All Graduate Theses and Dissertations   Graduate Studies

12-2010

Who Wins and Who Loses? A Community Approach to Understanding the Well-being of Boomtown Residents

Douglas Alan Malloy
Utah State University

Follow this and additional works at: http://digitalcommons.usu.edu/etd

Part of the Environmental Sciences Commons, and the Sociology Commons

Utah State University
MERRILL-CAZIER LIBRARY

WHO WINS AND WHO LOSES?

A COMMUNITY APPROACH TO UNDERSTANDING THE

WELL-BEING OF BOOMTOWN RESIDENTS

by

Douglas Alan Malloy

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Sociology

Approved:

_____   _____
Dr. John C. Allen   Dr. Richard Krannich
Major Professor   Committee Member

_____   _____
Dr. Steve Daniels   Dr. Byron R. Burnham
Committee Member   Dean of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2010

ABSTRACT

Who Wins and Who Loses?

A Community Approach to Understanding the Well-being of Boomtown Residents

by

Douglas Alan Malloy, Master of Science

Utah State University, 2010

Major Professor: Dr. John Allen
Department: Sociology

The purpose of this thesis is to accurately identify residents of a boomtown who are either experiencing a higher level of well-being, or lower level of well-being. By definition, we consider the former to be *winning,* and the latter to be *losing.* Multivariate ordinary least squares regression analyses help to distinguish between *winners* and *losers* by generating statistical coefficients which will show both strength and direction of the relationship between individuals and various indicators of social well-being.

The data used in this thesis are from a community impact study issued in the spring of 2009, to residents of Uintah County, UT. Uintah County is a modern-day boomtown that is dependent on natural resources, particularly oil and natural gas, as a large part of the economy and social make-up of the community. The key independent variables used in this study are age, length of residence, and income, and are regressed against a variety of well-being indicators including community satisfaction, closeness

with neighbors, satisfaction with law enforcement, satisfaction with local schools, and satisfaction with medical and health services.

The results indicate that the older a resident is, the longer they have lived in the community, and the less money they have, the more satisfied with well-being indicators they will be. Income had little significant effect on the well-being indicators, though age and length of residence are positively statistically significant in every model. As a result, there remains much to discover for the future of boomtown research, including the effects income has on well-being, as well as the indications boomtowns have on communities in the early parts of the twenty-first century.

(107 pages)

ACKNOWLEDGMENTS

First, I would like to thank my major professor, John C. Allen, for all the time he devoted to this project and to me. Thank you for believing in me. Also, I would like to give special thanks to my committee members, Richard Krannich and Steve Daniels, for their much appreciated input and ideas that made this thesis much stronger than it would have been. It has been a long process, and I could not have come this far without all of your help.

I would also like to thank a few other faculty members from the department. Douglas Jackson-Smith, for helping me finish this project, and for answering all the little questions that always arise. Eddy Berry, for teaching me how to interpret statistics (for the second time). I could not have done this without you either. Lastly, a thank you to G. Thank you for all your help throughout my two years in the program, letting me borrow the keys to the N.R. lab etc. I owe you a treat, I know.

Special thanks to Brian Gentry is necessary, for helping me with everything; literally, everything. I would never have gotten through school without you buddy, thank you very much. Thanks to Traci, Kevin, Stephanie, Matt, and Zach. You guys are the best, and I'll always remember how much fun school can be. Good luck to you all. Thanks to all my friends from Logan. I loved our times together.

I also need to thank Mom, Dad, Jenny, and Mike for helping out with everything, and always believing in me. Thanks to Sam, for dealing with all the stressful times, and again for believing in me. I could have never done any of this without all of your love, and am the luckiest person in the world to have family like you all.

Also, thanks to the boys back home for encouraging me to carry on when things got tough. Jeff, Bob, Rob, Holt, Piper, Shea, Lamb, thank you guys. You are the best friends anyone could ask for. I'll see you all soon.

On a different note, good luck to everyone else going through this process. It was the most challenging experience of my life, and I wish the best to anyone who finds themselves in the positions I did. I suggest you ski some powder at the Beav, camp in Green Canyon, go to Southern Utah as much as you can, and enjoy the wonderful people in Logan. Don't take anything too seriously, have fun, and stay focused. I know I did. Peace out Utah, I will be back to you soon.

Douglas Malloy

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

NRDC   Natural Resource Dependent Community

OLS   Ordinary Least Squares

N   Population Size

β Beta Coefficient

b   Standardized Coefficient

CHAPTER 1

INTRODUCTION

In this study I investigate the oil extraction industry within a specific area and add

to the understanding of how it directly, and indirectly, affects the social communities that

host the industry. My goal is to discover who benefits and who loses in natural resource

dependent communities in 2010. I examine which attributes make a resident more or less

satisfied with their community as its economy focuses on oil and natural gas extraction,

by examining a variety of social well-being indicators. Some of these attributes include

length of residence, age, gender, educational attainment level, income, and marital status.

I also examine indicators of social well-being including satisfaction within a community

as a place to live, closeness with neighbors, and satisfaction with law enforcement, local

schools, and medical and health services. These themes were addressed in a survey given

to residents within a study area located in northeastern Utah. For example, in the survey

respondents were asked if they were satisfied or dissatisfied with local schools in their

community. By examining associations between individual demographic attributes of

respondents and responses to the questions, it can be determined who is "winning" and

who is "losing" in this particular natural resource dependent community. This is crucial

in helping residents in these communities pursue a fulfilled and higher quality of life than

some are currently experiencing.

"Winning" and "losing" have broad, multidimensional definitions. Effectively,

the distinction represents a way of explaining a residents' satisfaction in a community.

This research is addressing the key issue of what type of resident is gaining the *most* from

oil development, and who is gaining the *least*. For example, an elderly resident who lives

in a natural resource dependent community for forty years has been paying rent for that

length of time. During a recent boom, the landlord decides to raise rent, charging the

elderly citizen more than he or she is used to paying. The elderly person has the same

income as always, yet is paying more for housing. In this situation, the elderly person is

losing, and the landlord is winning. This example highlights how a boomtown can play a

major role in the way a resident experiences his/her community. By better understanding

who wins and who loses in a boomtown community, residents can more effectively

prepare for, understand, and adjust to the social conditions created by the economic

activity of a natural resource industry.

The goal of this research is to identify what variables influence people to be more

or less satisfied within a community. For example, do people who have lived in the

community for a long time seem to be more or less satisfied with the quality of local

schools within the community? Do age, sex, educational attainment, or level of income

suggest a similar or different trend of satisfaction with local schools and other indicators

of social well-being? By identifying the differences associated with these independent

variables, it may be possible to relate perceptions of social disruption in a contemporary

natural resource dependent community to various individual attributes. Analysis of these

variables will help suggest relationships between individual attributes, perceptions of

quality of life, and an understanding of who is and who is not benefitting from oil

development in a community.

The analysis presented in this research will also include identifying patterns of

consistency and inconsistency in the relationships between empirical patterns of change

and perceptions of these changes. To accomplish this, secondary data were collected

from a variety of local agencies in Uintah County, UT. Some of these agencies include: local schools, courts and judicial systems, and police departments. By comparing survey responses to secondary data, it can be determined whether residents' perceptions accurately reflect these patterns of change. This step in the process may offer needed insight into understanding the overall effects oil drilling and related development activities have on the residents who live in the community. This again aids in understanding who wins and who loses.

This research is driven by the suggestion of Smith, Krannich, and Hunter (2001) that some people are "winning" and some are "losing" within a boomtown community. The authors explain that residents both economically and socially either benefit or struggle, depending on unknown characteristics. This research attempts to identify and discuss some of those characteristics.

There is a large amount of literature focusing on natural resource dependent communities, along with a more specific subset of literature examining boomtowns. This literature can offer much in the way of direction, suggesting areas of particular interest that can guide my research questions. Beginning with an historical recap of key studies in the literature, the review of the literature carries this work through time highlighting the best and most valid way of conducting a study that can properly answer the questions stated above. This research will provide insight behind who actually benefits from the condition that exists in a natural resource dependent community, and who becomes marginalized.

The focus area of my study -- the city of Vernal and Uintah County, UT -- was considered to be going through a "boom" during the year 2004. A boomtown generally

sees a large population growth quickly, perhaps in the area of 15% in a given year

(Malamud 1984). Booms are often related to an increase in extractive industry (coal or

oil), which Vernal and Uintah County, UT did experience. The literature suggests that

accompanying periods of boom, there is often an increase in negative social indicators

including crime, drug use, and juvenile delinquency (Kohrs 1974; Broadway 2007). The

literature on natural resource dependent communities and boomtowns will help anchor

my thesis within previous research. By carefully taking the suggestions of previous

authors, and looking at the results of previous studies, this study will provide valuable

new information dealing with rapid growth and energy dependent communities.

Regardless of my findings, the implications of them and their future consequences

is among the most useful part of this research. The future consequences alluded to above

include communities continuing to subject residents to either negative or positive impacts

of natural resource dependency. This study will provide lessons for natural resource

dependent industry host communities in assuring the highest quality of life for longtime

and new residents, men and women, people of various levels of income, and people with

different levels of education. These lessons are generally devised around communities

properly knowing whom to help, and in what way. I will inform the growing body of

literature in this area by contributing research that examines who is winning and who is

losing in a natural resource dependent community after a period of boom, and what can

be done to improve the quality of life for residents.

Perhaps the largest implication this research has for communities is that the study

can be replicated. By replicating this study, answers can be drawn about the quality of

life for different demographic groups within a community. Communities can then more

successfully begin to plan, set up organizations, allocate funds where needed, and make public policy decisions that will help, in particular, those who are more marginalized. In other words, communities can learn how to mitigate the negative consequences of energy development and possibly enhance the potential for generating benefits that can be enjoyed by local citizens.

CHAPTER 2

LITERATURE REVIEW

Natural Resource Dependent Communities (NRDCs)

Studies dealing with NRDCs have long been a focus of the field of sociology, particularly rural sociology. Throughout the 1980s and 1990s, many research articles were written regarding the potential risks and complications caused by communities largely or solely relying on industries that depend on natural resources (renewable and nonrenewable). Other groups of researchers suggested that some types of NRDCs are more stable than others, specifically those based on the tourism and recreation industries. As we see throughout this review, NRDCs can be negatively impacted by the nature of the industry.

The most common NRDCs studies focus on agriculture, forestry, fisheries, mining, petroleum extraction and refining, and also outdoor tourism communities, which inherently depend on the natural environment for the majority of their economic activity (Humphrey et al. 1993; Peluso, Humphrey, and Fortmann 1994; Freudenberg and Gramling 1994a). Research suggests that NRDCs are often subjected to a cyclical trend of expansion and decline (including population, and economics) and also experience high rates of unemployment, underemployment, and poverty. Reasons for this may be that extralocal companies that control the industry can remove the industry to a place where resources can be attained easier and for less cost. Also, resources can be subjected to global and extralocal supply and demand cycles. Many NRDCs are left in an unstable state and to the mercy of outside interests (Krannich and Luloff 1991).

NRDCs tend to endure an ebb and flow of economic well being, often resulting in poverty. Many studies have found that communities dependent on the natural resource extraction industries often see increased levels of poverty (Elo and Beale 1985; Machlis and Force 1988; Machlis, Force, and Balis 1990; Humphrey et al. 1993; Peluso et al. 1994; Freudenburg and Gramling 1994a, 1994b; Overdevest and Green 1995; Weber 1995; Fisher 2001). Krannich and Luloff (1991) point out that NRDCS are threatened by instability due to the sole dependence on a single industry for economic benefits.

Krannich and Luloff (1991) explain that the nature of the resource does in fact matter because if the resource is non-renewable, the community is subject to the effect of supply of the resource, and eventually the economic benefits of the resource will no longer be available to support a community. If the resource is renewable, such as an outdoor tourism industry, then the resource may be more dependable and reliable.

Freudenberg (1992) disagrees with this argument. He believes that the nature of the resource does NOT matter, because whether the resource is renewable or non-renewable, the community is still addicted to the industry and the resource. He argues that the real problem with these communities is not that they have a potential to run out of a resource, but rather their economies are generally unidimensional, subjecting them to potentially dangerous economic conditions.

Krannich and Petrzelka (2003) explain that the tourism industry may or may not be a viable solution for communities dependent on natural resources. One reason that it may not is because the tourism industry still relies on seasonal, service sector, low wage jobs. The industry is also subject to the will of nature (including lack of snowfall and the effects for winter recreation). The authors do, however, mention that a growing tourism

industry can bring people together in ways that natural resource extraction cannot. For example, finding common interests such as the recreation activity supporting tourism can bring community members together, as opposed to breaking them apart. However, they explain that it is difficult for most NRDCs to properly plan these sorts of endeavors, as they are usually lacking the necessary means to accomplish such goals. For example, many rural communities have underfunded and understaffed rural planning departments, which prohibits them from properly and adequately addressing the issues needed to solve the problems they face.

The potential for NRDCs to experience poverty is certainly one of the larger problems they face. Although differing in opinions, Krannich, Luloff, and Freudenberg agree that these communities endure negative economic outcomes. Humphrey et al. (1993) and Peluso et al. (1994) suggest that most natural resource dependent economies negatively impact rural places. The authors also explain, in agreement with Krannich and Lulloff (1991), that a better option may be to transform to tourism based economies, and perhaps to expand service based economies. Other articles published during the same time frame agree that expanding to tourism may be helpful and a more stable way for rural places to remain viable (Freudenberg and Gramling 1992; Peluso et al. 1994).

As with all studies found in the literature, proper methodological practices are crucial in accurately profiling NRDCs. The levels of analysis are extremely important, as false conclusions can be arrived upon when comparing unlike analytical units (i.e. community data to county data; see Beckley 1998). Similarly, using a historical approach to understanding how different communities became dependent on a resource is very important (Freudenberg 1992). As shown throughout the remainder of this literature

review, these suggestions drive the way in which we understand the cycles, progress and consequences of NRDCs. Specifically, in this study I focus on a smaller subset of NRDC literature that explains the effects of and reactions to rapid growth in energy-related rural communities, or what are commonly referred to as boomtowns.

Boomtowns: A Brief History of the Literature

Energy extraction communities have been necessary since humans discovered they could create energy from natural resources. This spans the concept of humans burning wood, and later coal and oil as a method producing energy from nature. The Industrial Revolution sparked unprecedented growth and progress, almost entirely powered by fossil fuels. More often than not, the communities hosting natural resource extractive enterprises were located in rural communities. Up until the mid 1970s, the literature on these places generally emphasized positive attributes associated with energy development in such rural communities (Freudenberg and Krannich 2003).

The 1973-1974 oil embargoes influenced the U.S. to expand and explore the oil fields within the country (Smith et al. 2001). This caused a number of rural communities to grow extremely rapidly, often doubling in population in only a few years (Freudenberg and Krannich 2003). During this time, a number of studies were conducted which highlighted some negative social factors accompanying such large population growth and oil extraction. Observations focused on these negative trends appear to have gone uncontested until Wilkinson and others (1982) wrote a critique of much of the previous literature, and suggested that negative impacts reported in a number of studies of rapidly growing energy communities were possibly inaccurately reported (Wilkinson et al. 1982).

Since the early 1980s, researchers have debated whether or not rapid growth and energy dependent communities experience negative outcomes, positive outcomes, or any outcomes at all.

Early Studies

The definition of a boomtown is generally a 15% increase in the annual population growth in a given area (Malamud 1984). Uintah County grew by 14.985% from 25,257 people in 2000 to 29,042 people in 2007. This is not an exact fit to the definition given by Malamud because the 15% growth occurred over a seven-year time frame, not in a single year. It is also important to take into account that Uintah County is a rather large place compared to the rural communities referenced in much of the boomtown literature. Uintah County, UT grew about 15% over the course of seven years, and also increased in actual population by 3,785 people, a rather significant figure.

Uintah County, UT is a unique place in that the community has gone through a series of booms and busts over the past six decades. In this particular boom, the visible growth of 15% in seven years translates to about 2% per year. In earlier boomtowns, 15% population growth or more in a single year is common and therefore it should be taken into consideration when comparing the two types of boomtowns. However, even though the growth is less significant than boomtowns of the past, Uintah County, UT is still very much a boomtown. There are several reasons why Uintah County is not booming as it has in the past, including the increase of technological advancement which will be discussed in further detail in later sections of this thesis. Regardless of the

differences, the residents of the community and local newspaper consider the town to be booming, allowing this community to still be compared to other boomtowns of the past.

