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Quality of Life Satisfaction: A Comparative Survey Analysis of the Eastern Panhandle and Southern West Virginia Counties

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by

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Abstract: The main objective of this paper is to analyze and report quality of life survey responses from a random sample of over 1028 individuals from 21 counties in West Virginia. The survey responses are drawn form a quality of life survey conducted in 2000. Perhaps the most interesting observation from the responses was not that differences exist among counties but that, in all counties, the level of satisfaction was remarkably high (over 50%). Only small fractions of individuals were explicitly dissatisfied, surprisingly in counties with the highest growth levels in per capita incomes.

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Introduction

Quality of life has always been an elusive concept in economic theory. It has been difficult to quantify and intrinsically subjective. As Igor (1998) noted, quality of life is an interaction of a number of factors—social, health, economics and the environment. In the field of economics, Liu (1976) was the first attempt to integrate the concept into the general framework in conventional microeconomic analysis (Liu, 1976: 39). A far more elaborate attempt was made by Juster et al., (1981: 23) who sought "to bridge the gap between the way in which economists have thought about material well-being and the way other social scientists have thought about social indicators."

In this paper the interest in quality of life reporting is grounded in three recent developments in modern public management. First, the interest in societal indicators is picking up again after a decline in the 1980's that followed some 15 years of development. Governments at all levels as well as international organizations are releasing reports on societal indicators. The most well known report is the UN Human Development Index, which has consistently ranked the United States third in an index popularized in the media as a ranking of quality of life (UNDP, 1999).

Second, there is a growing trend for government reporting to citizens on performance. This reporting is shifting the approach to "accountability" away from simplistic finger pointing towards a new approach in which governments are accountable for articulating the intended results of programs and how these results can be measured in a transparent way. Quality of life reporting offers an important tool that can be used to examine whether the implemented policies had the intended results. The third trend is the increasing demand by citizens to be engaged in the agenda setting and policymaking

process. Quality of life reporting can help inform processes for involving citizens in policymaking.

On the other hand, despite a sizable literature that has developed in this area, understanding of how individuals form their life satisfaction is still inadequate. One sign of this inadequacy is the existence of inconsistent, sometimes even conflicting, research results about the factors that shape individuals' satisfaction with the kind of life they lead. This may be due to the differences in samples and the way key variables are defined, but it also may be because of how the data are analyzed. There is still a need to reinvestigate the sensitivity of some of the variables regarded as important in shaping individuals' satisfaction with the life they lead.

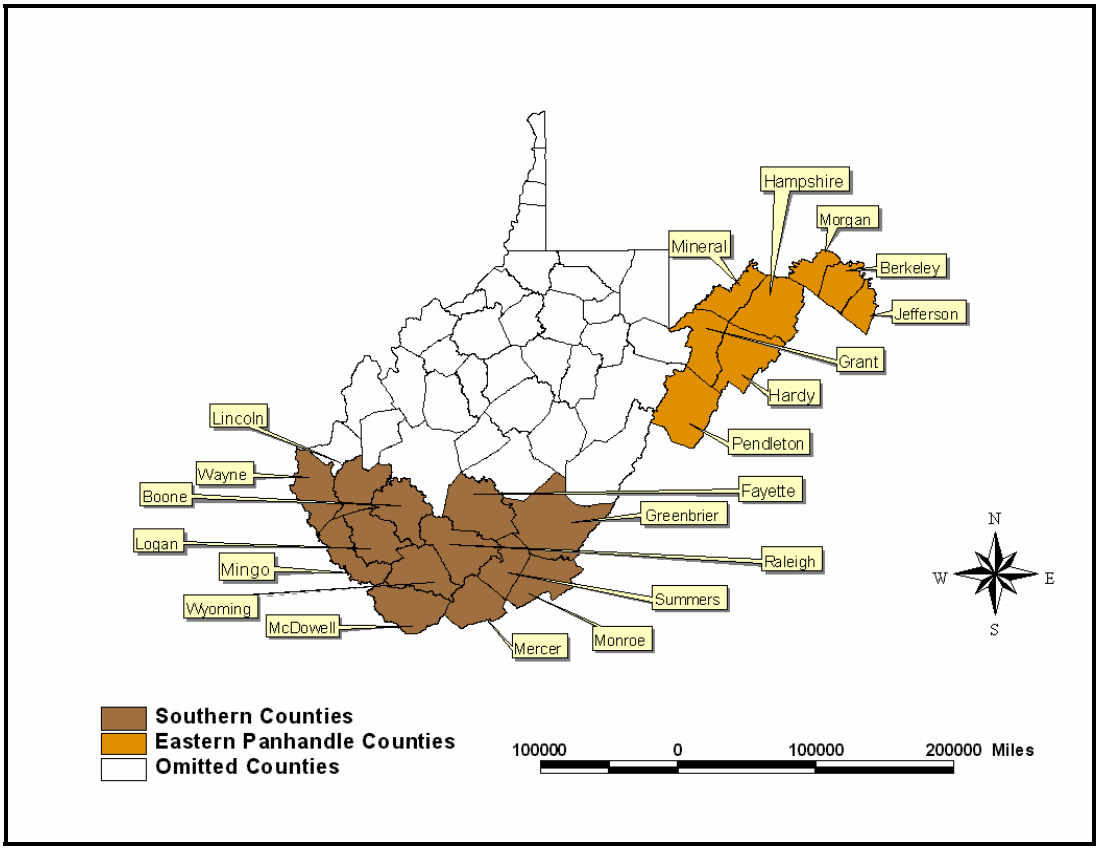
The paper discusses the perceptions of over 1028 individuals from twenty-one counties in West Virginia. These perceptions are drawn form a quality of life survey conducted in 2000.[2] The study for which the quality of life survey was conducted had two overall goals. First, to identify and measure the impacts of specific and definable regional forces, including government policies, on quality of life. Second, to reinvestigate the effects of the factors that have been considered to facilitate a satisfied or dissatisfied response to quality of life in order to reconcile the differences and conflicts in the previous quality of life studies.

