

# Strategic Management in Tourism and Communities

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## Abstract

Approximately 25 million people dwell in the Appalachian region, which consists of 420 counties across 13 states and extends from northern Mississippi to southern New York State. The Appalachian region has been documented to have slow rates of economic development, employment, population growth, and technology adoption. Some of the counties within the region have been defined as distressed communities that are in the bottom 10% of counties in the U.S. based on three indicators: income, poverty, and unemployment. A combination of focus groups and self-administered surveys were utilized to collect information regarding individuals' perceptions, experiences, and attitudes toward distressed and non-distressed counties in the Appalachian mountain region. Representatives and leaders of the studied counties were invited to participate in the project. This study investigates how the performance of public services (by county/local government and various departments), technology, education, job opportunities, and identified attributes have an impact on tourism development and quality of life per communities' perceptions and experiences.

**Keywords:** Appalachian Regio, Tourism and Community Development

## Introduction

Under the Appalachian Regional Development Act of 1965, the majority of Congress authorized the development of the Appalachian Development Highway System (ADHS). Across 13 states, the ADHS consisted of 32 highway corridors that netted 3,090 miles of highway in conjunction with federal-aid highways, the interstate system, and access to the local roads in the mountain region [1]. Hodge [2] reported the impacts of coal-related industries in the Appalachian region and noted how the changing economics of energy production may affect rural transportation, supply-chain implications, coal-fired power plants, and electricity generation.

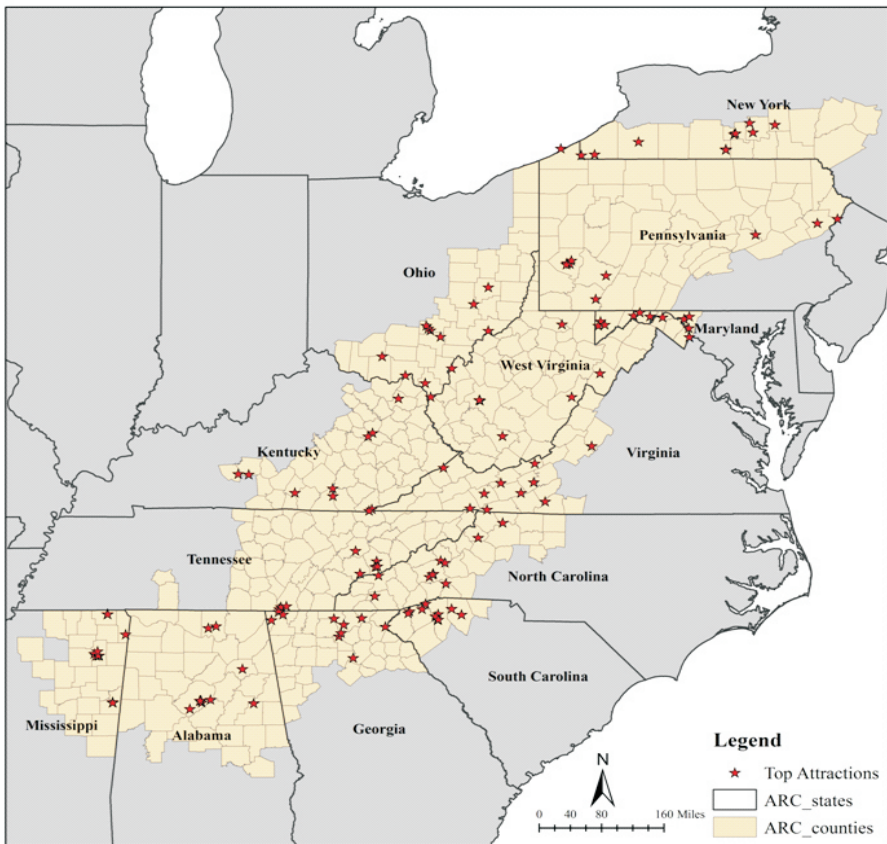
The Appalachian region has been documented to have slow rates of economic development, employment, population growth, and technology adoption.