On a more historical note, one of the most widely cited studies of early boomtown growth and natural resource extraction took place in Gillette, WY in 1974. The 1974 study done by Kohrs took place in Campbell County, WY, which has only one town, Gillette. The data used throughout this study were secondary data, and included no interviews or survey results. Through a series of booms, Gillette increased in population by 121% from the year 1960 to 1970, expanding rapidly in 1970. The main source of economic opportunity and employment was due to a coal mine in Gillette. The 1970s are the focus of this study, as coal mining was most productive during these years. Campbell County, often compared to other counties in Wyoming throughout this particular study, had a large increase in a number of other indicators that often are associated with well-being. The counties compared to Campbell County throughout this study usually had larger populations, though the populations in these counties increased naturally over time, and did not happen all at once or via a boom.

In 1970, Campbell County had 1,025 arrests, while Carbon County had 614, and Sheridan County had 337. In 1972, post boom, Campbell had 852, Carbon had 412, and Goshen had 505 arrests. Also in 1970, Campbell County had 130 marriages and 72 divorces, while Carbon County had 148 marriages and 54 divorces, and Goshen County had 129 marriages and 39 divorces. To better understand the comparison, the ratios of marriages to divorces are as follows: Campbell County 2:1.1, Carbon County 2:0.75, and Goshen County 2:0.6 (refer to Figure 1). DWUI charges, school dropout rates,

probations and other indicators also indicated that Campbell County was disrupted
more than the counties that did not have similar resource based economic activity.
Campbell County was the leader in almost all of the above indicators, which suggests that
negative consequences are associated with rapid growth and energy development.
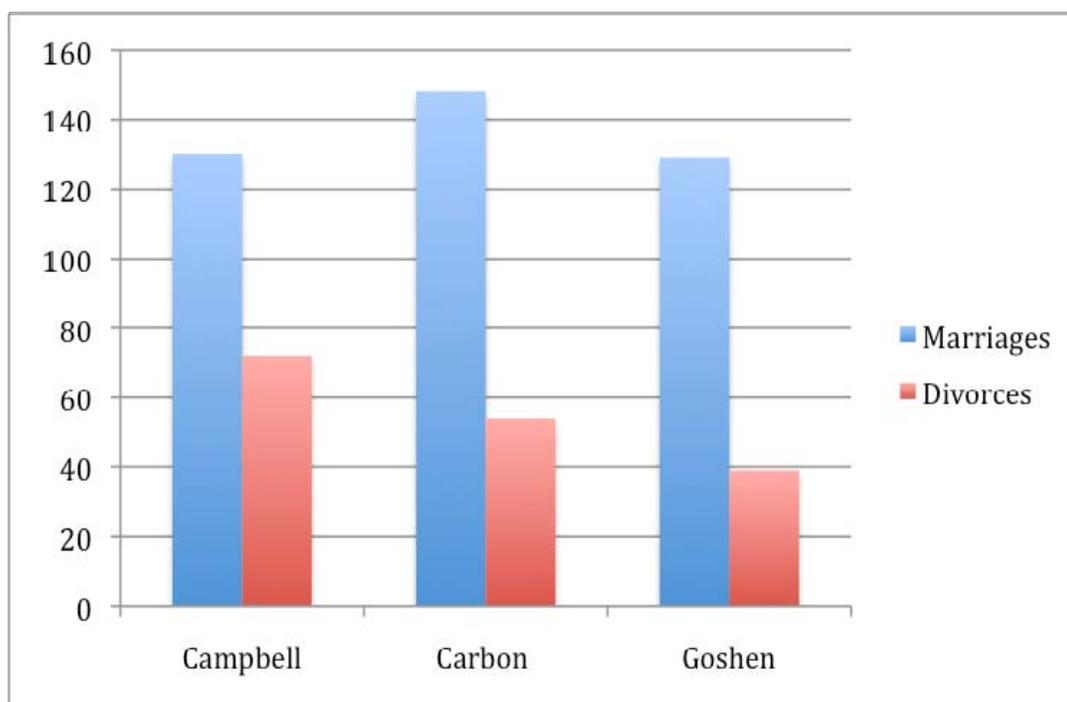
Source: Kohrs (1974).

Figure 1. Marriages and Divorces in Wyoming Counties

The increase in negative social indicators led Kohrs to coin the term the "Gillette
Syndrome," which became the catch phrase title for towns experiencing energy booms.
Also included as part of the "Gillette Syndrome" were increases in "drunkenness,
anomie, mental discord, suicide attempts and teen-age rebellion" (Kohrs 1974: 2). The
results from this study correspond to a common theme in research that looks at the social

well-being of communities experiencing rapid growth due to the extraction of natural resources. The conclusions of this study suggest that community planning must now consider impacts of rapid growth for the general public, as opposed to letting people fend for themselves and surviving on their own the best they can (Kohrs 1974).

Also in 1974, Gold and a team of researchers with the University of Montana conducted a five-month study (Gold 1974). The study gathered information from Gillette, WY and Colstrip, MT, and attempted to look at social organizations, human relationships and various lifestyles of local residents. Due to pressure to produce results quickly, the method of data collection used in this study was a series of interviews, which were driven by the issues identified as important by the person being interviewed. The subjects interviewed in this study were key local informants, and then other people whom the informants recommended be interviewed through a snowball sampling technique. In all, over 100 interviews were conducted, leading to a number of conclusions.

Gold found that energy booms most seriously threatened ranchers. He also noted that neighborliness declined, and that large outside corporations influenced residents in feeling that they had little to no control or power over these corporations, resulting in perceptions of powerlessness. Gold also suggested that community residents lose a sense of community during periods of energy boom created by the coal industry (Gold 1974). The results reported in this study also indicate that rapid growth and energy development lead to a number of negative outcomes. Although these indicators of well-being are different than those of the "Gillette Syndrome," they are similar in that they are *negative* indicators of social well-being.

Later in the decade, Cortese and Jones (1977) examined the impact construction workers have on small communities where economic activity is largely focused on energy development and extraction. An outside organization conducted the larger study that explored nine communities and fourteen major construction sites over an eight-state region of the United States. Cortese and Jones examined three sites in the study due to the varying size of the communities: Center, ND, Langdon, ND, and Rock Springs, WY had populations 900, 4,000, and 26,000, respectively.

Four data collection techniques were used in this study to accurately outline the impacts of energy development on small Western communities. The techniques were: participant observations, surveys, historical records collected from various sectors of the community, and census data/previously published reports. The participant observations are not a true random sample as these participants willingly explained their personal views on a subject. In sampling, selection is key to create generalizable results that this portion of the study failed to do. However, survey interviews were conducted using a random sampling technique targeting households in each of the communities. There were 68 households in Center, 92 in Langdon, and 432 in Rock Springs (sample size relative to population). Furthermore, a small proportion of households was selected for in depth, cross sectional interviews, and also some longer interviews with specific individual representatives from various community institutions were completed. The authors did these extra interviews in an attempt to create a better, more thorough illustration of the residents' perceptions of the community.

The semi-structured interviews asked questions in order to gauge perceptions of the community during the interview as well as before the boom. One question prompted

the respondent to "characterize the community as it existed before the boom, and as it existed at the time of the interview or post boom" (Cortese and Jones 1977: 84). Adjectives were added to help create standardized responses in describing the community (beautiful, clean, competitive, difficult, dirty disorganized, exciting, expensive, friendly, harmonious, isolated, lonely, progressive, relaxed, rundown, and traditional). The results showed on average that cultural changes were occurring. Specifically, communities were becoming "*less* relaxed, friendly, traditional, isolated, harmonious, and run down," and "*more* expensive, difficult, progressive and competitive" (Cortese and Jones 1977: 85).

This research highlights some patterns of findings, illustrating that boom growth is associated with negative cultural and social changes. Furthermore, Cortese and Jones drew additional conclusions. They found that many long time residents may not actually have a problem with some of this growth and activity, and often times they accept the changes brought about by some of these activities. Another conclusion is that social impact assessments should be focused on cultural and structural changes occurring in a boomtown setting rather than strictly social changes. This advice suggests strategies for other communities to help them cope with mistakes made by previous communities. Also, the findings and conclusions of this study are associated and consistent with those of Kohrs (1974), reinforcing the ideas associated with the "Gillette Syndrome."

Similarly, in a 1975 study by Gilmore and Duff, the authors reported the breakdown of many indicators of positive social well-being and quality of life in and around Rock Springs, WY. Smith et al. (2001) explain that the area had experienced a population that doubled between 1970 and 1974, accompanied by an increase of mental health caseloads by 857%. There also were reported increases in "…social alienation,

social isolation, and school dropout rates…" (Smith et al. 2001: 428). The findings further suggested that rapid growth is negatively associated with social well-being indicators at the community level.

Critiques of Early Studies

The boomtown literature of the early 1980s is largely defined by studies questioning the validity and truth of research suggesting overwhelming negative social consequences like those associated with the "Gillette Syndrome," which were supported by a few key studies in the 1970s. In a 1982 review by Wilkinson et al., the authors questioned whether or not the social disruptions reported in many previous cases were accurately documented. They suggested that methodologies were flawed, evidence was scarce, and findings not necessarily reliable. Specifically, the work done by Kohrs was critiqued for being a hypothetical piece, relying heavily on data from unspecified sources, and being methodologically flawed (Wilkinson et al. 1982).

The same authors critiqued the research done by Gilmore claiming it to be non-empirical, and referring to an "imaginary town" (Wilkinson et al. 1982: 277). The findings by Gilmore were based on the findings of Kohrs' study, which were criticized above. For example, Gilmore explained that the number of criticisms of authorities, such as law enforcement officers, increase, mental health caseloads increase, young people drop out of schools, newcomer wives are alienated, and the labor and housing markets breakdown. Wilkinson and his colleagues explained that these assumptions depend on very unreliable evidence, and subsequently were cited as "facts" in a number of other scholarly articles that therefore are also flawed (Wilkinson et al. 1982).

Wilkinson et al. (1982) also suggested that using percentages to illustrate dramatic patterns of disruptive change were used in some studies as well. In cases where actual numbers of caseloads are small to begin with, almost any increase at all can produce a percentage change that looks much larger than it really is. The authors explain that "Flaws in scholarship are apparent in this literature in citations of undocumented assertions as evidence, questionable interpretations of empirical data, overgeneralization of conclusions, and absence of controls in measures of relationships" (Wilkinson et al. 1982: 278). The various flaws in the early studies referred to here are given a large amount of scrutiny in this study.

The critique of research having a lack of sound methodological basis became the trend in the 1980s. Early work was continually critiqued, creating a seemingly endless amount of uncertainties. Krannich and Greider (1984) noted that relying heavily on a single community study is problematic and uncertain. Brown, Geertson, and Krannich (1989) suggested that longitudinal data collection plays a vital part in accurately mapping the course of rapid growth communities, and relying solely on cross-sectional data is unreliable.

The early 1980s became the time for researchers to embark on a scholarly journey to correct the methodological and research design flaws encountered by the original works done in the 1970s. One of the most important changes seen was documenting various communities longitudinally using secondary data. For example, Wilkinson and his fellow researchers used secondary data to follow trends in both crime and divorce rates. The authors found that in-migration had little or no effect on divorce rates, and that historical perspectives, such as previous incidents of criminal victimization, do in fact

dictate the trend in violent crimes in western energy development regions (Wilkinson et al. 1983, 1984). In the later parts of the 1980s and early 1990s, researchers continued the trend of using longitudinal data to ensure quality research and reliable findings, while also measuring community residents' attitudes and perceptions (Berry, Krannich, and Greider 1990; Brown et al. 1989; Krannich, Berry, and Greider 1989). Taking the advice of Krannich and Greider (1984), a number of authors also addressed the methodological problems by comparing multiple communities throughout a research study (Wilkinson et al. 1984; England and Albrecht 1984; Krannich and Greider 1984; Greider and Little 1985; Greider and Krannich 1985a, 1985b; Brown et al. 1989; Krannich et al. 1989; Berry et al. 1990).

Quality Research in the Modern Era

Berry et al. (1990) published a study looking at neighboring in four Western rural communities that is a model for properly completing valid research dealing with the boomtown community as it employs both longitudinal data and multiple communities for comparisons. Neighboring, they point out, involves a sense of place and a sense of community, which is suggested as a reliable indicator of community well-being. The longitudinal study surveyed randomly selected households during the summers of 1982, 1984, and 1986. The sample was gathered using water utility records, and also a separate list to account for the number of mobile homes located throughout the four communities. The four communities in this study are: Delta, Vernal and Tremonton, UT, and Evanston, WY. The sample size of the surveys is 2,164 combined, with a response rate of 72% to 86% for all years and communities combined.

The dependent variable examined, neighborliness, was measured through a number of indicators, and operationalized through both a *task index,* and an *emotional support index.* In the *task index,* respondents were asked whether they would rely on neighbors to watch their house, water their lawn, run errands, and lend money if they happened to be hospitalized for two weeks. The respondent was asked to either report a "0" for NO they could not count on their neighbors, and a"1" if they could. The *emotional support index* asked respondents if they would confide in neighbors regarding personal issues, and if they would supply monetary support for a neighbor if they were hospitalized for two weeks. A number of control variables and change variables were included to insure valid results.

The results of this study suggest that neighboring relations are very complex, and perhaps very "durable" (Berry et al. 1990: 185). Therefore, the negative effect rapid growth has on communities' social and cultural well-being may be attenuated by encouraging neighborliness, and strong relationships between members of communities. In other words, educating residents on past experiences of alienation and a lack of neighborliness can make a difference. If residents are aware and encouraged to keep strong ties with neighbors, the effects of rapid growth may not affect social integrating patterns after all.

More recently, in the early 2000s, a group of authors revisited the dynamics of boomtowns. Two studies assessed the aftermath and recovery phases of boomtowns, attempting to understand the long-term effects rapid growth communities' experience.

In a 2001 report written by Smith et al., a longitudinal study examined ten indicators of social well-being over a span of 13 years. Like the previous study done by

Berry et al., the same data set was used in addition to a 1995 survey that used a similar procedure. The four communities in this study each had data collected at four points in the years 1982, 1984, 1986, and 1995. The overall total response rate was around 79%.

The research question in this article revolved around how boomtowns respond to long periods of growth, and whether or not the effects of rapid growth persist over time once the boom is over. Some of the social indicators looked at across time are: perceived social integration, relations with neighbors, community trust, concerns about crime, and community satisfaction. Based on previous research, these indicators address some key social well-being factors that are commonly used throughout the literature.

The conclusions of this article consistently suggested that social disruptions do in fact occur throughout a period of boom, though their effects are not permanent and will eventually dissipate. For most of the indicators tested in this study, the high point of the boom period tends to be accompanied by a decline in social well-being for community residents. However, almost a decade after the boom, the disruptive qualities associated with rapid growth were generally absent or adapted to.

There are three suggestions for more social research presented by Smith et al. (2001). First, are all people *equally* satisfied by this decline in economic activity, or do some people *win* or *lose?* By this they mean that some people both socially and economically lose in this situation, and not everyone is content when a boom comes to a halt. For example, people who are economically invested in the extractive industry may lose whatever they have invested. In a sense, the authors wonder whether some people experience the decline in resource extraction activity in better or worse ways than others.

Therefore, they suggest that future research should address the long-term social

consequences of resource development.

Another suggestion the authors have is to look at the diverse populations in these

areas post-boom. The diversity of the human population of which the authors speak

could possibly account for the needed and lacking human capital, which if present can

foster the pursuit of community development activities. This will perhaps help minimize

the effects of rapid growth in NRDCs. The final observation the authors suggest is that

perhaps infrastructure services invested in during the boom period allow for easier

rebounding in these places currently (Smith et al. 2001).

In another study using the same data set, Hunter, Krannich, and Smith (2002)

examined *fear of crime,* an often-studied indicator of well-being. Other scholars have

often alluded to the fact that rapid growth communities are associated with increased fear

of crime (Krannich et al. 1985; Freudenberg and Jones 1991). In this particular study, the

authors looked at whether or not the timing of immigration into a boomtown effects the

way a person experiences the rebound suggested by the Smith et al. (2001). The research

question is, *do all community residents experience the same rebound in fear of crime?*

The variable used was whether a resident moved to the town before, during, or

after the boom in all four of the communities from the Smith et al. (2001) study. Because

it is the same data set from Smith et al. (2001), the methodology, response rates etc. are

identical.

The results for this study indicate that residents who moved into the community

during the boom experienced the most fear of crime. In agreement with Smith et al.

(2001), people who moved into a community after a boom were most likely to experience

fear levels associated with a post-boom rebound, where most conditions inherently return to normal levels, and social well-being is commonly stable.

