

An affordable, sustainable tourist QoL model: the case study of Appalachian mountain towns

Affordable
tourist QoL
index

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Abstract

Purpose – This article proposes a model for benchmarking tourism quality of life (QoL) that is practical and affordable to implement by communities of all sizes. The model is tested on a group of 30 mountain towns in the Appalachian region of the United States.

Design/methodology/approach – An existing model measuring resident QoL from Roanoke, Virginia, is discussed and a new model for tourist QoL is proposed. Both models employ secondary data from free sources to calculate a practical, affordable and quantifiable QoL index.

Findings – Analysis of the data indicates the Appalachian mountain town with the highest tourist QoL score is Lynchburg, Virginia, with a composite QoL index value of 128, followed closely by Charlottesville, Virginia, with an index of 126 (where an index of 100 = the US national average).

Practical implications – A tourist QoL model has practical value because it can be used by local policymakers to benchmark their region's QoL, make comparisons with other destinations, and ultimately, as a tool to help market their community – all using free and readily available data.

Originality/value – This case study adds value to the hospitality and tourism literature by sharing the Roanoke QoL model for the first time with the academic and practitioner community and extends its methods to propose how a tourist QoL model would work. It also addresses the research gap noted by Uysal *et al.* (2016) who observed a dearth of tourism research studies that utilize objective measures.

Keywords Quality of life, QoL, Tourism, Tourist visitation motivations, Appalachia, Mountain towns

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Introduction

What does quality of life (QoL) mean for residents of a community? What does it mean for tourists considering visiting a community? These questions have become very relevant, since a Google search of the term “Quality of Life” yields more than 6.5 million results (Google, 2020). This interest in QoL is even more critical among community policymakers who would like to lure tourists, businesses and residents with the promise of a desirable QoL in their region.

This opportunity raises two questions, however. First, which factors help to make a community's QoL attractive to *residents*? The second key question relates to tourist motivations for visiting a destination. Second, which QoL factors would make a community attractive to a *tourist* as a travel destination? This article addresses these two questions, discusses a case study of an Appalachian mountain town, Roanoke, Virginia, that developed a model to quantify QoL for their residents, and proposes an extension of this methodology to address QoL for potential tourists to any destination.

Literature review

Definitions and importance of QoL

Any attempt to measure QoL must begin with an explication of the concept. One of the seminal articles in the QoL literature is the work of McCall (1975), who estimated that the term



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came into popular use around 1964. He defined it as “. . .obtaining the necessary conditions for happiness in a given society or region” (McCall, 1975, p. 234). Sirgy defined QoL as the “enhancement of a dimension of consumers’ well-being” (Sirgy, 1996, p. 243). Sirgy (1996) and McCall (1975) also noted that community QoL can be measured in subjective and objective ways. Examples of subjective measures include residents’ satisfaction with their neighborhood and community, while objective measures could include crime, education, leisure, cultural, transportation and environmental pollution data (Sirgy, 1996). Eppley and Menon (2008) defined community QoL as “a group of socio-economic and environmental indicators that contribute to the livability and desirability of the region” (2008, p. 285). Perhaps the most official definition of QoL comes from the World Health Organization which describes it as “an individual’s perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns” (Magno and Dossena, 2020, pp. 100410).

Okulicz-Kozaryn (2017) provided additional perspective by noting that urban scholars and planners usually define QoL in terms of more tangible factors such as the quality of a community’s transportation and housing assets, while psychologists view QoL more through the lens of subjective well-being (SWB), which is usually related closely to measures of resident happiness. Okulicz-Kozaryn noted that SWB can be used to evaluate and direct policy and planning to help make people feel better about themselves and their community (Okulicz-Kozaryn, 2017).

Zorondo-Rodríguez *et al.* (2014) described the measurement and improvement of resident QoL as “one of the main challenges for governments, human development agencies, and researchers” (Zorondo *et al.*, 2014, p. 442). Murgaš and Klobučnik (2016a) described some discussions, particularly in Europe, of replacing generally accepted economic measures of well-being such as Gross Domestic Product with some form of QoL measure. Martin and Mendoza (2013) agreed, noting that QoL is a broad and complex concept that should include the consideration of economic, social and environmental measures. Kim and Lee (2014) also observed that any discussion of QoL must examine social, economic and health issues.

Which factors should be considered in the measurement of resident QoL?

Researchers have been driven by a desire to quantify QoL dating at least back to 1975 when McCall noted “The ultimate aim (admittedly very far from realization now or in the foreseeable future) is to be able to aggregate all indicators into a master QoL index” (McCall, 1975, p. 230). To address this desire, many studies have attempted to capture the essence of QoL in a variety of different models.

Sirgy *et al.* (2000), proposed a model of global life satisfaction that considers a person’s overall attitudes toward their community as well as more other factors such as health, work, marriage and family. Eppley and Menon (2008) identified a list of 15 measures for major metro areas in the US, grouped according to five general community characteristics, including crime, health, employment, education and recreation. González *et al.* (2011) proposed the inclusion of health care, education levels and personal activities, including time spent commuting to and from work in their conception of QoL. Martin and Mendoza (2013) included measures of health, education, employment levels, leisure activities and personal security. In another study, Murgaš and Klobučnik (2016b) identified 10 specific measures including birth rate, mortality rate, suicide rate, divorce rate, unemployment rate, education level, life expectancy for males, life expectancy for females and two unique measures: pollution emission levels and blood donations. Hilbrecht *et al.* (2016) employed a methodological tool known as the Canadian Index of Wellbeing (CIW) as a way to explore QoL, which includes eight dimensions. They are community vitality, involvement in the democratic process, quality of education in the community, state of the local environment, general health of the local community, availability of leisure and culture activities, general

living standards and the use of personal time (Hilbrecht *et al.*, 2016). Vanderleeuw (2016) suggested that arts and entertainment amenities are also important factors that enhance QoL and should be considered, particularly if a region desires to attract new investment.

