



A Spatial Analysis Of Tourism, Entrepreneurship And The Entrepreneurial Ecosystem In North Carolina, USA

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Abstract

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A Spatial Analysis Of Tourism, Entrepreneurship And The Entrepreneurial Ecosystem In North Carolina, USA

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ABSTRACT In light of the projected long-term national economic trends, the vulnerability of rural regions, and the difficulty of small businesses to stay solvent, it is imperative to understand the critical elements within a small business' operating environment or "ecosystem" that support or thwart entrepreneurial activity. Using the 100 counties of North Carolina as a case study, the purpose of this research project was to determine which entrepreneurial ecosystem elements (E3) have the most influence on tourism and entrepreneurship, to identify spatial patterns in this relationship, as well as the extent to which entrepreneurial and tourist activity overlap regionally. Using national secondary data sources, the authors identified that the interaction of entrepreneurship with the proportion of those employed in the creative class is strongly associated with the growth in the number of new establishments and employment, particularly in those rural counties endowed with attractive outdoor amenities.

Introduction

Within the current economic climate, many of the nation's rural areas are in trouble as businesses are unable to stay open, jobs are eliminated, and local governments already pared down to skeleton services are forced to make further cuts to balance their budgets. Even in a stable economy, approximately half of businesses fail within the first five years of operation, according to United States Small Business Administration (n.d.). In rural areas, these trends are magnified, as rural economies stand more vulnerable to social, political and financial fluctuations. Traditionally, economic development efforts have been directed toward: (1) business attraction, (2) business retention/expansion, and (3) business creation, with primary focus on the first, minimal attention to the second, and almost total disregard for the third. Recently, inwardly focused economic development strategies have been employed in an attempt to grow the local economy by allocating attention and resources to developing entrepreneurial activity among rural residents and leaders.

Building local entrepreneurial activity is a suitable strategy for rural regions because, although it comes with its own brand of uncertainty, it does not bear the fear of a major employer closing shop to move to greener pastures. Homegrown entrepreneurs have a connection with the community and will reinvest financially and emotionally in the local area. Because most rural communities do not have a complete business infrastructure, entrepreneurship encourages regional interplay as well as a regional identity, both parts of a healthy economic strategy manifested recently in “cluster” and “corridor” development efforts.

Rural tourism has also grown in importance in the last decade as an economic revitalization tool as well as a way to preserve and celebrate local cultural and historical resources that would otherwise be ignored publicly (Russell & Faulkner, 2004; Ryan, Mottiar, & Quinn, 2012). In contrast to urban corporate tourism enterprises, many rural tourism businesses are small homegrown and/or initiated by individual entrepreneurs with a vision and the will to create household income and increase the public recognition of their communities. Rural tourism is typically represented by the accommodations sector (campgrounds, bed and breakfast operations, small- and medium-size motels and hotels), food service (restaurants and coffee shops), main street retail operations, art galleries and studios, farms (agritourism), cultural attractions, festivals, outfitters and guides, and other related service sectors of a community. In these private sector enterprises, entrepreneurial activity is inherent in the sense that they are often owner-operated. In addition, social entrepreneurship is a phenomenon that has the same characteristics as its private enterprise counterpart and is played out in public-based programs to better the community’s quality of life. In light of the projected long-term national economic trends, the vulnerability of rural regions, and the difficulty of small businesses to stay solvent, it is imperative to understand “entrepreneurial ecosystem” or the critical elements within a small business’ operating environment that support or thwart entrepreneurial activity.

This study merges two growing national areas of interest, entrepreneurship and rural tourism, to create an opportunity for rural business development and to define a path to revitalizing rural regions. Realizing this opportunity requires understanding at a broad level the ecosystem factors that influence entrepreneurship and tourism activity (TA), paying close attention to how this environmental relationship varies across space, and where a possible overlap exists between entrepreneurial and TA.