The progression of the methodologies throughout the boomtown literature shows a transition from potentially flawed research, to more thorough, well-designed research. The studies which were "fixed" methodologically often discovered very different conclusions regarding rapid growth due to natural resource extraction. To generalize the findings throughout most of the literature reviewed in this new period of research, social disruptions only occurred sometimes, in some places, and for only some people in those places (Smith et al. 2001). The ambiguity of the findings suggests that perhaps some other factor is causing disruption, or maybe the disruption is only temporary. A question arises as to why these findings are so ambiguous. Is it because these towns should not be combined into one category called "boomtowns," and rather be treated separately as individual, unique communities? Are newer, more technologically advanced "boomtowns" subject to similar social well-being indicators? The research presented in this thesis attempts to address those issues.

Summary

The boomtown literature is best summarized by the notion that the results are mixed, although there is strong evidence in the modern era that some disruptions are evident. It is known that perceptions play a large role in the level of disruption as many aspects of social disruption are shown through personal thoughts and feelings. Forsyth, Luthra, and Bankston (2007) found that although disruption effects were perceived as minimal in a Louisiana oil community, the residents there felt that the people involved

with the industry were the ones causing problems, not the industry itself. The study was entirely based on survey responses, suggesting that the feelings and attitudes of community residents can truly affect one's quality of life and the level of social disruption.

Greider and Krannich (1985a) explain that social consequences emerging from rapid growth communities may not only reflect actual conditions, but the perceptions of community residents. This suggests that residents' perceptions are extremely valuable. The research in this study uses residents' perceptions to better understand who wins and who loses in a boomtown community. Perceptions are important to understanding this question, and the conditions that one perceives greatly affects whether they are winning or losing.

CHAPTER 3

DATA AND METHODOLOGY

This section outlines the data and methods used in this study. I begin by suggesting a research question, along with justification for it. Three hypotheses are also outlined which will be addressed throughout the analysis portion of this study. Lastly, I suggest the type of analytical procedure I will use to understand the linkages between residents' demographic characteristics and survey responses.

Research Question

The core research question for my study is: **Who wins and who loses in a boomtown community?** Identifying who wins and who loses is valuable to the growing body of literature regarding boomtowns and NRDCs. The effects of NRDCs on community residents are distributive in nature, meaning that the impacts, both good and bad, are not experienced equally among populations. This perspective, recognized by many social impact assessments, helps to explain that some people are in fact "winning" and some people are "losing." The effects this study can have on residents are the most important reason for answering this question. Local policies and programs can actually help people once we know who it is that *needs* help. Overall, this study will hopefully increase the quality of life for those people who are losing in communities such as Vernal, UT.

This question is one that has been suggested by Smith et al. (2001). To answer this question I analyzed variables using a correlation matrix, which will show what

categories of residents perceive a higher quality of life, and which residents are experiencing a lower quality of life. For example, the independent variable, length of residence, is measured in the number of years a resident has lived in the community. This independent variable was run through a correlation matrix for multiple dependent variables (such as perceived quality of law enforcement). By running this analysis, associations became clearer, illustrating the relationships between two variables. Then, ordinary least squares multivariate regression were used to determine which variables account for the most variance within the model. This suggests relationships, and helps to understand who "wins" and who "loses."

Hypotheses

Drawing upon a number of theoretical concepts, I have generated several hypotheses regarding the assumptions of key sociodemographic variables with various well-being indicators.

Length of Residence

Many studies in the literature have examined length of residence as a predictor of quality of life in an NRDC (Krannich and Greider 1984; England and Albrecht 1984; Krannich et al. 1985, 1989; Berry et al. 1990; Brown, Dorius, and Krannich 2005). Hunter et al. (2002) suggest that length of residence has an impact on indicators of well being, specifically *fear of crime*. The authors in this study suggest that post-boom migrants experience less fear of crime, and are able to return to a more steady lifestyle more easily than pre-boom or mid-boom migrants. Although Hunter et al. (2002) used

three different categories to measure length of residence in terms of timing of in-

migration, this thesis will use length of residence as measured by the number of years a

respondent has lived in the community. Because of this, I expect that this independent

variable will likely show variability in residents' survey responses.

> H1. People who have lived in a community for a longer period of time will be
>
> more likely to respond to the survey with lower expressions of satisfaction for
>
> various quality of life indicators, suggesting that long time residents *lose*
>
> relative to more recent in-migrants.

This hypothesis will be evaluated via the following five analytic equations.

1. (Community Satisfaction) = a + B (Length of Residence) + e + (B`CV`)

2. (Closeness with Neighbors) = a + B (Length of Residence) + e + (B`CV`)

3. (Satisfaction with Law Enforcement) = a + B (Length of Residence) + e +

(B`CV`)

4. (Satisfaction with Local Schools) = a + B (Length of Residence) + e +

(B`CV`)

5. (Satisfaction with Medical/Health Services) = a + B (Length of Residence)

+ e + (B`CV`)

The intercept or constant is represented by "a". "B" is the slope of variable X. The "e"

accounts for the error in the model. "(B`CV`)" accounts for the control variables in the

model.

The dependent variables on the left side of the equations above are presented in

the survey as follows:

1. "Using a scale that ranges form 0 (COMPLETELY DISSATISFIED) to 10 (COMPLETELY SATISFIED) please circle the response that best indicates how satisfied you are with this community as a place to live. **COMPLETELY DISSATISFIED 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 COMPLETELY SATISFIED.**"

2. "How would you describe your overall feelings towards your neighbors? Would you say you are: **Very Close 5, Somewhat Close 4, Neither Close nor Distant 3, Somewhat Distant 2, Very Distant 1.**"

3. "Using a scale of 0 (COMPLETELY DISSATIFIED) to 10 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your community on each of these items listed below. **Law Enforcement… COMPLETELY DISSATISFIED 0, 1, 2, 3, 4, EQUALY SATISFIED AND DISSATISFIED 5, COMPLETELY SATISFIED 6, 7, 8, 9, 10.**"

4. "Using a scale of 0 (COMPLETELY DISSATIFIED) to 10 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your community on each of these items listed below. **Local Schools… COMPLETELY DISSATISFIED 0, 1, 2, 3, 4, EQUALY SATISFIED AND DISSATISFIED 5, COMPLETELY SATISFIED 6, 7, 8, 9, 10.**"

5. "Using a scale of 0 (COMPLETELY DISSATIFIED) to 10 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your community on each of these items listed below. **Medical and Health Services… COMPLETELY DISSATISFIED 0, 1, 2, 3, 4, EQUALY SATISFIED AND DISSATISFIED 5, COMPLETELY SATISFIED 6, 7, 8, 9, 10.**"

Age

Age has been consistently used as an explanatory variable in boomtown research (Krannich and Greider 1984; England and Albrecht 1984; Krannich et al. 1985, 1989; Brown et al. 2005). In some cases, age accounts for some of the variability in social well-being (Krannich and Greider 1984; Brown et al. 2005), and as a result age is a variable that needs to be examined more closely. In this thesis, the survey asks a respondent to self-report their age to the nearest whole number.

H2. The older a respondent is, the more likely they will express lower quality of

life responses, suggesting that older people *lose* relative to younger

populations in an energy boomtown.

1. (Community Satisfaction) = a + B (Age) + e + (B`CV`)

2. (Closeness with Neighbors) = a + B (Age) + e + (B`CV`)

3. (Satisfaction with Law Enforcement) = a + B (Age) + e + (B`CV`)

4. (Satisfaction with Local Schools) = a + B (Age) + e + (B`CV`)

5. (Satisfaction with Medical/Health Services) = a + B (Age) + e + (B`CV`)

The letter symbols are the equivalent to those described in hypothesis 1.

The dependent variables on the left side of the equations above are asked in the survey, which are the same dependent variables for hypothesis 1 shown on page 28.

Income

Income has also been examined in many studies (England and Albrecht 1984; Krannich and Greider 1984; Berry et al. 1990) as a potentially important predictor of well-being levels. Berry et al. 1990 reported that the more income one has, the more

likely they will experience a higher level of neighboring. This result leads me to believe that income can affect the way a person experiences his or her own quality of life, suggesting this variable may be significant in understanding who wins and who loses. In this thesis, income is measured by a set of seven categories of annual income respondents earned before taxes in 2008 (see Appendix: Q20).

> H3. The more money a resident has, the more likely they will be to report a higher level of satisfaction within their community, suggesting that people with more money *win* relative to what is typically experienced by persons with lower level income levels.
>
> **1. (Community Satisfaction) = a + B (Level of Income) + e + (B`CV`)**
>
> **2. (Closeness with Neighbors) = a + B (Level of Income) + e + (B`CV`)**
>
> **3. (Satisfaction with Law Enforcement) = a + B (Level of Income) + e + (B`CV`)**
>
> **4. (Satisfaction with Local Schools) = a + B (Level of Income) + e + (B`CV`)**
>
> **5. (Satisfaction with Medical/Health Services) = a + B (Level of Income) + e + (B`CV`)**

The letter symbols are the equivalent to those described in hypothesis 1.

The dependent variables on the left side of the equations above are asked in the survey and are the same dependent variables used in hypothesis 1 and 2 described on page 28.

Control Variables

Three other variables will be used as control variables as they have been used in many boomtown studies in the past. The variables are sex of the respondent, level of educational attainment, and marital status. Sex has been a variable that is frequently used in boomtown research (Krannich and Greider 1984; Krannich et al. 1984, 1985). In some studies, respondents' sex accounted for some variability in the models, suggesting that further research should be done with this variable (Krannich et al. 1989; Brown et al. 2005).

Education is another variable that will likely help explain which type of person wins and loses. Many studies have looked at education in order to explain some type of social phenomenon (Krannich and Greider 1984; England and Albrecht 1984). Berry et al. (1990) found in some cases that the more educated one is, the more social support they will have. This suggests that education can affect the way one experiences his or her quality of life.

Lastly, I will include marital status. Marriage is considered to be an important well-being indicator, and more specifically the positive effects that go along with marriage have been well documented. Positive well-being indicators associated with marriage include better health, lower risk taking, lower likelihood of death, a better sex life than single people, a decline in women's alcohol consumption and so on (Waite 1995). However, Kohrs (1974) explains within the context of a boomtown, long work hours, poor housing, and deteriorating back yards inundated with mud led to a number of divorces. With men driving long distances and working long hours, and women left to contend with often difficult living conditions, the well-being of some married women in NRDCs is inevitably low. Due to these somewhat inconsistent findings, a hypothesis cannot be drawn suggesting a pattern that might exist in either direction. Therefore, marital status is included in this

study as a control variable, allowing me to see what type of association marital status

has with the well-being of boomtown residents.

Data Collection

This thesis focuses on Uintah County, UT, which is located in north eastern Utah.

The primary data used in this report are from a social impact study completed for the

Uintah Basin Mitigation Committee by a research team headed by Dr. John C. Allen and

Dr. Derrek R. Tollefson, of the Utah State Department of Sociology, Social Work and

Anthropology (Allen et al. 2009). The study employed a survey asking residents of

Uintah County, UT questions regarding their perceptions of quality of life and change

during the most recent oil and gas "boom" period. Secondary data were also collected to

compare to the responses from the survey to help explain the context of the community

during the time of the survey and the boom.

Questions in the survey were drafted drawing on a number of questions used in

previous studies as guidelines (Brown et al. 1989; Berry et al. 1990; Smith et al. 2001;

Hunter et al. 2002). Specifically, questions dealing with community trust, community

satisfaction, infrastructure satisfaction (road condition, sewer services etc.),

neighborliness, community change, organizational affiliation, various community

services (social services, fire protection etc.), development strategies, and a number of

background and demographic questions were used to measure the perceptions of

residents in Vernal and Uintah County, UT. The questions used were taken from

suggestions in the literature, which had previously reported successful results.

The survey, conducted in the spring of 2009, was mailed to a random list of households which was bought from an organization specialized in creating random sample lists, called *Experion*. Within the household, an adult over the age of 18 with the most recent birthday was selected to complete the survey. The number of males and females were approximately 50%. The household survey was implemented by identifying 1,400 randomly selected households; 432 surveys were completed and returned resulting in a response rate of 35%; 165 (15%) of the surveys were classified as undeliverable, reducing the effective sample size to 1,235. There was an identifying number attached to the survey from which we could determine who did and did not respond to the survey, though that information was strictly confidential as stated to the respondents.

The team of researchers used a modified version of the "Total Design" approach to research, made famous by Don A. Dillman (Salant and Dillman 1994). This method was chosen because of the reported success of numerous researchers who have employed the procedure. One of the main reasons the method is so valuable is because it is designed to increase response rates and ensure, quality responses to the survey. It also is cost effective as the budget for this report was limited. A mixed-method survey using phone, internet, mail etc. allows a researcher to gain responses in a variety of ways. Dillman currently suggests using a mixed-method approach, although doing so can be very expensive.

The process for the survey began with a pre-notification letter explaining that the person to whom the letter was addressed has been randomly selected for a survey, and that a survey would be sent in the mail ten days later. The survey was mailed with a

stamped envelope with a return address on it, and a cover letter with IRB approval.

Ten days later, a postcard was sent to those who did not return a survey. The post card

explained the value in filling out the survey, and that a new survey would be sent in about

ten days. Ten days later, a second survey, cover letter, and stamped envelope were sent

to the non-respondents. We knew which surveys had not been completed because each

survey had a number assigned to the person an address to which that survey was sent.

After the second mailing, the survey was considered finished.

The survey instrument asks a number of questions that coincide with the

secondary data collected. Most of the questions are in a likert scale format, which allows

the respondents to circle the most appropriate number portraying their perceptions

towards any given variable. The questions asked that residents identify perceptions and

beliefs about key issues such as quality of life in the community, neighborliness, and

growth and development issues. A number of other questions are asked which tackle the

quality of the resources in the community. Some of these resources include school

systems, law enforcement, medical and health services, youth and senior citizen

programs, child care, elder care and others. Other likert scale questions deal with the

quality of infrastructure and physical composition in the community, such as road and

street condition, sewer services, natural environment condition, and others. The

questions asked are all designed to suggest the overall feelings of community members

during the 2002 to 2007 time period.

A specific question asked regarding growth and development of which the format

is similar for many other questions, is "Using a scale of 0 (LESS DESIRABLE) to 10

(MORE DESIRABLE) please circle the number that best indicates whether your

community has become a MORE or LESS desirable place to live during the past few

years (2-5 years)." Other questions used a format allowing for responses to fit into five

categories such as " *Greatly Declined, Somewhat Declined, Remained the Same,*

Somewhat Increased, Greatly Increased." An example of a question that allowed for this

type of response is "Neighbors *helping* each other over the past 5 years has…." Most

questions in the survey follow those formats.

Analytical Procedures

"Winning" and "losing" is defined in this thesis by those residents who are more

or less satisfied with the various quality of life indicators. In the regression analysis,

statistically significant beta coefficients will indicate whether the independent variables

examined explain any of the variance in the dependent variables. Some independent

variables, in some models, will show significant beta scores in either a positive or

negative direction in relation to the dependent variable. This allows me to answer my

research question. Those independent variables that exhibit significant positive beta

coefficients will be considered "winners", and those that exhibit significant negative beta

coefficients will be considered "losers". This system leaves no room for ambiguity or

unclear results in answering the research question via answering the three hypotheses.

I intend to run both a correlation matrix and ordinary least squares (OLS)

regression analysis to answer my research question. The independent variables to look at

are length of residence, age, and level of income. Each independent variable will be run

across every dependent variable, to find out which independent variables show

significance. Sex, education, and marital status will also be included as control variables.

A correlation matrix will be used to establish the presence or absence of a correlation among at least two variables. The correlation coefficients, which can range from -1.00 to +1.00, show the linear relationship between two variables. For example, a value of +1.00 for two variables is a perfect positive relationship, explaining that if one variable increases, the other will also increase in proportion to the first variable. The correlation coefficient I will be using is called a Pearson's Product Moment Correlation Coefficient, or the Pearson's r (Levin 1977). The equation for a Pearson's r statistic is:

$$r = N \sum xy - \left(\sum x \right)\left(\sum y \right) / \sqrt{\left[N \sum x^2 - \left(\sum x \right)^2 \right]\left[N \sum y^2 - \left(\sum y \right)^2 \right]}$$

Where: r   =   the Pearson's correlation coefficient

N   =   number of pairs of scores

$\sum xy$ =   sum of the products of paired scores

$\sum x$ =   sum of x scores

$\sum y$ =   sum of y scores

$\sum x^2$ =   sum of squared x scores

$\sum y^2$ =   sum of y scores

This test will allow for an examination of the relationship between the variables involved with "winning" and "losing". Looking at the significance level I will be able to determine the probability that my observed correlation did not occur by chance. The reason for using a correlation matrix is that it shows degrees of association; however a statistically significant association is not sufficient to demonstrate the presence of causal relationship between variables (Cohen et al. 2003). Therefore, the next step in the

analysis is constructing regression models. As a general rule, predictions become more accurate as the size of the correlation becomes larger, however, most correlations are less than perfect. As a result I can still construct a regression line that best fits the trend of points, which is why regression analysis is included. Even though all of the points may never lie on that line, using regression analysis allows me to see both strength and direction. The formula for regression analysis is:

$$Y = a + bX + e$$

The value of the coefficients "a" and "b" determine the precise height and steepness of the line. Coefficient "a" is the intercept, while coefficient "b" is the slope. Due to the fact that the relationship between variables is almost always inexact, e represents the presence of error (Lewis-Beck 1980).