The study area is comprised of two dissimilar regions of West Virginia (Figure 1): Southern West Virginia counties (comprising of a sample of the poor counties in the state) and the Eastern Panhandle counties (comprising of a sample of the 'well off' counties in the state). The two regions are chosen as a representative sample of the

[2] See Bukenya (2001). "Quality of life, income distribution and rural development in West Virginia."

"worst/poor" and "best/rich" regions in the state, in terms of economic development indicators and quality of life indicators (Hanham, Berhanu and Loveridge, 2000).

Figure 1: Study Area



Economic Background

Before discussing the survey responses it is essential to put the economic structure of the two regions in perspective. The most recent statistics on some of the key regional economic indicators for both regions are used for analysis.

Eastern Panhandle Region: the population for the eight Eastern Panhandle counties was 212,483 based on the 2000 census, accounting for 11.8 percent of state residents (Table 1). Resident employment in the region was 96,790 in 1999, which was 12.7 percent of the state total employment. The average unemployment rate for the region

was 4.8 percent. Berkeley County is the largest of the eight counties, with 75,905 residents, followed by Jefferson County (42,190 residents) and Mineral County (27,078 residents). Berkeley County also had the most employed residents in 1999 (Table 1).

Table 1: Regional Economic Indicators

	Residents Population	Civilian Labor Force	Per Capita Income	Total Employment	Total Unemployment	Unemployment Rate
Year	2000	1999	1999	1999	1999	1999
Eastern Panhandle Counties						
Berkeley	75,905	35,670	23,040	34,360	1310	3.7
Grant	11,299	4,570	18,913	4,180	390	8.4
Hampshire	20,203	8,800	16,246	8,370	430	4.9
Hardy	12,669	7,390	19,469	7,100	290	4.0
Jefferson	42,190	21,850	26,529	21,220	630	2.9
Mineral	27,078	12,490	18,722	11,590	900	7.2
Morgan	14,943	6,230	20,455	6,070	160	2.6
Pendleton	8,196	4,080	19,581	3,900	190	4.6
Region Total	212,483	101,080	21,812	96,790	4,300	4.8*
Southern West Virginia Counties						
Boone	25,535	8,130	19,843	7,220	910	11.2
Fayette	47,579	18,340	17,787	16,520	1,820	9.9
Greenbrier	34,453	15,900	19,630	14,600	1,300	8.2
Lincoln	22,108	7,080	14,261	6,240	840	11.9
Logan	37,710	13,390	17,291	11,750	1,640	12.2
McDowell	27,329	7,570	14,002	6,470	1,100	14.5
Mercer	62,980	28,620	21,256	27,230	1,390	4.9
Mingo	28,253	8,520	17,268	7,230	1,290	15.2
Monroe	14,583	5,410	15,281	5,280	240	4.3
Raleigh	79,220	35,520	20,687	32,920	2,600	7.3
Summers	12,999	4,450	14,647	4,050	410	9.1
Wayne	42,903	17,150	15,988	16,080	1,070	6.3
Wyoming	25,708	8,310	14,606	7,420	890	10.7
Region Total	461,360	178,390	18,013	163,010	15,500	9.7*
WV	1,808,344	817,000	20,921	763,000	54,000	6.6

* Average unemployment rate for the region

Per capita personal income in the region was $21,812 in 1999. Jefferson County had the highest per capita personal income in the region ($26,529), which was well above the West Virginia average of $20,921, but below the U.S. average of $28,546. In 1999, Jefferson County ranked 3rd in the state in per capita personal income, behind only Kanawha and Ohio Counties.

Southern Region: Population for the thirteen counties in the Southern region was 461,360 based on the 2000 census, accounting for 25.5 percent of the state's residents (Table 5.3). Raleigh County had the largest population in the region with 79,220 residents, followed by Mercer County (62,980 residents) and Fayette County (47,579 residents). Resident employment in the region was 163,010 in 1999, which was 21.4 percent of the state's total. The average unemployment rate for the Southern region was 9.7 percent in 1999. Monroe County had the lowest unemployment rate in the region in 1999. Per capita personal income in the thirteen-county region was $18,013 in 1999. Mercer County had the highest per capita personal income ($21,256), which was well above the West Virginia average of $20,921, but below the U.S. average of $28,546.