Toward an Analysis of Entrepreneurial Ecosystems

While certain individual-level characteristics and motivations certainly shape entrepreneurial activity, entrepreneurs cannot be adequately understood outside of their operating environment or entrepreneurial ecosystem. The entrepreneurial ecosystem refers to the interdependent set of physical, legal, cultural, financial, human, and organizational elements within a community that has the potential to support or thwart an entrepreneur’s activity. The study of entrepreneurial ecosystems is fairly new, particularly the measurement of elements that encompass entrepreneurial climate. After initiating entrepreneurial ecosystem element (E3) research in three Missouri communities under the Rural Entrepreneurship Initiative, the University of Missouri’s Community Policy Analysis Center notes:

Not much is known yet on which variables are most important in communities with less than 50,000 in population to support entrepreneurial activity. More needs to be learned about which factors are most influential and what communities need to focus on to stimulate entrepreneurial activity. (Community Policy Analysis Center, 2003, Conclusions, second paragraph)

Elements of entrepreneurial ecosystems can be categorized into many different ways. There are macro E3 that represent influences on a national or international level or scale and meso

E3 that exist on a regional scale. Micro E3 have received the most attention from researchers and policy-makers, because they are controlled at and exert the most immediate influence on the local level. This research project examines the E3 of 100 counties within North Carolina to determine which have the most influence in tourism and entrepreneurship. Specifically, the research questions for this study were:

- (1) Which E3 are most correlated with entrepreneurship activity? Are there patterns across space?
- (2) Which E3 are most correlated with tourism activity? Are there patterns across space?
- (3) Do the entrepreneurial activity regions and tourism activity regions overlap? In the places that they do overlap, what are the prevalent E3 in play?

Entrepreneurial Ecosystem Assessment

One of the chief challenges to measuring the impact of E3 is defining the full range of conditions that influence entrepreneurial activity. There are any number of elements that support the operating environment and potential success (or failure) of an entrepreneur's activity. [Table 1](#) gives examples of these supporting elements that have been categorized into nine categories: quality of life and context, physical, financial, governance and leadership, networking, business support services, community culture, training and assistance, and human resource/capital.

Some elements of the entrepreneurial ecosystem can be measured objectively, while other e-climate elements rely on subjective opinions of the community residents for evaluation (Kline, McGehee, Paterson, & Tsao, 2012). A scan of the secondary data available for US counties was conducted to discover the breadth of national databases. Additionally, consultation with an expert in business indicators (J. Kleckley, personal communication) was helpful in the identification of proxy data sources. Goetz and Rupasingha (2009, p. 436) cite the advantages of using "the county-wide averages for local economic conditions ... because all proprietors are affected equally by these average conditions".

Previous studies have used secondary or proxy indicators to explore entrepreneurial activity within the USA. Goetz and Freshwater (2001) estimated the effectiveness of each state's entrepreneurial climate using an input-output regression model and many of the traditional measures mentioned in the previous section. The dependent variable, Entrepreneurial Activity, was measured by: (1) the number of Inc. 500 firms and (2) initial public offerings in the technology sector. The three independent variables, Ideas and Innovations, Human Capital, and Financial Capital, were measured in data procured from US Bureau of Census, US Small Business Association, US Patent and Trade Office, and US Department of Commerce. Entrepreneurial Climate entered the regression equation as a dependent variable that was calculated as a residual value minus the random error component.

Goetz looked again at the county-level data in 2006 when he examined self-employment across space. Among other findings, he reported:

Counties with older, more highly-educated and wealthier populations also had higher self-employment rates, as predicted. Likewise, counties with more foreign-born populations and greater ethnic diversity have higher rates of self-employment, but higher foreign-born shares are associated with lower earnings from self-employment. These results likely reflect a combination of cultural factors as well as labor market discrimination on the one hand, and greater tolerance for newcomers, on the other. College completion conveys no earnings advantage to the self-employed and having a high school but no college degree entails an earnings penalty relative to not having completed high school. Greater wealth and access to capital raise the returns to self-employment while the effect of experience on earnings follows an inverted-U, reaching a maximum at age 37. (Goetz, 2006, p. 3)

