chi^2(20, N = 1380) = 246.43$, $p < 0.001$. The results for the aggregate sample indicated that, among participants, aspiring to an occupation requiring

Table 2
Weighted Descriptive Statistics

Dependent Variable	Socioeconomic Background
Educational Attainment	Family Income
High School	Less than \$25,000
Associate/Certificate	\$25,001-\$50,000
Bachelor's and Beyond Bachelor's	\$50,001-\$75,000
Explanatory Variables	\$75,001-
Control Variables	Mother Education
Gender	High School
Female	Some College
Male	BA or Higher
Race	Father Education
Black	High School
Hispanic	Some College
Asian	BA or Higher
Other	Family Composition and Resources
White	Family Composition
Career for Occupation & Region	Two Parent
Education Expected for Occupation	Non-two Parent
Certificate/Associate	Parent Aspirations
Bachelor's	HS or less
Beyond Bachelor's	Some College
High School or less	BA or Higher
Region	Number of Siblings
Midwest	Academic Achievement
South	Family Discussions
West	GPA
Northeast	Standardized Test Scores

Note: N=2010.

a certificate or associate degree was significantly related to earning an associate degree in young adulthood (OR = 1.74). Similarly, aspiring to a job that required a bachelor's degree predicted bachelor's degree attainment (OR = 14.38) for rural students. Thus, rural youth who expected their future occupation to require a postsecondary certificate or associate degree were 74% more likely ($= [1.74 - 1.00 \times 100\%]$) than the rest of the sample to earn an associate degree, and rural youth who expected their future occupation to require a bachelor's degree were 13% times more likely ($= 14.38 - 1.00$) to earn a bachelor's degree than individuals who thought they needed a high school degree for their future occupation. Rural young adults from the Northeast region were 62% more likely (OR = 0.618, $[\{1.00/0.618 = 1.62\} - 1.00] \times 100\%$) to earn a bachelor's degree when compared with rural young adults from the South. This result could be related to the occupations available in the Northeast compared to those available in the southern United States. There were no regional differences in likelihood of earning a certificate or associate degree.

The addition of socioeconomic characteristics in the second model accounted for an additional 3.7% of the

variance in postsecondary degree attainment, $\chi^2 (34, N = 1380) = 931.72$. In the third model, family composition and resources increased the variance explained by 2% with $\chi^2 (44, N = 1190) = 1768.22$, and inclusion of academic achievement variables in the final model explained an additional 12% of the variance, $\chi^2 (48, N = 1120) = 1527.25$.

In examining predictors of earning a certificate or associate degree, the results indicated that family income, fathers' education, and GPA were all significant predictors of rural youth attainment of a postsecondary certificate or associate degree. Notably, family income ranging from \$25,001-\$75,000 was positively related to the likelihood of earning a certificate or associate degree. Furthermore, aspiring to a job requiring an associate degree was significant in the first three models but was not significant ($p < 0.058$) with the inclusion of academic achievement in the final model. This suggests that these two variables should not be viewed in isolation; rather, there is merit in considering education expected for occupation in combination with academic achievement.

When considering all the variables predicting bachelor's degree attainment, the results indicated that while the

Table 3
Multinomial Logistic Regression Analysis Predicting Educational Attainment