Survey Data Characteristics and Measurements

The survey questionnaire was sent to 2000 individuals, selected randomly using telephone numbers and zip codes. The questionnaire addressed issues pertaining to satisfaction with quality of life, demographic and socio-economic characteristics of individuals, and policy-related issues that are considered to be essential in influencing individuals' satisfaction or dissatisfaction with life. The demographic and socio-economic characteristics data collected include: age, gender, race, religion, education, civil status, unemployment, amenities, years lived in the community, family quality, life

satisfaction, health, and environmental quality. The policy-related aspects included local government services, health service availability, zoning regulations, among others.

Quality of life satisfaction was measured by a categorical question about life-satisfaction. The responses to the quality of life question are rated on a three-point scale. Where 0-denotes, the daily life is never a source of personal satisfaction; 1-denote, the daily life is sometimes a source of personal satisfaction, and 2-denotes, the daily life is a source of personal satisfaction most of the time.

Justification for the QOL measure – The way quality of life is measured is important because it directly influences the responses of the survey. Many studies in the literature (Ellen and Turner, 1997; Vanfossen, 1981; Gove et al., 1983; Sousa-Poza and Sousa-Poza, 2000; Lu, 1999), particularly those conducted by psychologists, have used additive indexes of some kind to measure satisfaction. In compiling these indexes, researchers first determine a list of personal or neighborhood attributes that are deemed important to individuals. Then ask respondents to rate them on a Likert-type scale, i.e., to express the extent of their agreement or disagreement with statements that reflect positive or negative attitudes toward these attributes, for example, 1-strongly agree, 10-strongly disagree. The ratings are then summed to generate an aggregate measure (Clark and Oswald, 1994).

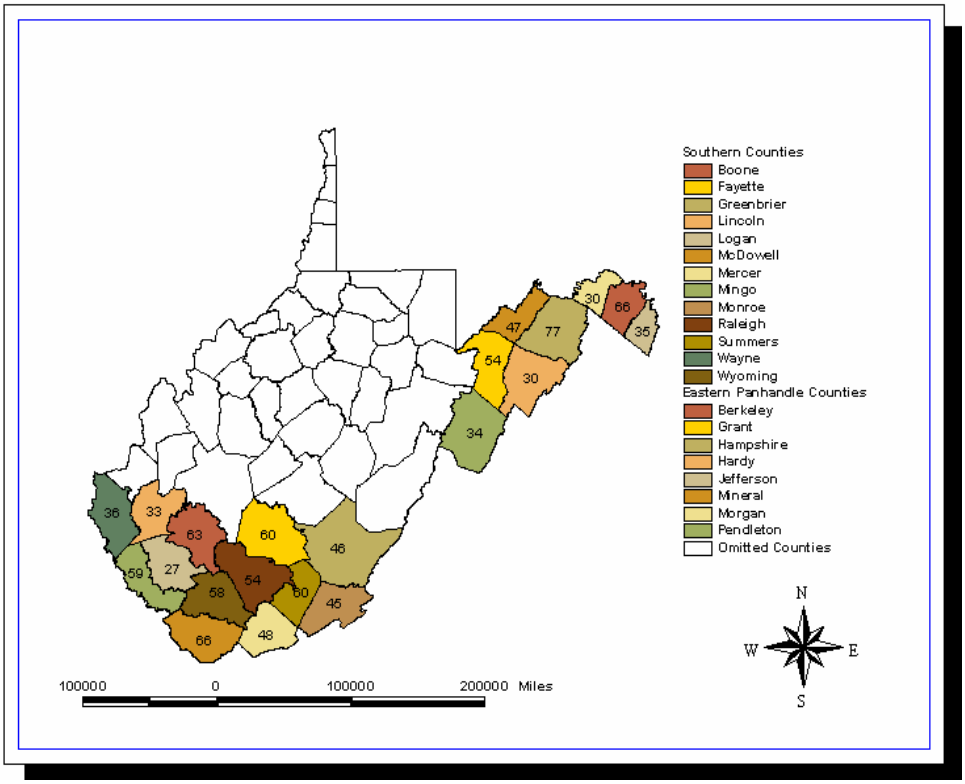
The problem with such aggregate measures of satisfaction is that they are deemed unreliable (Gerdtham and Johannesson, 1997). This is because expressed satisfaction represents integrated participant perceptions that embrace a wide range of external conditions (Golant, 1982; Gerdtham and Johannesson, 1997). Moore (1986) posits that a reacting individual is likely to attach different levels of importance to various attributes

of his/her life and their weights are not likely to be well understood. Therefore, it becomes difficult if not impossible to construct externally calculated reliable measures of life satisfaction. Gerdtham and Johannesson (1997) posit that an overall measure based on a single question avoids this complication, thus, justifying the use of a comprehensive measure of satisfaction adopted in the current study.

Completed survey questionnaires of the study were received from 840 individuals (return rate 42%), of whom 394 were female and 446 were male respondents. A follow-up was conducted and, by using the survey and address' identification numbers, a second mailing was sent to 1093 individuals (23 addresses were either unknown or individuals had left the area) who had not responded to the first mailing. The follow up mailing resulted in responses from 220 individuals (return rate 20%), of whom 138 were female and 82 were male. In total, completed questionnaires were received from 1060 individuals (return rate 53%), of whom 532 were female and 528 were male.