Urtasun and Gutiérrez (2006) examined how tourism affected resident QoL in Spanish communities. As part of their study, they also developed a model of “global social welfare” that employed 12 factors including income, resident health, health service resources, education attainment, cultural and leisure options, resident employment attainment, employment quality, housing quality, highway safety and accessibility, coexistence and social participation, citizen security and environmental quality. Okulicz-Kozaryn (2017) also argued that SWB/happiness should be included in examinations of community of QoL, a view shared by Sander (2011), whose work found that smaller urban areas tend to be happier on measures of SWB than residents of the largest 100 cities. Ballas (2013) suggested that the best approach might be a blend of both traditional objective QoL data, using examples of data on physical attributes of a community noted above, with more subjective measures of happiness and SWB, also noted above. The General Social Survey (GSS) has examined happiness in a longitudinal study conducted since 1972 by the National Opinion Research Center at the University of Chicago. This study includes a questionnaire item asking respondents: “Taken all together, how would you say things are these days—would you say that you are very happy, pretty happy, or not too happy?” (Davis and Smith, 1991). Okulicz-Kozaryn (2017) and Sander (2011) used data from the GSS in their studies of happiness and SWB.

How are small urban areas investigating QoL at the community level?

A growing number of researchers are examining QoL and its relationship with tourism in a number of settings, including Fu *et al.* (2020) in the context of Hong Kong, Su and Swanson (2020) in Xiamen City, China, Biagi *et al.* (2020) in two small Mediterranean cities, and Puig-Cabrera and Foronda-Robles (2019), on small developing island nations around the world. However, the main focus of this article is how smaller communities in the US have attempted to measure QoL. Greenwood (2001) identified three US towns that pioneered the use of locally based QoL indicators that include the use of economic, environmental and social data. The first was Jacksonville, Florida, where local supporters began looking at QoL indicators in 1986. Seattle, Washington, followed in 1998 with locally developed community indicators that focused on the concept of sustainability. Finally, researchers in Austin, Texas, published a study known as the Central Texas Indicators project in 2000 (Greenwood, 2001). Greenwood’s own attempt at developing a local study focused on the Pikes Peak Region of Colorado near Colorado Springs. It proposed a complex set of local measures in six key domains: economic, environmental and land use, health and public safety, civic, educational and transportation (Greenwood, 2001).

Perdue *et al.* (1999) looked at resident QoL in rural towns of Colorado that were experiencing an influx of tourists due to the introduction of limited stakes gambling. They developed a method for measuring QoL among town residents by surveying respondents about the following community characteristics: job opportunities in the local economy, community services and facilities, socialization assets in the community, and involvement and the belief of residents about their degree of influence on political decisions made in their community (Perdue *et al.*, 1999).

Rogers *et al.* (2010) conducted research in two smaller urban areas in New Hampshire, Portsmouth and Manchester, looking at the impact of the walkability of a community on QoL. They found that a walkable community enhances QoL by providing more opportunities for citizens to connect, share information and socialize with other residents (Rogers *et al.*, 2010). The work of Hilbrecht *et al.* (2016) noted earlier, also was conducted in four smaller urban areas, and employed the CIW QoL methodological approach.

Community leaders in Green Bay, Wisconsin, developed an even more thorough study of QoL in their region that examined 37 specific metrics ([Leading Indicators for Excellence \(LIFE\) study of Brown County, 2016](#)). These measures spanned a wide range of 10 major community life factors including arts and culture, community participation rates, health, household income, education-related metrics, natural environment measures, recreation and leisure assets, violence statistics, poverty and employment-related measures.

Another QoL measurement model that seems particularly well-suited to small urban areas in Appalachia was developed by a civic group in Roanoke, Virginia. The goal of the project, spearheaded by the Roanoke Regional Partnership (RRP), was to capture indicators of community progress ([Roanoke Regional Partnership, 2014](#)). The RRP was founded in 1983 as a regional economic development organization for the greater Roanoke area that includes Alleghany, Botetourt, Franklin and Roanoke counties plus the cities of Roanoke and Salem and the town of Vinton. These data were then analyzed and benchmarked against other towns of comparable size using an indexing method. This method set the US national average for each measure at an index of 100, with an individual town's values for that measure calculated against this index. Using this method, a town's relative performance could be easily compared, with index values less than 100 indicating performance lower than the US national average, and those with index values greater than 100 indicating performance higher than the US national average. The index values for each town were then added together and divided by the total number of measures to calculate a composite index value. This value represented the overall performance of each town across the seven metrics employed in the model.

The Roanoke QoL model employed data for seven factors. The first, the number of days requiring the use of household heating, was available from the National Oceanographic and Atmospheric Administration (NOAA). The second, relative percentage of the regional workforce employed in entertainment-related industries, was available from the Bureau of Labor Statistics (BLS). The third, average resident commute time, was available from the US Census Bureau. The fourth, the annual count of good air quality days, was available from the Environmental Protection Agency (EPA). The fifth, the rate of violent crimes, was available from the Federal Bureau of Investigation (FBI). The sixth, relative percentage of the regional workforce employed in health care-related occupations, was available from the BLS. The seventh was the local annual cost of living, available from the American Chamber of Commerce Researchers Association (ACCRA). These categories were then benchmarked against data for six peer communities including Asheville, North Carolina, Chattanooga, Tennessee, Lynchburg, Virginia, Spartanburg, South Carolina and Winston-Salem, North Carolina, along with a national average score for each measure. Fort Wayne, Indiana, was also included in the model even though it was outside the Appalachian region ([Roanoke Regional Partnership, 2014](#)).

The work of the RRP has not been disseminated widely beyond the flyer noted above and has not been discussed in any scholarly research to date. However, the Roanoke model has a benefit that is worth sharing; it demonstrated how free and readily available data for a small urban area can be affordably collected and analyzed, distilled into a composite QoL index, and then used as a benchmarking tool for community policymakers.

But what about tourist QoL?