The dependent variables in this study are quality of life indicators or well-being indicators. The variables are satisfaction with community as a place to live, closeness with neighbors, and satisfaction with law enforcement, local schools, and medical and mental health services. These indicators will be used in both the correlation matrix and the OLS regression analysis to determine which independent variables are the most important in understanding the research question, *who wins and who loses?*

The dependent variables satisfaction with the community as a place to live, and satisfaction with law enforcement, local schools, and medical and mental health services, use a scale of 0 to 10, and as a result are all arguably interval level data. The dependent variable closeness with neighbors is measured using a 1 to 5 scale, which is ordinal level data. In multivariate regression, interval level data is generally used to produce the best

results. However, several respected researchers argue that ordinal level dependent

variables pose relatively few problems when used in multivariate regression analyses

(Labovitz 1967, 1970; Winship and Mare 1984).

The dependent variable community satisfaction is another that has been used in

many studies over the past few decades (Brown et al. 1989, 2005; Smith et al. 2001). This

variable is operationalized in the survey as "Using a scale that ranges from 0

(COMPLETELY DISSATISFIED) to 10 (COMPLETELY SATISFIED) please circle the

response that best indicates how satisfied you are with this community as a place to live.

COMPLETELY DISSATISFIED 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 COMPLETELY

SATISFIED."

The dependent variable closeness with neighbors, dependence on neighbors, and

other neighboring qualities has been used in multiple studies throughout the past (Greider

and Krannich 1985a, 1985b; Berry et al. 1990; Smith et al. 2001). In this survey, the

dependent variable closeness with neighbors is operationalized as "How would you

describe your overall feelings towards your neighbors? Would you say you are: **Very**

Close 5, Somewhat Close 4, Neither Close nor Distant 3, Somewhat Distant 2, Very

Distant 1."

The dependent variable quality of law enforcement is another that has been used

in previous studies (England and Albrecht 1984). The quality of law enforcement is an

indicator of how safe people feel, which can be related to the quality of life one endures

within their community. In this survey quality of law enforcement is operationalized

with the question "As the economy in the Uintah Basin has changed over the last five

years would you say that the following items have improved a great deal, improved,

stayed the same, become somewhat worse or become a great deal worse? **Quality of law enforcement – Improved a great deal 1, Improved 2, Stayed the same 3, Become somewhat worse 4, Become a great deal worse 5.**"

The dependent variable satisfaction with local schools is one that is very informative, yet not previously looked at in the boomtown literature. However, I feel that this variable is very justified because for many parents, their own quality of life may strongly depend on how well taken care of and educated their children are in the local school system. In this survey satisfaction of local schools is operationalized as "Using a scale of 0 (COMPLETELY DISSATIFIED) to 10 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your community on each of these items listed below. **Local Schools… COMPLETELY DISSATISFIED 0, 1, 2, 3, 4, EQUALY SATISFIED AND DISSATISFIED 5, COMPLETELY SATISFIED 6, 7, 8, 9, 10.**"

The dependent variable satisfaction with medical and health services has also been used in this context as a quality of life indicator in the past few decades (England and Albrecht 1984). In this survey the variable is operationalized as "Using a scale of 0 (COMPLETELY DISSATIFIED) to 10 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your community on each of these items listed below. **Medical and Health Services… COMPLETELY DISSATISFIED 0, 1, 2, 3, 4, EQUALY SATISFIED AND DISSATISFIED 5, COMPLETELY SATISFIED 6, 7, 8, 9, 10.**"

The questions in the survey have face validity for a number of reasons. First, the questions are asked in a likert scale format to allow respondents to place themselves

somewhere on a spectrum where they feel most comfortable, encouraging a non-threatening and painless completion of the survey. Second, the questions address areas of inquiry necessary to properly map the changes and positive and negative qualities of the community.

There are a few potential signs of error in the research design and methodology, though they are minor. First, the response rate is somewhat low, though this is becoming more common in mail surveys. The low response rate means that non-respondents are likely to be very different from those that responded to the questions in the survey (Dillman 2007). As a result, there is a significant amount of non-response error. Since the survey is completed and there is no opportunity to improve the response rate, this error will be present in the data.

A second issue is that we were unable to measure attitudes and perceptions at multiple points in time. The study is not a longitudinal study, however, in an attempt to address these issues, questions asked respondent's to recall information from the "past few years." Second, the study can still be considered generalizable for the entire community because the sample was truly random, as the Uintah Basin Mitigation Committee hired the research team to create a detailed profile of the area within the Uintah Basin. Hence, that survey can successfully be used to complete this study. The research question, "who wins and who loses?" is still very much answered.

The goal of this project is to understand which types of people are viewing the community in certain ways. This community is unique, and the responses will allow a certain understanding of what types of questions to ask in future research. Therefore, this survey is an extremely valuable tool in addressing new issues and providing a way to

understand them. It also allows for direction for further research which will help the larger goal of this study; improving the quality of life for any and all people who live in an area dependent on natural resources.

Ethical Considerations

When conducting any type of research the ethical consideration of the participants is extremely important. In the case of a survey research project, the respondents are the participants who will be filling out the survey. The most important consideration to make is to keep the names of the respondents confidential, as well as informing the subjects of the confidentiality. The research team did not publish nor attach the names to the surveys once they were returned, and the list of names has been deleted after we were sure we were done with the mailing process. The surveys themselves are kept in a locked box, where no one except the research team can access them. The IRB has approved the data collection processes, and it employs ethical practices.

CHAPTER 4

RESULTS AND ANALYSIS

This section begins by providing a detailed profile of Uintah County, UT. The profile is illustrated through a number of visual aids, which outline various characteristics of the county, providing a thorough understanding of the economic, demographic, sociodemographic and other characteristics of residents in the community, and the community itself. Then, this chapter reviews the findings and results from the quantitative analyses used for this thesis. First, the individual characteristics of respondents are presented through univariate analysis. These characteristics are for the independent variables, sex, age, marital status, education, income and length of residence. Second, the results from the bivariate correlation matrix are presented and discussed to show the relationship between any two variables in the analysis. Finally, the results from ten OLS multivariate regression models are presented and discussed to help explain who is benefitting the most and least from the oil industry in Uintah County, UT.

A Profile of the Community

Uintah County, UT has long been a NRDC, heavily relying on oil and natural gas extraction to drive the local economy. From 1980 to 2000, several demographic and sociodemographic indicators suggest that the community has been steadily growing over time. For example, Figure 2 shows the population for Uintah County from 1980 to 2000. In 1980 the population was 21,374 residents, and 25,257 in 2000. The population increased by a total of 3,883 residents, a change of 18%.

Uintah County, UT Population 1980 - 2000
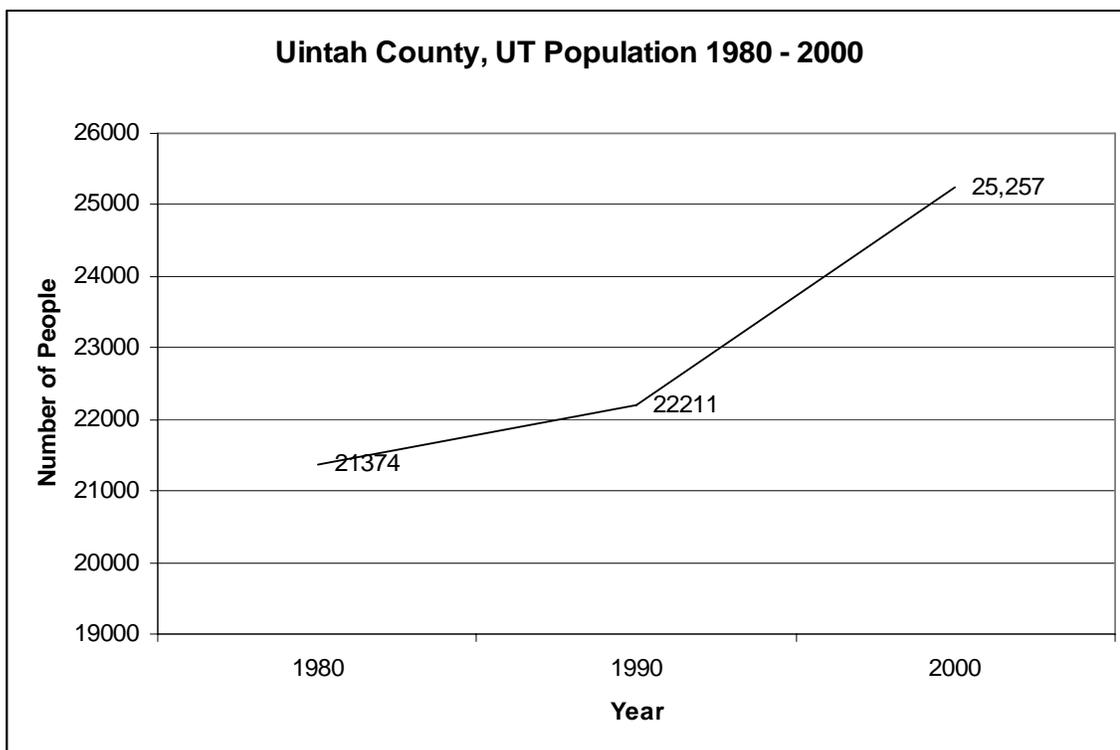
Source: US Census Bureau 2010a.

Figure 2. Uintah County, UT Population 1980 – 2000

Then, from 2000 to 2007 the population in Uintah County again grew by 15%

(see Figure 3); a comparable percentage change in seven rather than twenty years. The

energy boom in 2003 caused an influx of people into the community, bringing the

number of residents in 2007 to 29,042. This increase in population is very common in

boomtowns, as rural communities like this one grow extremely fast in times of an energy

boom, sometimes even doubling in population in just a few years (Freudenberg and

Krannich 2003).

Uintah County, UT Population 2000 - 2007

Number of People vs. Year

- 25257
- 25704
- 26184
- 26193
- 26482
- 26997
- 27878
- 29042
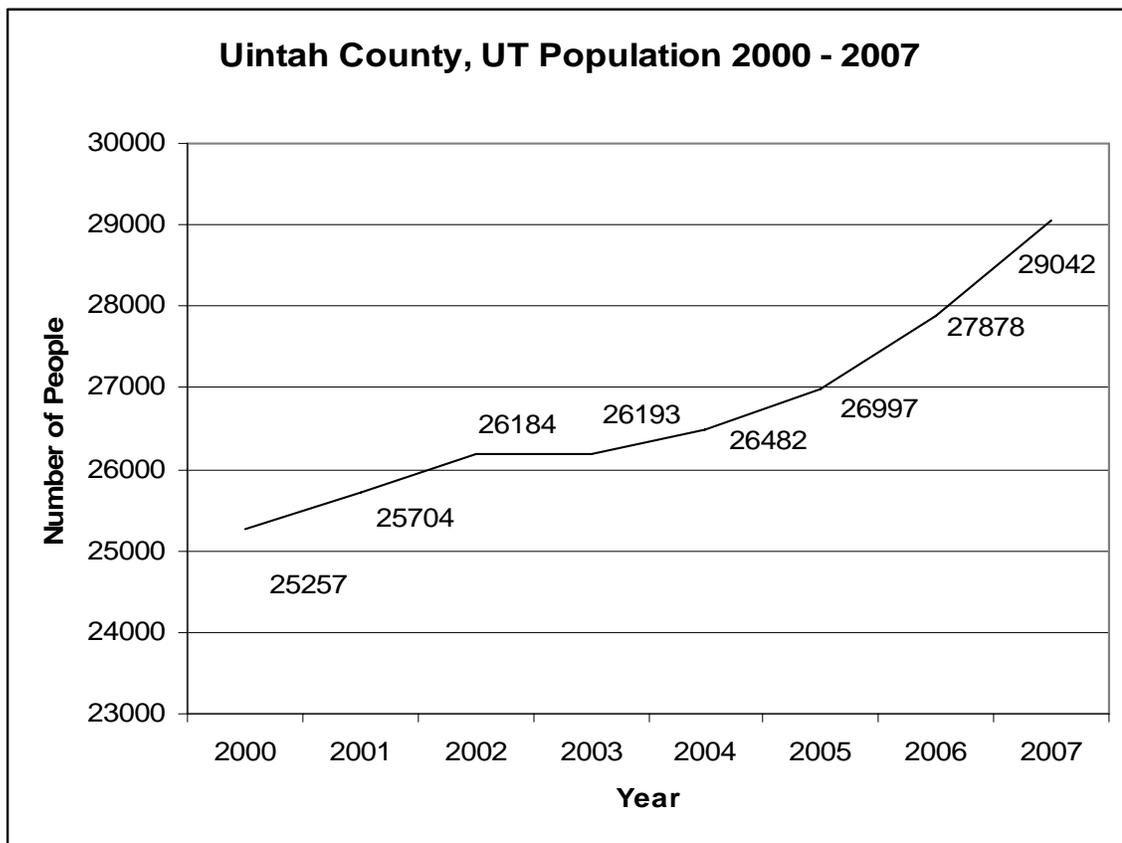
Source: Allen et al. 2009

Figure 3. Uintah County, UT Population 2000 - 2007

Another measure of growth and well-being in a community is median household income. Figure 4 illustrates that the median household income for households in Uintah County, UT increased steadily from 1980 to 2000. This increase, although not adjusted for inflation, suggests that people in the county were making more money in 2000 than others were in 1980. In 1980, households were earning on average $16,638, and $32,459 in the year 2000. The difference, $15,821, displays an increase of 95%.

**Uintah County, UT Median Household Income
1980 - 2000**
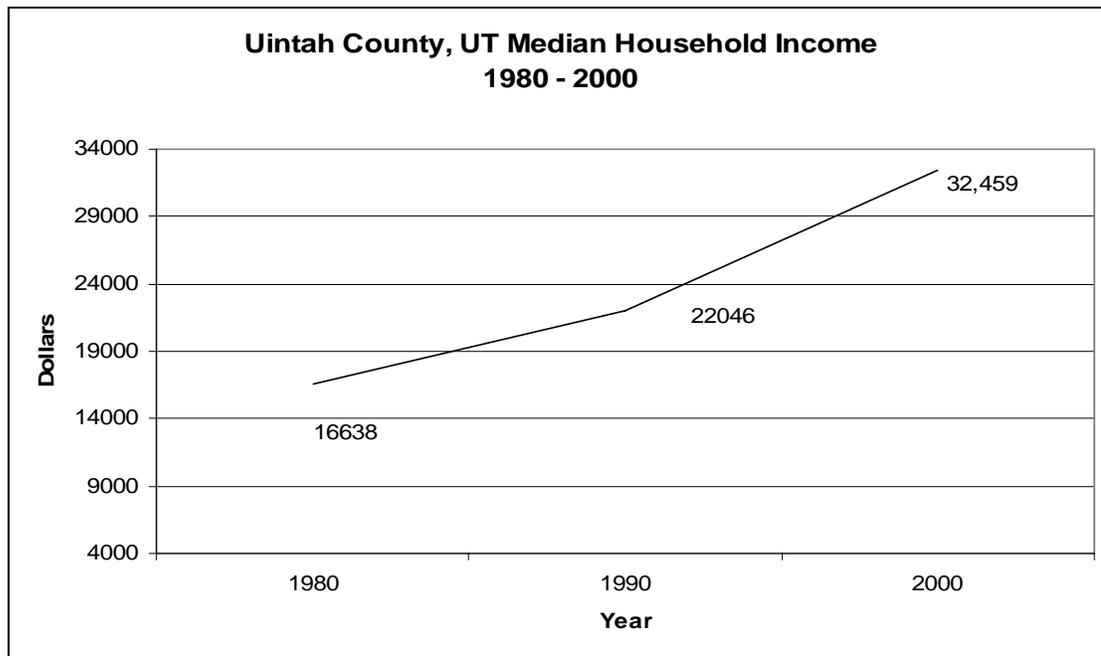
Source: U.S. Census Bureau 2010a

Figure 4. Uintah County, UT Median Household Income 1980 – 2000

As suggested by the trend lines in Figures 2, 3, and 4, the county appears to have been growing steadily over time. The steady growth signifies an increase in jobs and adequate pay for the residents during the 20 year time period from 1980 to 2000. As shown in the next four figures, from 2000 to 2007 a more rapid increase took place, which will be illustrated by a series of trend lines.