From the total completed survey questionnaires received, thirty-two (32) questionnaires were discarded because some respondent did not answered certain questions that were important to the study and some did not follow the instructions provided in the survey questionnaire. Therefore the data are based on 1028 questionnaires resulting in a return rate of 51.4%. The number of completed survey questionnaires received by county is reported in Figure 2. In this figure, Hampshire and Logan Counties are shown to have the highest and lowest number of respondent, respectively.

Figure 2: Distribution of Survey Responses by County



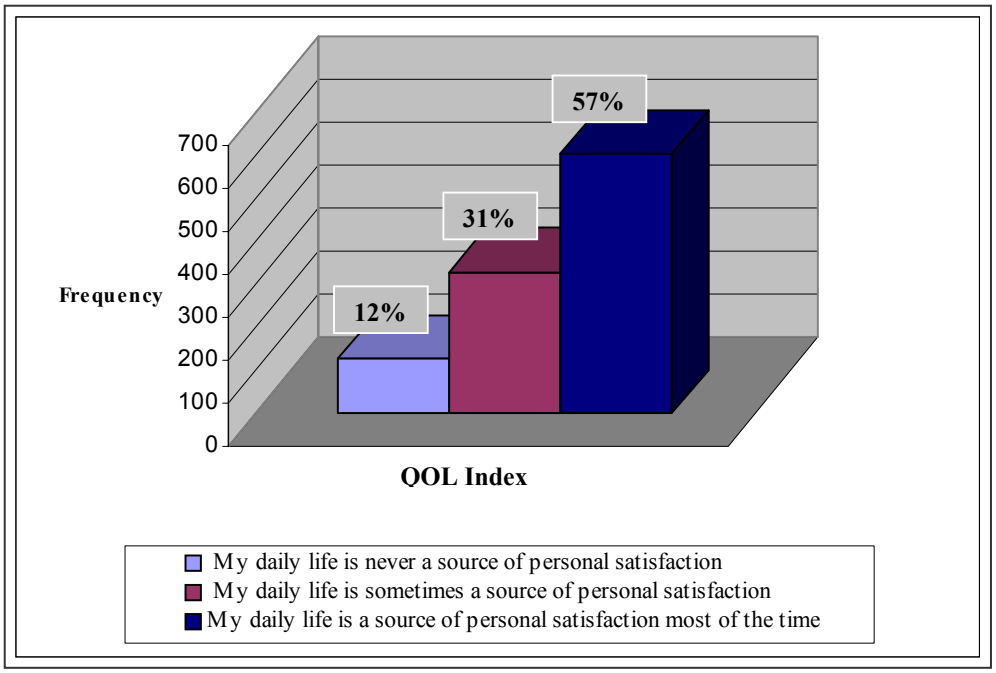
Survey Data Analysis[3]

Initial examination of the data reveals that an overwhelming majority of the respondents rated their life favorably as illustrated in Figure 3. In general, 57 percent of the survey respondents indicated that the daily life is a source of personal satisfaction (i.e., satisfied); 31 percent indicated that the daily life is sometimes a source of personal satisfaction (i.e., neither satisfied nor dissatisfied). Lastly, 12 percent indicated that, the daily life is never a source of personal satisfaction (i.e., dissatisfied).

The high favorable ratings observed in the survey responses might be indicative of upward bias. Upward bias in self-reported questionnaires has been documented in the

[3] For further detail of the survey data analysis see Bukenya (2001).

Figure 3: Histogram for Categorical Quality of Life Index



literature, especially in residential satisfaction studies, and is usually attributed to the tendency individuals have to conform or adapt to their existing environment over time and consequently report a reasonably high level of satisfaction (Amerigo and Aragories, 1990; Lu, 1999). Insofar as individuals inflate their life satisfaction to the similar extent, the differences in their ratings reflect the gap between the perceived life quality and their aspirations.

The overall quality of life satisfaction responses are presented in Table 2. Some interesting results are: (i) Individuals in Morgan and Lincoln counties reported the highest levels of quality of life satisfaction whereas individuals in Hardy and Berkeley counties reported the lowest levels of quality of life satisfaction. (ii) The counties with

Table 2: Levels of Quality of Life Satisfaction

County	Daily life is never a source of Satisfaction *% of county Responses*	Daily life is some times a source of satisfaction *% of county Responses*	Daily life is a source of satisfaction most of the time *% of county Responses*	Number of Observations	Ranking
Morgan*	5.26	15.79	78.95	30	1
Lincoln	9.09	12.12	78.79	33	2
Greenbrier	7.41	14.81	77.78	46	3
Grant*	12.96	22.22	64.81	54	4
Pendleton*	11.11	25.93	62.96	34	5
Wyoming	5.19	32.47	62.34	58	6
McDowell	9.09	28.79	62.12	66	7
Monroe	11.11	26.67	62.22	45	8
Wayne	5.56	33.33	61.11	36	9
Fayette	11.67	28.33	60.00	60	10
Mineral*	12.77	29.79	57.45	47	11
Logan	13.10	29.76	57.14	27	12
Hampshire*	15.15	30.30	54.55	77	13
Raleigh	7.41	38.89	53.70	54	14
Mercer	20.83	27.08	52.08	48	15
Boone	14.29	34.92	50.79	63	16
Summers	10.00	40.00	50.00	60	17
Jefferson*	17.14	34.29	48.57	35	18
Mingo	8.47	44.07	47.46	59	19
Berkeley*	23.38	31.17	45.45	66	20
Hardy*	13.04	47.83	39.13	30	21
Total	**12.08**	**30.85**	**57.08**	**1028**	**------**