Table 1. Examples of elements within an entrepreneurial ecosystem

Quality of life and context	Governance and leadership	Community culture
Available affordable housing	Economic development office has a balanced approach	Programs exist that publicly celebrate small businesses success
Available affordable health care	Tax structures support new expanding and small businesses	
Low crime rate/public safety		
Attractiveness of natural amenities		
Recreational opportunities		
Lively downtowns and pedestrian areas	Policy regulation and legal climate is pro-small business	Community has a shared sense of community identity
Effective NGO's working to enhance quality of life	Leaders cooperate with local business community	Residents have proclivity to buy and support local
Community size/scale of the local economy	Community engages in place-based planning	The community believes in reinvesting in community infrastructure
Proximity to metro area	Leadership is market driven	Residents have generally positive can-do problem-solving attitudes
Tourism development stage of the community		Media is representative of all interests
Physical	Networking	Training and assistance
Affordable building space and land	Opportunities to informally network/ places to meet	Flexible training programs
Districts zoned for business development	Networks that link capital suppliers employees partners customers	Collaborative service providers
Highway accessibility	Existing networks or mentoring programs that welcome new members	Entrepreneur clubs for youth Community focus on academics
Financial	Business support services	Human
Community foundation funds	Legal services	Adequate labor pool skill levels and literacy rate
Access to micro-lending	Accounting services	
Financial tools and services	Printing services	Diverse community demographics

Sources: Chatman et al. (2008), Dabson and Markley (2010), Flora and Flora (2012), Kelliher and Reinl (2011), Kline and Milburn (2010). Low (2009), Macke (2007), Markley (2009), Markley and Barkley (2008), Markley and Low (2012), Pender, Marré, and Reeder (2012), Rightmyre, Johnson, and Chatman (2004) and Russell and Faulkner (2004).

In 2009, Goetz and Rupasingha found statistically significant associations with proprietorship growth in areas with higher services and construction sector employment, higher female labor force participation, and higher levels of natural amenities. Higher shares of retail employment were associated with smaller increases in proprietorship growth and the density of high-tech firms had no effect statistically. They found a relationship with ethnic diversity and lower proprietorship, as well as age and experience, but only up to a point. Moreover, they confirmed the influence of spatial interaction on proprietorship.

In 2011, Goetz and Rupasingha refined earlier studies to look at results across counties with varying metropolitan area adjacency and found spatial proximity to be important with “information search and related transactions costs in accessing markets” (Goetz & Rupasingha, 2011, p. 10). Population density was a significant factor in self-employment in the more rural counties and availability of capital was important regardless of metro adjacency.

They concluded the report by suggesting that rural counties with a high level of natural amenities should increase marketing of their natural features to draw in external talent from other regions or states.

In their examination of the creative class, McGranahan and Wojan (2007, p. 212) found that “in metropolitan counties, instead of the quality of natural amenities being a key driver, rurality itself appears to be the driver, as the creative class seeks a lower-density environment in which to live”. Not only does the creative class search for the qualities of a rural environment, but also the building of the creative class creates an environment for job growth and leads to further in-migration (McGranahan & Wojan, 2007).

In a similar study, Wojan, Lambert, and McGranahan (2007) tested the hypothesis that unobservable factors that attract “Bohemians” also positively influence local economic dynamism. A Bohemian, as defined by the authors, is a visual, applied or performing artist or an author. They found that local arts communities serve as a catalyst for regional innovation and competitiveness. Specifically, “evidence of a strong creative milieu is conclusive only in the nonmetropolitan sample, where a surplus of Bohemians was also associated with faster rates of new firm formation and employment growth” (Wojan et al., 2007, p. 733). Discussion of the importance of the creative class to spur growth of the local economy is the focus of the article—“The rural growth trifecta: outdoor amenities, creative class and entrepreneurial context” (McGranahan, Wojan, & Lambert, 2011). Using national secondary data sources, the authors identified that the interaction of entrepreneurship with the proportion of those employed in the creative class is strongly associated with the growth in the number of new establishments and in employment, particularly in those rural counties endowed with attractive outdoor amenities. All of these studies point to a trend in burgeoning creative rural areas. It appears that proximity to urban centers, combined with cultural and natural amenities of rural areas, can provide a setting to grow entrepreneurs from within or attract external talent.