Some of the counties within the region have been defined as distressed communities that are in the bottom 10% of counties in the U.S. based on three indicators: income, poverty, and unemployment. Previous studies reported on the relationship between broadband Internet availability, economic distress, and population change. The ARC, along with local, state, and federal funding sources, has provided \$100 million for 322 projects directly and indirectly from 2004-2010. Nearly eighty-four percent of distressed counties have broadband Internet connection, while 94% of non-distressed counties have Internet technology availability[3]. During the years from 2007 to 2012, the Appalachian region experienced an overall four-percent loss in the number of farm operators, although a few counties experienced farmland gains. The numbers and sizes of farmland and farms present the sources of local food production. In 2012, twelve percent of farms were located in the Appalachian region. Regardless of the average farmland loss in the region, there was a 0.9% increase (6.9% in 2007; 7.8% in 2012) of direct-to-consumer farm product sales by Appalachian farmers from 2007 to 2012[4].

Approximately 25 million people dwell in the Appalachian region, which consists of 420 counties across 13 states and extends from northern Mississippi to southern New York State. Because of the increased road accessibility in the Appalachian mountain region, officials and residents expected increased opportunities in terms of broader business, labor, and job opportunities in addition to the increased benefits of gaining access to better health care and education facilities [5]. It has been a costly and difficult road construction due to the region's mountainous and rugged terrain, while it has taken more than fifty years since the 1960s, and thus far approximately 88 percent of the ADHS is open to the public over the years. The ADHS aims to bridge greater economic development through increasing accessibility and availability of industries and services (e.g., infrastructure and labor markets), while reducing the isolation of many rural communities in the region. Isserman & Rephann [6] reported that counties that utilized an ADHS or interstate highway brought a positive impact to manufacturing industries. One study [7] investigated the cost and benefits of all highways' investment in the mountain region and concluded that there was a positive relationship between every dollar of highway investment and worker's salary increment in the region because of highway enhancement and more effective connections. According to various reports [8,9,10], from 2004 to 2014 the employment rate in the Appalachian region increased 0.4%, while the U.S. employment rate increased nearly 1%.

A combination of focus groups and self-administered surveys were utilized to collect information regarding individuals' perceptions, experiences, and attitudes toward distressed and non-distressed counties in the Appalachian

mountain region. Representatives and leaders of the studied counties were invited to participate in the project. The sample was generated based on the recommendation of a group of research advisory board members from the studied region. The invited representatives were contacted by emails, phone calls, and on-site meetings. More than two hundred surveys were completed and usable. All categorized distressed-county has an unemployment rate ranged from 12.6% to 18.3%. This study investigated the differences between distressed and non-distressed counties in terms of the quality of facilities, services, education, health care, and factors that impact the counties' economic and tourism development and cause young people to leave their county. Categorical survey questions were designed based on the outcomes of the focus-group members. Because of some small-respondent-number categories within and across types of questions (such as frequency, likely, importance, agree or disagree, etc.), Fishers' exact tests were employed to determine if there were any statistically significant differences between distressed and non-distressed counties. The collection of comments came from studied Appalachian Mountain Region, as shown on Figure 1.



**Figure 1.** Studied States and Counties

## **Methods**

Taking into consideration the dispersion of comments from both distressed and non-distressed counties, many of study respondents provided thoughts and evaluations. Those open-ended responses were valued by the funding agency's request to strengthen the study in order to present an overall picture of all community representatives' observations and concerns. Representatives from private, public, and voluntary sectors participated in the process of conducting the interviews to ensure the accountability of performance evaluations. We utilized computer aided qualitative data analysis software (specifically QDA Miner, Provalis Research) to analyze the open-ended comments provided by county representatives..