* Represents Eastern Panhandle Counties

the highest levels of satisfaction are located in the Eastern Panhandle region. (iii) The counties with the lowest reported levels of satisfaction are located in the Eastern Panhandle region. Observations (ii) and (iii) imply that regional differences are not the only possible reason for differing values in the reported satisfaction levels. Perhaps the most interesting observation is not that differences exist among counties but that, in all counties, the level of satisfaction is remarkably high (over 50%). Only small fractions of individuals are explicitly dissatisfied (Hardy county 39%, Berkeley 46% and Jefferson 47%). In addition, it is interesting to see that individuals in Southern counties are roughly as satisfied as individuals in the Eastern Panhandle counties.

In addition, the regional rankings of the reported quality of life satisfaction (The daily life is a source of personal satisfaction most of the time), in the two regions are dected in Figures 4 and 5. Within the regions, Morgan County is ranked first in the Eastern Panhandle region whereas Hardy County is ranked last. In the Southern region, Lincoln County is ranked first whereas Mingo County is ranked last.

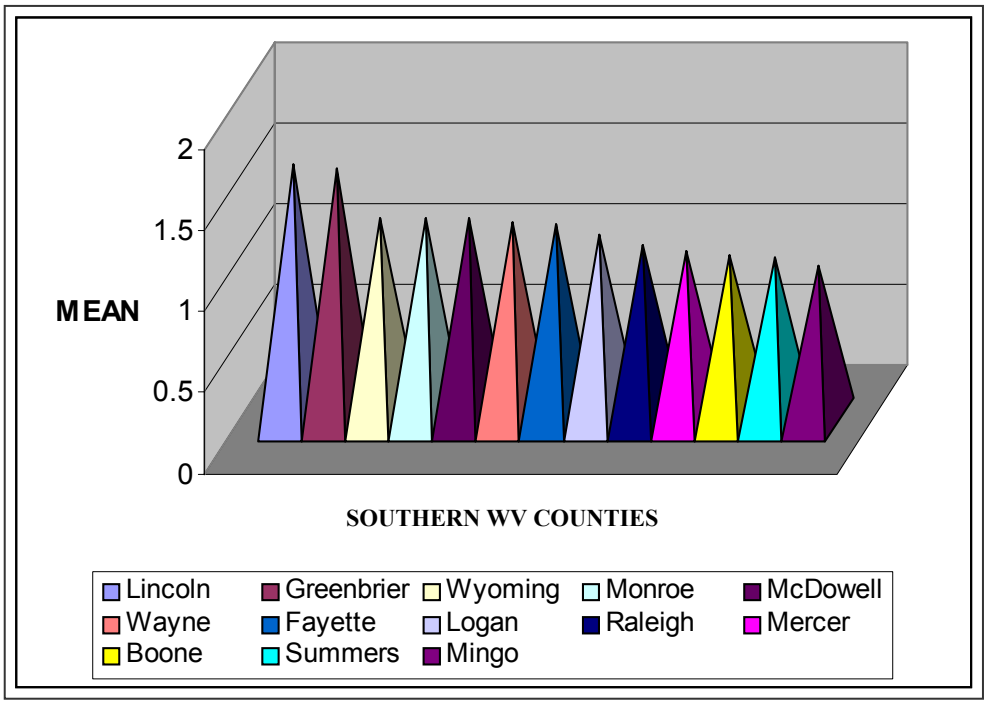
Looking at the Southern region as shown in Figure 4, the top ranked counties, Lincoln and Greenbrier, appear to be out liar[4]. All other Southern counties are below 1.0 on a two-point scale, while Lincoln and Greenbrier are well over 1.0. The possible explanation for the divergence by these two counties from the other counties in the region is their economic structure. Greenbrier County enjoys stable employment of about 1,500 people at its Greenbrier Resort, and is a retirement destination for the wealthy. So, Greenbrier's economic structure is quite different from the other counties in the Southern region. On the other hand, Lincoln County is the primary beneficiary of the recent corridor G highway. The highway converted a two-hour commute to Charleston into a 30-minute commute. As a result, there are good reasons for Greenbrier and Lincoln to be different.

As for the Eastern Panhandle region, Morgan County ranks 1st followed by Grant County as depicted in Figure 5. However, the results for Jefferson, Berkeley and Hardy counties are unexpected. These three counties are experiencing rapid growth in per capita real incomes in the state. For instance, Jefferson County ranks 1st in the state on per capita real income followed by Berkeley County, whereas Hardy County ranks 5th in the state. All things being equal, one would expect the residents in these counties to be

[4] The omission of Lincoln and Greenbrier Counties had no statistically significant effect on the general results from the empirical models.

more satisfied with life than residents in counties with lower levels in per capita real incomes. The possible explanation for the findings in Figure 5 is that individuals also consider other factors beyond incomes when assessing their satisfaction or dissatisfaction with life. In other wards, other day-to-day involvements are equally important in forming ones' satisfaction.