As illustrated by Figure 5, the population of Uintah County, UT increased by 15% in only seven years. The energy boom, which took place in 2003, was predictably accompanied by an increase in population, along with many other indicators of increased oil and natural gas extraction industry as classified by the North American Industrial

Compensation of Employees by NAICS Industry: Oil and Gas Extraction, Uintah County, UT
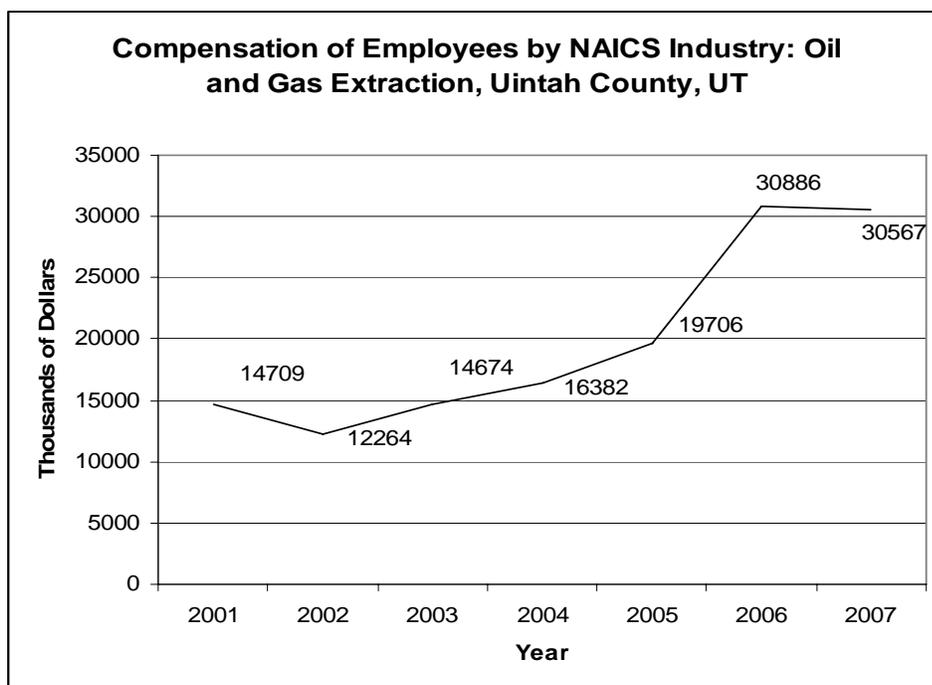
Source: Allen et al. 2009

Figure 5. Compensation of Employees for Uintah County, UT

Classification System. When looking at Figure 5, it is clear that from 2003 to 2007 there

was an increase in activity in the oil and natural gas extraction industry. In 2002,

$12,264,000 was compensated for employees, and $30,567,000 in 2007. This is an

increase of $18,303,000, or a 149% increase. The oil industry was booming, creating an

incredible amount of money for both employees, and the community itself.

Another indicator of the increase in extraction industry in Uintah County, UT is

total full-time and part-time employment, illustrated in Figure 6. This trend line from the

Bureau of Economic Analysis shows a steady increase in the number of employees from

2001 to 2007. From 1,914 jobs in 2001 to 3,720 jobs in 2000, the number of jobs in the

mining sector of the economy increased by 1,806, a total increase of 94%.

Total Full-Time and Part-Time Employment by NAICS Industry: Mining, Uintah County, UT

Number of Jobs vs Year (2001–2007): 1914, 1840, 2014, 2253, 2658, 3411, 3720
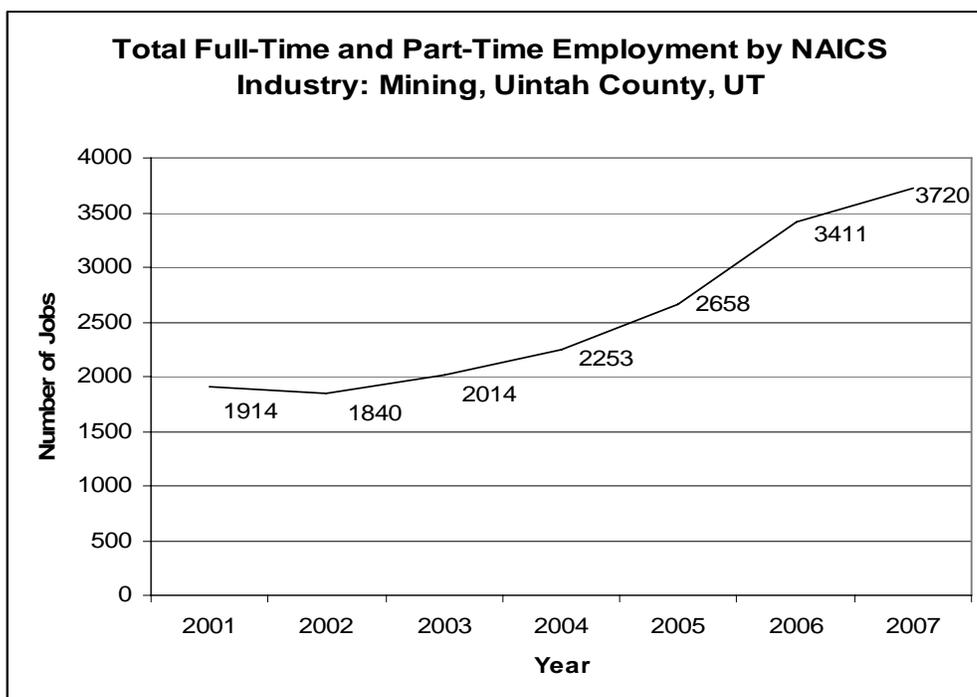
Source: Allen et al. 2009

Figure 6. Total Employment for the Mining Sector in Uintah County, UT

Figures 5 and 6 explain the severity of the boom in 2003 in Uintah County, UT. These trend lines show dramatic increases in economic opportunity for employees and residents in the county, although along with great increases in economic opportunity and population, come potential negative attributes a community may endure such as crime.

Literature from the 1970s found that with an increase of the extraction industry and population, a community would undergo dramatic increases in a number of negative social well-being indicators including crime (Kohrs 1974). Although many sociologists argued against this in later decades, Uintah County, UT did in fact experience increased crime from 2002 to 2007. Figure 7 illustrates that in 2002, there were 289 state felonies, and there were 461 of them in 2007. The difference, 172 felonies, adds up to a 60%
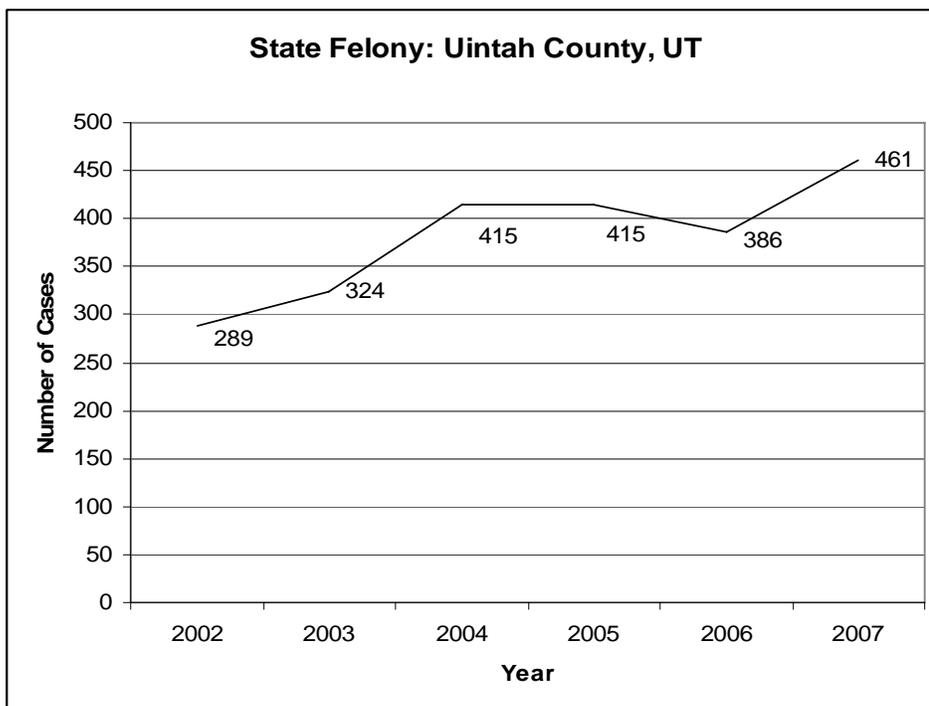
Source: Uintah County 8th District Court

Figure 7. State Felony: Uintah County, UT

increase in felonies. This is a rather large increase that should not be dismissed nor taken

lightly by community residents, as a 60% increase in any variable is significant increase.

Another indicator of the level of crime in Uintah County, UT is demonstrated in

Figure 8. The number of criminal cases filed in 2002 was 19, and there were 335 cases

filed in 2007. The difference of 316 cases shows an overwhelming increase in cases

filed, a total of 1,663%. This incredible increase suggests that crime caseloads are

drastically increasing, in a small time-span of only 6 years.

The community profile outlined in this section provides a solid foundation for

understanding the dynamics of change affecting Uintah County, UT. The population

Criminal Cases Filed: Uintah County, UT
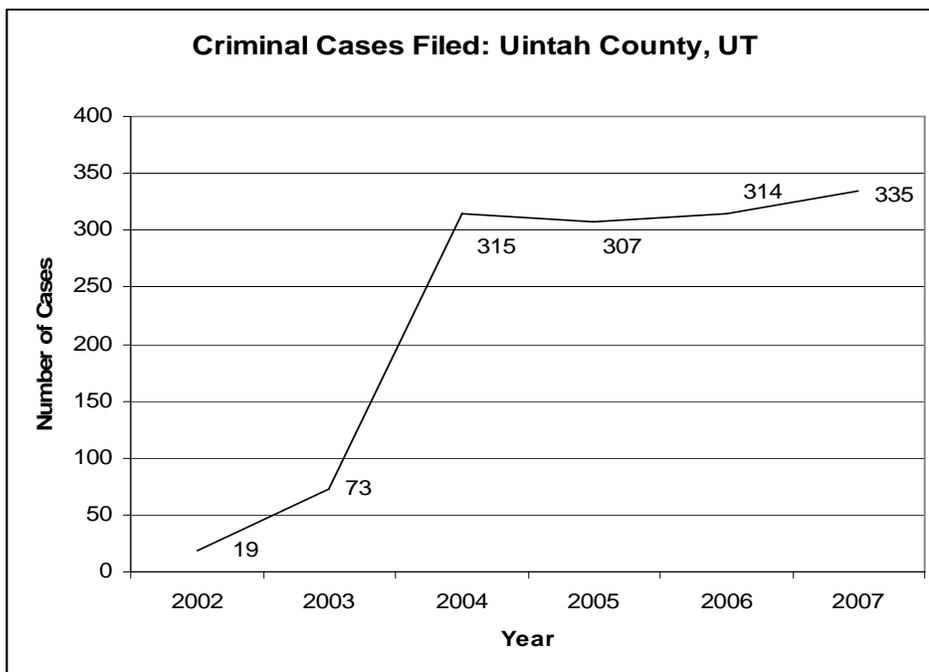
Source: Uintah County 8th District Court

Figure 8. Criminal Cases Filed: Uintah County, UT

definitely increased, both from 1980 to 2000 and, more significantly, from 2000 to 2007.

The economic activity of Uintah County, UT increased very substantially, which in turn

created more jobs that may or may not be permanent or secure jobs. Some social

disruptions are also apparent, suggesting that Uintah County endured an energy boom

period of growth, and is in fact a boomtown. This data can help to understand some of

the dynamics of Uintah County, UT, and will be useful in interpreting results from the

next section of this chapter.

Univariate Analysis

Table 1 illustrates the basic sociodemographic attributes of the survey respondents from Uintah County, UT. Of the 432 respondents, a majority are male, while the median age is 52, and more than three-fourths are married. A large majority of the respondents have either a high school education, or some college education without receiving a degree. The median household income is between $30,000 and $59,000, and more than four-fifths of respondents have lived in the community for more than eight years. These figures allow for a clear representation of the population that responded to the survey, helping to answer questions later on in this and the next chapter. The differences between the individual attributes of respondents' socioeconomic and demographic characteristics are not enough to answer research questions and therefore encourage further analyses to be performed.

The far right column of Table 1 illustrates population estimates from the U.S. Census Bureau. The dashed spaces represent figures where data were unavailable. The figures illustrate that the sample population from the survey is not exactly the same as the overall population of Uintah County. For example, the actual number of males and females is split evenly at 50%, though the sample of survey respondents is skewed at 67.40% male, and 32.60% female. Other differences exist in educational attainment level, and median household income. This is not a large problem, I argue, because the sample population truly is a random sample, and some error is likely to follow with such a small sample and a perfect representation of the population would require a much larger sample size. Also, the differences are not extremely problematic because the level of

Table 1. Demographic and Socioeconomic Characteristics of Survey Respondents

Demographic or Socioeconomic Variable	Uintah County, UT	Census Estimates for Uintah County, UT
Male	67.40%	50%
Female	32.60%	50%
Median Age	52	-
Marital Status: Married	78.20%	-
Education:		
Less than 9th Grade	0.50%	-
9th-12th Grade	8.10%	-
High School	28.90%	79.80%
Some College, no degree	27.40%	-
Assoc./Vocational Degree	8.60%	-
College bachelors	14.60%	13.20%
Graduate or professional	11.90%	-
Median Household Income	$30,000 - $59,000	$57,769
Length of Residence		
8 - 98 years (pre-boom)	81.70%	-
3 - 7 years (during boom)	11.80%	-
1 - 2 years (post-boom)	5.30%	-
N	432	-

Source for Census Data: U.S. Census Bureau 2010b

differentiation is not extremely high. Therefore, the sample population will suffice for

the goals of this thesis; finding out who *wins* and who *loses.*

Bivariate Analysis

The bivariate analysis in this study is accomplished by means of a correlation

matrix. The correlation matrix shows associations between two variables. In this case,

every independent and dependent variable is shown in Table 2 to have some level of

association with every other variable. The negative signs before a coefficient indicate

that the association is negative between the two variables, and vice versa.

In Table 2, associations between two independent variables above .400 are considered to be very highly correlated, and should therefore not be used in the same regression models together. Not surprisingly, the association between the dependent variables satisfaction with law enforcement and satisfaction with medical and health services is .406; a fairly high level of correlation. These two variables will actually not be used in the same regression models as the original construction of the models already separates them. However, the two independent variables, age and length of residence, have a correlation coefficient of .508; a high correlation. These two variables cannot be used in the same regression models because of the biasing effects of multicollinearity on calculating regression coefficients. Multicollinearity means that one independent variable is highly correlated with another independent variable, suggesting that they should not be used together in a regression model as one will cancel out the effects for the other (McClendon 2004). Other coefficients for correlation among independent variables included in the model do not exceed the .400 level of association, suggesting that the regression models should account for the variance of the population successfully without being impacted by high levels of association.

Another mentionable aspect of Table 2 includes the independent variables that are included in hypotheses 1, 2, and 3; length of residence, age, and income. While examining the independent variables across the dependent variables, a noticeable correlation presents itself. For all five dependent variables, a statistically significant relationship is present for the independent variable age (.145, .183, .295, .227, and .280). Also, for the independent variable length of residence four out of five dependent variables illustrate a statistically significant coefficient (.179, .186, .145, .133).

Table 2. Bivariate Analysis of Variables
** = p < .01 and * = p < .05

	Community Satisfaction	Feelings towards Neighbors	Sat. w/ Local Schools	Sat. w/ Medical/ Health Services	Sat. w/ Law Enforcement	Level of Education	Annual Income	Length of Residence	Age	Marital Status	Sex (female)
Community Satisfaction	-										
Feelings towards Neighbors	.132**	-									
Sat. w/ Local Schools	-0.006	0.035	-								
Sat. w/ Medical/Health Services	.170**	-0.001	.346**	-							
Sat. w/ Law Enforcement	.250**	.112*	.387**	.406**	-						
Level of Education	0.026	0.025	-0.086	-0.032	-0.018	-					
Annual Income	0.018	0.037	-.190**	-0.09	-0.108	.232**	-				
Length of Residence	0.068	.179**	.186**	.145**	.133**	-.321**	-.200**	-			
Age	.145*	.183**	.295**	.227**	.280**	-.135**	-.287**	.508**	-		
Marital Status	-0.072	0.097	-0.079	-0.08	-0.06	.122*	.351**	-0.087	-.186**	-	
Sex (female)	-0.065	-0.021	0.085	0.071	-0.04	-0.08	-.198**	-0.059	-0.061	-.329**	-

Inconsistently, the independent variable annual income only has one statistically significant coefficient with one dependent variable (-.190).