An experienced qualitative coder read the open-ended survey responses and created an initial code book to capture the content of the responses. The coding process is characterized by efforts to ensure trustworthiness. First, a spell check was performed on the responses, correcting mistyped words. Second, responses were coded across 30 respondents. To ensure that no responses were miscoded, the coder used the “query by example” function to identify similar words and phrases for each code. . Third, we searched particular words using stemming, to reduce words to a single root word (e.g., “robberies” and “vandalism” are classified as “crime”); once words were identified, they were assigned to a code. Finally, we identified cases and cells with text but without a code; each one of these responses were read, some new codes were added, but existing codes were applied. We used QDA's statistical methods for measuring word frequency to capture participants' perceptions and experiences. We included single words as well as multiple word phrases. Such evaluation comments could benefit from a clustering process that would gather the comments in logical groups to provide policy-makers with insights about the community representatives' opinions. This study focused on reducing redundancy of data while keeping relevant information and jointly analyzing quantitative and qualitative data. The outcomes of this study would be valuable for understanding the community development priority strategy.

The employed coding process allows determining the categories of the chosen open-ended comments regarding each concerned issues in the communities. It also may help identify which problems/issues are capturing more attention and bridge gaps for future research. The main contributions of this study are:

- Providing a text-based analysis process applied to both distressed and non-distressed counties;
- Using inductive coding to discover the main concerns generated because of the needs of rural community development;

- Finding topics that may unveil how community leaders' experiences and attitudes are being perceived, hence providing valuable knowledge for policy/decision-makers to understand the strengths and weaknesses of the studied region.

## **Results**

About sixty-five percent of respondents indicated the performance of their sheriff's department to be adequate and 12.4% of the respondents rated excellent, while 18.6% of the respondents rated inadequate and 4.5% of the respondents rated the performance to be poor. Thirty-eight percent of respondents reported the performance of their planning/zoning departments to be adequate and 3.8% of the respondents rated excellent, while 36.3% of the respondents rated inadequate and 21.8% of the respondents rated the performance of their planning/zoning departments to be poor. Approximately fifty-three percent of respondents concluded the performance of their Chamber of Commerce to be adequate and 20.1% of the respondents rated excellent, while 20.9% of the respondents rated inadequate and 6.3% of the respondents rated the performance to be poor.

Approximately fifty-three percent of respondents found the performance of their libraries to be adequate and 36.5% of the respondents rated excellent, while 8.2% of the respondents found the performance to be inadequate. Fifty-four percent of respondents concluded the performance of their parks/recreational facilities to be adequate and 20.7% of the respondents rated excellent, while 20.2% of the respondents rated inadequate and 5% of the respondents rated the performance to be poor. Seventy percent of respondents concluded the performance of their public health department to be adequate and 14.9% of the respondents rated excellent, while 11.2% of the respondents rated inadequate and 3.7% of the respondents rated the performance to be poor. Approximately thirty-five percent of respondents concluded the performance of their youth recreation programs to be adequate and 8.8% of the respondents rated excellent while 41.6% of the respondents rated inadequate and 15.1% of the respondents rated the performance to be poor.

Approximately thirty-one percent of respondents concluded the performance of their public transportation to be adequate and 3% of the respondents rated excellent, while 27.8% of the respondents rated inadequate and 38.4% of the respondents rated the performance to be poor. Forty-three percent of respondents concluded the performance of their road maintenance to be adequate and 4.5% of the respondents rated excellent, while 40.1% of the respondents rated inadequate and 12% of the respondents rated the

performance of their road maintenance to be poor. Sixty-four percent of respondents concluded the performance of their senior citizen services to be adequate and 16.7% of the respondents rated excellent, while 14.6% of the respondents rated inadequate and 4.6% of the respondents rated the performance to be poor.

Sixty-four percent of respondents concluded the performance of their police protection to be adequate and 11.3% of the respondents rated excellent, while 19.7% of the respondents rated inadequate and 5% of the respondents rated the performance of their police protection to be poor. Approximately sixty-six of respondents concluded the performance of their postal service to be adequate and 25.5% of the respondents rated excellent, while 7% of the respondents rated inadequate and 1.6% of the respondents rated the performance to be poor. Approximately sixty-three of respondents concluded the performance of their garbage collection to be adequate and 23.8% of the respondents rated excellent, while 7.8% of the respondents rated inadequate and 5.7% of the respondents rated the performance to be poor.