Variable	Model 1 (Rurality and Region + Controls)		Model 2 (Socioeconomic Background)		Model 3 Family Composition and Resources)		Model 4 (Academic Achievement)	
	Base Category=No Credential	Base Category=No Postsecondary Credential	Base Category=No Postsecondary Credential	Base Category=No Postsecondary Credential	Base Category=No Postsecondary Credential	Base Category=No Postsecondary Credential	Base Category=No Postsecondary Credential	Base Category=No Postsecondary Credential
Control Variables								
Female	1.64 **	0.85	1.70 **	0.97	1.50 *	0.87	1.33	0.61 *
Black or African American	0.99	0.46	1.03	0.62	1.00	0.67	1.15	2.39
Hispanic	1.22	0.58	1.37	0.57	1.29	0.56	1.18	1.58
Asian	0.37	1.12	0.40	0.87	0.66	1.34	0.73	3.19
Other	0.89	0.35 **	0.88	0.38 *	0.67	0.35 *	0.69	0.76
Career for Occupation & Region Education Expected for Occupation								
Associate's	1.74 *	1.06	1.72 *	1.10	1.85 *	0.79	1.79	0.66
Bachelor's Region	1.07	14.38 ***	1.06	11.60 ***	1.03	8.36 ***	0.85	4.01 ** *
Midwest rural	1.38	0.80	1.36	0.89	1.58	0.84	1.36	0.42 **
South rural	1.09	0.62 *	1.12	0.65 *	1.08	0.52 **	1.00	0.37 ** *
West rural	0.91	0.57	0.93	0.54	0.94	0.42 *	0.87	0.28 **
Socioeconomic Background								
Family Income								
\$25,001-\$50,000			1.76 *	1.29	2.03 **	1.23	2.59 ***	0.94
\$50,001-\$75,000			1.65 *	1.72 *	1.81	1.40	2.37 **	1.15
More than \$75,000			1.21	1.36	1.14	1.07	1.50	0.91
Mother Education								
Some College			1.28	1.22	1.41	1.28	1.44	1.41
BA or Higher			1.53	1.85 **	1.47	1.54	1.11	1.01

Table 3 (continued)
Multinomial Logistic Regression Analysis Predicting Educational Attainment

Father Education														
Some College	0.75	1.70	**	0.68	1.47	0.65	*	1.47						1.47
BA or Higher	0.73	2.92	***	0.70	2.59	0.65			***	0.65				2.12
Family Composition and Resources														
Parent Aspirations														
Some College				0.68	1.47	0.66		1.47						1.72
BA or Higher				0.67	6.04	0.68			***					4.41
Family Composition														*
Two-Parent Family				0.80	1.49	0.67		1.49						1.06
Number of siblings at home				1.00	0.76	1.04			**					0.80
Family discussions				1.38	1.29	1.37		1.29						1.46
Academic Achievement														
High school GPA						1.79			**	1.79	**			12.80
Standardized test scores						0.99			*	0.99				1.04
Chi-Square	246.425	931.720		1768.217		1527.253								
McFadden	0.123	0.160		0.180		0.302								

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

number of siblings living at home decreased the likelihood of earning a bachelor's degree, fathers' education, parental expectations, and academic achievement all increased the likelihood of bachelor's degree attainment, with high school GPA being the strongest predictor (OR = 12.80). However, aspiring to an occupation requiring a bachelor's degree increased the likelihood of earning a bachelor's degree by 301% ($= [4.01 - 1.00 \times 100\%]$) beyond the contribution of other variables. Furthermore, rural youth from the Northeast region were 138% more likely (OR = 0.42, $[\{1.00/0.42 = 2.38\} - 1.00] \times 100\%$) than rural youth from the Midwest region, 173% more likely (OR = 0.37, $[\{1.00/0.37 = 2.73\} - 1.00] \times 100\%$) than rural youth from the Southern region, and 254% more likely (OR = 0.28, $[\{1.00/0.28 = 3.54\} - 1.00] \times 100\%$) than rural youth from the Western region to earn a bachelor's degree.

Among rural students earning a bachelor's degree or higher, the overall findings suggest that region of residence and education expected for occupation are significant predictors beyond other variables previously studied. However, region of residence and education expected for occupation are not significant predictors of earning an associate degree beyond other variables previously studied. Results of this study suggest that contextual factors, such as education expected for future occupation and region, may predict educational attainment differently depending on the level of postsecondary education.

Discussion

The current study contributes to the national conversation surrounding the EA of rural youth by exploring contextual factors predicting educational attainment at the associate and bachelor's level. Our findings provide evidence to support a broader definition of EA, particularly for rural youth. Moreover, our findings point to the importance of context in the study of EA and demonstrate that rural students' region of residence and education expected for occupation cannot be fully understood in isolation.