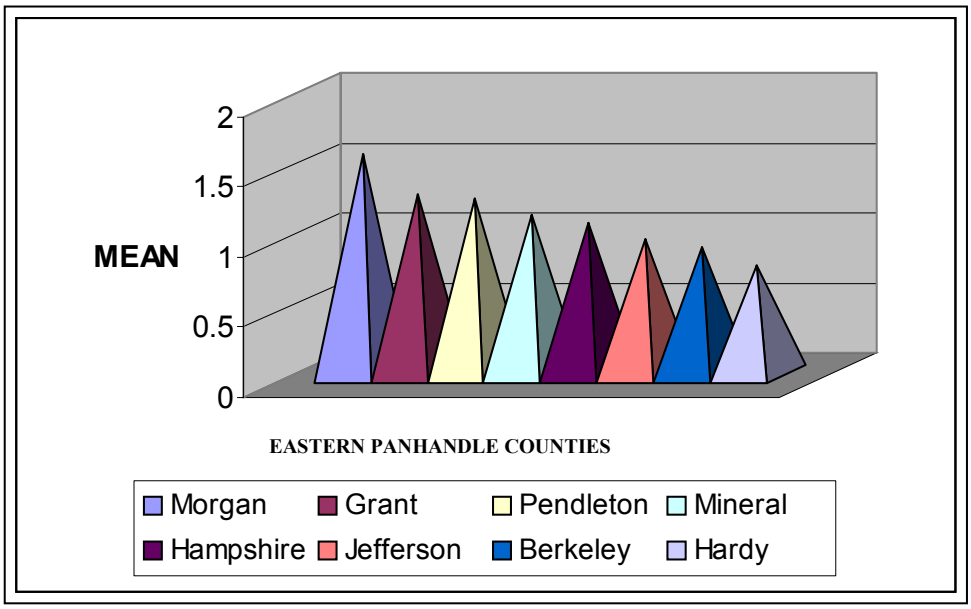
Figure 4: Quality of Life Satisfaction: Southern Counties



The possible reasons for the observed dissatisfaction for instance, in Hardy County despite higher levels in per capita income it could be due to pollution in the Potomac River, the major source for drinking water in the region, from the Rockingham poultry processing plant in Moorefield. On the other hand, Berkeley and Jefferson Counties are subject to urbanization pressures because of their proximity to large

metropolitan areas like Washington, DC and Baltimore, MD. Furthermore, the relatively less steep slopes and fertile soils make these counties vulnerable to intensive tourism, and agricultural pressures, as well as suburban settlements.

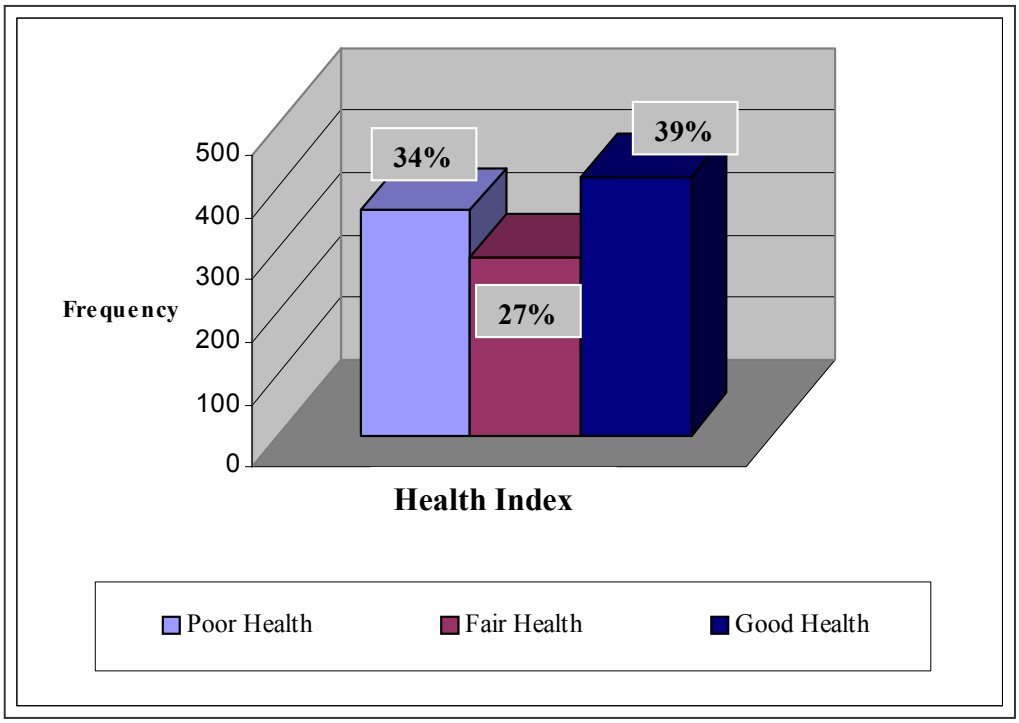
Figure 5: Quality of Life Satisfaction: Eastern Panhandle



While these activities contribute to county growth, they have led to decreasing trends in forest cover and wetlands, both of which diminishes the amenity factor, which is important to individuals in assessing their quality of life.

Turning to the categorical health question: *How would you describe your health status*? The responses to this question are presented in Figure 6. In general, the three health categories (poor, fair and good health) are roughly distributed evenly among the entire sample. The responses suggest that 34 percent of the respondents characterize themselves as falling in the poor health category, 27 percent in the fair health category and the majority (39 percent) as falling in the good health category.