Thirty-three percent of respondents concluded the performance of their recycling programs to be adequate and 4.5% of the respondents rated excellent, while 31% of the respondents rated inadequate and 31.4% of the respondents rated the performance of their recycling programs to be poor. Approximately sixty percent of respondents concluded the performance of their sewer programs to be adequate and 8% of the respondents rated excellent, while 20.7% of the respondents rated inadequate and 11.8% of the respondents rated the performance to be poor. Approximately fifty-eight percent of respondents concluded the performance of their water programs to be adequate and 16.7% of the respondents rated excellent, while 18.8% of the respondents rated inadequate and 7.1% of the respondents rated the performance of their water programs to be poor.

Forty-one percent of respondents concluded the performance of their internet service to be adequate and 7.8% of the respondents rated excellent, while 27% of the respondents rated inadequate and 24.2% of the respondents rated the performance to be poor. Seventy percent of respondents concluded the performance of their natural gas to be adequate and 12.2% of the respondents rated excellent, while 10.5% of the respondents rated inadequate and 7.2% of the respondents rated the performance to be poor. Approximately seventy-two percent of respondents concluded the performance of their electricity to be adequate and 20.4% of the respondents rated excellent, while 4.2% of the respondents rated inadequate and 3.8% of the respondents rated the performance of their electricity to be poor.



Sixty-five percent of respondents concluded the performance of their fire protection to be adequate and 24.7% of the respondents rated excellent, while 6.6% of the respondents rated inadequate and 3.3% of the respondents rated the performance to be poor. Approximately sixty-five percent of respondents concluded the performance of their agricultural cooperative to be adequate and 16.3% of the respondents rated excellent, while 15.1% of the respondents rated inadequate and 3.8% of the respondents rated the performance to be poor. Approximately forty-eight percent of respondents concluded the performance of their business cooperative to be adequate and 4.3% of the respondents rated excellent, while 37.9% of the respondents rated inadequate and 10.2% of the respondents rated the performance of their business cooperative to be poor.

The study participants were asked to describe the overall condition of services and facilities in their counties, including the quality of the nearest downtown area and the availability and quality of telecommunications. Differences in the “classify the nearest downtown area” ( $p < 0.064$ ) category for distressed and non-distressed counties were statistically significant, while “what is the availability and quality of telecommunications in your county” ( $p < 0.995$ ) category for distressed and non-distressed counties were not statistically significant (Table 1).

**Table 1.** Rating the overall condition of services and facilities.

Characteristic	Distressed	Non-distressed	Signif.
classify the nearest downtown area	N = 120	N = 119	0.064*
	Excellent = 0.8%	Excellent = 3.4%	
	Adequate = 15%	Adequate = 24.4%	
	Fair = 54.2%	Fair = 52.9%	
	Poor = 30%	Poor = 19.3%	
what is the availability and quality of telecommunications in your county	N = 121	N = 119	0.995
	Excellent = 3.3%	Excellent = 3.4%	
	Adequate = 38.8%	Adequate = 37.8%	
	Fair = 47.1%	Fair = 48.7%	
	Poor = 10.7%	Poor = 10.1%	

\*\*\* = Significant at the 0.01 level. \*\* = Significant at the 0.05 level. \* = Significant at the 0.1 level.  
Signif. = Significant level. Fisher's exact test.

Differences in the “during the last three years, how often did you vote in the local election” ( $p < 0.319$ ) and “during the last 3 years, how often did you join a local organization” ( $p < 0.328$ ) categories for distressed and non-distressed counties were not statistically significant (Table 2). The study participants were asked to rank the importance of listed attributes in their counties, including accessible transportation, better education, better community leadership, and more available industrial space. Differences in the “expand available industrial space” ( $p < 0.024$ ) category for distressed and non-distressed counties were statistically significant, while differences in the “improve transportation access or capacity” ( $p < 0.178$ ), “provide better schools, education, and training opportunities” ( $p < 0.72$ ), and “develop better community leadership”

( $p < 0.553$ ) categories for distressed and non-distressed counties were not statistically significant (Table 3).