Recalibrating the Definition of Educational Attainment

Our results indicate that a majority (56%) of rural youth earned postsecondary credentials, with almost 21% earning associate degrees and postsecondary certificates; over 28% earning bachelor's degrees; and an additional 6% earning master's, doctoral, or professional degrees. The finding that 21% of rural youth reported earning associate degrees and postsecondary certificates highlights the importance of two-year colleges in the lives of rural youth and points to the need to recalibrate the definition of EA to value all aspects of postsecondary EA. The previous definition of EA (i.e., completion of four-year degree) has been widely accepted because it fit well with the interests and employment

opportunities valued in urban and suburban contexts where approximately 80% of the nation's students reside. This approach could be likened to using an urban set of lenses to view the rural world, and in so doing minimizing the importance of the career interests and choices of rural students, and by extension, minimizing the value of the EA required for many occupations in rural communities. However, a recalibration of this definition of EA to include certificates and associate degrees would more fully recognize the diverse nature of our nation, value the EA needed by rural students to pursue their desired interests, employment opportunities, and life ways, and interrupt the erroneous conclusions perpetuating the deficit narrative of rural students' EA as deficient, inferior, or under-matched.

Importance of Context in Understanding Rural Educational Attainment

Occupational expectations context. Previous studies comparing rural EA to urban EA have used an urban-centric lens to understand a rural-centric situation and concluded that rural EA was lacking (e.g., Burke et al., 2015). However, the current study was designed to consider the practical aspects of the rural context, highlighting reasons for certificate or associate degree attainment. Previous research focused on the comparison of rural students to urban and suburban students in terms of bachelor's degree attainment has concluded that rural EA is lower than urban/suburban EA (Byun, Irvin, & Meece, 2012). The assumption that the bachelor's degree is the default for EA fails to appreciate the importance of examining the alignment of students' educational and occupational plans. The current study examined how rural students' perceived education needed for desired occupation predicted EA. Findings suggest that among rural students, perceived education needed for occupation positively predicted bachelor's degree attainment after considering background and achievement variables. At the associate degree level, perceived education needed for occupation predicted associate degree attainment until academic achievement was added into the model. Thus, to fully understand rural youths' EA, we must examine the contextual variables of occupational expectations and the level of education perceived to be required for those jobs (Beal & Crockett, 2013). Furthermore, the results of the current study suggest that rural students are considering their occupational goals when making decisions about postsecondary education. This finding demonstrates a purposeful intention for earning both associate and bachelor's degrees and reveals that these are the expectations and choices that make sense for rural students (Schafft, 2016).

Regional context. Analysis of the data set according to region of residence showed significant differences in bachelor's degree attainment for rural youth. Rural students

from the Midwest, South, and West were less likely to obtain a bachelor's degree, but there were no regional differences in associate degree attainment among the rural youth in this data set. The results of the current study corroborate previous research indicating that individuals from the Northeast are more likely to earn bachelor's and advanced degrees (Bauman & Graf, 2003; Crissey, 2009). Although the exact reasons for these differences cannot be explicitly defined from the current study, the results show the importance of including region of residence in the analysis of EA rather than treating all rural students as a homogenous group.

Viewed apart from regional context, these results could be interpreted as representing rural students' inferior expectations of education needed for future occupation or low EA in certain regions of the nation. However, interpreted with regional context in mind, these results can be viewed as representing economically meaningful expectations and attainment. If regional differences in EA are interpreted in light of the contextual rural economic opportunities, then rural students' expectations of education needed for future occupation and EA could be viewed as congruent and responsive to the needs of a changing rural regional labor market.

Finally, considering regional context in the analysis of EA data can also help to reduce inaccurate conclusions about rural students' EA. For example, previous research has found that the EA of rural youth may be explained, in part, by a greater attachment to rural life (Howley, 2006), and thus rural youth may adjust their EA goals to align with the regional connections and quality of life over pure economic gain. Even so, as rural employment in the United States shifts from agriculture, forestry, and extraction toward manufacturing and services (von Reichert, Cromartie & Arthun, 2011), our analysis suggests that rural youth's EA may be well-suited for the jobs currently available in different regions. Thus, regional differences in EA need to be understood as a delicate balance between economic and personal values. If the purpose of EA in today's world is to support an individual's ability to both "make a living" (economic purpose) and "make a life" (social and civic purpose), then our understanding of EA needs to be informed by contextually meaningful variables.