Figure 6: Histogram for Categorical Health Index

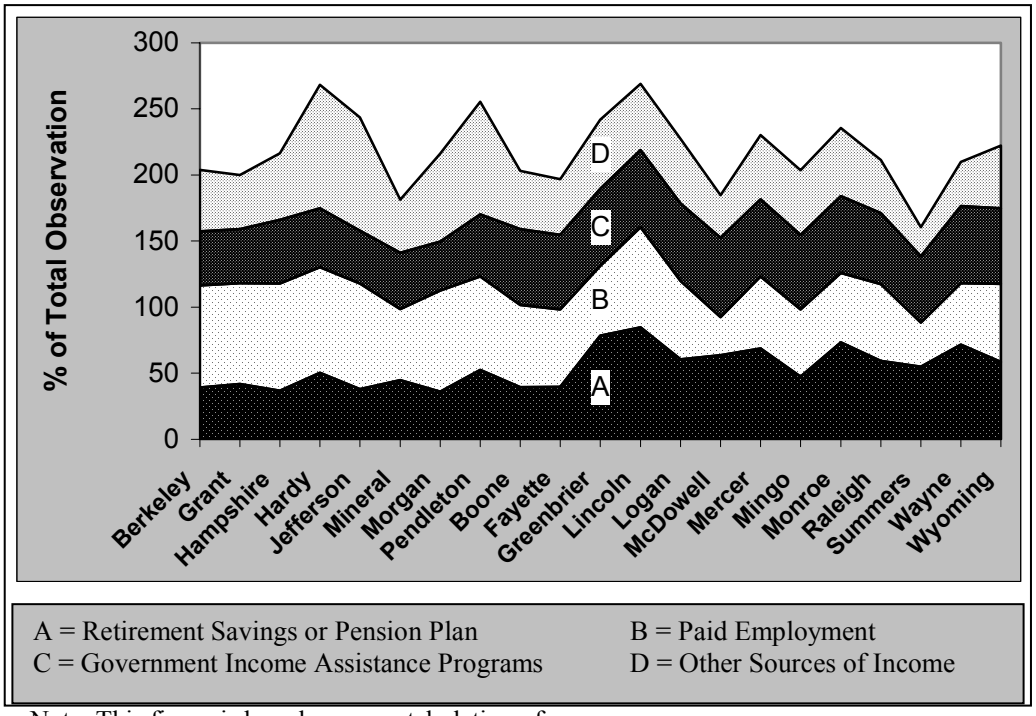


When examined on a regional level, more individuals in the Southern region characterized their health status as poor health than in the Eastern Panhandle region. On a county level, more respondents in McDowell County characterized their health status as poor health compared to the respondents in the other twenty counties. The findings on a county level are interesting because McDowell County ranked 8th in terms of quality of life satisfaction (Table 2), but ranks 21st in terms of health status. The implication here is that individuals with poor health status might still be as satisfied with life as individuals with good health status.

The reports in Figure 7 and Table 3 are the responses to the question: *What are the major sources of your income*? The responses to this question suggest that government income assistance programs and retirement savings and pension plans are the

major sources of incomes in the Southern region. In the Eastern Panhandle, paid employment is shown as the major source of income. These results are not entirely surprising because of two reasons. First, Southern counties such as Greenbrier are characterized as retirement destinations. As such a big number of the residents are living on retirement savings or pension plans. Second, the average unemployment rate in the Southern region is high (9.7 percent), well above the state's average (6.6 percent). This shows that a big portion of the Southern labor force is unemployment and thus, unemployment benefits are a big part of their incomes.

Figure 7: Sources of Family Incomes



Note: This figure is based on cross tabulation of survey responses

With regard to the Eastern Panhandle region, the majority of the respondents reported paid employment as their major source of income. The result is not surprising given the average unemployment rate (4.8 percent) in the region which is well below the

state's average (6.6 percent). Furthermore, its close proximity to large metropolitan areas like Washington, DC and Baltimore, MD offer more employment opportunities to residents in the region.

Table 3: Sources of Family Incomes

County	Retirement Savings or Pension Plan (**A**)	Paid Employment (**B**)	Government Income Assistance Programs (**C**)	Other Sources of Income (**D**)
	% of County Responses	% of County Responses	% of County Responses	% of County Responses
Berkeley	39.14	77.27	40.91	46.59
Grant	41.82	76.44	40.74	41.01
Hampshire	36.80	81.21	48.05	50.43
Hardy	50.28	80.00	44.72	93.33
Jefferson	38.00	80.00	40.00	85.71
Mineral	44.86	53.68	42.55	40.21
Morgan	36.00	76.67	36.94	66.67
Pendleton	52.45	70.59	47.06	85.29
Boone	39.42	62.23	57.41	44.24
Fayette	39.72	58.66	56.39	42.00
Greenbrier	78.26	53.05	58.33	52.17
Lincoln	84.85	75.76	58.33	50.00
Logan	60.67	59.26	58.33	49.00
McDowell	63.64	28.79	60.10	32.32
Mercer	68.75	54.32	58.33	49.00
Mingo	47.46	50.85	56.36	49.12
Monroe	73.33	52.41	58.33	51.41
Raleigh	59.26	58.14	53.70	40.34
Summers	55.00	33.33	50.00	22.22
Wayne	71.56	46.68	58.33	33.37
Wyoming	58.62	59.01	57.33	47.18