Finally, Markley and Low (2012), who also examined patterns of secondary data, noted a strong connection between entrepreneurs in a rural community and the improvement of rural livelihoods. They called for more research on the interaction effects across multiple forms of wealth and entrepreneurial development and insight into the regional variations in these interactions (Markley & Low, 2012). The current study explores some of these variations within the North Carolina context.

Study Design

The project carried out a quantitative analysis of secondary data collected from all 100 counties in North Carolina. The secondary data are from federal sources such as US Census Bureau, US Small Business Administration, and various indices compiled by US Department of Agriculture (USDA) such as the natural amenities scale, rural–urban continuum, and Bohemian index. Table 2 gives the sources of the indicators.

Two multivariate models were built to examine the factors influencing entrepreneurial activity and TA in North Carolina. For the dependent variables, both TA and entrepreneurial activity at the county level were analyzed and mapped. The number of small businesses per capita was used to approximate entrepreneurial activity (see US Census Bureau Business Dynamics Statistics <http://censtats.census.gov/cgi-bin/cbpnaic/cbpsect.pl>). The TA measurement was estimated as the tourism expenditures per capita and the data were obtained from the North Carolina Division of Tourism (see Tourism Research <http://www.nccommerce.com/tourism/research>).

There were 10 independent variables. Within rurality, a larger number indicates a more rural context. The presence of economic development offices and number of marketing

Table 2. Sources of entrepreneurial ecosystem element indicators

Ecosystem category	Year of data	Existing indicator/proxy
Physical	2011	Broadband: National Broadband Map (http://www.broadbandmap.gov/rank)
Financial	2010	Poverty rate: USDA Economic Research Service (ERS) (http://www.ers.usda.gov/data-products/county-level-data-sets/poverty.aspx)
	2011	Unemployment rate: USDA ERS (http://www.ers.usda.gov/data-products/county-level-data-sets/unemployment.aspx)
Business support	2011	Economic Development Office: North Carolina Department of Commerce (http://www.thrivenc.com/see-whos-helping-north-carolina-thrive)
	2010	Number of marketing businesses: US Census Bureau (http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml)
Human	2011	Percentage of Population with College (BS/BA) Education: US Census Bureau, American Community Survey (http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml)
	2000	Bohemian Index: USDA ERS (http://www.ers.usda.gov/data-products/creative-class-county-codes.aspx)
Quality of life	1999	Natural-amenity scale: USDA ERS (http://www.ers.usda.gov/data-products/natural-amenities-scale.aspx)
	2011	Violent crime rate: County Health Rankings (http://www.countyhealthrankings.org/ranking-methods/data-sources-and-measures)
Context	2004	Rurality: USDA ERS (http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx)

businesses (classified here as marketing services) are used as indicators of the area's business support capability. Poverty rate and unemployment rate measured the county's financial conditions. Violent crime rate and natural-amenity scale were used as indicators of the county's quality of life. Human capital was measured by percent of population with college education and by Bohemian index, the proportion of residents employed in the arts. The broadband Internet coverage of the county was used as an indicator for physical infrastructure.

Next, bivariate and multivariate analyses were performed to identify entrepreneurial ecosystem elements that have a high association with TA, entrepreneurial activity, and tourism entrepreneurial activity. Linear regression was used to identify the most influential elements on TA and entrepreneurship activity (EA) data. Mapping revealed clusters of TA as well as entrepreneurial activity.

North Carolina

Fifty-one million people live in the non-metro USA, representing 16% of the nation's population. However, real non-farm revenue per job in non-metro counties represents 69% of that in metro counties (US Department of Agriculture Economic Research Service [USDAERS], 2011). For the purpose of this study and unless otherwise noted, rural is defined using USDAERS's Rural–Urban Continuum Code. According to the ERS (2006), in 2003 there were 40 metro and 60 non-metro counties in North Carolina. ERS also monitors the condition of all US counties on a variety of residential and industrial conditions. In conjunction with a nationwide recession, the US poverty rate increased to 14.3% (43.6 million people) in 2009 for all counties (USDAERS, 2011). This is the highest rate since 1994 and the greatest number of people in poverty since 1959 when the official poverty count began. The 2009 poverty rate in non-metro areas grew to 16.6%—more

than two points higher than the national average (USDAERS, 2011). Below are recent trends regarding poverty in the North Carolina counties classified as rural (non-metro):

