An Examination of College Persistence Factors for Students from Different Rural Communities: A Multilevel Analysis

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Although some studies have explored the influence of academic achievement on rural students' college access and success, little research has analyzed the relationship between students of different types of rural communities and their persistence in postsecondary education. This study examined the likelihood of college-going students from three different types of rural communities to successfully transition into and persist at a four-year residential college. Specifically, multilevel logistic modeling was used to analyze the odds of students' persisting in college for at least two academic years based on whether they were from rural tourist communities, rural college communities, and other rural communities. The analysis controlled for a variety of student and high school factors. Findings revealed that student-level factors related to poverty and academic readiness have the greatest effects on college persistence, while the type of rural community has no significant influence.

Students transitioning into college from high school require more than just academic readiness; they also need the personal attributes that allow them to join a new residential and social community (Braxton et al., 2014; Nora, 2002, 2004; Tinto, 1975). Several theorists of college completion have examined demographic and interpersonal factors associated with successful transitions into college, as well as the social and cultural forces that shape these factors (Braxton et al., 2014; Nora, 2002, 2004). One such community-level factor is the physical location of a student's high school, which has been shown to influence their educational experience (DeYoung & Howley, 1990; Gjelten, 1982; I. Johnson, 2008; Schneider et al., 2013). Specifically, students from rural communities have different K-12 educational experiences than their peers from schools in suburban and urban locations (DeYoung & Howley, 1990; Gjelten, 1982), and this context-dependent difference may also shape their college transitions.

However, research that examines the effects of geography on college persistence often relies on locale assignment alone and does not differentiate between different types of rural communities. Rural communities differ by their natural and social resources, economic compositions, cultures, and educational opportunities (J. Johnson et al., 2014; Provasnik et al., 2007; Schneider et al., 2013). Although researchers regularly examine the economic conditions and compositions of rural communities, little research explores how variations across types of rural communities may serve as precollege factors that relate to postsecondary outcomes for students and, specifically, the possibility that students who grow up in different types of rural communities have different social and cultural experiences that could relate with their likelihood to successfully integrate into a residential college community.

The hypothesis for this study is that students who complete secondary school in a rural community with a substantial presence of tourists or a residential college within their community show an increased likelihood of persisting in college for at least two years after initial enrollment. Tourists or college-related visitors and residents from outside the state or region may bring with them the behaviors (e.g., discretionary spending habits, recreational activities, social etiquette) and physical property (e.g., automobiles, clothing, recreational equipment, personal technology devices) of a different culture than local students are typically exposed to within their home community. Therefore, their presence may expose local residents to behaviors, social trends, and lifestyles they may not otherwise experience in a rural community. Additionally,

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the presence of outsiders, especially tourists, also exposes rural students to unfamiliar people who are likely from urban and suburban areas.

The ways of being, habits, styles of interpersonal communication, and social interactions these visitors bring to rural areas might also be encountered in college environment, thereby easing students' transition into a new environment. Also, prior research has found that students from a variety of different geographic contexts are more likely to attend college if there are one or more higher education institutions in the local area (Gibbs, 1998; I. Johnson, 2008; Turley, 2009). Students exposed to the activities and physical presence of a residential college campus in a rural community are likely to become familiarized with the variety of people and behaviors they may encounter during a college experience (Sage & Sherman, 2014), and there is greater exposure to a college-educated local workforce in the community (Gibbs, 1998).

Therefore, this study posits that rural students who are accustomed to the behaviors, social interactions, and cultural capital of non-residential tourists and members of college communities have different assets for adjusting to the social and physical environment of a residential four-year college community when compared to other rural students. As Tinto (1975, 1993) explained, student background characteristics, such as community of residence, influence dispositions relevant to college persistence. Students affiliated with precollege communities that have a social and intellectual character demonstrating the worth of a college education may find separation from their home community into a college community easier (Tinto, 1993). Nora (2004) elaborated on Tinto's theory by including the role of cultural capital and habitus, or the unconscious system of transposable dispositions based on someone's perception of the environment and their own cultural preferences. Nora (2004) argued that the cultural capital and habitus students develop prior to college contribute to student satisfaction within college communities. Students who are more satisfied with their social experience at college and feel more connected with their new community are more likely to persist (Nora, 2003, 2004; Tinto, 1993).

The following sections of this article review research on precollege factors related to college completion and rural communities, describe the data and variables constructed for the analysis, provide an overview of the analyses, detail the results, and discuss the significance of the findings and how they may inform education policy and future research.

Literature Review

The first part of the literature review defines the problem of college completion and identifies precollege factors known to impact persistence. Next, cultural capital is framed as the theoretical perspective for examining college persistence. Lastly, different types of rural communities are described for the analysis.

College Completion

College completion is a national problem. In 2016, only 60% of first-time postsecondary students pursuing a bachelor's degree had graduated within six years (U.S. Department of Education, 2018). An examination of national college retention rates for first-time students entering college in 2015 shows that only 81% returned to the same institution in the fall term for their second year (U.S. Department of Education, 2018). As this applies to rural high school students, a 2017 report from the National Student Clearinghouse Research Center found that 84% of first-time college going students returned for a second year, and 42% completed a bachelor's degree within six years (National Student Clearinghouse Research Center, 2017). This achievement gap has a far-reaching impact: students who complete a baccalaureate degree are likely to have a higher salary over their career and be more productive members of the workforce (U.S. Department of Education, 2011).

Factors Associated with College Persistence and Completion

Several studies have examined specific factors associated with college persistence or dropping out. Precollege factors related to college completion are often categorized by academic preparedness and student background characteristics. Measures of academic preparedness include high school grade point average (GPA), College Board Scholastic Achievement Test (SAT) scores, and American College Test (ACT) scores (College Board, 2015; Hall et al., 2008; Murtaugh et al., 1999; Stumpf & Stanley, 2002). Colleges and universities frequently use these measures of academic preparedness during the admissions process to estimate the knowledge and skills of students in mathematics, reading and writing, which they will need to succeed in their academic programs (ACT, 2020; College Board, 2015; Murtaugh et al., 1999; Stumpf & Stanley, 2002). Higher assessment scores and GPAs are generally interpreted as indicators of greater academic readiness for college.

Two of the most notable student background characteristics that influence college completion are socioeconomic status (SES) and race and ethnicity (Aud et al., 2010; Becker, 1993; Bowen et al., 2009; Byun et al., 2012; Ma et al., 2016; Howley et al., 2014; Kao & Thompson, 2003; Murtaugh et al., 1999; Terenzini et al., 2001). Students of lower SES face disadvantages that cross all lines of race and ethnicity (Bowen et al., 2009). Families of lower SES tend to have parents with lower education levels and fewer financial resources available to support a transition into a four-year college (Becker, 1993; Bowen et

al., 2009; Hill & Wang, 2015; Stage & Hossler, 1988; Tinto, 1993).

In a nationwide study of public higher education institutions, Black and Latino students were also less likely to complete a college degree than their White and Asian peers (Bowen et al., 2009). Specifically, Black males had one of the lowest completion rates (Bowen et al., 2009). Similar disadvantages can be found for Hispanic students, who are also less likely than White students to complete a bachelor's degree (Bowen et al., 2009). One potential explanation for the disparities between Hispanic and White students is that many Hispanic students enter college in pursuit of a two-year degree, such as from a community college, hoping to transfer into an academic program at a bachelor's degree-granting institution (Bowen et al., 2009). However, first-time post-secondary students attending community colleges are less likely to complete a bachelor's degree than students who began at a four year institution(Bowen et al., 2009; Jenkins & Fink, 2016; Shapiro et al., 2017).