Implications for Research and Policy

The findings from the current study suggest implications for rural parents, teachers, high school counselors, and policy makers, along with avenues for future research. First, our findings suggest that it would be beneficial to shift the language we use to discuss EA. Current approaches regarding the definition and discussion of postsecondary EA may have implied that anything less than a bachelor's degree is an inferior level of EA. However, the findings from the current study suggest that a more inclusive definition of EA

would recognize the benefits of certificates and associate degrees alongside the beneficial outcomes of bachelor's degrees. This shift toward a more inclusive definition of EA would provide meaningful support to young people who desire to remain in rural communities where the majority of available jobs require certificates or associate degrees.

Second, in recognition of the relationship between education expected for occupation and EA, we should continue to investigate how career expectations influence EA. A useful next step would be to examine the alignment of rural students' EA and the actual education required for their desired occupation. When working with rural youth, career counselors should continue to consider both educational and occupational goals in context. For youth wanting to remain in or return to rural communities, it may involve encouraging students to investigate careers and consider EA (a trade, business, and/or vocational school or a two-year college) that aligns with jobs available in rural communities (Theodori & Theodori, 2015). Building on the importance of contextual influences on rural students' EA, it would be worthwhile to examine whether the types of jobs available in the community influence the occupational expectations and educational attainment of rural youth.

When examining EA among rural students, it would be of benefit to incorporate qualitative methods to explore reasons why students decide to attend both two- and four-year institutions. Information gleaned from this research could provide insights for educators and policy makers interested in increasing the number of rural students with postsecondary credentials. Furthermore, it is worthwhile to investigate how contextual factors predicting rural educational attainment, at both the associate and bachelor's degree levels, are similar or different among urban and suburban youth. Finally, further research is needed to identify factors associated with earning an associate degree. While the results of this study suggest that education expected for future occupation, regionality, number of siblings living at home, fathers' education, parental expectations, and academic achievement predicted bachelor's degree attainment, only family income, parent education, and GPA predicted associate degree attainment. This finding, coupled with a lack of peer reviewed literature on predictors of associate degree attainment, suggests the need for further research regarding factors linked with earning an associate degree both among rural and non-rural students. Identification of these predictors could provide insights for educators and school counselors as they assist students in preparing to choose and enter associate degree programs.

Conclusion

The issues surrounding educational expectations and attainment are complex and carry significant consequences

for every subset of our nation's students. Despite many well-meaning attempts to increase students' EA across our nation, we may have failed to recognize the importance of context in setting educational completion goals. The results of the current study remind us that a "one-size-fits-all" definition of EA is not sufficient to capture the hopes and dreams of our nation's youth. Furthermore, the results demonstrate the importance of attending to the contextual nuances of rural students' educational expectations and attainment as well as valuing the important variations within rural perspectives. Educators and policy makers would be wise to neither omit, nor overly generalize, the context and circumstances of almost 20% of our nation's youth. Moreover, educational leaders today need to use context-informed lenses in their assessment of rural students' EA and think critically about how the completion agenda applies to diverse communities whose circumstances, values, and perspectives may differ from those setting the agenda. Our nation's future will be significantly shaped by the quality of our P-20 system of education and our continued work to support appropriate, meaningful educational attainment for all students. Together, these efforts will contribute to the ongoing vitality and success of our nation's rural communities and support the long-term health of our nation.