- Poverty increased 6% in last decade.
- Persons completing high school decreased 7% in past four years.
- Total number of jobs have decreased from 2009 to 2010 by 13,322 jobs.
- Unemployment has decreased from 2010 to 2011 by 0.5%.
- More than half (60) of NC's counties have a poverty rate of 16.9% or higher.
- Per-capita income decreased by 0.4% from 2009 to 2010 (USDAERS, 2011).

Results

In order to investigate the ecosystem factors that influence entrepreneurial activity and TA, multivariate regressions were performed. Table 3 gives the parameter estimates of the multivariate regression model in which the entrepreneurial activity measured by number of small businesses was forecasted by a function of community's ecosystem characteristics including physical and financial conditions, business support, general attainment education level, quality of life scale, Bohemian Index as well as urban/rural context. Both urban and rural counties in North Carolina were included in the study, rather than simply rural ones, in an effort to understand more specifically the impact of rurality on entrepreneurial and tourist activity across a broader array of metro to non-metro counties and regions. To draw a hard line between such counties at the outset of the study would lower our ability to document and explain the impact of ruralness on entrepreneurship and on tourism. In general 89% of the variance in the dependent variable, entrepreneurial activity, was explained by the model. The model fit was statistically significant. As Table 3 gives, financial conditions (measured by unemployment rate and poverty rate), violent crime rate, natural-amenity scale, and education attainment level did not have a significant relationship with the dependent variable. In other words, these independent variables were not associated with the county's entrepreneurial activities.

Rurality had a significant negative relationship with the entrepreneurial activity. That is, rural counties had less entrepreneurial activities than counties in metropolitan areas. This result was contradictory to Goetz and Rupasingha's (2011) general finding that remote, less accessible counties attracted more self-employed. However, they further explained the phenomena of greater risk attracting more self-employed were associated with "commodity-driven boom-bust cycles, rather than irrational decision-making" (Goetz &

Table 3. Results of multivariate regression analysis—entrepreneurial activity

Independent variables	Unstandardized coefficients (<i>B</i>)	Standard coefficients (Beta)	Sig.
Rurality	-2.631	-0.741	.000*
Unemployment rate	0.011	0.046	.336
Poverty rate	-0.008	-0.082	.086
Crime rate	0.066	0.039	.368
Economic development office	0.080	0.072	.045*
Marketing services	0.071	0.121	.017*
Natural-amenity scale	0.008	0.023	.571
Education	0.100	0.036	.455
Bohemian	16.706	0.124	.017*

Notes: Adjusted R^2 : 0.89; $F = 90.241$; Sig.: .000.

Rupasingha, 2011, p. 9). Goetz and Rupasingha (2011) also indicated that the presence of college-educated residents was associated with self-employment growth in metro-adjacency counties, which was different from the results of this study in the sense that education attainment was not a predictor for entrepreneurial activity in general.

Economic development office, marketing services, and Bohemian Index had positive relationships with entrepreneurial activity. These relationships were statistically significant. Counties with economic development offices and more marketing services attracted more entrepreneurial activities. This finding is consistent with Goetz and Rupasingha's (2011) suggestion that smaller counties could attract a new self-employed work force by expanding their marketing services and promoting their natural amenities. A region's Bohemian Index "predicts both its high-tech industry concentration and its employment and population growth" (Florida 2003a, p. 49). A strong coefficient of Bohemian Index in this study supports Florida's (2003a) view that "places that provide a broad creative environment are the ones that also encourage entrepreneurship" (p. 49).