Several research studies have identified important factors for the retention of students from a variety of higher education institutions after they have enrolled. Financial supports and monetary concerns are among the most important factors associated with difficulty in persisting in college (Crisp & Nora, 2010; Hall et al., 2008). College students who are concerned about their finances may need to hold part-time or full-time jobs, which pull them away from their academic studies or postsecondary engagement (Crisp & Nora, 2010; Tinto, 1993).

In addition to financial concerns, one of the most important factors is relationships. The presence of social supports, such as peer relationships and networks, increases a student's likelihood of remaining in college after initial enrollment (Braxton et al., 2014; Hall et al., 2008; Nora, 2004; St. John et al., 2000; Tinto, 1993). Research also shows that the social experiences that students have prior to entering college influence a student's potential to develop social networks that act as support systems during college (Koyama, 2007). Other factors associated with persistence after a student is initially enrolled in higher education include transferring to a different college, the challenge of adjusting to the personal freedom of college, or having learning strategies that are not compatible with postsecondary instructional methods (Hall et al., 2008).

College Completion Factors for Rural Students

Rural students who enter a college after high school often experience a marked transition from the community of their childhood into the academic community of higher education. As McGrath and colleagues (2001) noted, rural students who attend four-year colleges typically need to relocate away from their home community, a move that requires a more distinct separation from their rural environment and culture (McGrath et al., 2001).

Part of the transition may include adjusting to social and cultural differences that come with leaving their rural home community and immersing themselves in a larger college community (Guiffrida, 2008). Rural students may also encounter a more racially and ethnically diverse environment than their home community and an unfamiliar network of student services (Guiffrida, 2008). There may also be significant recreational and lifestyle adjustments for students who attend postsecondary institutions in urban settings or large universities without opportunities for the kinds of outdoor activities in which they might have been involved their home communities (Guiffrida, 2008; Swift, 1988).

Similar to students from other locations, rural students are not immune to the challenges that family economic constraints, first-generation college student status, and insufficient academic preparation have on college completion (Byun et al., 2012). A 2002 study of rural Pennsylvania students found that SES, gender, high school academic programs, number of science courses taken, and social integration to college and postsecondary education experiences were significant predictors of college persistence for rural youth (Yan, 2002). A more recent study conducted by Howley and colleagues (2014) supported the significance of these predictors for college persistence, although the predictive direction of gender on college persistence showed a significantly higher likelihood for females. Low family income is found to be a particular challenge for rural students across many studies. Byun and colleagues (2012) found that family income was a greater predictor of bachelor's degree attainment for rural students than suburban students.

Rural students who are incorporating into a college culture may also encounter challenges related to psychological acculturation. In a study by Dees (2006), postsecondary students from rural communities described the acculturative stress they experienced when integrating into the dominant culture of academia. The psychological acculturation of rural students into the dominant culture in postsecondary institutions may challenge the values and commitments they hold to their family, religion, gender roles, and precollege home communities (Dees, 2006). The study also raised questions about the sufficiency of higher education institutions' efforts to create a more welcoming environment for rural students (Dees, 2006).

Rural schools play a unique role in preparing students for college. Rurals schools tend to have lower teacher to student ratios and, traditionally, have been closely linked to the residential community they serve (DeYoung & Howley, 1990; Provasnik et al, 2007). These characteristics create opportunities for personalized and supportive environments, including conversations with students about plans after high school. However, rural economies,

especially in New England, have experienced steady declines in such historically prosperous industries as natural resource extraction and the processing of materials through mills and factories (Hamilton et al., 2008). Many rural high schools present college as a pathway to a sustainable career in a middle- or high-skilled profession, which may have few or no opportunities for employment in their local community (Tieken, 2016). Rural schools' responsibilities for informing students about the college experience often include introducing students to admissions counselors at college fairs, traveling long distances to visit postsecondary institutions, or navigating online resources that advertise college to a broad audience of students and parents (Tieken, 2016).

Theoretical Framework of College Persistence

A number of researchers have tried to better the explain the interplay of factors and influences on college completion through the development of theoretical frameworks. One of the first comprehensive theoretical models of college completion was Tinto's (1993) interactionalist theory of departure from higher education. Tinto's framework posited that students' transition into and persistence at college is a result of ongoing interactions between the individual student and other people who live, work, and study within the academic and social systems of the institution. Each student brings with them to college personal attributes including goals, intentions, commitments, financial resources, family background, prior educational experiences, academic skills, and knowledge; these attributes shape students' goals and commitments, which then influence their persistence (Tinto, 1993). In addition, Tinto recognized that the institution is nested within an external environment that has its own values and requirements, which may also influence the commitment of students during their college experience. Students who persist in college are able to successfully complete three stages: separation from past associations, transition between high school and college, and incorporation into the academic and social communities of college (Tinto, 1993).

Subsequent theorists of college completion elaborated on the relevance of social and cultural factors at play during students' transition and integration into college communities (Braxton et al., 1997, 2014; St. John et al., 2000). Braxton (2000; Braxton et al., 2014) asserted that the social integration of students in college requires a bridge between a student's culture of origin and the culture of the college community. A student's cultural capital or habitus that corresponds well with the values, norms, and behavioral styles at college is likely to ease the transition from home and formation of a new social network (Braxton et al., 2014; Tinto, 1993).

Cultural capital, a concept of social reproduction theory named and defined by French sociologist Pierre Bourdieu, is the cultural background and individual social traits that comprises one's culture and is passed across generations (Bourdieu, 1977; MacLeod, 2009; Swartz, 1990; Weininger & Lareau, n.d.). A central component of cultural capital is habitus, which Bourdieu (1977) defined as a system of transposable and durable dispositions or regulated improvisations, formed from a person's past and often earliest life experiences, which constantly functions at a semi-conscious level to shape a person's perceptions, appreciations, anticipations, and actions. An individual's habitus serves as an intermediary between their agency and the structures of the outside world (Bourdieu, 1977; MacLeod, 2009; Swartz, 1990). Habitus may also be thought of as embodied capital that influences individuals' perceptions of their environment, their cultural preferences, and their decisions (Bourdieu, 1986; Vilhjálmsdóttir & Arnkelsson, 2013). Habitus is associated with and is often perpetuated by membership in a particular social and economic class, but education may serve as a mechanism for shaping and influencing habitus (Bourdieu, 1977).

Nora (2002, 2003) explored the role of cultural capital and habitus in college persistence and used it to expand upon Tinto's theory of departure. Nora's (2003) Model of Student Engagement broadened Tinto's theory by proposing six categories of factors that lead to college completion: precollege and pull factors, sense of purpose and institutional allegiance, academic and social experiences, cognitive and non-cognitive outcomes, goal determination/institutional allegiance, and persistence. Nora's (2002, 2003, 2004) examination of psychosocial factors, part of the precollege/ pull category of factors, focused on the role of cultural capital in college enrollment and persistence. Specifically, Nora (2004) found that habitus and cultural capital play a significant role in the decision-making process of students when choosing which college to attend and whether or not to reenroll. In other words, the cultural capital that students acquire before entering college influences the college they choose to attend, how well they integrate to the college experience, and their likelihood to persist. Students who are able to match themselves with an academic and social setting in which they feel comfortable and accepted are more likely to feel committed and loyal to an institution (Nora, 2004). Students prioritize feelings of acceptance and comfort when choosing a college more than the perceived institutional quality, cost, or location (Nora, 2004).

Each student's cultural capital and habitus play a substantial role in how they transition into college after leaving their home community (Demi et al., 2010; Nora, 2004). Students who have cultural capital that is recognized and appreciated among the social networks of a college campus are more likely to integrate into the college community (Demi et al., 2010; Nora, 2004). Little is known about the relationship between different types of

rural communities—and, presumably, the cultural capital they foster within students—and students' transitions into college.