Note: This table is based on cross tabulation of the survey responses

The reports in Figure 8 and Table 4 are the responses to the question: *How many years of education have you completed*? Generally, the responses suggest that few respondents have less than high school education. The worst cases are reported within the Southern region where above 30 percent of the respondents in Lincoln and Logan

Figure 8: Education Levels

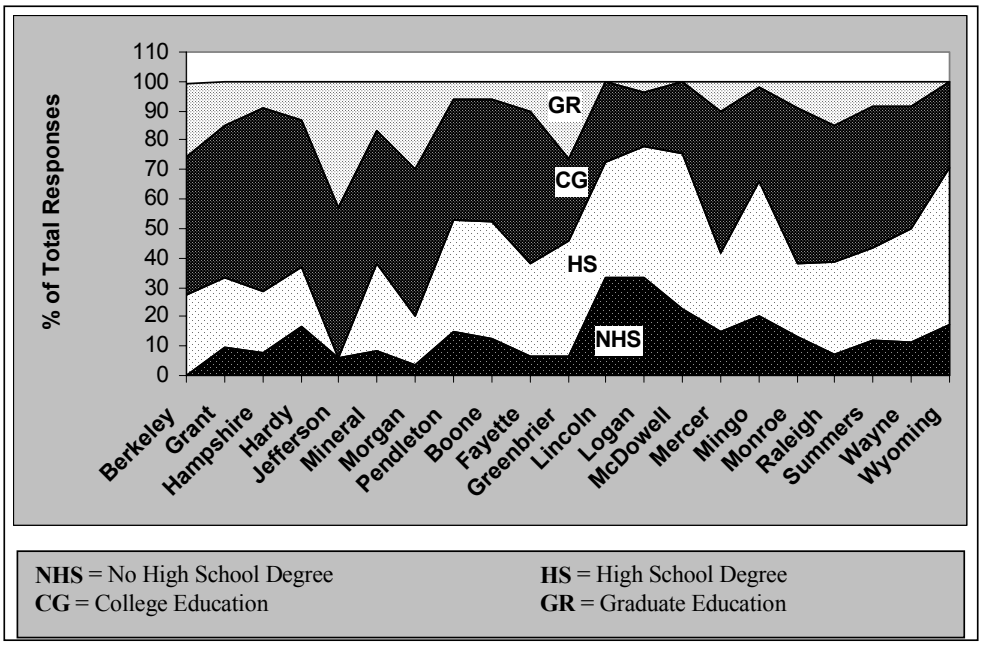


Table 4: Education Levels

County	Less than High School (**NHS**) % of County Responses	High School (**HS**) % of County Responses	College Education (**CG**) % of County Responses	Graduate Education (**GR**) % of County Responses
Berkeley	0.0	27.3	47.0	25.0
Grant	9.3	24.1	51.9	14.8
Hampshire	7.8	20.8	62.3	9.1
Hardy	16.7	20.0	50.0	13.3
Jefferson	5.7	0.0	51.4	42.9
Mineral	8.5	29.8	44.7	17.0
Morgan	3.3	16.7	50.0	30.0
Pendleton	14.7	38.2	41.2	5.9
Boone	12.7	39.7	41.3	6.3
Fayette	6.7	31.7	51.7	10.0
Greenbrier	6.5	39.1	28.3	26.1
Lincoln	33.3	39.4	27.3	0.0
Logan	33.3	44.4	18.5	3.7
McDowell	22.7	53.0	24.2	0.0
Mercer	14.6	27.1	47.9	10.4
Mingo	20.3	45.8	32.2	1.7
Monroe	13.3	24.4	53.3	8.9
Raleigh	7.4	31.5	46.3	14.8
Summers	11.7	31.7	48.3	8.3
Wayne	11.1	38.9	41.7	8.3
Wyoming	11.1	53.5	33.8	0.58

Counties have less than high school education and none of the respondent in Lincoln and McDowell Counties has received some graduate education. On the other hand, the best cases are within the Eastern Panhandle region where about 30 percent of the respondents in Jefferson and Morgan Counties have received graduate education as shown in Table 4.

Conclusion

Quality of life satisfaction is a cognitive construct that reflects, from the individual's perspective, the degree to which individuals' life is fulfilled. Understanding how individuals form their needs to create life satisfaction is important because these subjective evaluations determine life adjustment and mobility behavior and is the basis of demand for public actions. Additionally, more effective social programs can be designed based on the knowledge of how individuals form their needs to create life satisfaction and avoid problems that may result because the perceptions of the planners and policy makers do not always coincide with those of the community.

To understand the factors that affect how individuals form their needs to create life satisfaction, the current study used quality of life survey data from a random sample of over 1028 individuals from 21 counties in two regions in West Virginia. The two regions were selected as a representative sample of the southern and eastern panhandle regions in the state, and the counties in the regions were chosen based on economic development and quality of life indicators. Perhaps the most interesting observation from the responses was not that differences exist among counties but that, in all counties, the level of satisfaction was remarkably high (over 50%). Only small fractions of individuals were explicitly dissatisfied, surprisingly in counties with the highest growth in per capita incomes.

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