The Roanoke model represented a solid attempt at measuring QoL for current residents. However, one of the goals of this article is to build upon this methodology to look at QoL from the perspective of potential tourists visiting a destination community. To consider this perspective, the literature on motivational factors that drive tourist decisions was consulted. To better understand the motivations of tourists, some researchers have examined the literature of the Psychology field, specifically, the concept of a hierarchy of needs originally proposed by [Maslow \(1943\)](#). For example, [Pearce \(1988\)](#) proposed that tourist visitation

motivations could also be seen as a five-step hierarchy that mirrors Maslow's stages of physiological needs, safety and security needs, relationship needs, self-esteem needs and self-actualization needs. According to this travel career ladder (TCL), tourists may first seek to satisfy physiological needs in their travels, which can be seen from a tourism perspective as a desire to travel for relaxation. A second step on this ladder would be the motivation to travel for some degree of stimulation, but only to places that are viewed as safe destinations. A third step could be seen as travel motivated by the desire to maintain existing relationships and to seek out new social interactions. The fourth step would explain travel that is motivated by self-esteem needs, such as to acquire new knowledge of a destination or a new skill, or for an element of the glamor of travel. The final level of motivation would be travel for the sake of self-actualization, which could include the desire to achieve a level of fulfillment or inner peace at a destination or attraction, or to travel for altruistic purposes, such as a trip to assist others in need.

In an update of the TCL model, [Pearce and Lee \(2005\)](#) proposed that the four most critical motives for travel are the novelty of the experience, the feeling of escape and relaxation, the development of relationships and increased socialization, and feelings of inner growth. They went so far as to describe these four factors as the "backbone" of travel motivations ([Pearce and Lee, 2005](#), p. 236).

[Oguz \(2014\)](#) identified three studies where the TCL model served as a useful conceptual framework to help understand consumer motivations for visiting tourist destinations, including the work of [Kim \(1997\)](#) that explained Korean tourists' motivations to visit Australia, and a study by [Murphy \(2001\)](#) explaining backpackers' motivations. Interestingly, these motivations included excitement and adventure, which would relate to Pearce's stimulation motivation, and meeting the local people (which would relate to socialization needs). [Oguz](#) also noted research by [Paris and Teye \(2010\)](#), who conducted additional research on backpackers. Their study identified six backpacker travel motivations: relaxation (relating to Pearce's relaxation need), experience and budget travel (which would relate to Pearce's stimulation needs), and cultural knowledge, personal/social growth and independence (which would relate to Pearce's socialization/fulfillment need). [Hahm and Severt \(2018\)](#) studied potential tourist perceptions of the state of Alabama as a destination and found that they generally consisted of cognitive and affective components. The cognitive aspects of their study included factors such as weather, scenic beauty, adventure activities, interesting cultural attractions and a variety of historical sites, which would relate to Pearce's stimulation needs. The affective aspects were more related to general feelings such as the mood and atmosphere of the destination, which would relate more to Pearce's socialization needs/fulfillment needs ([Hahm and Severt, 2018](#)).

In their study of tourists to Norway, [Prebensen et al. \(2012\)](#), narrowed these key motivators down to two broad areas: relaxation (including enjoying peace and tranquility, having a sense of freedom and relaxation, getting away from work/stress, being emotionally and physically refreshed, and getting closer to nature); and socialization (including participating in many activities, meeting new people and socializing, developing personal interests and seeking intellectual enrichment/learning new things). [Wen et al. \(2019\)](#) also found that the socialization-related factor of knowledge enhancement and learning was one of the two most important motivators for Chinese tourists visiting Israel (along with business development, which the authors noted was unique to their case study).

In addition to the literature on tourist motivations, extant research on tourist QoL and SWB was also consulted. Two excellent starting places for this examination were the work of [Campón-Cerro et al. \(2019\)](#) and [Uysal et al. \(2016\)](#). [Campón-Cerro et al.](#) conducted an extensive review of 20 studies that focused on the hospitality and tourism aspect of QoL while [Uysal et al. \(2016\)](#) examined 35 studies dating back to 1977. One important finding that [Uysal et al.](#) noted was the fact that the vast majority of studies in their analysis utilized only subjective

measures of QoL, typically gathered through the use of survey research. They noted that this type of approach is useful, but also observed that there is a dearth of studies using objective indicators. Despite this gap in the research, they observed that objective indicators are defined and quantified without relying on individual perceptions or judgment, and therefore, in some respects could provide a better measure of community structural and physical changes which could also be tracked over time (Uysal *et al.*, 2016)

Another important source was the meta-analysis of tourist SWB research conducted by De Bloom *et al.* (2008). This project examined seven studies dealing with SWB of tourists before and after vacations. One of the studies in this meta-analysis was the work of Gilbert and Abduluah (2004), who measured SWB, or as they termed it, life satisfaction, by surveying respondents across 12 factors including the following topics ranging from very narrow to broad: feelings about one's personal situation, their health, home, family, friends, other interpersonal relationships, employment, economic well-being and leisure activities, to their attitudes about, their neighborhood, community infrastructure and the nation.

Extension of the Roanoke model: measures

As noted above, the Roanoke model is focused on perceived resident QoL, which can be quite different from QoL as perceived by potential tourists. Kim (2018) notes that a community's tourism potential relies heavily on a positive relationship between tourists and residents. Seraphin *et al.* (2019) and Rivera *et al.* (2016) found that there can be a positive relationship between tourism and QoL for local residents. They suggest that destination managers should monitor resident QoL measures in their community as part of their overall marketing planning efforts. King *et al.* (2012) also noted that successful tourism development efforts can enhance a sense of community, and ultimately, QoL, for residents. On the other hand, Kuščer and Mihalič (2019) found evidence of some negative influences on resident QoL in their study of the potential for overtourism in Ljubljana, Slovenia. High on the list of these potential irritants were increased air pollution, traffic and crowding (Kuščer and Mihalič, 2019). Recognizing that there are positive and negative impacts on the resident–tourist relationship, the current study proposes significant revisions to the Roanoke model in five important ways to focus on measures that are primarily relevant to tourists.