Types of Rural Communities

Each rural community presents a unique collection of natural, physical, and social structures that comprise the context or environment in which children live and attend school (Flora & Flora, 2008). The natural, physical (or built), and social structures of a community contribute to the collective identity of a community and influence how children and young adults mature socially, interact with others, and develop an understanding of society (Flora & Flora, 2008). The three types of communities selected for this study were rural towns with high rates of tourism; rural towns with a residential college campus; and rural towns with economies supported by other industries, such as mills, agriculture, or natural resource extraction. These types of communities were selected because of known differences in economic activities, differences in visitation or short-term residency by people from outside the community, and differences in the cultural resources of people living in the community, as described in the following sections.

Rural Tourism Communities

There is no single, agreed-upon definition of what makes a tourism community. Definitions of tourism are created by government agencies, businesses, and researchers to serve the purposes and interests of whatever they are trying to describe or measure, and these definitions and indicators are constantly changing (Leiper, 1979; Smith, 1988). However, tourists, the actors whose presence creates tourism communities, are usually recognized as non-resident visitors who stay for at least 24 hours, including at least one night, for the reasons of pleasure, business, or both (Leiper, 1979; Murphy, 1985; Smith, 1988).

A substantial amount of tourism research, both international and domestic to the United States, has examined the impact of tourism on the quality of life in host communities, as measured by the perceived economic, sociocultural, and environmental impact of an increased level of tourism (Anderek et al., 2007; Craik, 1995). The increase in economic activity from tourism provides greater opportunities for local residents to be employed or become entrepreneurs (R. L. Johnson & Moore, 1993; Leiper, 1979; Murphy, 1985; Smith, 1988; Zhao et al., 2011). The socio-cultural characteristics of the local community are affected by an increase in festivals, museums, and the perceived identity of the town by both residents and visitors (Anderek et al., 2007). The environmental impacts, which are mostly perceived as negative, relate to crowding and an increase in pollution (Anderek et al., 2007).

In a rural area, the impact of tourism on quality of life may be more noticeable because there are usually fewer jobs, services, and amenities available outside of the tourism industry (Deller, 2010; Gossling, 2002; Hamilton et al., 2008; Hines, 2010; J. Johnson & Strange, 2009). These amenities provide services that are often shared by both visitors and local residents, but would not likely be sustained by the spending power of residents alone (Deller, 2010; Hamilton et al., 2008; Hines, 2010). Additionally, the rural tourism economy allows for social interactions between local residents and visitors from outside the community (Dogan, 1989; Duncan, 1999; English et al., 2000; Gossling, 2002; Hamilton et al., 2008; Petrezelka et al., 2005).

The social impact of tourism on individuals in a host community varies significantly according to the internal or external characteristics of local residents (Anderek et al., 2007; Deery et al., 2011). Internal characteristics include demographic factors such as age, gender, and income, as well as the political, social, and environmental values of local residents (Anderek et al., 2007; Brougham & Butler, 1981; Deery et al., 2011). External characteristics include factors such as the level of contact locals have with visitors, the extent of shared facilities between tourists and locals, and the ratio of tourists to local residents (Deery et al., 2011; Dogan, 1989; Gossling, 2002). How these characteristics play a role in the social impact of tourism is also influenced by the cultural similarities of host community residents and tourists (Dogan, 1989; Gossling, 2002). Tourism communities with high similarities of lifestyle and values between residents and tourists are more likely to lead to positive social and interpersonal interactions (Dogan, 1989; Gossling, 2002).

In cases where there are vast cultural differences between tourists and local residents, the locals may perceive the tourists as representing an elite lifestyle to which they cannot relate (Dogan, 1989; Gossling, 2002). In communities with a newly developed tourism industry, tourism may introduce values and behaviors that are extrinsic to the host community culture and more oriented toward supporting leisure, pleasure, and consumption by visitors who enter the community to recreate (Andereck et al., 2005; Craik, 1995; Gossling, 2002; McCool & Martin, 1994). Significant contradictions between the tourism lifestyle within a host community and the traditional culture of a local community can be prohibitive to fostering positive and meaningful social interactions (Dogan, 1989; Gossling, 2002). However, studies have recognized that differences in culture are not always obstacles for frequent and friendly conversations between tourists and residents about superficial topics such as the weather and money (Gossling, 2002).

Research on the impact of tourism on students and youth members of host communities is very limited, as most age-related studies have focused on the attitudes of adults

(Anderek et al., 2007; Brougham & Butler, 1981; Deery et al., 2011). The few studies that include observations and analysis of local youth are based on international tourism and are set within a context of a low or middle-income country or region with tourists visiting from countries with Western cultures. These studies observed that younger local residents have often changed their native cultural habits and preferences in ways that reflect their experiences from visitor interactions (Gossling, 2002). An international study by Dogan (1989) on the sociocultural impacts of tourism attributed the curiosity and adventurousness of local youth to a greater propensity to explore different cultural traits of visiting tourists. As Dogan (1989) explained, youth are more likely to admire tourists' lifestyles and imitate their behavior (Dogan, 1989). For example, local youth were observed wearing clothes and consuming beverages that were from the culture of visiting tourists (Dogan, 1989; Gossling, 2002). These observations illustrate examples of local residents' adopting the behavior and cultural characteristics they observed in the leisure activities and discretionary spending behaviors of tourists.

Rural College Communities

Research also shows that cities and towns with colleges are different than other communities in their social, cultural, and economic character (Gumprecht, 2003; Weill, 2009). Gumprecht (2003) defined a college town as a place where the college is the largest employer, students make up a large proportion of the total population (at least 20%), and a substantial percentage of the labor force works in education-related occupations. The presence of residential college students in a local community may have both positive and negative impacts. Conflicts may arise with local residents because college students' recreational social activities may create noise or public disturbances (Aggestam & Keenan, 2007; Bruning et al., 2006). However, college students have a positive effect on a local economy (Gumprecht, 2003, 2007; Massey et al., 2014; Weill, 2009), and the green spaces and large buildings of a college campus create additional public spaces to support residents' intellectual pursuits and recreation (Gumprecht, 2003, 2007; Weill, 2009). The postsecondary institution often serves as the social and cultural center of the community by hosting activities and events (Gumprecht, 2008). Additionally, college towns are typically more diverse than other similarly sized towns (Weill, 2009).

Although the literature is predominantly filled with studies and editorials that examine the relationship between higher education institutions and urban communities, there have been some parallels for college towns in rural areas. In a study which compared the social and cultural differences that developed in northern New England during the 20th century, Kaufman and Kaliner (2011) identified the influx of faculty, artists, and students to rural college communities

as having an important role in changing the cultural life in numerous towns. Levy and Churchill (1992) have also described how this phenomenon of cultural transformation unfolds in rural communities by highlighting the in-migration of middle-class people and economies to rural college towns. Additionally, it is likely that many students remain in the communities after graduation to become part of the local labor force. Over time, the new residents have allowed for a cultural transformation to occur, which is likely attributable to the presence of a college (Kaufman & Kaliner, 2011).

The limited empirical research about youth and college towns has focused on postsecondary application and access. Turley (2009) found a significant positive relationship between the number of colleges close to where a student lives and the likelihood of the student's applying to college. Regarding rural college towns, rural students who live and attend high school near postsecondary institutions are more inclined to enroll in college, even controlling for income, parents' education, and aspirations (Luo & Williams, 2010; Sage & Sherman, 2014; Turley, 2009).