The relationships presented above give the first glance at the associations between variables. Length of residence and age both have positive relationships and are quite prominent, suggesting that relationships between the variables do exist, and that statistically significant results in the regression models would not be unlikely. However, income is not as clear and the relationship between the independent variable and dependent variables is not as strong as the other independent variables. The multivariate regression models in the next phase of the analysis will further provide evidence in proving or disproving the hypotheses for this thesis.

Regression Analysis

This section uses multivariate OLS regression to address hypotheses 1, 2, and 3.

H1. People who have lived in a community for a longer period of time will be more likely to respond to the survey with lower expressions of satisfaction for various quality of life indicators, suggesting that long time residents *lose* relative to more recent in-migrants.

H2. The older a respondent is, the more likely they will express lower quality of life responses, suggesting that older people *lose* relative to younger populations in an energy boomtown.

H3. The more money one has, the more likely one will be to report a higher level of satisfaction within one's community, suggesting that people with more

money *win* relative to what is typically experienced by persons with lower

level income levels.

Regression analysis is used to examine how specific dependent variables relate to

sociodemographics of survey respondents to understand their levels of well-being with

various indicators of their community. The regression analysis shows strengths of

associations and the direction of the relationship. Therefore, this analysis will examine

the associations between demographic variables and the dependent variables to answer

the research question. The five dependent variables (community satisfaction, closeness

with neighbors, satisfaction with law enforcement, satisfaction with local schools, and

satisfaction with medical and health services) are used as the well-being indicators. The

independent variables are used as personal attributes of residents, allowing this study to

show which types of people are affected more or less by the oil and gas industry in their

community.

The variable sex is coded as 1 (female) and 0 (male). Income is divided into

categories where a family's income fits somewhere on the scale. Education is also

divided into categories, based on the highest level of education a person has received.

Marital status is coded 1 (married) and 0 (never married, divorced/separated, and

widowed). Age is measured by the number of years old a person is, and length of

residence is measured by the number of years a person has lived in the community. As

the correlation matrix suggested in the bivariate analysis section, neither age nor length of

residence will be used in the same models. Therefore, two regression models will be run

for each dependent variable, for a combined total of ten regression models.

Table 3 (Model 1) examines the dependent variable community satisfaction, and includes length of residence without age. Education has a statistically significant positive association with community satisfaction (b=.538) at the p<.05 level, indicating that when a respondent's level of education increases, community satisfaction also increases. Length of residence also has a statistically significant positive association with community satisfaction (b=.047) at the p<.01 level, suggesting that the longer a resident lives in a community, the more satisfied they are with their community. The other statistically significant coefficient in this model is marital status (b=-2.840) at the p<.01 level. Interestingly, this indicates that if a person is married, they are less satisfied with the community. This model begins to help answer hypothesis 1.

Table 3. (Model 1) Community Satisfaction (with Length of Residence)

	b	β
Sex	-1.319	-.090
Income	.326	.083
Education	.538*	.119
Marital Status	-2.840**	-.169
Length of Residence	.047**	.151
Constant	4.68	
R^2	.054	

*= p<.05; ** = p<.01

Table 4 (Model 2) also examines community satisfaction, though in this model age is included while length of residence is not. It accounts for slightly less variance in community satisfaction than does model 1 (R^2=.045). With age included, education is no longer significant. Marital status is still significant at the same level, with a similar coefficient (b=-.670). Age is also significant in this model at the p<.05 level (b=.044).

Table 4. (Model 2) Community Satisfaction (with Age)

	B	β
Sex	-1.353	.092
Income	.362	.092
Education	.366	.082
Marital Status	-2.670**	-.158
Age	.044*	.110
Constant	4.260	
R^2	.045	

*= p<.05 ** = p<.01

This suggests that as a resident's age increases, so does their level of community satisfaction.

Table 3 and Table 4 begin to answer hypotheses 1 and 2. It is understood that the longer a resident has lived in a community, and the older that resident is, the more satisfied they are with their community. These figures suggest that null hypothesis is not rejected. However, because community satisfaction is only one measure of well-being, it is not yet clear who is *winning* and who is *losing*. Hypothesis 3 is not yet answered.

Table 5 (Model 3) examines the well-being indicator closeness with neighbors, and includes length of residence and excludes age. This model accounts for some of the variance in closeness with neighbors (R^2=.059). In this model, the statistically significant predictors of a resident's closeness with neighbors are marital status (b=.343) at p<.05 and length of residence (b=.010) at p<.001. These numbers indicate that both residents who are married, and residents who have lived in the community for a longer period of time experience higher levels of closeness with neighbors.

Table 5. (Model 3) Closeness with Neighbors (with Length of Residence)

	b	β
Sex	.091	.043
Income	.008	.014
Education	.062	.096
Marital Status	.343*	.142
Length of Residence	.010***	.214
Constant	2.636	
R^2	.059	

* = p<.05; *** = p<.001

Table 6 (Model 4) also examines the well-being indicator closeness with

neighbors, and includes age but not length of residence. This model accounts for slightly

less of the variance in closeness with neighbors (R^2=.059). Again, marital status is

statistically significant (b=.367) at p<.01, a higher level of significance. Age is also

statistically significant (b=.012) at p<.001, suggesting that there is a positive association

between age and a resident's closeness with neighbors.

Table 6. (Model 4) Closeness with Neighbors (with Age)

	b	β
Sex	.113	.054
Income	.022	.040
Education	.031	.048
Marital Status	.367**	.152
Age	.012***	.209
Constant	2.363	
R^2	.055	

** = p<.01; *** = p<.001

After examining the first four models, hypothesis 1 and 2 are beginning to be

answered. An interesting finding thus far in the analysis is that income has yet to be

statistically significant, and marital status has been very significant. However, in the

literature, marital status has been identified to be both positively and negatively related to the indicators of well-being, suggesting that it would be difficult to construct a valid hypothesis. Income may also not be statistically significant due to the notion that most people find themselves in the middle class bracket of residents overall income as was shown in Table 1.

Table 7 (Model 5) uses satisfaction with law enforcement as the measure of well-being, and includes length of residence. This model accounts for a fairly low amount of variance in satisfaction with law enforcement (R^2=.038). The only statistically significant predictor of satisfaction with law enforcement is length of residence (b=.138) at p<.01. Although this is the only variable with statistical significance, it is useful because it continues to answer hypothesis 1, as the relationship is positive. In this model, the longer a resident has lived in a community, the more satisfied they are with law enforcement in the area.

Table 7. (Model 5) Satisfaction with Law Enforcement (with Length of Residence)

	b	β
Sex	-1.970	-.049
Income	-.995	-.092
Education	.892	.072
Marital Status	-1.617	-.035
Length of Residence	.138**	.160
Constant	8.050	
R^2	.038	

** = p<.01

Table 8 (Model 6) again incorporates satisfaction with law enforcement as the measure of well-being, though this model includes the variable age, not length of residence. This model accounts for more variance in satisfaction with law enforcement

(R^2=.072); a higher statistic than any other model. Like model 5, there is only one

statistically significant predictor of satisfaction with law enforcement. In this model, the

predictor is age (b=.274) at p<.001, suggesting that the older a resident is, the more

satisfied they are with law enforcement. Again these significant predictors are in fact

very useful in answering hypotheses 1 and 2, yet income levels have still yet to be

statistically significant, leaving hypothesis 3 unanswered (which would be reject or fail to

reject the null hypothesis).

Table 8. (Model 6) Satisfaction with Law Enforcement (with Age)

	b	β
Sex	-1.233	-.030
Income	-.512	-.047
Education	.494	.040
Marital Status	-.538	-.012
Age	.274***	.250
Constant	-3.403	
R^2	.072	

*** = p<.001

The next model shown, Table 9 (model 7), examines satisfaction with local

schools as the measure of well-being. The total variance in satisfaction with local

schools explained in this model is consistent with that explained in other models

(R^2=.061). In this model, income is statistically significant in a negative direction

(b=1.604) at p<.01. For the first time this model indicates that the more money a resident

earns in a year, the less satisfied they are with the local school system. The other

statistically significant predictor in satisfaction with local schools is length of residence

(b=.140) at p<.01. This indicates that the longer a resident has lived in the community,

the more satisfied they are with the local school system. This table is very useful as it

gives insight into hypothesis 3 for the first time in this analysis, and it also continues to

help answer hypothesis 1. After reviewing seven different models, it is clear at this point

that length of residence and age play a large role in predicting variance for every

indicator of well-being examined. This explains that the findings of this study will either

be consistent or inconsistent with the findings in previous studies referred to in previous

chapters, and those findings will be reviewed in the next chapter of this thesis.

Table 9. (Model 7) Satisfaction with Local Schools (with L.O.R)

	b	β
Sex	2.126	.054
Income	-1.604**	-.151
Education	-.030	-.002
Marital Status	2.046	.045
Length of Residence	.140**	.167
Constant	9.512	
R^2	.061	

** = p<.01

Table 10 (model 8) also uses satisfaction with local schools as the measure of

well-being, and accounts for the most variance of any model so far (R^2=.099). Although

this model accounts for the highest level of variance compared to the other models in this

analysis, there is only one statistically significant predictor in satisfaction with local

schools. This indicator is once again age (b=.284) at p<.001. This is a highly statistically

significant result, indicating that the older a person is, the more satisfied they are with

local schools. Again, this significant coefficient continues to give more insight into

hypothesis 2, which appears to have an answer developing clearly. With only two

models remaining to address, it is becoming clear that answers are developing for both

hypothesis 1 and 2, while hypothesis 3 seems to be largely unanswered due to lack of

significant coefficients in the models.

Table 10. (Model 8) Satisfaction with Local Schools (with Age)

	b	β
Sex	2.863	.072
Income	-1.112	-.105
Education	-.416	-.034
Marital Status	3.226	.071
Age	.284***	.265
Constant	-2.533	
R^2	.099	

*** = p<.001

The final two tables examine satisfaction with medical and health services as the

measure of well-being. Table 11 (model 9) includes length of residence, and accounts for

some of the variance in the model (R^2=.037). Although the variance explained by this

model is small, there is still one statistically significant predictor in satisfaction with

medical and health services; length of residence (b=.209) at p<.001. This indicates that

the longer a resident has lived in the community, the more satisfied they are with medical

and health services. As this is the final table with length of residence included, it

completes the trend that the variable is significant in every single model. This is a

valuable asset for answering hypothesis number 1.

Table 11. (Model 9) Satisfaction with Medical and Health Services (with Length of Residence)

	b	β
Sex	2.894	.051
Income	-.709	-.047
Education	.717	.041
Marital Status	-1.693	-.026
Length of Residence	.209***	.174
Constant	8.185	
R^2	.037	

*** = p<.001

The final table examined is Table 12 (model 10). This table also uses satisfaction with medical and health services as a measure of well-being, though it includes age instead of length of residence. The amount of variance explained is more than that of model 9. In this model, the amount of variance explained is (R^2=.053), and has one statistically significant predictor in satisfaction with medical and health services. The predictor is age (b=.332) at p<.001, suggesting that the older a resident is, the more satisfied they are with medical and health services. Like length of residence, age is also statistically significant in every model allowing hypothesis number 2 to also be answered successfully.

Table 12. (Model 10) Satisfaction with Medical and Health Services (with Age)

	b	β
Sex	3.578	.063
Income	-.183	-.012
Education	.041	.002
Marital Status	-.457	-.007
Age	.332***	.217
Constant	-3.300	
R^2	.053	

*** = p<.001

After reviewing the findings from all ten-regression models, Tables 13, 14, and 15 present a summary of the findings from the models in terms of the independent variables used to create the three hypotheses. The results are also discussed further later in the thesis.

Table 13 shows that length of residence is positively statistically significant in every model, suggesting that the longer a resident has lived in the community, the more satisfied they are with various well-being indicators. Longer term residents win.

Table 13. Summary of Findings for Length of Residence.

	Length of Residence
Model	b
1	.047**
3	.010***
5	.138**
7	.140**
9	.209***

** = p<.01; *** = p<.001

Table 14 shows that age is positively statistically significant in every mode. suggesting that older a resident is, the more satisfied they are with various well-being indicators. Older residents win.

Table 14. Summary of Findings for Age.

	Age
Model	b
2	.044**
4	.012***
6	.274***
8	.284***
10	.332***

** = p<.01; *** = p<.001

Table 15 shows that income is significant in only one model, and the direction of the relationship is inconsistent. Income is not a predictor of winning or losing in this community.

Table 15. Summary of Findings for Income.

	Income
Model	b
1	.326
2	.362
3	.008
4	.022
5	-.995
6	-.512
7	-1.604**
8	-1.112
9	-.709
10	-.183

** = $p<.01$

In summary, this analysis has shown that the hypotheses for hypotheses 1 and 2 have been rejected. In other words, the longer a resident has lived in the community, and the older a resident is, the more likely they are to fall on the *winning* side of the spectrum. Although this is not what my hypotheses predicted, it is still useful in determining who wins and who loses. This analysis has also shown that evidence is scarce for answering hypothesis 3. Hypothesis 3 is also rejected because income was negatively significant in model 7; the only model in which the variable was significant at all. Although hypothesis 3 is rejected, it is largely inconclusive and evidence is scarce in either direction. Therefore further research should be directed towards why income is so inconsistent.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

The main purpose of this thesis has been to better understand who *wins* and who *loses* shortly after a boom period has halted or slowed in an energy extraction community. As suggested by previous literature, the demographic characteristics of residents that are of most interest in this particular thesis are age, length of residence, and income. Beginning with age, the older a resident is the more satisfied they are with various well-being indicators as shown in Chapter 4. Also, the longer a resident has lived in the community, the more satisfied they are the with well-being indicators. The third independent variable, income, is a bit more ambiguous. Income is only significant in one model, suggesting that the more money one has the less satisfied they are with local schools. The null hypotheses for hypotheses 1, 2, and 3 have failed to be rejected, though hypothesis 3 has very little evidence to either accept or reject a null hypothesis. Overall, the findings suggest that *winners* are older residents, residents who have lived in the community for a longer period of time, and that people with more income tend to be *losers.*

Although the null hypotheses have been rejected for every hypothesis, the amount of variance explained (R^2) in every model is less than desired. For example, model 8 (Table 10) accounted for the highest amount of variance, with an R^2 of .099, or 9.9% of the total variance for the dependent variable *satisfaction with local schools*. This figure explains less variance than expected, though this is rather common in social science research. For example, Krannich and Greider (1984) explained only 6.3% of the variance

in their model, though the findings are still useful and comparable to the R^2 in this thesis. Also comparable to the findings in this thesis, Berry et al. (1990) explained variance in one of their tables of 9.8%, 16.0%, 16.2% and 11.6%. Because of the amount of variance explained in this analysis, the significant predictors such as age and length of residence are still statistically significant, but are not explaining an overwhelming amount of variance. Therefore, the strength of the relationships found in this analysis are not exceedingly strong, yet they still explain a useful amount of the well-being of residents in Uintah County.

One reason as to why the models may not account for as much variance as desired may be due to the variables used in this analysis. Although the literature on boomtowns suggested the variables that are used in this analysis, there may be other variables that would have accounted for a higher level of variance. For example, sex may not have been as important as suggested by previous studies after reviewing the findings from this analysis, but type of occupation or other variables may have been more useful. Occupation may be important because the type of career a resident pursues may effect various quality of life indicators for that resident. This is a theoretical suggestion with the answer unknown, though it may be worth investigating in future research. Regardless of the level of variance explained, the findings in this thesis are still useful and can still provide important direction, suggestions, and information about the quality of life of the residents of Uintah County.

As both hypotheses 1 and 2 were not supported in this thesis, a few striking theoretical reasons for this may present the insight needed to better understand the well-being of boomtown residents. Two speculative reasons are the economic recession

endured around the time when the survey was completed by residents, as well as the concept of community adaptation to change. In the later half of this decade a major economic recession hit the United States and other countries around the world and is still present today in 2010. One reason why the oil and natural gas industry is not causing the social disruptions found in earlier studies on boomtowns may be linked to this recession. The logic behind this theory involves the oil and natural gas industry supplying jobs to residents. Whether these jobs are good jobs or bad jobs, they are still jobs that are created by the oil and gas industry. Residents of Uintah County may view the industry as a positive contributor to the social well-being of community residents because it is supplying jobs when other industries may be cutting jobs. This scenario may account for contrasting results that have been found in this thesis compared to results from previous studies.