First, based on the review of tourist motivations revealing the importance of relaxation and socialization factors, two new measures are proposed. The first new measure attempts to capture a community's resources that are dedicated to accommodating tourist desires to relax and get away from work and stress as Prebensen *et al.* (2012) noted above. The operationalization of this new relaxation measure is discussed in the methodology section below. The second new measure attempts to capture a community's resources dedicated to those seeking intellectual enrichment and socialization, as described by Wen *et al.* (2019). The operationalization of this new socialization measure will involve the revision of the Roanoke model's existing measure of employment in a community's entertainment industry to cover only those activities that could cater to tourists. This new focus will be explained further in the methodology section below. Third, the Roanoke model's view of weather as a variable was revisited. The Roanoke model relied upon the number of heating degree-days as a proxy measure for weather. However, this measure is biased toward the view that warmer temperatures are preferable when it could be argued that some residents and potential tourists choose to live in and visit northern cities because they enjoy that type of climate and are attracted by skiing and other winter sports activities. To eliminate this bias, heating-degree days is replaced with the number of sunny days metric. There is a body of research that supports this change to the model, including a review by Konrath (2017) of studies finding that greater amounts of natural sunshine had a positive effect on lowering aggressive behaviors and promoting more positive moods and empathy toward other residents (Guéguen and Lamy, 2013; Lagacé-Séguin and d'Entremont, 2005). Additionally, one study

found that the effects of relatively greater amounts of sunshine are stronger than the effects of warmer temperatures (Cunningham, 1979). It could be argued that there are negative implications for a higher number of sunny days in a climate, particularly from the perspective of higher skin cancer risks, but this would tend to be more of an issue for resident QoL versus the QoL of tourists who are planning to visit a destination for only a limited amount of time. Fourth, the measures of good air quality days, and crime rate, remain in the revised model because they are attributes that are relevant to both tourists and current residents. However, significant revisions to the data collection methodology for each measure are proposed and will be discussed below. Finally, in order to refocus the Roanoke model toward tourist QoL, two variables were eliminated because they were focused almost exclusively upon the normal activities of current residents: average commute time and resident cost of living.

Extension of the Roanoke model: study area

Major changes to the Roanoke model's peer group of cities are also proposed to create a more tailored Appalachian competitive set of mountain towns extending on a southwest-to-northeast axis across the eastern US. The primary guide for the selection of peer mountain towns was the interactive map provided by the Appalachian Trail Conservancy, which allows viewers to trace the route of the trail from Georgia to Maine as it traverses 14 states along 2,190 miles of trail (Appalachian Trail Conservancy, 2020). The map in Figure 1 below

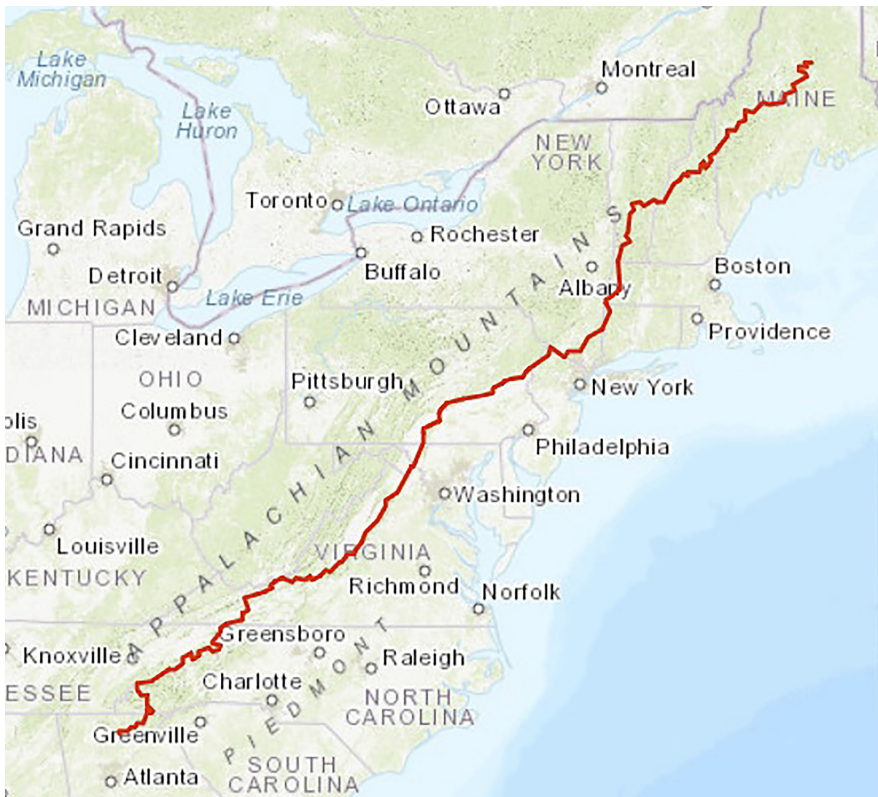


Figure 1.
Appalachian study
area with Appalachian
Trail depicted as a
red line

Source(s): Appalachian Trail Interactive Map; Appalachian Trail Conservancy, 2020

illustrates the geographic scope of the study area with all 30 mountain towns located along the trail or very close to its path. The map depicts the entire Appalachian Mountain region including areas that are subsets of the range, including the Great Smoky Mountains in Tennessee, Blue Ridge Mountains in North Carolina, Shenandoah Mountains in Virginia, Allegheny and Pocono Mountains in Pennsylvania, Catskill Mountains in New York, White Mountains in New Hampshire, Green Mountains in Vermont and Blue Mountains in Maine ([Appalachian Trail Conservancy, 2020](#)).