Rural Communities Without a College or High Levels of Tourism

Rural communities without a college or high levels of tourism often have micro-economies based on natural resource extraction (e.g., mining, logging), agriculture, or modification of raw materials (e.g., textile mills, paper mills) (Dogan, 1989; Duncan, 1999; English et al., 2000; Gossling, 2002; Hamilton et al., 2008; Petrezelka et al., 2005). Some rural communities may also be without a local industry sufficient to sustain a micro-economy, which results in most residents' commuting to distant locations for work, if employed (Hamilton et al., 2008). The socio-cultural characteristics of these other types of rural communities vary greatly due to differences in demographics and local amenities (Hamilton et al., 2008).

Method

This study investigated the relationship between precollege factors for publicly educated students from different kinds of rural communities and their likelihood to transition into a residential college community. Specifically, this study examined the likelihood of publicly educated rural students from one of three types of rural communities to transition into and persist in a residential college for at least two years: rural towns heavily influenced by tourism, ones with a residential college, or rural locales without either. Four-year residential colleges were studied because they are more likely to require students to separate from their home community and transition into a new social and cultural residential environment. College persistence was identified as continuous enrollment at the same institution

for at least two years. Persisting for two years would indicate a student's commitment and ability to integrate into the culture and environment of the institution. Hierarchical logistic modeling was the methodology used to explore the following questions.

1. How does college persistence differ among students with different demographic, socioeconomic, and academic backgrounds across all types of rural communities and high schools?

2. Do students of different backgrounds from rural communities with a college or high levels of tourism have an increased likelihood to persist in a four-year residential college community when controlling for the effects of their high school?

Analyses

This study used hierarchical logistic regression, a form of multilevel modeling, to identify and analyze community factors that contribute to college persistence among public school students from rural communities. The two levels of data for analysis were high school characteristics (upper level) and student factors for demographics, family background, and precollege factors of college completion (lower level). High school characteristics included variables indicating school SES and preparation for college. Student factors were measured through variables for gender, SES, race, academic readiness, first-generation college going, early college planning, and rural community identification.

Data

This study used statewide administrative and survey data from students, schools, and towns in a New England state to measure the likelihood of students from different kinds of rural communities to persist in college, while controlling for several student and high school factors that are known to influence college persistence and completion.

The data sources used to define the study sample were state education agency (SEA) student census data, SEA schoolwide data reports, statewide high school senior surveys from a non-profit organization with an established reputation of supporting college access, the National Center for Education Statistics (NCES), the U.S. Census Bureau, the College Board, statewide accountability assessment scores, the National Student Clearinghouse (NSC), the Carnegie Classification of Institutions of Higher Education (CCIHE), and property tax records from the state department of taxes. Student level data sources were linked using uniquely created student identification numbers for the purposes of this study. The secondary data sources for high schools were linked using high school name and the state identification school codes for every public high school operating in the state in 2011. Each school was checked to

verify that it operated for all years during which the sampled cohorts of students would have attended high school. Town data sources were linked using town administrative codes and town names. Frequency or analytic weights were not applied to data.

The participant cases for the study were high school students who completed grades 9 through 12 with their graduation cohort within the same rural school district and completed high school in the years 2008, 2010, and 2012. The senior survey was administered statewide to students graduating in these years. The original census file for the study includes all students graduating high school in 2008, 2010, and 2012, totaling 21,737 cases. The following paragraph is a description of how the data were filtered to create the study sample.

Students were identified as having lived in the same town for each year they were enrolled in high school because this captured the hypothesized effects of living in a rural tourism or college town on college persistence. Next, the sample was filtered to only include students who completed high school with their cohort in order to better compare students from different graduation years and common entry times to college (Schafft et al., 2010). The sample was also narrowed to only include students who attended four-year residential postsecondary institutions because this would allow for a measure of a students' transition and incorporation into the social and living environment of a college community. After filtering the data set to only include students who enrolled in the fall semester after graduating from high school and entered a four-year residential college, 8970 observations remained. Lastly, the final filtering of data only included students from rural towns who enrolled in a four-year residential college the fall after graduating from high school. This filter framed the sample to only include rural students who attempted to incorporate into the residential learning community of a college campus. The final data set for the analysis had 4,808 observations, with 478 students from rural towns with colleges and 242 students from rural towns with high rates of tourism.

A list and description of all variables created for the analysis is described below and included in Appendix A.

Student Background Characteristics and Precollege Factors

Student background characteristics are often the greatest predictors of college persistence (Bowen et al., 2009; Coleman, 1968; Munro, 1981; Niu & Tienda, 2013; Nora, 2004; Tinto, 1975). The student demographic factors used for background characteristics in the analysis included gender, race and ethnicity, and eligibility for the National School Lunch Program, which serves as a surrogate measurement for students living in poverty (Aud et al., 2010; Bean, 1980; Bowen et al., 2009; Coleman, 1968; Howley et al., 2014; Munro, 1981; Niu & Tienda, 2013; Nora, 2004;

Tinto, 1975). Measurements of academic background and readiness for college were scores on the mathematics, reading, and writing sections of the SAT (College Board, 2015; Niu & Tienda, 2013). Precollege factors for family postsecondary characteristics included measures for the highest level of education that each parent or guardian completed, the grade level when students began to speak with their parent(s) or guardian(s) about postsecondary planning, and the grade level when students decided to continue education after high school.

Student Background Characteristics.

The demographic indicators for student background characteristics were gender, race and ethnicity, and a surrogate measurement for low family income. The variable for gender was constructed to be a binary indicator for "Female" where 0=male and 1=female. Low family income, was measured by a student's eligibility for the National School Lunch Program (NSLP), referred to as "free and reduced lunch" (FRL)[1] for the purposes of this study. This variable was constructed to be 1=eligible for NSLP at any time during high school and 0=never eligible for NSLP during high school.

potentially yielded student identifiable results. Therefore, the non-White race variables were collapsed to form a single composite variable for "Non-White" (1=Non-White and 0=White). Table 1 shows the number of observations for each race or ethnicity and the percentage of total cases represented by each group of students. The number of cases for students eligible or not eligible for NSLP is shown in Table 2.

Precollege Academic Factors.

Academic readiness for college has long been considered a predictor of college persistence and completion (Braxton et al., 2014; Hall et al., 2008; Hoffman & Lowitzki, 2005; St. John et al., 2000; Stumpf & Stanley, 2002; Tinto, 1975, 1993). The variable constructed to measure students' academic readiness for college included student scores on the mathematics, reading, and writing sections of the College Board SAT. The SAT has been used as a nationally recognized predictor of college success in many studies and is frequently used in college admissions decisions (College Board, 2015; Hoffman & Lowitzki, 2005; Niu & Tienda, 2013). If there were duplicate test scores for a student, the most recent SAT score was retained for the analysis

Table 1

Frequency of Cases for all Categories of Race and Ethnicity in Census File for Final Sample

Race or Etnicity	Reported Frequency	Percentage of Total Cases
American Indian	35	0.7
African American	39	0.8
Asian American	37	0.8
Hispanic	44	0.9
Native Hawaiian or Pacific Islander	9	0.2
White	4,726	98.3
Multiple Race & Ethnicity	77	1.6
Non-White	154	3.2

Note. Hispanic students all had multiple memberships to the ethnicity category and at least one race category. The Non-White vairable also included students who idetified as Multi-racial.

The number of observations for indicators of race and ethnicity other than White were too small to provide meaningful interpretation in the analysis and could have

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[1]Not all students eligible for free or reduced lunch may participate in the program and be counted. However, the data used for this study were the most accurate available for the student sample. NSLP eligibility captures disadvantages of student performance on assessments beyond household income (Domina et al., 2017).