**Table 2.** How often did you involve with the listed activities?

Characteristic	Distressed	Non-distressed	Signif.
during the last three years, how often did you vote in a local election	N = 125	N = 118	0.319
	Frequently = 93.6%	Frequently = 87.3%	
	Sometimes = 3.2%	Sometimes = 5.9%	
	Rarely = 1.6%	Rarely = 1.7%	
during the last three years, how often did you join a local organization	N = 125	N = 118	0.328
	Frequently = 36.8%	Frequently = 43.2%	
	Sometimes = 39.2%	Sometimes = 31.4%	
	Rarely = 12%	Rarely = 16.9%	
	Never = 12%	Never = 8.5%	

\*\*\* = Significant at the 0.01 level. \*\* = Significant at the 0.05 level. \* = Significant at the 0.1 level. Signf. = Significant level. Fisher's exact test.

**Table 3.** Rank the importance of the listed attributes.

Characteristic	Distressed	Non-distressed	Signif.
improve transportation access or capacity	N = 124	N = 116	0.178
	Very Important = 66.9%	Very Important = 59.5%	
	Somewhat I = 21%	Somewhat I = 32.8%	
	Unsure = 0.8%	Unsure = 0.9%	
Provide better schools, education, and training opportunities	N = 124	N = 117	0.72
	Very Important = 74.2%	Very Important = 74.4%	
	Somewhat I = 24.2%	Somewhat I = 23.9%	
	Unsure = 0%	Unsure = 0.9%	
Develop better community leadership	N = 123	N = 117	0.553
	Very Important = 78.9%	Very Important = 72.6%	
	Somewhat I = 20.3%	Somewhat I = 25.6%	
	Unsure = 0%	Unsure = 0.9%	
Expand available industrial space	N = 123	N = 116	0.024**
	Very Important = 57.7%	Very Important = 39.7%	
	Somewhat I = 26.8%	Somewhat I = 36.2%	
	Unsure = 0.8%	Unsure = 0%	
	Not I = 14.6%	Not I = 24.1%	

I = Important, SW I = Somewhat Important, NI = Not Important; \*\*\* = Significant at the 0.01 level. \*\* = Significant at the 0.05 level. \* = Significant at the 0.1 level. Signf. = Significant level. Fisher's exact test.

**Table 4.** Perceptions and experiences.

Characteristic	Distressed	Non-distressed	Signif.
Local leaders are doing an excellent job creating a healthy business climate	N = 125	N = 117	0.336
	Strongly A = 1.6%	Strongly A = 0.9%	
	Agree (A) = 16.8%	Agree (A) = 26.5%	
	Unsure = 20.8%	Unsure = 23.1%	
	Disagree (D) = 41.6%	Disagree (D) = 32.5%	
Most young people want to stay in the the county as adults	N = 124	N = 118	0.209
	Strongly A = 4%	Strongly A = 0.8%	
	Agree (A) = 14.5%	Agree (A) = 13.6%	
	Unsure = 6.5%	Unsure = 10.2%	
	Disagree (D) = 37.9%	Disagree (D) = 46.6%	
	Strongly D = 37.1%	Strongly D = 28.8%	

\*\*\* = Significant at the 0.01 level. \*\* = Significant at the 0.05 level. \* = Significant at the 0.1 level.

Signf. = Significant level. Fisher's exact test.



Study participants were asked what their county is best known for, and if elected leaders make decisions themselves or call upon the community for input. Residents were also asked to rate factors in explaining why young adults might decide to leave their county. Differences in the “local leaders are doing an excellent job creating a healthy business climate” ( $p < 0.336$ ) and “most young people want to stay in the county as adults” ( $p < 0.209$ ) categories for distressed and non-distressed counties were not statistically significant (Table 4). The study participants were asked to discuss why young adults might decide to leave their county, including job opportunities, education, and crime. Differences in the “job opportunities” ( $p < 0.013$ ) and “crime” ( $p < 0.000$ ) categories for distressed and non-distressed counties were statistically significant, while differences in the “education” ( $p < 0.426$ ) category for distressed and non-distressed counties were not statistically significant (Table 5).