Based on this analysis, two cities were dropped from the Roanoke model: Fort Wayne (too far west) and Winston–Salem (too far east), while 25 new peers were added, extending along the Appalachian mountain ridges north from South Carolina to Vermont. These new mountain towns are Altoona, Pennsylvania; Beckley, West Virginia; Bennington, Vermont; Blacksburg, Virginia; Boone, North Carolina; Burlington, Vermont; Chambersburg, Pennsylvania; Charlottesville, Virginia; Cumberland, Maryland; Greenville, South Carolina; Hagerstown, Maryland; Harrisburg, Pennsylvania; Harrisonburg, Virginia; Johnson City, Tennessee; Johnstown, Pennsylvania; Knoxville, Tennessee; Ludlow, Vermont; Morgantown, West Virginia; Pittsfield, Massachusetts; Rutland, Vermont; Scranton-Wilkes-Barre, Pennsylvania; Spartanburg, South Carolina; State College, Pennsylvania; Staunton, Virginia; Williamsport, Pennsylvania and Winchester, Virginia.

These 30 peer mountain towns were selected from a list of 38 possible candidates identified by an analysis of the Appalachian Trail Conservancy interactive map ([Appalachian Trail Conservancy, 2020](#)). Eight small communities along or nearby the trail were not incorporated into the final list because data were not available on two or more measures. These towns included Berlin, Vermont; Frederick, Maryland; Greenville, Tennessee; Lebanon, Vermont; Macon, North Carolina; Millinocket, Maine; Newburgh, New York and Romney, West Virginia. The 30 finalist mountain towns were mostly located at higher elevations with a mean elevation of 1,069 feet above sea level. Boone was located at the highest elevation at 3,333 feet above sea level while Burlington was situated at the lowest elevation of 200 in the Lake Champlain valley near the Appalachian Trail ([US Geological Survey, 2020](#)). The average population for each region was 258,044, with Greenville area recording the largest population at 906, 626 and Bennington registering the smallest population at 35,631 ([US Census, 2020](#)).

Materials and methods

Free sources of community level QoL-related data

The primary goal of this article is to identify a QoL model that is practical and affordable to implement by communities of all sizes. A good source of free QoL-related data on a community level identified by the RRP is provided by the US Census Bureau for a wide range of QoL-related variables, including population and economic information. The Roanoke model also used other free US government agency data, including the BLS, which provides data on major employment metrics, including the number of professionals employed in different industry sectors, the FBI, which is a source for crime data, the EPA, which is a source for air quality measures, and the NOAA for weather data.

Measures used and their sources

The Roanoke model included seven measures, but two of them have little relevance to potential tourists, including commuting efficiency and resident cost of living, and therefore have been eliminated from the proposed tourist QoL model. The new model proposes six measures that are operationalized as follows:

The first measure, relaxation assets, seeks to capture a community's resources dedicated to accommodating tourist desires to relax and get away from work and stress as [Prebensen et al. \(2012\)](#) noted. This measure is operationalized in the proposed new model using BLS data

identifying occupational groups in a community specifically focused on providing the opportunity for tourists to relax at a destination. As a result, this measure incorporates data on the following nine occupations: lifeguards, ski patrol and other recreational service workers (BLS code number 33–9092); food preparation and serving-related occupations (code number 35–0000); maids and housekeeping cleaners (code number 37–2012); ushers, lobby attendants and ticket takers (code number 39–3031); amusement and recreation attendants (code number 39–3091); baggage porters, bellhops and concierges (code number 39–6010); tour and travel guides (code number 39–7010); recreation workers (code number 39–9032); and hotel, motel and resort desk clerks (code number 43–4081). The BLS data for these nine occupation groups were collected and totaled for each destination, then divided by BLS data for the total number of employed workers in each urban area. This quotient was then compared with national BLS data providing the proportion of each of these occupational groups across the US to the total number of employed workers, yielding an index the BLS calls the location quotient. 2018 data for this measure were available for all mountain towns in the new model.

The second measure, socialization assets, seeks to capture a community's resources dedicated to those seeking intellectual enrichment and learning new things, as described by [Wen et al. \(2019\)](#). The operationalization of this new socialization measure involves the revision of the Roanoke model's existing measure of employment in a community's entertainment industry to cover activities that primarily cater to tourists. As a result, this measure employs BLS data for the arts, design, entertainment, sports and media occupations segment, identified by BLS code 27-0000. The location quotient for this segment of occupations was provided by the BLS in the dataset for each urban area and is used as the index for this measure in the model. 2018 data for this measure were available for all mountain towns in the new model.

The third measure, weather, was originally operationalized in the Roanoke model by the average temperature as compiled by the NOAA. However, to eliminate the bias against colder weather destinations where lower temperatures could be beneficial to tourism, such as New England ski resort towns, a new operationalization of this measure is proposed: the number of sunny days. These data are available from Sperling's Best Places for 2018 for all 30 of the mountain towns included in the new model. The index was created by dividing the average number of sunny days for each location by the average national number of sunny days (205) to create an index where 100 is the average and a higher number indicates a more appealing (sunnier) climate ([Sperling's Best Places, 2020](#)).

The fourth measure, safety, was operationalized in the Roanoke model by the violent crime rate compiled annually by the FBI. A significant change in the operationalization of this measure is proposed because it could be argued that tourists are impacted by all types of crime, particularly property crimes like pickpocketing and other forms of theft. As a result, FBI property crime as well as violent crime data is the proposed new operationalization for the safety measure. An index for each mountain town was created by adding property crime and violent crime rates together to create a total crime rate per 100,000 residents for each urban area. This total was then compared to the US total crime rate per 100,000 residents, with 100 equaling the national average crime rate. Data were available from the FBI for 24 of the mountain towns on a metropolitan statistical area basis from the agency's Uniform Crime Reporting (UCR) Website ([FBI Uniform Crime Reporting, 2020](#)) while data for the remaining six towns were retrieved from UCR site on a county basis (Greenville and Spartanburg) or city basis (Bennington, Boone, Ludlow and Rutland). The index data were inverted to create an index where a higher score indicates a lower crime rate. Data for all locations in the study were available for 2018.