(Mattern & Patterson, 2009; Zwick & Himelfarb, 2011). To reduce the likelihood of collinearity among variables in the multilevel model, the SAT Verbal, Math, and Writing scores were combined to create a single SAT composite score (Shaw, 2015). The composite SAT score was then standardized as a z-score to create the continuous variable for precollege academic readiness.

Precollege Family Factors.

The precollege family factors for the analysis included

early college planning, parental postsecondary attainment, and low family income. Measures of early college planning and parental postsecondary education attainment were created from student responses on the high school senior survey (Braxton et al., 2014; Ishitani, 2006; Stage & Hossler, 1988; Tinto, 1993; Yan, 2002). Answers to survey questions regarding early college planning (discussions in eighth grade or earlier about plans after high school) and parental postsecondary educational attainment (mother and/ or father attained an associate degree or other degree) were transformed to become binary variables. The data for parent education level were then used to construct a variable to indicate first-generation college going status for students' whose mother and father did not have a college degree (Ishitani, 2006).

variables can be found in Table 2. The distribution of composite SAT scores was slightly positively skewed for students who did not persist in college. Both sets of SAT scores (for students who did or did not persist in college) were normally distributed.

High School Characteristics (Precollege Academic Institutions)

High schools play an important role in predicting college persistence. Graduates from more affluent high schools are more likely to persist in college and graduate (Niu & Tienda, 2013). Additionally, students who attend high schools with a higher percentage of students who take the College Board SAT (used as a metric for schoolwide college preparation) are also more likely to persist and graduate (I. Johnson, 2008; Niu & Tienda, 2013). The high

Table 2

Frequency and Percentage of Student Background and Demographic Variables Sorted by College Persistence

Variable	Value	Total	%	Net College Persist	%+	College Persist	%+-
Female	1	2,621	54.5	870	53.4	1,751	55.1
	0	2,187		758		1,429	
Low Family Income	1	916	19.1	369	22.7	547	17.2
	0	3,892		1,259		2,633	
Non-White	1	154	3.2	56	3.4	98	3.1
	0	4,654		1,572		3,082	
First-Generation College	1	1,369	32.0	503	35.9	866	30.1
	0	2,908		901		2,007	
Early College Planning	1	1,591	36.7	488	34.1	1,103	38.0
	0	2,744		943		1,801	
College Town	1	478	9.9	168	10.3	310	9.8
	0	4,330		1,460		2,870	
Tourism Town	1	242	5.0	69	4.2	173	5.4
	0	4,566		1,559		3,007	

Note. The variables Firs-Generation College and Early College Planning were missing data for 11% and 9.8% of the cases, respectively. The percentages for these two subgroups of students are based on the non-missing frequencies.

Summary of Student Variables.

The student variables selected for the model were: Female, Low Family Income, Early College Planning, First-Generation College, Non-White, and Composite SAT Score. See Appendix A for a list and description of the variables created.[2] The frequencies for the newly constructed binary

errors, the researcher performed an ordinary least squares with collinearity diagnostics with the explanatory variables on the students' New England Common Assessment Program (NECAP) eleventh grade statewide accountability assessment scores (Raudenbush & Bryk, 2002). The results of this analysis showed all tolerance coefficients to be greater than 0.8 and the variance inflation factor to be less than two.

[2]Test for collinearity: To determine whether the student variables were independent and did not have correlated

school characteristics used as indicators for this analysis were schoolwide college preparation and schoolwide SES.

High Schoolwide College Preparation.

The variable measuring schoolwide preparation for college was constructed as a mean percentage of students participating in the College Board SAT exam during the school years 2010, 2011, and 2012 (available data). Participation in the SAT was chosen because it is frequently used by students in applications to postsecondary institutions, particularly in the state sampled for this study (College Board, 2015).

High Schoolwide Socioeconomic Status.

The variable measuring the schoolwide socioeconomic status (SES) was constructed from the percentage of students eligible for FRL. The available data only allowed for using the percentage of students eligible for FRL for a single year. Data from school year 2008 to 2009 were used because they included the beginning of an economic recession and overlapped with the other cohorts of the sampled students.

Precollege Community Factors and Data

For the purposes of this study, rural communities were defined as townships for school districts with National Center for Education Statistics locale designation assignments of rural, town distant, or town remote (Phan & Glander, 2008). Almost every town in the state also serves as a locally governing school district, which allows for a convenient and effective way to apply locale designations to towns. Locale codes for distant or remote towns, rather than all towns, were used in an effort to capture a sample of rural communities with similar characteristics.

To provide a more precise definition of rural, a U.S. Census Bureau data set was used to identify the economic and physical relationship between several towns by identifying them as either principal "cities" or the related towns in the area. The New England Cities and Town Areas (NECTA) data for 2013 (U.S. Census Bureau, 2013) identified towns that serve as the principal areas of population and employment with a population greater than 10,000 and less than 50,000. Towns that were designated by NCES as remote or distant and were listed as a principal city of NECTA in February 2013 by the U.S. Census Bureau were not included in the study.

Rural communities were organized into one of three groups: tourism-based communities, college communities, and other rural communities without high rates of tourism or a residential college within close proximity. There are many different types of rural communities, but this study only focused on these three types. Tourism communities were empirically defined from data sets constructed to measure rates of visitation by non-residential tourists. College communities were defined according to the presence of an operating residential four-year college. Rural communities without high rates of tourism or a residential college consisted of all the remaining rural towns in the sample. Constructing definitions and identifying each of these rural communities required the analysis of publicly collected data about tourism, taxes, residential property ownership, the location of higher education institutions within the state, the location of schools serving secondary grades, and workforce information about all rural communities.

College Community Type and Variable Construction.

For the purposes of this study, the variable construction for rural college community character was based on the presence of an operating residential four-year undergraduate college within a rural town from 2003 to 2012 (with one exception, explained below). Colleges were only included if they met the CCIHE (2016) designation according to the four-year residential undergraduate profile classification and size and setting classification system. This classification scheme allowed for the identification of bachelor's degree granting institutions with a fall enrollment in which at least 60% of undergraduates enrolled full-time. Additionally, it ensured that at least half of degree-seeking undergraduates lived on institution-owned, controlled, or affiliated housing, and at least 80% of students attended full-time (CCIHE, 2016). This designation was used because the residential nature of these schools meant there was a greater chance of overlap between the college community and the local town. Commuter and community colleges were not included because they did not have any residential facilities in their towns. Additionally, one town with a professional graduate school was included because it met many of the criteria outlined by Gumprecht (2003) for a college town when compared with other rural communities. A total of 13 towns met all the criteria for the presence of a college. These towns were assigned a value of one on the binary indicator for the constructed variable "College Town."

Tourism Community Type and Tourism Town Variable.

For the purposes of this study, tourists are defined as non-resident visitors who make at least one overnight stay and remain for at least 24 hours for the reasons of pleasure, business, or both (Leiper, 1979; Murphy, 1985). This definition identifies visitors who spend enough time in a town to have a reasonable likelihood of interaction with local businesses and residents.

Tourism towns, or the empirical representation of communities with rural tourism community character, were identified by analyzing two tourism community variables, constructed for the purposes of this study from two different data sets, for extreme values. The two variables indicated the usage of lodging that was rented by tourists and the proportion of vacation homes owned by non-state residents in each rural town.