Another interesting perspective as to why the results from this thesis fail to support previous findings involves a theory encompassing community change and adaption to technological change. Freudenberg and Gramling (1992) explain that over time, both positive and negative impacts accompany changes in technology to industry and growth. The authors call this the *opportunity-threat* stage to many humans including the "biophysical, economic, social, cultural, and psychological systems of the human environment" (Freudenberg and Gramling 1992: 937). The authors explain that over time, humans will adapt to both positive and negative impacts, and possibly even over-adapt. The anticlimactic findings in this thesis may be related to this phenomenon. The findings in this thesis suggest that previous studies are not indicative of modern day boomtowns such as the one in Uintah County. Perhaps the reason for this is due to

adaptation to change as suggested by Freudenberg and Gramling (1992). The residents of Uintah County have experienced booms for more than thirty years, and may now be able to adapt to the changes that occur within their communities during times of boom, accounting for the lack of social disruption shown via the analysis in this thesis.

Brown et al. (2005) suggest other reasons why older residents and residents who have lived in a community a long time tend to experience higher levels of well-being in boomtowns. In the 2005 study, the authors examined whether or not enough time post-boom helps to heal the wounds created by such a boom. Like the results from this thesis, Brown et al. (2005) suggest that older residents and long-term residents tend to possess characteristics that allow them to create a buffer against the diminishing community satisfaction other residents may experience. One reason the authors suggest is that a greater attachment to both community and place learned over the years provides an alternative perspective to the dynamics of the community and the way it changes over time. In Uintah County, UT, older residents have probably lived in the community for a long period of time, the same logic that prevented length of residence and age to be used in the same regression models in chapter 4 shown via the bivariate analysis. Because of the nature of the community, the residents have most likely seen the booms and the busts that generally accompany NRDCs over time, allowing residents to maintain a strong level of community attachment, thus providing the results found in this thesis.

An alternative perspective as to why older people tend to *win* in a boomtown community is consequently linked to length of residence. Figure 9 shows that the number of residents aged 45 years or more has increased over the course of the boom period from 2000 to 2007. This suggests that in-migration to a community during or

post-boom may in fact play a role in the level of well-being a resident experiences.

Hunter et al. (2002) found similar results while examing the variable "fear of crime".

The authors found that post-boom in-migrants tend to experience less fear of crime than

do pre-boom or mid-boom in-migrants. Figure 9 shows the older population in Uintah

County is increasing, accounting for the finding that older people tend to experience

higher levels of well-being, due to the fact that they may have arrived during or after the

2003 boom.

Uintah County - Population Aged 45+ Years
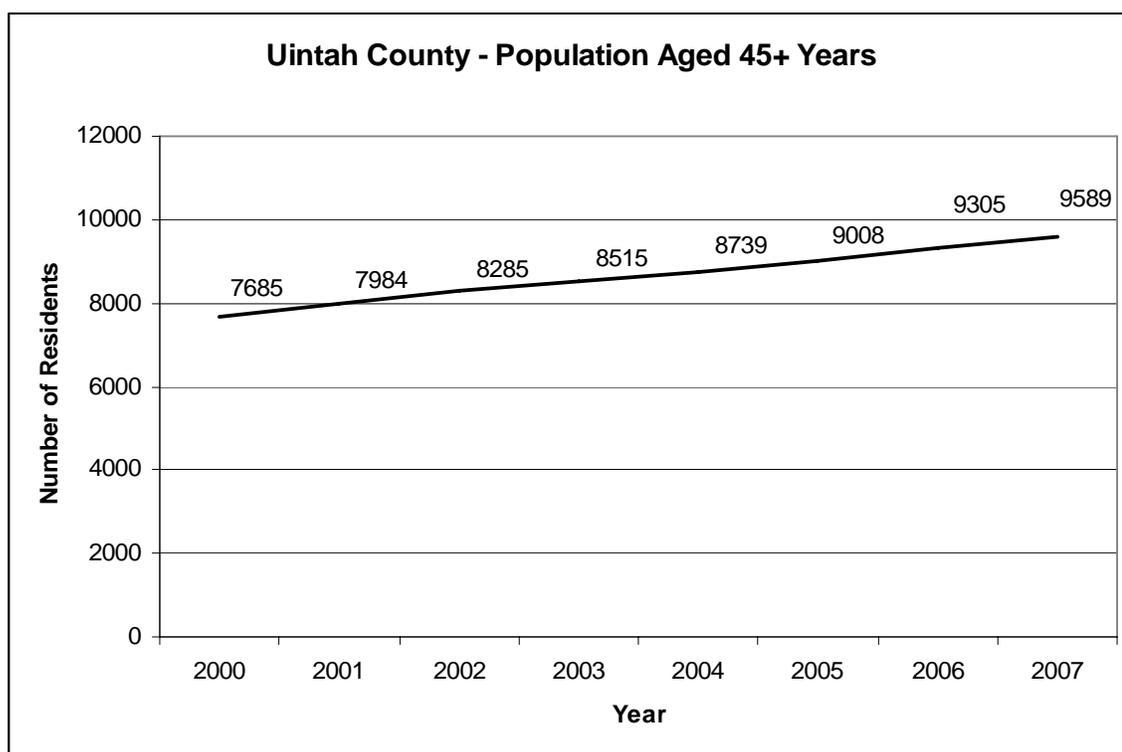
Source: U.S. Census Bureau 2010c

Figure 9. Uintah County - Population Aged 45+ Years

Another possible reason for the consistency in findings for age relates to the large

number of older residents sampled in this survey. One reason why older people tend to

express the same feelings of well-being may be due to the fact the people with like

characteristics react similarly to specific situations. For example, the large number of

older people in this sample may react the same way to feelings of satisfaction with local

schools (and other dependent variables) because their livelihoods and feelings towards

certain aspects of the community are experienced in the same way. This may account for

the results found in this thesis.

The findings from this thesis are not necessarily consistent with the findings from

Hunter et al. (2002) when considering length of residence. Again, the authors from the

2002 study found that post-boom migrants (a shorter length of residence) experience less

fear of crime, which is inconsistent to the findings of this thesis. Although fear of crime

was not a well-being indicator used in this thesis, it is one of many well-being indicators

used throughout the history of boomtown literature, allowing a valid comparison to be

made. Also, satisfaction with law enforcement is included in this analysis, and is used to

show the opposite side of the crime indicator by measuring residents' satisfaction with

law enforcement. This too allows a comparison to be made. The results from this thesis

suggest that the longer a resident has lived in the community, the more satisfied they are

with a variety of well-being indicators in that community. One reason for the

differentiation may be due to the way the variable length of residence is measured.

Hunter et al. (2002) measure length of residence as pre-boom, mid-boom, and post-boom,

which is in fact a measure of in-migration timing rather than length of residence as used

in this thesis. This difference in measurement could account for the contradicting results.

Another reason why there may be such variation is because the community itself

is actually a different community. Perhaps different communities experience their own

types of social disruption during times of boom, and can not be compared to one another. Another suggested reason for the difference may be due to the newer technologies used in Uintah County by the oil and natural gas industry. New technologies in the oil and natural gas industry may play a pivotal role in the way communities experience and react socially to such an industry. For example, new techniques for extracting oil are becoming more prevalent in Uintah County as shown in Table 13 and Figure 10. These technological advances appear to be growing in magnitude, reducing the footprint of the industry by allowing one rig to drill multiple wells from the same pad.   The rise in technology has changed the way oil and natural gas is approached and extracted, perhaps changing the dynamics of the entire industry. This thesis and the study by Hunter et al. (2002) are in fact written eight years apart from one another; more than enough time for new technologies to play a differentiating role in the industry.

Along with increased techniques in oil and natural gas extraction, most machines and control rooms in the industry are computer operated, requiring few if any human workers to control the operation. Therefore, employment in this sector of work has been declining, and the new technologies have increased job specialization as shown in table 14 (The U.S. Bureau of Labor Statistics 2010). Again, the advances in technology may account for some of the reason why social disruption is largely absent illustrated by the findings in this thesis. Fewer workers means fewer residents to socially disrupt a community, while increased specialization suggests that the workers are more educated, perhaps being less likely to commit to the bad habits the old *roughneck* oil field laborers exhibited in the early boomtowns like Rock Springs, WY.

Table 16. Approved Permits by Type from 2001 – 2010 , Uintah County

Year	Directional or Horizontal	Total	Proportion of Directional and Horizontal
2001	18	584	3.08%
2002	14	414	3.38%
2003	36	589	6.11%
2004	30	795	3.77%
2005	77	1225	6.29%
2006	163	1363	11.96%
2007	110	978	11.25%
2008	135	803	16.81%
2009	322	758	42.48%
2010	117	193	60.62%
Directional	967		
Horizontal	55		
Total	1022	7702	13.27%

Source: Utah Division of Oil Gas and Mining
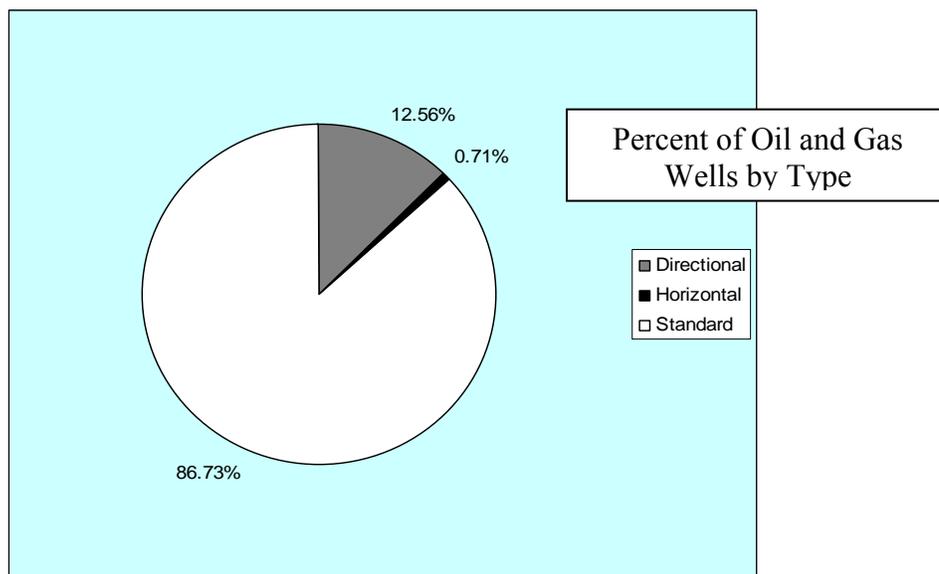
Source: Utah Division of Oil Gas and Mining

Figure 10. Percent of Types of Oil and Gas Wells 2001 - 2010, Uintah County

Table 17 illustrates that more specialized jobs, including computer specialists and engineers, will be increasing in 2006 to 2016, while blue collar, labor intensive jobs will be declining. This table is valuable in illustrating the future of energy development communities. As technology increases, requirements for specialized workers follow in the oil and natural gas industry.

Table 17. Predicted Occupational Change in Oil/Natural Gas: 2006 - 2016

Occupation	Predicted Percent Change 2006-2016
+ Computer Specialist	2.80%
+ Engineers	4.00%
+ Geoscientists, except hydrologists and geographers	4.50%
+ Geological and petroleum technicians	3.00%
- Derrick operators, oil and gas	-6.30%
- Rotary Drill operators, oil and gas	-6.50%
- Service unit operators, oil, gas, and mining	-6.50%

Source: U.S. Bureau of Labor Statistics

As mentioned in chapter two of this thesis, Uintah County is not the ideal boomtown. Populations grew during this boom at much less dramatic rates than did the boomtowns of the 1970s and 1980s. However, it is still very much a boomtown, and certainly was a boomtown in previous decades. This fact provides an opportunity to understand the dynamics of a serial boom-bust community, perhaps accounting for some of the findings in this thesis. To better illustrate this point, consider the people living in Uintah County. As Figure 9 illustrated above, the population in Uintah County is remaining constant, specifically the elder populations. The long-term residents have

lived there for many years, and have experienced at least 4 booms over the past 4 decades. The concept of a "generational effect" may play a key role in the experiences of these residents. After seeing so many booms and busts, perhaps residents were prepared for the 2003 boom, allowing them to maintain a higher level of well-being than younger, newer residents of the community. This idea is worth considering when interpreting the results from this thesis, and understanding serial boomtowns.

Regardless of the reason why findings from this thesis and previous studies are different or similar, it is useful to reflect back to a statement from Smith et al. (2001). The authors explain that *some* disruptions occur, in *some* boomtowns, *sometimes*. This broad statement may provide the answers to questions as to why findings are different in *some* studies, in *some* places, *sometimes*. This concept also explains why this thesis is so valuable. If we know some disruptions occur sometimes and not all the time, then the question really is not *what* are the effects? But rather *who* is being affected?

This thesis presents some valuable findings that have not been previously presented. It is understood through the findings in this thesis that older people, and people who have lived in the community for a longer period of time tend to experience higher levels of well-being, or *win* in a boomtown. It can also be suggested that younger people and newer residents of the community do not experience the highest levels of well-being in Uintah County, or *lose* in a boomtown. This information is very useful for local policy makers, organizations, and community representatives because it can be applied to community decisions that can mitigate problems and provide aid to those who need it the most.

Some examples of specific areas where Uintah County and the city of Vernal can actually make a difference are not too difficult to accomplish. For example, town representatives and planners can use this information to set up educational programs for workforce preparedness, allowing younger people (losers in this study) to become more involved prepared and engaged in the community and the workforce. Also, job fairs can help accomplish the same goal. Then, to improve the well-being for short-term newer residents (losers in this study) encouraging institutions like a *welcome wagon* that used to occur in previous decades could be suggested to incoming neighbors and rewarded. Encouraging volunteering opportunities for residents can provide friendship chances and increase neighborliness. These small suggestions can provide a lot of encouragement to local communities, providing the confidence and education necessary in ensuring a higher quality of life for residents.

In a more future research-oriented mode of thinking, this thesis examined only a small number of variables that make up a social community, and can be replicated and expanded upon to find further results, supplementing the overall value of this thesis. Finding out who *wins* and who *loses* is a very crucial part of solving a problem, because knowing who to help is the key to correctly and adequately mitigating the effects of an enterprise that often times can cause negative social implications on host communities.

On a more macro level, this thesis has provided hopeful insight into the future of energy production and development. According to the findings of this thesis, social disruption is not occurring the same way it once did in boomtowns. Significant indicators illustrated in the regression models show positive trends, suggesting that the independent variables used show higher levels of social well-being. This may be due to

advances in technology, community adaption theory, or a number of other reasons; though social disruption is more or less absent from this 2009 boomtown. As time moves further into the future more emphasis is being put into the growth and development of alternative energy sources, particularly wind power. After the 2010 oil disaster in the Gulf of Mexico, President Obama has suspended plans for off shore oil drilling in the United States in places such as Virginia (Sturgis 2010). With the decrease in United States off shore oil extraction, a need for alternative energy is likely to follow. On April 30, 2010 New Jersey law makers suggested the federal government accelerate the process of issuing offshore windmill permits as they see it as a safer and cleaner means to alternative energy (Spoto 2010). Not surprisingly, wind mill permits are becoming a reality, as they are considered to be a cleaner alternative to drilling for oil. For example, wind farm projects such as the Cape Cod wind farm off the coast of Massachusetts are becoming more common. The wind farm, in an area called the Nantucket Sound, is the first offshore wind farm to be approved for production in the United States on Wednesday, April 28, 2010, and will provide energy to the Massachusetts area by the end of 2012. After nearly a decade of hard-fought political battling, the wind farm has officially been approved (Eilperin 2010).

This thesis provides an opportunity to understand the way energy development towns are socially received in 2009 and after. By using the findings from this thesis, it may be true that further technological advancements in energy development create a different kind of boomtown than those endured in the 1970s and 1980s. "Windfarm-towns" may be the next phase of energy development in the United States and other countries around the world, and evidence from this thesis suggests that modern day

energy development may not be as disruptive as those experienced in the past. Windfarm-towns may become more and more popular, yet the findings from this thesis suggest that research examining social disruptions in energy communities will be a valuable asset for future studies.

This thesis has helped the growing body of literature to understand who *wins* and who *loses* in a boomtown community, though there are areas that can be expanded upon to further understand the dynamics of such a place. The first place where future research can be focused is diving deeper into the variable income. This thesis has found contradicting results as to how income affects the level of well-being a resident experiences. Future research should focus on a better understanding of the affects of income by replicating this study in other communities. Perhaps other communities will give different results for income, suggesting either a positive or negative relationship between income and personal well-being. Another suggestion is to measure income in a variety of ways, or to include additional variables to gain the much-needed understanding of the relationship.

A second suggestion for future research is to expand this study to find out who else *wins* and who else *loses.* Variables besides age, length of residence, and income should be included to help answer the research question more thoroughly. Some other variables may be sex, number of family members, occupation, religious affiliation, and many others. These variables will further help to mitigate the effects of oil and natural gas extraction on the social networks and communities who host the industry.