The fifth measure, air quality, was operationalized in the Roanoke model by the number of good air quality days, as compiled by the EPA. A significant change is proposed for this operationalization because an analysis of the data indicates that the air quality index (AQI)

for communities is not measured each day and there is a wide variance between geographic locations on the number of AQI days per year. As a result, the proposed new operationalization for this measure is an index for air quality by dividing the number of days with good air quality by the total number of AQI days in each mountain town. This quotient for each location was then divided by the same quotient for the US (77%) to create an index of good air quality days where 100 is the national average good air quality days and a higher score indicates more good air quality days. Data were available for all locations in the study for 2018.

The sixth and final measure, health care resources, was included in the Roanoke model, and is also being included in the revised model because it could be argued that a community with a strong health care system would be reassuring to tourists, particularly in light of weaknesses in the US health care network exposed by the coronavirus (COVID-19) pandemic. Consistent with two of the other measures noted above, this variable was operationalized by the location quotient of health care practitioners and technical occupations, compiled by the BLS as part of occupation code 29-000. An index of 100 indicates that the proportion of those employed in this occupation group for each mountain town is the same as the national average for the US, and an index over 100 indicates a more robust health care support system. Data for this measure were also available for all mountain towns in the model for 2018.

A comparison of the measures used in the Roanoke resident QoL model versus the measures in the proposed tourist QoL model described above is provided in [Table 1](#) below.

For benchmarking purposes, a method similar to the Roanoke model was applied, starting with the discovery of a US national average value for each metric from each of the sources noted above (EPA, FBI, BLS, etc.). This US national average for each measure was then set an index value of 100 with the 30 towns' values for that measure calculated against this index. Using this method, each town's relative performance could be easily compared, with index values less than 100 indicating performance lower than the US national average, and those with index values greater than 100 indicating performance higher than the US national average. The composite score for each mountain town was calculated by simply averaging the indices for all six measures with equal weighting for each variable. The index values for each town were then added together and divided by the total number of measures to calculate a composite index value. This value represented the overall performance of each town across the six metrics employed in the model.

Findings

Results indicate that the highest rated mountain town using the proposed new tourist QoL model was Lynchburg, in the Virginia foothills of the Blue Ridge Mountains, with a composite QoL index of 128, as noted in [Table 2](#) below. Lynchburg's index scores were above the national average on five of the six measures with the only exception being an index of 99 on relaxation assets. The town scored highest on the indices for the measures of safety (169) and socialization assets (156). Charlottesville, also in the Blue Ridge mountains region, registered

Table 1.
Roanoke resident QoL model variables vs Proposed tourist QoL model variables

Roanoke resident QoL model		Proposed tourist QoL model	
Variables	Data sources	Variables	Data sources
Weather	NOAA	Weather	Sperling's Best Places
Health care	BLS	Health care resources	BLS
Entertainment	BLS	Socialization assets	BLS
Commuting efficiency	US Census Bureau	Relaxation assets	BLS
Safety	FBI	Safety	FBI
Air quality	EPA	Air quality	EPA
Cost of living	ACCRA		

Measure	Weather	Safety	Air quality	Socialization assets	Relaxation assets	Healthcare resources	Composite QoL index
National average	100	100	100	100	100	100	100
<i>Destination</i>							
Lynchburg, VA	106	169	123	156	99	115	128
Charlottesville, VA	106	136	116	130	118	152	126
Morgantown, WV	90	127	118	57	107	204	117
Boone, NC	98	151	99	106	147	84	114
Burlington, VT	79	133	114	158	92	107	114
Harrisonburg, VA	105	150	121	111	115	78	113
Bennington, VT	88	83	118	156	99	115	110
Asheville, NC	102	102	83	74	143	154	110
Pittsfield, MA	90	114	101	94	114	134	108
Rutland, VT	80	87	109	156	99	115	108
Johns town, PA	88	142	106	52	100	152	107
Altoona, PA	88	149	106	60	97	139	107
State College, PA	88	164	101	78	106	96	105
Johnson City–Kingsport–Bristol, TN	99	94	84	52	111	180	103
Cumberland, MD–WV	105	115	94	58	110	139	103
Roanoke, VA	106	98	113	70	93	137	103
Staunton, VA	103	133	121	46	102	111	103
Chambersburg, PA	96	145	126	48	90	111	103
Williamsport, PA	88	148	123	43	93	116	102
Ludlow, VT	100	140	109	46	95	109	100
Hagerstown, MD	100	133	103	52	94	115	99
Beckley, WV	76	113	108	27	108	162	99
Scranton–Wilkes-Barre, PA	86	133	106	57	91	117	98
Harrisburg, PA	94	143	90	65	88	109	98
Winchester, VA	104	139	114	48	60	120	98
Blacksburg, VA	100	130	112	54	103	80	96
Spartanburg, SC	108	136	105	51	81	92	95

(continued)

Affordable
tourist QoL
index

Table 2.
Tourist QoL indices for
30 appalachian
mountain towns

Table 2.

Measure	Weather	Safety	Air quality	Socialization assets	Relaxation assets	Healthcare resources	Composite QoL index
Knoxville, TN	99	96	86	75	99	110	94
Greenville, SC	108	122	104	51	81	92	93
Chattanooga, TN	104	53	90	78	104	116	91
Dates of data sources	2019	2018	2018	2018	2018	2018	
	bestplaces.net	FBI	EPA	Bls.gov	Bls.gov	Bls.gov	
	Number of sunny days	Total crime rates per 100k	Good days/total AQI days	Employment location quotient for arts, design, entertainment, sports and media	Employment location quotient for hospitality codes	Employment location quotient for health care practitioners and technical occupations	
			27-0000	33-9092	35-0000	37-2022	
				39-3031	39-3091	39-6010	
				39-7010	39-9032	43-4081	

a very close second place rating with a composite score of 126, benefiting from above US average indices across all six factors with strengths in the health care resources (152), safety (136), and socialization assets (130) measures. In fact, Charlottesville was the only community among the study peer group of 30 mountain towns to register an index of at least 100 across all six factors.