Developing a binary variable for rural towns with a high level of tourist activity began with the measure for room sales from lodging facilities in rural towns because this variable had the strongest empirical measures for the number and frequency of tourists who visit for longer than one day. I designated rural towns with measures for both mean room sales values greater than two standard deviations above the mean and a proportion of vacation property values greater than the 75th percentile (also greater than the statewide median and mean) to be tourism towns. For the proportion of vacation property values, a threshold greater than the 75th percentile mean or median percentage of all rural towns was used because it eliminated towns which had a large lodging facility that was separate from the residential community and also served as an indicator for a substantial proportion of homes in the community which were vacation homes for out-of-state residents. The result of these analyses yielded a variable that identified nine towns as having a high level of tourism activity. These nine towns were assigned a value of one on the binary indicator for the newly constructed variable labeled "Tourism Town."

After all independent variables were created, a Spearman Rho correlation was used to examine the relationships between all variables in the analysis and the number of operational cases per relationship (see Appendix B).

Dependent Variable

College Persistence.

College persistence was identified as continuous enrollment at the same residential postsecondary institution for at least two years to indicate a successful incorporation into the culture, environment, and institution of college. A threshold of two years for continuous enrollment at the same institution was used because the majority of transfers and withdrawals occur within the first two years (Bowen et al., 2009).

Constructing the dependent variable "College Persistence" required extensive data management from the records retrieved through the NSC. The wide variety of academic calendars and enrollment terms for postsecondary institutions in the data provided substantial obstacles for capturing a measure of continuous enrollment in semesters, trimesters, quarters, summer terms, or other academic schedules. To provide a consistent measurement of student enrollment, the researcher designed a new measure of continuous enrollment to classify enrollment terms as occurring in either the fall or spring academic calendar for each postsecondary institution. Students who were

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[3]To develop this measure, I used data from the final report of a New England state's 2014 tourism and travel report. In the interest of preserving confidentiality, I am not providing specific details of the report.

consecutively enrolled for the fall and spring terms of their first two years at a four-year residential college were assigned a value of one on the binary indicator for the newly constructed variable labeled "College Persistence."

Missing Values

The final data set contained missing values for the variables SAT scores, Early College Planning, and First-Generation College. SAT scores were missing in 18.7% of the cases and were distributed among students of different high schools, postsecondary institutions, graduation years, genders, NSLP eligibility status, and towns of residence. The possible reasons for the missing SAT values are that students took the SAT in a year other than what was included in the data set for the analysis, or the student did not take the SAT at all. Therefore, it is likely that these missing scores are missing at random (MAR; Snijders & Bosker, 2012).

The variable Early Planning had 9.8% of cases of missing values, and First-Generation College had 11%. Missing values for these three variables were also considered to be MAR due to the incomplete responses on the voluntary survey (Snijders & Bosker, 2012). Multiple imputation by chained equations (MICE), or what Van Buuren (2007) called fully conditional specifications (FCS), was used to make valid inferences on estimations of what values should be imputed where data were missing (Schafer & Olsen, 1998; Van Buuren, 2007).

The missing values for group variables were limited to the variable Schoolwide College Preparation and only applied to three schools. The schools with missing values had small student bodies, and their values were suppressed by the College Board and state education agency in the publicly available data set to preserve student confidentiality. These missing values are not missing at random. Because there were only 65 cases in the three schools, mean substitution was used to impute the missing values (Acock, 2005).

Results

Results for Research Question 1

How does college persistence differ among students with different demographic, socioeconomic, and academic backgrounds across all types of rural communities and high schools?

Answering the first research question required a descriptive analysis of the frequency and distribution of the student background and demographic variables as well as an examination of their association with college persistence (Raudenbush & Bryk, 2002). The frequency of values for binary variables with the two student groups, "persistors" and "non-persistors," can be found in Table 2. Table 2 shows that there were low numbers of students in the sample who were not White, lived in college towns, or lived in tourism towns. Out of the 4,808 students in the sample, there were

moderately more females than males, more students who were not living in poverty, more students with at least one parent who had a college degree, and more students who did not start postsecondary planning at an early age. This distribution was true for students who persisted and those who did not.

is greater for students who persisted in college.

Multilevel Models with Explanatory Variables

The parameter estimates for the level 2 cluster variables were used to determine the variance partition coefficient (VPC), which is the proportion of variance explained at

Table 3

Descriptive Statistics of Standardized Composite SAT Scores for Students Who Did or Did Not Persist in College

College Persistence	Mean	Standard Error	Standard Deviation	Median	Range
1	0.107	0.020	1.000	0.082	5.910
0	-0.217	0.027	0.965	-0.261	6.743

Table 4

Parameter Estimates for Multilevel Models with a Single Explanatory Variable on College Persistence

Parameter Estimate	Female	Low Family Income	Non-White	Composite SAT Score	First Generation College	Early Planning	College Town	Tourism Town	†Schoolwide SES	†Schoolwide College Preparation
Odds Ratio	1.07	0.73***	0.89	1.43***	0.79***	1.20***	0.99	1.30*	0.99***	1.00
	(0.07)	(0.06)	(0.15)	(0.05)	(0.05)	(0.08)	(0.11)	(0.22)	(0.00)	(0.00)
Constant	1.85***	2.06***	1.93***	2.00***	2.09***	1.80***	1.92***	1.90***	2.45***	1.66***
	(0.10)	(0.09)	(0.08)	(0.08)	(0.10)	(0.09)	(0.09)	(0.08)	(0.25)	(0.30)
Random Effects	0.19	0.17	0.19	0.13	0.17	0.19	0.19	0.18	0.15	0.18
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)

Notes. $*p \leq 0.10**p \leq 0.05***p \leq 0.01$ after rounding.

†Single Explanatory Level 2 Variable for School Characteristics.
Standard errors are in parentheses.

The distribution and association of the Composite SAT Score, which measured academic readiness as a composite verbal, mathematics, and writing SAT score, with college persistence was calculated separately. Table 3 shows the mean, standard errors, standard deviation, median, and range of standardized composite SAT scores for students who either did or did not persist in college. The range and distribution of the scores suggest that the non-imputed SAT scores for the 1,293 students who did not persist in college and the 2,615 students who did persist had a wide range of academic knowledge and skills before entering college. Although SAT scores were slightly positively skewed for students who did not persist in college, both sets of SAT scores (for students who did or did not persist in college) were normally distributed. The mean and median SAT score

the group level (Snijders & Bosker, 2012). The VPC for the level two high school clusters was 0.034. Although this VPC value is low, it does indicate that there is variation mong students from different schools.

After the null model was completed, separate models were built for each student background and school explanatory variable. The results of the models with student background variables and school variables are in Table 4. The separate models with single explanatory variables for student background characteristics showed that gender, and race and ethnicity were not significant predictors of college persistence, while academic readiness for college, first generation college going and postsecondary planning at an early age did have a significant relationship. The models built with single variables for school factors showed that

schoolwide socioeconomic status was a significant predictor that students were slightly less likely to persist in college, while schoolwide preparation for college did not show a significant relationship.

Next, individual student variables were added to the model to estimate the effects of demographic, academic, and family backgrounds on college persistence. Each of these explanatory variables was chosen for inclusion in the model due to its well-established link to persistence (Bowen et al., 2009; Coleman, 1968; Nora, 2004; Tinto, 1975). The odds ratios for the variables in each model are reported in column one of Table 5.

persistence show that student family income status and academic readiness are significant predictors of college persistence for students from any type of the state's rural communities. Rural students living in poverty are less likely to persist in a four-year residential college, as indicated by and odds ratio of 0.82, while increases in precollege academic readiness indicate an increased likelihood to persist in college (odds ratio 1.41). Although parent postsecondary education and student college planning at an early age are significant predictors of college persistence, the effects are not significant when other variables are added to the model.