References

- Apostal, R., & Bilden, J. (1991). Educational and occupational aspirations of rural high school students. *Journal of Career Development, 18*, 153-160. doi:10.1177/089484539101800206
- Bauman, K. J., & Graf, N. L. (2003). *Educational attainment: 2000* (C2KBR-24). Retrieved from U.S. Census Bureau website: <https://www.census.gov/prod/2003pubs/c2kbr-24.pdf>
- Beal, S. J. & Crockett, L. J. (2013). Adolescents' occupational and educational goals: A test of reciprocal relations. *Journal of Applied Developmental Psychology, 34*, 219-229. doi:10.1016/j.appdev.2013.04.005
- Benner, A., Boyle, A., & Sadler, S. (2016). Parental involvement and adolescents' educational success: The roles of prior achievement and socioeconomic status. *Journal of Youth & Adolescence, 45*, 1053-1064. doi:10.1007/s10964-016-0431-4
- Bennett, D. A. (2001). How can I deal with missing data in my study? *Australian and New Zealand Journal of Public Health, 25*, 464-469. doi:10.1111/j.1467-842X.2001.tb00294.x
- Burke, M. R., Davis, E., & Stephan, J. L. (2015). *College enrollment patterns for rural Indiana high school graduates* (REL 2015-083). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. Retrieved from <http://eric.ed.gov/?id=ED557072>
- Byun, S., Irvin, M. J., & Meece, J. L. (2012). Predictors of bachelor's degree completion among rural students at four-year institutions. *Review of Higher Education, 35*, 463-484. doi:10.1353/rhe.2012.0023
- Byun, S., Irvin, M. J., & Meece, J. L. (2015). Rural-nonrural differences in college attendance patterns. *Peabody Journal of Education, 90*, 263-279. doi:10.1080/0161956X.2015.1022384
- Byun, S., Meece, J. L., & Irvin, M. J. (2012). Rural-nonrural disparities in post-secondary educational attainment revisited. *American Educational Research Journal, 49*, 412-437. doi:10.3102/0002831211416344
- Byun, S., Meece, J. L., Irvin, M. J., & Hutchins, B. C. (2012). The role of social capital in educational aspirations of rural youth. *Rural Sociology, 77*, 355-379. doi:10.1111/j.1549-0831.2012.00086.x
- Carnevale, A. P., & Smith, N. (2013). Workplace basics: the skills employees need and employers want. *Human Resource Development International, 16*, 491-501. doi:10.1080/13678868.2013.821267
- Carnevale, A., Smith, N., & Strohl, J. (2011). *Help wanted: Projections of jobs and education requirements through 2018*. Retrieved from Center on Education and the Workforce, Georgetown University website: <http://cew.georgetown.edu/jobs2018>
- Crissey, S. R. (2009). *Educational attainment the United States: 2007*. Retrieved from U.S. Department of Commerce website: <https://www.census.gov/library/publications/2009/demo/p20-560.html>
- Crockett, L. J., Shanahan, M. J., & Jackson-Newsom, J. (2000). Rural youth: Ecological and life course perspectives. *Adolescent Diversity in Ethnic, Economic, and Cultural Contexts, 10*, 43-74. doi:10.4135/9781452225647.n3
- Cromartie, J., & Bucholtz, S. (2008). *Defining the "rural" in rural America*. Retrieved from U.S. Department of Agriculture website: <https://www.ers.usda.gov/amber-waves/2008/june/defining-the-rural-in-rural-america>
- French, M. T., Homer, J. F., Popovici, I., & Robins, P. K. (2015). What you do in high school matters: High school GPA, educational attainment, and labor market earnings as a young adult. *Eastern Economic Journal, 41*, 370-386. doi:10.1057/ej.2014.22
- Gandara, P., Gutierrez, D., & O'Hara, S. (2001). Planning for the future in rural and urban high schools. *Journal of Education for Students Placed at Risk, 6*, 73-93. doi:10.1207/S15327671ESPR0601-2_5
- Hahs-Vaughn, D. L. (2005). A primer for using and understanding weights with national datasets. *Journal of Experimental Education, 73*, 221-248. doi:10.3200/JEXE.73.3.221-248
- Hatch, D., Mardock Uman, N., & Garcia, C. (2015). Variation within the "New Latino Diaspora." *Journal of Hispanic Higher Education, 15*, 358-385. doi:10.1177/1538192715607333
- Howley, C. W. (2006). Remote possibilities: Rural children's educational aspirations. *Peabody Journal of Education, 81*(2), 62-80. doi:10.1207/S15327930pje8102_4
- Howley, C., Harmon, H., & Leopold, G. (1996). Rural scholars or bright rednecks? Aspirations for a sense of place among rural youth in Appalachia. *Journal of Research in Rural Education, 12*, 150-160. Retrieved from http://jrre.vhost.psu.edu/wp-content/uploads/2014/02/12-3_5.pdf
- Howley, C., & Howley, A. (2014). Making sense of rural education research. In S. White & M. Corbett (Eds.), *Doing educational research in rural settings* (pp. 7-25). London, UK: Routledge.
- Huber, C. R., & Kuncel, N. R. (2016). Does college teach critical thinking? A meta-analysis. *Review of Educational Research, 86*, 431-468. doi:10.3102/0034654315605917
- Ingels, S. J., Pratt, D. J., Alexander, C. P., Jewell, D. M., Lauff, E., Mattox, T. L., & Wilson, D. (2014). *Education longitudinal study of 2002 (ELS:2002) third follow-up*