A close second tier of mountain towns was represented by Morgantown (composite index = 117), Boone and Burlington (both with 114) and Harrisonburg (113). All four communities registered strong safety indices, with Morgantown registering a very strong health care resources index (204), Burlington excelling in socialization assets (158), Boone scoring high on relaxation assets (147), and Harrisonburg recording a strong AQI (121). A group of five communities represented the third tier of mountain towns, each registering a composite index of at least 105. They are Bennington and Asheville (both with an index = 110), and three towns in the Allegheny Mountains of Pennsylvania, Johnstown and Altoona (indices = 108) and State College (105). Twenty mountain towns registered composite indices greater than 100 as noted in Table 2, with 10 communities scoring below 100. Those communities were Hagerstown and Beckley (indices = 99), Scranton-Wilkes-Barre, Harrisburg and Winchester (98), Blacksburg (96) Spartanburg (95), Knoxville (94), Greenville (93) and Chattanooga (91). Each of these mountain towns registered low socialization assets indices (75 or lower), while Chattanooga also suffered from a very low safety index (53).

Overall statistical analysis of the data for the 30 mountain towns indicate that the mean composite index value was slightly above the US national average ($M = 104.86$, $SD = 8.96$). The composite scores had a range of 37 points from a minimum index of 91 for Chattanooga to the maximum score of 128 for Lynchburg. Of the six measures in the proposed model, the factor with the highest mean was the safety metric ($M = 126.02$, $SD = 25.96$), followed by health care ($M = 122.03$, $SD = 28.96$), air quality ($M = 106.80$, $SD = 12.11$) and relaxation assets ($M = 101.24$, $SD = 16.66$). Two of the measures registered means that were below the US national average, sunny days ($M = 96.08$, $SD = 9.25$) and socialization assets ($M = 76.97$, $SD = 38.53$).

Discussion and conclusions

Discussion of results

The results of the analysis illustrated three interesting findings. First, there appeared to be little correlation between geographic location and composite QoL index in this study. For example, although the top two mountain towns, Lynchburg and Charlottesville, are located in the southern portion of the study area, it is also true that the six lowest rated areas are also located in the south (Winchester, Blacksburg, Spartanburg, Knoxville, Greenville and Chattanooga). Among the top 10 mountain towns, six are located in the southern portion of the study area (Lynchburg, Charlottesville, Morgantown, Boone, Harrisonburg and Asheville), while four are located in the north (Burlington, Bennington, Pittsfield and Rutland). The second and third tiers of nine mountain towns of high-scoring communities were skewed slightly to the northern portion of the study with five mountain towns in the north (Burlington, Bennington, Johnstown, Altoona and State College) and four in the south (Morgantown, Boone, Harrisonburg and Asheville).

Second, there appeared to be somewhat of an inverse relationship between QoL composite scores and population size. For example, 4 of the 10 largest mountain towns in terms of population scored lowest in terms of tourist QoL composite score, including the following communities: Greenville, Chattanooga, Spartanburg and Knoxville. In three of these cases, scores on the socialization factor were the lowest for each community – with the exception of Chattanooga, which recorded the lowest safety index value of all 30 mountain towns

(index = 53). On other hand, the relationship between the top scoring mountain towns and population size was not as compelling. Specifically, of the 10 smallest communities in terms of population, only three scored among the top 10 in tourist QoL composite score: Boone, Bennington and Pittsfield.

Third, the composite QoL index values for lesser known mountain towns were very interesting, representing an example of the opportunity that this approach offers. Specifically, the results suggest that the QoL indices for several lesser known areas are competitive with a range of premier mountain town communities like Asheville and Burlington. This finding should be of interest to local policymakers in communities like Lynchburg, Boone, Harrisonburg, Johnstown, and Altoona, suggesting that their regions enjoy a tourist QoL that is broadly comparable to top tier destinations. This is particularly interesting because Asheville has emerged as one of the most appealing destinations to outdoors enthusiasts and beer aficionados while Burlington benefits from its location on the shores of Lake Champlain, is located near world-class ski resorts, and is home to the University of Vermont. The finding that lesser known mountain towns' QoL index values are only slightly lower than Asheville and Burlington could be the basis for the development of a compelling message to help brand these areas as desirable regions for both tourists as well as existing residents.

Theoretical implications

The findings of this study build upon the existing body of literature on QoL and tourism motivation. The methods described here demonstrate that there is an affordable and sustainable way to model tourist QoL in Appalachian mountain towns. The article shares the methods used by the RRP for the first time to measure resident QoL with a wider academic and practitioner audience. The article then illustrates how the model can be extended to measure QoL for potential tourists in a straightforward manner that could be replicated by professionals in any community in the US. The model has its limitations, described below, but it also offers theoretical and practical opportunities for policymakers.

The model and methodology presented here addresses the research gap noted by [Uysal et al. \(2016\)](#) who observed a dearth of tourism research studies that utilize objective measures. The six objective measures used in this study's methodology are based upon the literature on tourist motivations, particularly those outlined in the TCL theory of [Pearce \(1988\)](#) and [Pearce and Lee \(2005\)](#). Therefore, the proposed model represents a theoretical starting position in the effort to measure tourist QoL that may be challenged and/or expanded upon by future researchers.

Practical implications for use in tourism marketing efforts

The methods demonstrated in this study can be used to identify the relative strengths and weaknesses of a region as [Sirgy and Cornwell \(2001\)](#) recommended, and then used in local marketing efforts to help to brand a community as described by [Kruse \(2015\)](#) and [Baker \(2016\)](#). The development of a straightforward model employing free and readily available secondary data presents a promising opportunity for destination marketing organizations (DMOs) in small urban areas. [Sirgy and Cornwell \(2001\)](#) recommend that this type of analysis should be used by all community leaders to identify strategic gaps in community programs and services and take corrective action that would improve overall QoL satisfaction of residents (2001). One action would be for DMOs to promote the positive aspects of QoL in a community – both to tourists as well as current residents. The Roanoke model outlined above provides some guidance. One of the professionals involved with the Roanoke project, Pete Eshelman, described the challenge facing local leaders as the need to turn residents into community advocates ([Eshelman, 2017](#)). One of the ways this challenge was addressed by the

Roanoke team was the development of a marketing campaign promoting the area, and prominently featuring the QoL data. In fact, one brochure in the campaign suggests that QoL is a key foundation to economic success for any region (Roanoke Regional Partnership, 2014).