Table 5

Effect of Student Factors on College Persistence (Offs Ratios and Standard Errors)

	Parameter	Model 1	Model 2	Model 3
Level 1	Constant	1.95*** (0.12)	1.94*** (0.12)	2.01*** (0.43)
Student Characteristics	Female	1.09 (0.07)	1.09 (0.07)	1.09 (0.07)
	Low Family Income	0.82**(0.07)	0.82** (0.07)	0.82** (0.07)
	Non-White	0.98 (0.17)	0.97 (0.17)	0.97 (0.17
	Composite SAT Score	1.41*** (0.06)	1.41*** (0.06)	1.41*** (0.06)
Family Characteristics	First Generation College	0.99 (0.77)	0.99 (0.08)	0.99 (0.08)
	Early Planning	1.06 (0.08)	1.06 (0.08)	1.06 (0.08)
Community Type	College Town		0.95 (0.11)	0.95 (0.11)
	Tourism Town		1.18 (0.19)	1.18 (0.19)
Level 2				
School Characteristics	Schoolwide SES			1.00 (0.00)
	Schoolwide College Preparation			1.00 (0.00)

Notes. *$p \leq 0.10$**$p \leq 0.05$ *** $p \leq 0.01$after numbering

Model 1	*Level one variables for student factors and family characteristics*
Model 2	*Level one variables for student factors, family characteristics and community type*
Model 3	*Level one variables for student factors, family characteristics and community type and level two variables for school characteristics*

Model 1 in Table 5 goes on to show that the student characteristics for gender and race and ethnicity did not have a significant relationship with college persistence. Both variables measuring Family Characteristics, First-Generation College, and Early Planning were also not significant. However, the surrogate measurement for academic readiness, composite SAT score (odds ratio 1.41), and low family income (odds ratio 0.92) showed a significant effect.

In summary, the results of the multilevel model for student background variables measuring demographic, academic, and family background differences in college

Results for Research Question 2

Do students of different backgrounds from rural communities with a college or high levels of tourism have an increased likelihood to persist in a four-year residential college community when controlling for the effects of their high school?

Answering the second research question required expanding the multilevel model for student background variables to include town variables. Further exploration of the town variables was conducted to examine the relationship between community types and college persistence before building the larger model to control for the effects of student

background and school characteristics. Two separate models were built for each town variable: towns with high rates of tourism, or tourism towns, and towns with a residential college, or college towns. The results of the models with student background variables can be found in Table 4.

The results of this model indicate that rural college town students' persistence is not significantly different than the persistence of students from other types of rural communities. However, students from tourism towns are more likely to persist in college (odds ratio 1.3).

A second and third model was built by adding all the student and school variables because of their theoretical importance and statistical independence (Raudenbush &

Planning, were also not significant. The only two variables with significant effects were academic readiness, as measured by a composite SAT score (odds ratio 1.41), and low family income (odds ratio 0.92).

The third model was built to control for the effects of high schools on college persistence by adding explanatory variables to measure the aggregate socioeconomic status of the school (Schoolwide SES) and the schoolwide college preparation qualities (Schoolwide College Preparation). The odds ratios for the variables in each model are reported in Model 3 of Table 5. The odds ratios for both Schoolwide SES and Schoolwide College Preparation were not significant. Similar to Model 2, all the remaining variables

Table 6

Frequencies and Proportions of Students by Tourism Town Membership and Background Variables

Variable	Value	Tourism Town Membership		Total	Percentage in Tourism Towns	Proportional distribution of Tourism Towns to Not Tourism Towns
		1	0			
Gender (Female)	1	137	2484	2621	5.2%	1.3 : 1.2
	0	105	2082	2187	4.8%	
Low Family Income	1	32	884	916	3.5%	0.15 : 0.24
	0	210	3682	3892	5.4%	
Non-White	1	10	144	154	6.5%	0.04 : 0.03
Race/Ethnicity	0	232	4422	4654	4.9%	
First Generation College	1	37	1332	1369	2.7%	0.21 : 0.49
	0	175	2733	2908	6.0%	
Early Postsecondary Planning	1	75	1516	1591	4.7%	0.54 : 0.58
	0	139	2605	2744	5.1%	

Notes. Counts are from the non-imputed data set.

Formula for the proportional distribution of values in Tourism Touns and Not Tourism Towns =n with Tourism Town Value 1÷ n with Tourism Town Value 0 : n with Non-Tourism Town Value 1 ÷ n with Non-Tourism Town Value 0)

Bryk, 2002; Snijders & Bosker, 2012). The odds ratios for the variables in each model are reported in Models 2 and 3 of Table 5. The newly added variables measuring Community Type for Model 2 were not significant. The results for Tourism Town were directional with the hypothesis, but they were not significant. Similar to Model 1, the student characteristics for gender and race and ethnicity did not have a significant relationship with college persistence. Both variables measuring Family Characteristics, First-Generation College and Early

in the model were not significant except for composite SAT score (odds ratio 1.41), and low family income (odds ratio 0.92).

The second key finding of this study is that the effects associated with living in a rural tourism town or college town do not in themselves show a significant relationship with a student's persistence in a residential college community. Although tourism towns did show an increased likelihood for college persistnce when no other control variables were added to the model (odd ratio 1.30, p = 0.11), both

the odds ratio and significance of the parameter estimates changed after adding control variables. After all control variables were added to the model, the slight increase in the likelihood of college persistence for students from tourism towns was not significant. The odds ratio for students from a college town to persist in college actually showed a reduced likelihood and was also not statistically significant.[4]

The results of the analysis indicate that student variables measuring academic readiness and low family income show a significant relationship with college persistence. Students with higher composite SAT scores are more likely to persist in college (odds ratio 1.41). Students who are members of low-income households are less likely to persist in college (odds ratio 0.82).[5]

Discussion

This study examined whether students from three different types of rural communities were substantively different in their persistence in college. According to Tinto's (1993) interactionalist theory of departure from higher education, students who persist in college are able to successfully complete three stages: separation from past associations, transition between high school and college, and incorporation into the new society of college. Students' precollege factors, including family and community

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[4]An additional model with tourist town omitted indicated that college town was not significant.

[5]A fourth multilevel model was built to examine if community factors have a different effect with students in poverty by including interactions between students' family income status and residence in Tourism Towns or Non-Tourism Towns. Fitting a model with an interaction term of low family income status with Tourism Town was not possible because of high standard errors in the results. This may have been due to small subgroup sizes for low family income and students from tourism towns (see Table 6). Instead, the researcher created dummy variables to specify student family income as above the poverty measure for tourism towns and non-tourism towns. The results of both dummy variables in the fourth model were directional for an increased likelihood for college persistence, but income status was not significant for non-low income students with Tourism Towns. The parameter estimates for all variables in the fourth model are available upon request. The results in Table 6 show that the proportion of low family income students and first-generation college going students in tourism towns is considerably lower than the proportion of similar students from non-tourism communities. These results suggest that the socioeconomic status and parent education level is generally higher for families of four-year college-going students from tourism communities than other rural communities.

background characteristics, social experiences, and academic skills, create personal attributes that affect their persistence in college (Tinto, 1993). Nora (2004) expanded on Tinto's theory by highlighting the relevance of cultural capital and habitus, measured through constructs for psychosocial factors, as precollege attributes relating to college choice and commitment, choosing a college that matches one's academic and social goals, and then growing committed to that institution leads to persistence and completion. One of the precollege factors theorized to influence college choice and completion is the students' home community (Howley et al., 2014; Nora, 2004; Tinto, 1993). This study builds on Tinto and Nora's work by analyzing whether being from a rural tourism or rural college community are student background factors related to persisting in the academic and social systems of college, as measured through two years of continuous enrollment.