- data file documentation* (NCES 2014-364). Retrieved from National Center for Education Statistics website: <https://nces.ed.gov/pubs2014/2014364.pdf>
- Irvin, M. J., Byun, S., Meece, J. L., Farmer, T. W., & Hutchins, B. C. (2012). Educational barriers of rural youth: Relation of individual and contextual difference variables. *Journal of Career Assessment, 20*, 71-87. doi:10.1177/1069072711420105
- Irvin, M. J., Meece, J. L., Byun, S., Farmer, T. W., & Hutchins, B. C. (2011). Relationship of school context to rural youth's educational achievement and aspirations. *Journal of Youth and Adolescence, 40*, 1225-1242. doi:10.1007/s10964-011-9628-8
- Khattab, N. (2015). Students' aspirations, expectations and school achievement: What really matters? *British Educational Research Journal, 41*, 731-748. doi:10.1002/berj.3171
- Laditka, J. and Laditka, S. (2015). Associations of educational attainment with disability and life expectancy by race and gender in the United States. *Journal of Aging and Health, 28*, 1403-1425. doi:10.1177/0898264315620590
- Lapan, R. T., Hinkelman, J. M., Adams, A., & Turner, S. (1999). Understanding rural adolescents' interests, values, and efficacy expectations. *Journal of Career Development, 26*, 107-124. doi:10.1177/089484539902600202
- Lleras-Muney, A. (2005). The relationship between education and adult mortality in the United States. *Review of Economic Studies, 72*, 189-221. doi:10.1111/0034-6527.00329
- Martin, M. A. (2012). Family structure and the intergenerational transmission of educational advantage. *Social Science Research, 41*, 33-47. doi:10.1016/j.ssresearch.2011.07.005
- McDonough, P., & Gildersleeve, R. E. (2010). The golden cage of rural college access: How higher education can respond to the rural life. In K. Schafft & A. Youngblood Jackson (Eds.), *Rural education for the 21st century* (pp. 191-209). University Park: Pennsylvania State University Press.
- McMillan, J. H. (1987). Enhancing college students' critical thinking: A review of studies. *Research in Higher Education, 26*, 3-29. doi:10.1007/BF00991931
- Peng, C. Y. J., Lee, K. L., & Ingersoll, G. M. (2002). An introduction to logistic regression analysis and reporting. *Journal of Educational Research, 96*, 3-14. doi:10.1080/00220670209598786
- Petrin, R. A., Schafft, K. A., & Meece, J. L. (2014). Educational sorting and residential aspirations among rural high school students: What are the contributions of schools and educators to rural brain drain? *American Educational Research Journal, 51*, 294-326. doi:10.3102/0002831214527493
- Pink-Harper, S. (2015). Educational attainment: An examination of its impact on regional economic growth. (2015). *Economic Development Quarterly, 29*, 167-179. doi:10.1177/0891242414561495
- Provasnik, S., KewalRamani, A., Coleman, M. M., Gilbertson, L., Herring, W., & Xie, Q. (2007). *Status of education in rural America* (NCES 2007-040). Retrieved from National Center for Education Statistics website: <http://nces.ed.gov/pubs2007/2007040.pdf>
- Reynolds, J. R., & Burge, S. W. (2008). Educational expectations and the rise in women's post-secondary attainments. *Social Science Research, 37*, 485-499. doi:10.1016/j.ssresearch.2007.09.002
- Ryan, C., & Bauman, K. (2016). *Educational attainment in the United States: 2015*. Retrieved from U.S. Census Bureau website: <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p20-578.pdf>
- Schafft, K. A. (2016). Rural education as rural development: Understanding the rural school-community well-being linkage in a 21st-century policy context. *Peabody Journal of Education, 91*, 137-154. doi:10.1080/0161956X.2016.1151734
- Schultz, P. F. (2004). Upon entering college: First semester experiences of first-generation, rural students from agricultural families. *Rural Educator, 26*(1), 48-51.
- Showalter, D., Klein, R., Johnson, J., & Hartman, S. L. (2017). *Why rural matters 2015-2016: Understanding the changing landscape*. Retrieved from Rural School and Community Trust website: http://www.ruraledu.org/user_uploads/file/WRM-2015-16.pdf
- Starkweather, J., & Moske, A. K. (2011). *Multinomial logistic regression*. Retrieved from University of North Texas website: https://it.unt.edu/sites/default/files/mlr_jds_aug2011.pdf
- Theodori, A. E., & Theodori, G. L. (2015). The influences of community attachment, sense of community, and educational aspirations upon the migration intentions of rural youth in Texas. *Community Development, 46*, 380-391. doi:10.1080/15575330.2015.1062035
- Tieken, M. C. (2016). College talk and the rural economy: Shaping the educational aspirations of rural, first-generation students. *Peabody Journal of Education, 91*, 203-223. doi:10.1080/0161956X.2016.1151741
- Tieken, M. C., & San Antonio, D. M. (2016). Rural aspirations, rural futures: From "problem" to possibility. *Peabody Journal of Education, 91*, 131-136. doi:10.1080/0161956X.2016.1151733
- Turley, R. (2009). College proximity: Mapping access to opportunity. *Sociology of Education, 82*, 126-146. doi:10.1177/003804070908200202
- U.S. Census Bureau. (2010). About educational attainment. Retrieved from <http://www.census.gov/hhes/socdemo/>