**Table 5.** Why young adults might decide to leave your county?

Characteristic	Distressed	Non-distressed	Signif.
Job opportunities	N = 122	N = 119	0.013*
	VL = 95.9%	VL = 84.9%	
	SL = 4.1%	SL = 14.3%	
	Not L = 0%	Not L = 0.8%	
Education	N = 123	N = 119	0.426
	VL = 56.1%	VL = 47.9%	
	SL = 38.2%	SL = 46.2%	
	unsure = 0.8%	unsure = 0%	
Crime	N = 123	N = 119	0.000***
	VL = 9.8%	VL = 2.5%	
	SL = 24.4%	SL = 6.7%	
	unsure = 2.4%	unsure = 1.7%	
	Not L = 63.4%	Not L = 89.1%	

VL = Very Likely; SL = Somewhat Likely; SUL = Somewhat Unlikely; VUL = Very Unlikely.

\*\*\* = Significant at the 0.01 level. \*\* = Significant at the 0.05 level. \* = Significant at the 0.1 level.

Signf. = Significant level. Fisher’s exact test.

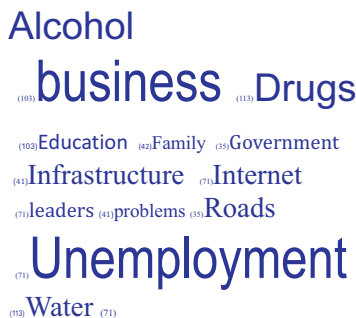
Table 6 shows the number of occurrences for each code from the open-ended responses. The coding procedure recognized a perceived strong sentiment as the most frequent term of both words and multiple word domains, occurring 800 times among the whole 244 study participants. Figure 2 shows the word cloud for terms from the rural community development problem domain, providing a visual interpretation of the results. Thus, the cloud is drawn on the frequency of terms occurring in the textual contents of the evaluation open-ended comments: a term occurring more frequently will be visualized in a larger font.

**Table 6.** Text mining and analyses

	Distressed	Non-distressed	F-test	P value
<b>Lack of business and UNEMPLOYMENT</b>	66	47	4.382	0.037**
<b>Drugs alcohol</b>	56	47	0.699	0.404
<b>Roads, infrastructure, water, and internet</b>	31	40	2.298	0.131
<b>Education</b>	23	19	0.252	0.616
<b>Government leaders and structure</b>	23	18	0.464	0.496
<b>Family problems- abuse, discipline, distegration, poverty</b>	20	15	0.569	0.452
<b>Opportunities</b>	17	16	0.001	0.972
<b>Teen pregnancy</b>	19	7	5.642	0.018**
<b>Econ development</b>	10	10	0.013	0.909
<b>Crime</b>	13	5	3.448	0.065*
<b>Lack of community or pride or poor image</b>	11	6	1.325	0.251
<b>Environmental issues</b>	3	11	5.352	0.022**
<b>Housing</b>	4	9	2.304	0.13
<b>Planning</b>	2	7	3.162	0.077*
<b>Racial</b>	6	2	1.87	0.173
<b>Too much government TAXES</b>	1	6	3.969	0.047**
<b>Educating population and restructuring</b>	2	5	1.478	0.225
<b>Police law enforcement</b>	5	2	1.173	0.28
<b>Health</b>	3	4	0.201	0.655
<b>Better leaders working together</b>	1	4	1.993	0.159

\*\* = Significant at the 0.05 level. \* = Significant at the 0.1 level.