Table 4 gives the parameter estimates of the multivariate regression model in which TA (measured by tourism expenditures) was predicted as a function of community's ecosystem characteristics including physical and financial conditions, business support, general attainment education level, quality of life scale, Bohemian Index as well as urban/rural context. The multivariate regression analysis results revealed that 73% of the variance in the dependent variable, tourism expenditures, was explained by the predictor variables. As Table 4 indicates, unemployment rate, poverty rate, violent crime rate, existence of economic development office, number of marketing services, and education attainment level were not significant related to tourism expenditures. Rurality has significant negative relationship with tourism expenditures, which indicated that rural areas attract less tourism dollars than non-rural areas. This finding is worthy of attention because most of the natural-amenity stocks landed on rural regions of North Carolina such as the mountain and ocean-front counties. However, these counties had less tourism expenditures than metropolitan area such as Mecklenburg County (where Charlotte is located). This result might be related to how the tourism industry was defined in the calculation. Traditionally, food and drinking services such as restaurants and bars and accommodations such as hotels as well as cultural amenities are treated as tourism businesses. Large metropolitan areas generally have more restaurants, hotels, and art galleries than rural areas because of the population size and agglomeration effects.

The natural-amenity scale was positively related to tourism expenditures. This relationship was significant. That is, areas with higher stocks of natural amenities attract more tourism activities. Similarly, the Bohemian Index was also significantly related to

Table 4. Results of multivariate regression analysis—tourism expenditure

Independent variables	Unstandardized coefficients (<i>B</i>)	Standard coefficients (Beta)	Sig.
Rurality	-2.597	-0.593	.000*
Unemployment rate	0.019	0.063	.404
Poverty rate	-0.004	-0.030	.681
Crime rate	0.248	0.118	.082
Economic development office	0.074	0.054	.334
Marketing services	0.052	0.072	.361
Natural-amenity scale	0.067	0.155	.016*
Education	0.322	0.094	.218
Bohemian	38.653	0.232	.005*

Notes: Adjusted R^2 : 0.729; $F = 30.598$; Sig: .000.

tourism expenditures. This relationship was in a positive direction. People included in the Bohemian Index, such as authors, photographers, artists, and performers, were attracted to places where high tourism expenditures occurred. This finding is somewhat different from Florida’s (2003b) argument that “The physical attractions that most cities focus on—sports stadiums, freeways, urban malls, and tourism-and-entertainment districts that resemble theme parks—are irrelevant, in-sufficient, or actually unattractive to many creative-class people” (p. 9) (Figures 1 and 2).

In order to examine if the entrepreneurial activity and TA regions overlap, we mapped out both the number of small businesses and tourism expenditures in each county. There were four distinct areas of overlap as depicted on the Tourism Expenditures map shown in Figure 3: (1) a cluster of 16 counties in the western part of the state where the Appalachian Mountain range is found, (2) a “ring” of counties in the middle part of the state that corresponds neatly with the interstate road system, the largest urban areas in the state, and an extremely popular golfing destination, (3) a coastal destination consisting of barrier islands called “the Outer Banks” of North Carolina, and (4) another beach destination coupled with a large university. Furthermore, we investigate the correlation between TA and entrepreneurial activity and got the Pearson correlation of 0.742. This relationship was also significant at 0.000 level, which strongly suggest that entrepreneurial activity regions did overlap with TA regions in a positive direction. Regions with more entrepreneurial activity also presented more TA. In response to the final research question: *In the places that they do overlap, what are the prevalent E3 in play?*, we found that natural amenities, Bohemian Index, and in the urban areas, the score on the Rurality measures to be dominant.

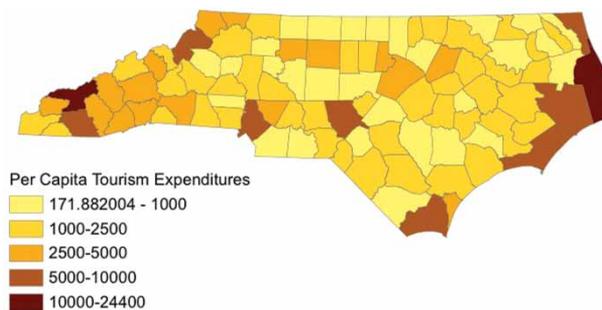


Figure 1. Per-capita tourism expenditures.