education/about/index.html

- U.S. Census Bureau. (2012). C24010 - sex by occupation for the civilian employed population 16 years and over universe: civilian employed population 16 years and over. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_C24010&prodType=table
- U.S. Department of Education. *Education longitudinal study of 2002 (ELS:2002): Restricted-use data file* (NCES 2015-035). Washington, DC: National Center for Education Statistics, Institute of Education Sciences.
- von Reichert, C., Cromartie, J. B., & Arthun, R. O. (2011). Returning home and making a living: Employment strategies of returning migrants to rural U.S. communities. *Journal of Rural and Community Development*, 6(2), 35-52. doi:10.1080/00330124.2012.725373
- Wells, R., Seifert, T., Padgett, R., Park, S., & Umbach, P. (2011). Why do more women than men want to earn a four-year degree? Exploring the effects of gender, social origin, and social capital on educational expectations. *Journal of Higher Education*, 82(1), 1-32.
- Wright, R. E. (1995). Logistic regression. In L. G. Grimm & P. R. Yarnold (Eds.), *Reading and understanding multivariate statistics* (pp. 217-244). Washington, DC: American Psychological Association.
- Young, J. R. (2013). *Middle-skill jobs remain more common among rural workers* (Issue Brief No. 63). Retrieved from Carsey School of Public Policy website: <http://scholars.unh.edu/carsey/196/>
- Zimmerman, E., Woolf, S., & Haley, A. (2015). *Understanding the relationship between Education and health: A review of the evidence and an examination of community perspectives*. Retrieved from Agency for Healthcare Research and Quality website: <http://www.ahrq.gov/professionals/education/curriculum-tools/population-health/zimmerman.html>