The first topic is “lack of business and unemployment,” and it was the most frequently mentioned problem regarding rural community development by respondents of both distressed and non-distressed counties (113 total comments). In order to respond to study participants' concerns, creating feasible job opportunities for local residents in the community across business sectors may retain workforces and population locally. These are expected results, considering that sufficient job opportunities are highly related by sustainable communities. For example, various service and/or manufacturing industries may employ a larger number of workers.



**Figure 2.** Word-cloud Display

The second topic, which identifies another problem area is “drugs and alcohol,” received 103 matching comments, considering that “drug and alcohol” of this Appalachian Region is a concern expressed by community representatives. The emphasis on the number of incidents expressed by project participants associated with drugs and alcohol included *substance abuse, DUI offenders, prescription drug abuse, drug dealers, and alcohol abuse*. The outcomes indicated the importance of focusing on providing drug/alcohol prevention policy. It is one of the most important factors related to having local residents' intention to continue to live in the region and to exhibit their confidence on public health care. The third topic was “roads, infrastructure, water, and internet,” which had 71 comments, considering the counties need to enhance their road expansion and accessibility, public transportation, rural infrastructure, sewer wastewater infrastructure, broadband infrastructure, and internet availability. Studied counties may consider providing more effective communications through offering various business benefits and convenience related to infrastructure and technology improvement.

As seen in Table 6, “unemployment”, “drugs and alcohol”, and “lack of infrastructure and technology” consisted of 287 comments from the total of 800 (36%), are the main concerns of rural community development according to the counties' representative across public, private, and voluntary sectors. Respondents in distressed counties were more focused on the “lack of business and unemployment” ( $p < 0.037$ ), “teen pregnancy” ( $p < 0.018$ ), and “crime” ( $p < 0.065$ ), which were statistically significant as compared to comments from non-distressed counties. Respondents in the non-distressed counties identified “environmental issues” ( $p < 0.022$ ) as a vexing and negative issue, but these same respondents identified ways for local leadership to enact change through “planning” ( $p < 0.077$ ) and reduction of taxes (“too much government taxes” ( $p < 0.047$ )).

## Discussion and Conclusion

This study investigates how the performance of public services (by county/local government and various departments), technology, education, job opportunities, and identified attributes have an impact on county development and quality of life per communities' perceptions and experiences. Two hundred and forty-four individuals were invited to participate in this project during the years of 2011–2012. The survey instrument features four major sections: 1) the performance of public services that impact county development, 2) communities' experiences with technology innovation, 3) communities' perceptions of the importance of education, and 4) how public policies impact the quality of life in a county.

The study participants were asked to rank the importance of listed attributes that were related to their community development and were asked to rate the overall condition of services and facilities as well. Over fifty percent of respondents for both distressed and non-distressed counties rank the quality of the nearest downtown area in their counties as 'fair', while 30% of respondents from distressed counties rank 'poor' and 19% of respondents from non-distressed counties rank 'poor' for their nearest downtown area. In terms of 'what is the availability and quality of telecommunications in your county', respondents from distressed and non-distressed counties expressed similar perceptions and experiences.

Nearly ninety-four percent of respondents from distressed counties mentioned that they voted in a local election 'frequently' during the last three years, while eighty-seven percent of respondents from non-distressed counties ranked 'frequently'. Over seventy-five percent of respondents from both distressed and non-distressed counties mentioned that they joined a local organization during the last three years when combining 'sometimes' and 'frequently'. Over eighty-eight percent of respondents from distressed counties stated that it is important to improve transportation access or capacity, while more than ninety-two percent of respondents from non-distressed counties stated that it is important to improve transportation access or capacity. More than ninety-seven percent of respondents from both distressed and non-distressed counties mentioned that it's important to provide better schools, education, and training opportunities, while more than ninety-eight percent of respondents from both distressed and non-distressed counties believed it is important to develop better community leadership. Respondents (84%) from distressed counties are more likely to rank the higher importance of expanding available industrial space in their county than those (76%) from non-distressed counties did.