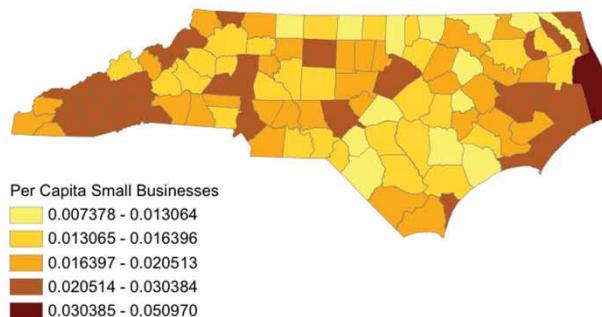


Figure 2. Per-capita number of small businesses.

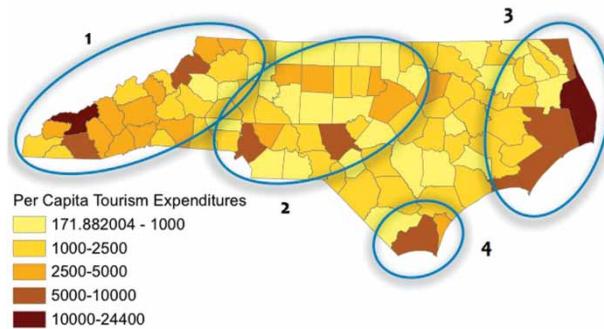


Figure 3. Per-capita tourism expenditures and small businesses overlap.

Conclusions and Discussion

Given the historical economic inequalities that have tended to face rural areas and the recent worsening of these inequalities at the hands of the Great Recession, it is imperative to develop an understanding of how rural regions can be made into supportive ecosystems for entrepreneurial activities, especially those activities that can take advantage of rural tourism. As the results of this study suggest, rurality had a significant negative relationship with entrepreneurial activity and TA, which in and of itself indicates the development challenges that face rural areas, especially in the southeastern USA. In addition to casting needed light on rural development problems, this study is valuable in giving the reader a quantitative look into ecosystem factors, drawn from secondary data, that influence entrepreneurial and tourist activity in rural counties in North Carolina.

North Carolina is an important microcosm of the uneven economic landscape found in metro and non-metro communities as well as the strong overlap between entrepreneurship and tourism in rural areas, thus setting the stage for larger region and nationwide studies of the extent and nature of that overlap. Of particular importance is our finding that the Bohemian index has a strong correlation with entrepreneurial and tourist activity, arguably an indication that the creative class is both a key ingredient and outcome of the nexus between entrepreneurial and tourism development. While Florida's (2003b) creative-class framework is often applied in the context of cities and metropolitan areas, it is also relevant in the context of rurality, understood here as not just the location of communities but also the attractiveness of certain non-metro lifestyles and environments to the creative. Much work is left to be done to determine the exact ways that the creative class influences economic activities in rural areas, but our finding certainly suggests the need to understand the full range of ecosystem factors, including cultural and demographic ones, that support development success.

The data in this study represent only a snapshot in time; future research must examine the longitudinal data to account for EA and TA over time. Future studies must also find a way to contend with the issue of mixed year data. The current study is unique in that it explores TA as a dependent variable, as well as examining the overlaps between TA and entrepreneurial activity. Additional research along this same vein might take on any of the following machinations:

- continue to aggregate and organize secondary data;
- select the “best data” as proxy indicators of E3 theory;
- select the “best data” as proxy indicators of entrepreneurship and TA;

- examine results across states and state lines; and/or
- refine model and/or spatial analysis techniques.

Additionally, as demonstrated in a range of qualitative studies regarding entrepreneurs (Alonso, 2011; Marchant & Mottiar, 2011), these secondary data analyses would be complemented with qualitative data gathered about entrepreneurial ecosystems. And finally, a quantitative tool (such as the one used in Chatman, Altman & Johnson, 2008 or Kline et al., 2012) to gain the perspectives of the entrepreneurs, residents, and official and unofficial community leaders on their local entrepreneurial ecosystem would prove invaluable and a complement to qualitative data and secondary data analysis.

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