The student background characteristics measured for the first research question—demographic, academic, and family background differences—are among the factors Tinto (1993) relates with preentry attributes that set the stage for students' experiences and interactions within the living and learning community of college. The first key finding is that student family income status and academic readiness are significant predictors of college persistence for all rural students in the study. This finding aligns with previous research that emphasizes the importance of family financial status and academic readiness for college as critical factors for college persistence and completion (Bowen et al., 2009; Braxton et al., 2014; Niu & Tienda, 2013; Nora, 2004; Tinto, 1993). Although first generation status and college planning at an early age were significantly related to college persistence as standalone predictors, the effects were not significant when controlling for other variables. In addition, there was no significant difference in college persistence according to gender or race and ethnicity when the variables were used as a predictor in a single variable model or when included with other student variables in a multilevel model.

There are several possible reasons for the statistically non-significant relationship of these variables with college persistence. First, the sample size for this study may not have been large enough to find an effect for race and ethnicity, even after aggregating students of racial and ethnic backgrounds known to be related with persistence gaps into a single variable of Non-White (Bowen et al., 2014). Second, variables such as postsecondary planning at an early age and first-generation status likely lost their significance when other related student factors with stronger predictive power, such as poverty, were included in the model. This finding is congruent with previous studies suggesting that family income plays a stronger role than parental education in graduating on time (Bowen et al., 2014). Also, it has been

established that low family income has a strong relationship with postsecondary planning at an early age and college degree attainment in parents (Hill & Wang, 2015; Stage & Hossler, 1988; Yan, 2002).

The second key finding is derived from the results for research question two: there was no significant difference in the type of rural community a student is leaving after high school that would predict their likelihood to persist in a residential a college community. The community factors of this part of the analysis attempted to measure differences in persistence for students from one type of rural community (tourist, college, and the remaining types) after they have had a substantial amount of time to transition into and incorporate with a college community. This suggests that the different physical, social, and cultural structures of both tourism and college communities may not appear to have a significant relationship to the development of cultural capital associated with college persistence. Therefore, it is likely that any possible habitus students develop that is unique to tourism or rural college communities has little direct relationship with traits supporting a successful incorporation into a college community.

As Tinto (1975, 1993) outlined in his interactionalist theory of departure from higher education, the dispositions and attributes of a student entering college plays a role in their likelihood to transition and integrate into a new academic and social community. Furthermore, students from communities with drastically different norms and behaviors than those of a college may be at a disadvantage for persisting (Tinto, 1993). However, this finding shows that any difference in student dispositions or attributes that may result from living in a rural tourism town or college town during high school does not have a clear relationship with their persistence, suggesting that the gap students need to bridge when separating from the rural communities of their past and transitioning into membership in a residential college community does not appear to be significantly related to the two types of rural communities analyzed for this study.

The results also contribute to Nora's (2004) conceptual framework of psychosocial factors related to college predispositions, search, choice, and reenrollment. The precollege psychosocial factors that shape their available cultural capital and help draw students to or pull them away from higher education primarily include factors related to high school and home environment. The findings of this study suggest that a student's membership in a rural tourism or college town does not contribute to the psychosocial factors that significantly relate to their social experiences along the pathway to reenrolling and persisting in college.

Due to Nora's (2003, 2004) findings about relationships between precollege factors and college satisfaction, the researcher speculates that the effects of a rural student's

community on their cultural capital is likely to have a stronger relationship with a student's decision to attend college. The dependent variable for this study only measured persistence for students who had already been admitted and enrolled into the social and learning environment of a residential college community. Therefore, these students had already completed the college searches, institutional selections, admissions, and the social and academic matching processes. As Tinto (1993) and Braxton and colleagues (2014) noted, a student's anticipation and preparation for social integration into a new college community is likely to begin well before they arrive on campus and enroll in coursework. The cultural capital students develop from their home community shape how they see themselves in the world and are likely to be an important factor in their decision making about where they would like to be after high school and the social context where they would be comfortable (Braxton et al., 2014; Nora, 2004; Tinto, 1993). Precollege psychosocial factors play a prominent role in the college choice process and student satisfaction after matriculation (Nora, 2004). A high school student's frequent exposure to college or tourist activities in their hometown may have a stronger relationship to their decision and disposition to attend college rather than shaping their habitus formation in way that relates with persistence after enrollment.

Future Research

Differences between rural communities can be defined and measured in a multitude of ways. This study only identified three types of rural communities by using measures that illuminate differences in property ownership and hospitality business activity through tax records. Future research that attempts to define different types of rural communities for analyzing college persistence could include more elaborate measures for the social and cultural characteristics of home communities. Additional measures could include other observable ways to measure employment, residents' age, population density, and residential distances to locations of cultural importance. Additional measures of college and tourism towns could include indicators of the interpersonal relationships and experiences between the local residents and the community visitors or the postsecondary institution.

Another potential direction for future research could include analyses that measure different postsecondary educational outcomes for students from rural tourist or college towns, such as the relationship between rural community type and college-going rates, aspirations, and accessibility. Moreover, further analysis could examine differences between community type with postsecondary institutional matching by rural students. For example, students from one type of rural community may show different rates of enrollment at in-state public two- and four-year postsecondary institutions; selective private liberal arts

colleges; larger research-focused universities; or higher education institutions in urban, suburban, or rural settings.

Policy Implications

Bringing knowledge of college persistence to action is an essential part of improving equal educational opportunities for students in rural communities. The results of this study can inform education policy makers about the potential impact of resource allocations in secondary schools that may increase successful postsecondary experiences. One implication from the results are that policy makers should focus on supporting students' academic preparation before entering college and overcoming the challenges that living in poverty presents to college persistence. Existing programs that are shown to be effective support students' academic development in the subject areas of mathematics, reading, and writing, as well as the unique challenges rural students from poverty face when enrolling and working to complete college (Alarcon & Edwards, 2013; Byun et al., 2017).

Policies designed to support college persistence for rural students should also focus on the needs of individual students rather than the type of rural community where they reside. The results of the study further substantiate a student-centered focus in postsecondary preparation within the context of rural education. Students of low family income and differing degrees of academic readiness for college exist in the three types of rural communities studied and should not be treated differently based on the economic drivers for their hometown or the presence of a postsecondary institution. Allocating resources to rural students according to their individual needs provides more direct support for counteracting the precollege factors that depress—or promoting the precollege factors that support— college persistence.

Conclusion

This study sought to measure the likelihood that rural students would persist in college based on whether they came from a rural community with a college or high rates of tourism while controlling for several precollege variables, including student background factors and school characteristics. Overall, there was no significant difference in the likelihood to persist in college among students of different types of rural communities when accounting for school and student background factors. Consistent with the literature on college completion, the student background factors of family income and college academic readiness are the strongest predictors of college persistence.

Limitations

There were several limitations to this study which may have affected the findings. First, there was an absence of direct measurements for the quantity and quality of interpersonal interactions between students and tourists. Also, little is known about the impression that is made on students from their interactions with tourists—whether the impression is positive, negative, or non-significant. Second, the sample was only limited to cases in one state within the northern New England region that had complete data values for all variables in multiple data sets.

Additionally, the small size of certain subgroups within the sample did not allow for several analyses among students from the tourism and college communities. Specifically, the race and ethnicity subgroups were too small to allow for any analysis without the creation of a composite variable for students of color. Also, the substantial number of cases with missing values for composite SAT scores and responses on the senior survey for early college planning and parental college degree did not allow for a full representation of student observations and imputation methods were required. The analysis also could not control for student behaviors and experiences while attending college, which are often attributed to many of the factors associated with dropping out of college (Braxton et al., 2014; Tinto, 1993).

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