The majority of respondents from both distressed and non-distressed were unsure if the air quality of the county has improved over the last three years, while 29% of respondents from non-distressed counties disagree that the air quality has improved. The majority of respondents from distressed (60.8%) and non-distressed (50%) counties disagreed that local leaders are doing an excellent job of creating a healthy business climate in their county. The majority of respondents from distressed (75%) and non-distressed (75%) believed that most young people did not want to stay in their county as adults. More respondents from distressed counties (96%) felt that job opportunities were even more likely to be the main reason why young adults might decide to leave their county than those (85%) from non-distressed counties. The majority of respondents from distressed (94%) and non-distressed (94%) counties mentioned that 'education' is likely to be the reason why young adults

might decide to leave their county.

Rural communities in the U.S. are in need of Internet access. Internet installation can enhance connectivity, induce accessibility, share knowledge, and increase investment opportunities for the private sector. Over the past decades, through ARC-supported grants, distressed communities recognized and benefited from the installation of telecommunications, training, and infrastructure that can pave the way for more effective business development. Planners, administrative officers, and developers of public and private organizations need to actively collaborate across the region to complete the remaining unfinished ADHS project in order to connect the Appalachian communities to various transportation networks, including interstate, federal-aided, rail, air, and water transportation systems and facilities. From the 1960s to 2016, 2,577 miles of highway were completed and 206 were under construction out of 3,090, with 307 miles still to be built.

Twenty-five billion dollars in investments (direct funds and matching funds) by federal, state, and local sources in addition to the ARC has been documented for all granted projects (highway or non-highway) over the years. A report published by the Center for Regional Economic Competitiveness and West Virginia University [11] examined the changes in the Appalachian Region since 1965 and found that “Appalachia's poverty rate has decreased from 31% in 1965 to 16.6% recently” (p. 5). The unemployment rate in the Appalachian Region has been higher than the nation's average by 2 points, while there is more of an aging population in the rural communities. Additionally, the historical data set showed that there is a lower education level, a slower population growth rate, less transportation access, more isolated telecommunication capacity, and a much poorer health service and housing quality in the Appalachian region comparing to those in the nation as a whole. It is critical for the Appalachian region to have strategic transportation accessibility as well as telecommunication infrastructure in order to offer an environment that invites business and technology industries to create job opportunities in the mountain region.

Across the open-ended comments was an expressed hope that local leadership would recognize the economic and social factors in distressed counties. In non-distressed counties, the respondents identified planning and tax burdens as areas where local leadership could focus their attention. In distressed counties social and economic issues – crime, pregnancy and jobs – were primarily discussed. Most of these comments reflected a pessimism in local government which might reflect that the overwhelming social and economic issues might significantly limit the discretion of local leadership to enact changes [12].



This study employed qualitative data analysis through coding (inductive) and using features of the CAQDAS to speed coding and ensure trustworthiness. We concluded that comparing what the distressed and non-distressed respondents looked at is valuable finding. Non-distressed counties were in need of obtaining support for environment and ways for local leadership to help (taxes and planning) whereas distressed counties were dealing with chronic unemployment (no jobs) and heavy and distracting social issues (crime, teen pregnancy). The studied counties were grouped from distressed to non-distressed, and study participants expressed their concerns about the obstacles and problems facing rural community development. It should be highlighted that these studied counties' business managers and leaders of public and voluntary organizations provided evaluations of the counties' performance by offering their thoughts, in that the approaches strengthened the reliability of the data quality. Considering that the open-ended questions were an opportunity in which the study participants were directly instructed to provide their opinions about their observations and recommendations, respondents tended to write down their comments freely, expecting that their opinions were to be grouped and reported to the main policy makers at the end of this funded project. The main findings of the open-ended responses were that all studied counties still have plenty room to improve and transform their negative feelings into leaning-toward-positive feelings with hopeful expectations and trust in government leaders.

## **Acknowledgments**

We appreciate the participated communities and organizers shared the data with us.

## **Author Contributions**

Dr. Rachel J C Chen provided literature reviews and quantitative analyses and drafted the manuscript. Dr. Anne Smith added qualitative analyses, and recommendations.

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