Another key implication of this study's methodology is that it can be affordably developed as a centerpiece of regional marketing efforts, as in the Roanoke case. The use of QoL as a marketing tool by local DMOs holds great promise in smaller urban areas that have suffered economic displacement due to changes in the global economy. Fraccastoro and Karani (2014) noted that the encouragement of new tourism opportunities will be critical to the economic future of many small towns (2014). Kruse (2015) also found this need in his investigation of small towns in Appalachia where he noted that tourism can provide a "much-needed boost to their often struggling economies" (2015, p. 313). Hodges and Frank (2014) identified a similar imperative in their study of two rural towns in the southeastern US and found that tourism held some promise in counteracting the decline in manufacturing employment, in these cases, the textile industry. Similar findings were noted by Xue and Kerstetter (2019) in their study of towns in rural China. This study demonstrates that these marketing efforts can be supported by data that are available free of charge to local policymakers. The model proposed here is also consistent with the type of methodology used by McGrath *et al.* (2016) and McGrath and Vickroy (2003) to affordably and sustainably measure local economic impact factors in one of the mountain towns described in this study, Johnstown.

Armed with data on their tourist QoL, mountain towns who scored favorably in this study could enhance their efforts to market their areas to visitors as unique and desirable destinations. Kruse (2015) discussed case studies on how a small West Virginia urban area has branded itself in an effort to differentiate themselves from other regions. Baker (2016) likewise described the efforts of Nashville, Tennessee and Austin, Texas, to brand themselves as unique music-centered destinations. In the study noted earlier, Hodges and Frank (2014) conducted research with a cross section of constituents including local politicians, business leaders and even displaced workers, and found that there was a perceived need for these small urban areas to reinvent themselves (2014) through a number of different economic development strategies that include tourism. In their study of a small Appalachian community in Pennsylvania, Dong *et al.* (2013) observed a similar need for rural communities to consider tourism as a new source of economic growth to help them overcome the collapse of their population and employment opportunities (Dong *et al.*, 2013).

Study limitations and future research opportunities

The key limitation of the study is that the development of QoL indices has a long history of continuous improvement which will continue as long as there are different perspectives on the relative importance of different factors involved with quantifying this abstract concept. The methods illustrated and discussed in the Roanoke model and this extension of its methodology represents one more set of possible measures to be added to the literature of this field. However, it also suggests the opportunity for other researchers to examine and further enhance this approach in future studies. The key research opportunity in this regard would be to follow the direction noted in the literature review by Ballas (2013), and add more subjective measures of happiness and SWB to the objective (purely statistical) QoL data employed in both the Roanoke model and this proposed extension of its methodology. A practical way to do this would be to add data from the happiness questionnaire item in the GSS conducted annually by the National Opinion Research Center and used by Okulicz-Kozaryn (2017) and Sander (2011). However, these data would be difficult for many small urban areas to acquire due to the privacy conditions of the GSS project. To overcome this obstacle, policymakers in small cities could seek to partner with local colleges or hospital systems that may have an institutional review board protocol in place that would satisfy the requirements of the GSS.

A second limitation is that the availability of data used in this study is confined to the US because most of the major sources (EPA, FBI and BLS) are US government entities and their measurement activities do not extend beyond US borders. However, there is an opportunity within some other countries to secure data from other sources that might be similar to, or even superior to, US sources. An example would be an exploration of possible free government sources of data in nations where government entities regularly conduct research on the types of variables examined in this study. An example of one potential source is the happiness ratings compiled for major cities in the United Kingdom by the Office of National Statistics. Another example is the work cited by [Urtasun and Gutiérrez \(2006\)](#) on resident QoL in Spanish cities using a wealth of objective data available free of charge from Spanish national sources. In fact, some of these 12 measures [Urtasun and Gutiérrez \(2006\)](#) used are so inventive that future researchers should consider analogous secondary data measures that may be available in the US.

Another limitation is that the proposed new model only incorporated six evenly weighted factors to an attempt to quantify QoL. Even though this approach is based loosely on the Roanoke model, it may be too simplistic. Are there other variables that could be employed to better capture the notion of QoL? And is there a more appropriate method to weight the importance of the variables? The answer to both questions is almost certainly yes, and this suggests an opportunity for future research that could refine strengthen the model by adding another variable(s) that might better capture some of the unique features of mountain towns that are not considered in this study. These new dimensions could help explain the surprising finding that the QoL composite index for lesser known mountain towns were only marginally lower than the composite index for Burlington and Asheville, destinations that, on paper, arguably have unique community assets. The challenge here would be to identify a factor or set of factors that could somehow quantify uniqueness. Some ideas that come to mind, and which satisfy the need to be affordably quantifiable, are the number structures listed on the National Register of Historic Places and/or the number of national parks located within close proximity each destination. This future work could be guided by the work of [Licciardi and Amirtahmasebi \(2012\)](#), who advocate the study of these types of tangible assets, as well as a study of less tangible community social and cultural assets. Symphony orchestras, minor league professional sports teams and music festivals would be good examples of these types of less tangible assets that could be quantified and incorporated into the methodology for future QoL studies. Future research could also examine whether there may be a more appropriate way to weight the variables to provide a more accurate estimate of QoL.

A final limitation of this study is the geographic selection of mountain towns in the Appalachian region. This obviously limits the generalization of the results; however, it also suggests a promising opportunity: to investigate the QoL indices for small urban areas in other geographies. The only practical limit to the methodology at this point would be that the data used in the analysis are based primarily on US government sources, so a strict replication of this study would be limited to US destinations, although it is possible analogous sources could be employed in nations outside the US to expand the model's application into those areas.

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