The final suggestion for future research is simply replicating this study in its entirety. The findings from this study are useful and do answer the research question for

this thesis, though replicating this study may provide more thorough answers whether the findings are similar, or different. Multiple replications of this study will help to solidify the findings, and more importantly help the people who are *winning* or *losing* by accurately identifying those who need help most.

After reviewing the results from this thesis, several issues need to be highlighted. First, some social disruption does occur in energy development communities in most cases. The extent to which that disruption impacted Uintah County varied based on individual characteristics, as the community is composed of many smaller parts, ranging from individuals to their reference groups. Second, the micro level of this study can be useful in predicting and interpreting the macro future of energy development. Lastly, it is clear that the research on energy boomtowns should be studied further as the results of this thesis reach far beyond the initial intentions of understanding who *wins,* and who *loses.*

Allen, John C., Derrik R. Tollefson, Chih-Yao Chang, Douglas A. Malloy, and Stephanie Malin. 2009. "Uintah Basin Social and Quality of Life Impact Study, Final Report." Commissioned by the Uintah Basin Mitigation Committee.

Beckley, Thomas M. 1998. "The Nestedness of Forest Dependence: A Conceptual Framework and Empirical Exploration." *Society and Natural Resources* 11:101-120.

Berry, E. Helen., Richard S. Krannich, and Thomas M. Greider. 1990. "A Longitudinal Analysis of Neighboring in Rapidly Changing Rural Places." *Journal of Rural Studies* 6(2):175-86.

Broadway, Michael. 2007. "Meatpacking and the transformation of rural communities: A comparison of Brooks, Alberta and Garden City, Kansas." *Rural Sociology* 72(4): 560-582.

Brown, Ralph B., Shawn F. Dorius, and Richard S. Krannich. 2005. "The Boom-Bust-Recovery Cycle: Dynamics of Change in Community Satisfaction and Social Integration in Delta, Utah." *Rural Sociology* 70(1):28-49.

Brown, Ralph B., H. Reed Geertson, and Richard S. Krannich. 1989. "Community Satisfaction and Social Integration in a Boom Town: A Longitudinal Analysis." *Rural Sociology* 54:568-86.

Cohen, Jacob, Patricia Cohen, Stephen G. West, and Leona S. Aiken. 2003. *Applied Multiple Regression/ Correlation Analysis for the Behavioral Sciences* (3rd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Cortese, Charles F. and Bernie Jones. 1977. "The Sociological Analysis of Boom Towns." *Western Sociological Review.* 8(1):76-90.

Dillman, Don A. 2007. *Mail and Internet Surveys the Tailored Design Method.* City, NJ: John Wiley & Sons.

Eilperin, Juliet. 2010. "Offshore Wind Farm Near Cape Cod, First in U.S., Gets Federal Approval." *The Washington Post.* April 29.

Elo, Irma T. and Calvin L. Beale. 1985. *Natural Resources and Rural Poverty: An Overview.* Washington, DC: Resources for the Future.

England, J. Lynn and Stan L. Albrecht. 1984. "Boomtowns and Social Disruption." *Rural Sociology* 49:230-46.

Fisher, Dana R. 2001. "Resource Dependency and Rural Poverty: Rural Areas in the United States and Japan." *Rural Sociology* 66(2):181-202.

Flint, Courtney G. and A.E. Luloff. 2005. "Natural Resource-Based Communities, Risk, and Disaster: An Intersection of Theories." *Society and Natural Resources* 18:5, 399-412.

Forsyth, Craig J., Asha D. Luthra, and William B. Bankston. 2007. "Framing Perceptions of Oil Development and Social Disruption." *The Social Science Journal* 44:287-299.

Freudenburg, William R. 1992. "Addictive Economies: Extractive Industries and Vulnerable Localities in a Changing World Economy." *Rural Sociology* 57:305-332.

Freudenburg, William R. and Robert Gramling. 1992. "Community Impacts of Technological Change: Toward a Longitudinal Perspective." *Social Forces* 70(4):937-955.

Freudenburg, William R. and Robert Gramling. 1994a. "Natural Resources and Rural Poverty: A Closer look." *Society and Natural Resources* 7:5-22.

---------. 1994b. *Oil in Troubled Waters: Perceptions, Politics, and the Battle over Offshore Oil.* Albany: SUNY Press.

Freudenberg, William R. and Robert E. Jones. 1991. "Criminal Behavior and Rapid Community Growth: Examining the Evidence." *Rural Sociology* 56:619-645.

Freudenberg, William R. and Richard S. Krannich. 2003. "Boomtowns*."* Pp. 99-100 in *Encyclopedia of Community: From the Village to the Virtual World,* edited by K. Christensen and D. Levinson*.* Thousand Oaks, CA: Sage Publications.

Gilmore, John S. and Mary K. Duff. 1975. *Boomtown Growth Management.* Boulder, CO: Westview Press.

Gold, Raymond L. 1974. "Social Impacts of Strip Mining and Other Industrializations of Coal Resources." Missoula: Institute for Social Science Research, University of Montana.

Greider, Thomas M. and Richard S. Krannich. 1985a. "Perceptions of Problems in Rapid Growth and Stable Communities: A Comparative Analysis. *Journal of Community the Development Society* 16(2):80-96

-------. 1985b. "Neighboring Patterns, Social Support and Rapid Growth: A Comparison Analysis from Three Western Communities." *Sociological Focus* 24:263-82.

Humphrey, Craig R., Matthew S. Carroll, Charles Geisler, Thomas G. Johnson, Patrick C. West, Gigi Berardi, Sally Fairfax, Louise P. Fortmann, Jonathan Kusel, Robert G. Lee, Seth Macinko, Nancy Lee Peluso, and Michael D. Schulman. 1993. "Theories in the Study of Natural Resource-Dependent Communities and Persistent Rural Poverty in the United States." 136-172 in *Persistent Poverty in Rural America*, edited by R. S. T. F. o. P. R. Poverty. Boulder, CO: Westview Press.

Hunter, Lori M., Richard S. Krannich and Michael D. Smith. 2002. "Rural Migration, Rapid Growth, and Fear of Crime." *Rural Sociology* 67(1): 71-89.

Kohrs, ElDean V. 1974. "Social Consequences of Boom Growth in Wyoming." Presented at the regional meetings of the Rocky Mountain Association for the Advancement of Science, April, Laramie, WY.

Krannich, Richard S., E. Helen Berry, and Thomas M. Greider. 1989. "Fear of Crime in Rapidly Changing Rural Communities: A Longitudinal Analysis." *Rural Sociology* 54:195-212.

Krannich, Richard S. and Thomas M. Greider. 1984. "Personal Well-Being in Rapid Growth and Stable Communities: Multiple Indicators and Contrasting Results." *Rural Sociology* 49:541-52.

Krannich, Richard S., Thomas M. Greider, and Ronald L. Little. 1985. "Rapid Growth and Fear of Crime: A Four Community Comparison." *Rural Sociology* 50:193-209.

Krannich, Richard S. and A.E. Luloff. 1991. "Problems of Resource Dependency in U.S. Rural Communities." Pp. 5-18 in *Progress in Rural Policy and Planning,* Vol. 1, edited by A. Gilg et al. London: Belhaven Press.

Krannich, Richard S. and Peggy Petrzelka. 2003. *Challenges for Rural America in the Twenty-First Century,* edited by David L. Brown, Louis E. Swanson University, and Alan W. Barton. Park, PA: The Pennsylvania State University Press.

Labovitz, Sanford. 1967. "Some Observations on Measurement and Statistics." *Social Forces* 46:141-160.

Labovitz, Sanford. 1970. "The Assignment of Numbers to Rank Order Categories." *American Sociological Review*. 35:515-524.

Levin, Jack. 1977. *Elementary Statistics for Social Science Research* (2ⁿᵈ ed.). New York: Harper & Row.

Lewis-Beck, Michael S. 1980. *Applied Regression An Introduction*. Newbury Park, CA: Sage Publications.

Machilis, Gary E. and Jo Ellen Force. 1988. "Community Stability and Timber-Dependent Communities." *Rural Sociology* 53:221-34.

Machilis, Gary E., Jo Ellen Force, and Randy Guy Balice. 1990. "Timber, Minerals, and Social Change: An Exploratory Test of Two Resource-Dependent Communities." *Rural Sociology* 55:411-24.

Malamud, Gary W. 1984. *Boomtown Communities.* New York: Von Nostrand Reinhold.

McClendon, McKee J. 2004. *Statistical Analysis in the Social Sciences*. Toronto, Canada: Thompson Wadsworth.

Overdevest, Christine and Gary P. Green. 1995. " Forest Dependence and Community Well-Being: A Segmented Market Approach." *Society and Natural Resources* 8:111-31.

Peluso, Nancy Lee, Craig R. Humphrey, and Louise P. Fortmann. 1994. "The Rock, the Beach, and the Tidal Pool: People and Poverty in Natural Resource-Dependent Areas." *Society and Natural Resources* 7: 23-38.

Salant, Priscilla and Don A. Dillman. 1994. *How to Conduct Your Own Survey.* New York: John Wiley & Sons.

Smith, Michael D., Richard S. Krannich, and Lori M. Hunter. 2001. "Growth, Decline, Stability, and Disruption: A Longitudinal Analysis of Social Well-Being in Four Western Rural Communities." *Rural Sociology* 66(3):425-450.

Spoto, MaryAnn. 2010. "N.J. Lawmakers Call on President Obama to Postpone Offshore Drilling After Oil Spill." *The Star Ledger,* April 30. Retrieved June 16, 2010 http://www.nj.com/news/index.ssf/2010/04/hold_offshore_drilling_respons.html

Sturgis, Sue. 2010. "Obama Administration Postones Offshore Drilling Plans for Virginia." *The Institute for Southern Studies; A New Voice for the Changing South; Facing South,* May 6. Retrieved June 16, 2010 http://www.southernstudies.org/2010/05/obama-administration-postpones-offshore-drilling-plans-for-virginia.html

The U.S. Bureau of Labor Statistics. 2010. "Career Guide to Industries: Mining." Washington DC: U.S. Bureau of Labor Statistics. Retreived June 21, 2010

http://data.bls.gov/cgi-bin/print.pl/oco/cg/cgs004.htm

U.S. Census Bureau. 2010a. "Annual Estimates for 2001 through 2008." Washington, DC: U.S. Census Bureau. Retrieved April 29, 2010 (http://geolytics.com/USCensus,Annual-Estimates-2001-2005,Products.asp).

U.S. Census Bureau. 2010b. "State and County Quickfacts." Washington, DC: U.S. Census Bureau. Retrieved July 16, 2010 (http://quickfacts.census.gov/qfd/states/49/49047.html)

U.S. Census Bureau. 2010c. "Population Estimates." Washington, DC: U.S. Census Bureau. Retrieved May 27, 2010 (http://www.census.gov/popest/counties/asrh/CC-EST2008-agesex.html).

Utah Division of Oil, Gas and Mining - Department of Natural Resources. Well Permit Data. Retrieved April 28, 2010 http://oilgas.ogm.utah.gov/Data_Center/LiveData_Search/APD_lookup.cfm

Waite, Linda J. 1995. "Does Marriage Matter?" *Demography* 32(4):483-507.

Weber, Bruce A. 1995. "Extractive Industries and Rural-Urban Economic Interdependence." Pp. 155-79 in *The Changing American Countryside: Rural People and Places,* edited by E.N. Castle. Lawrence: University Press of Kansas.

Wilkinson, Kenneth P., Robert R. Reynolds, James G. Thompson, and Lawrence M. Ostrech. 1982. "Local Social Disruption and Western Energy Development." *Pacific Sociological Review* 25:275-96.

--------. 1983. "Divorce and Recent Net Migration into the Old West." *Journal of Marriage and the Family* 45:437-45.

--------. 1984. "Violent Crime in the Western Energy Development Region." *Sociological Perspectives* 27:241-56.

Winship, C. and R.D. Mare. 1984. "Regression Models with Ordinal Variables." *American Sociological Review* 49:512-525

APENDIX

Uintah Basin Community Quality of Life Survey
Spring, 2009
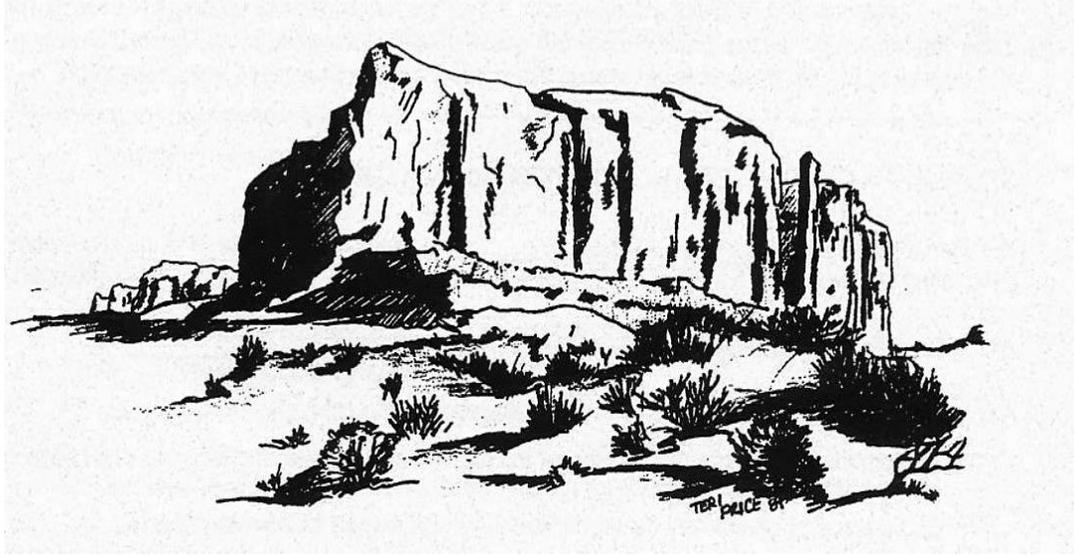
Please return to:
The Institute for Social Science
Research on Natural Resources
Department of Sociology, Social Work and Anthropology
224 Old Main
Utah State University
Logan, Utah 84322-0792

Growth & Development Issues in the Uintah Basin
We would like to begin by asking you a few questions about your community. First,

Q1. Communities across the nation are undergoing change. When you think about the past 2-5 years would you say, "My community has….."
1   Changed for the better
2   Stayed the same
3   Changed for the worse
4   Have not lived here for a year

Q2. Using a scale of 0 (LESS DESIRABLE) to 10 (MORE DESIRABLE) please circle the number that best indicates whether your community has become a MORE or LESS desirable place to live during the past few years (2-5 years).
Less Desirable   No Change   More Desirable
0   1   3   4   5   6   7   8   9   10

Q3. Using a scale that ranges from 0 (COMPLETELY DISSASTISFIED) to 10 (COMPLETELY SATISFIED), please circle the response that best indicates how satisfied you are with this community as a place to live.
COMPLETELY DISSATISFIED   COMPLETELY SATISFIED
0   1   2   3   4   5   6   7   8   9   10

Q4. Listed below are several pairs of contrasting views regarding **your community**. For each pair please circle the number which corresponds with one of the two views you most agree with- the one in the left hand column or the one in the right hand column. (Should a 10 point scale also be used here and in other attitude/belief questions? Consistency in response categories contributes to the validity of the responses. Also, more variation in the responses can sometimes provide better results in analysis.)

My community is…

Friendly	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Unfriendly**
Trusting	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Distrusting**
Supportive	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Non Supportive**
Safe	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Unsafe**

Q5. How would you describe your overall feelings toward your neighbors? Would you say you are:

Very Close	**1**
Somewhat Close	**2**
Neither Close nor Distant	**3**
Somewhat Distant	**4**
Very Distant	**5**

Q6. What do you like **MOST** about your community?

Q7. What do you like **LEAST** about your community?

Q8. What do you consider to be the single **MOST IMPORTANT** issue currently facing your community?

Q9. Please indicate whether you feel visiting and helping neighbors has changed in the **last 5 years**.

	Greatly Declined	Somewhat Declined	Remained the Same	Somewhat Increased	Greatly Increased
a. **Neighbors *visiting* each other over the past 5 years has**	1	2	3	4	5
b. **Neighbors *helping* each other over the past 5 years has**	1	2	3	4	5
c. **Over the past 5 years my *visiting* other neighbors has**	1	2	3	4	5
d. **Over the past 5 years my *helping* other neighbors has**	1	2	3	4	5

Organizational Affiliation
We would now like to ask you a few questions about your activity within your community, First,
Q10. Are you in a leadership position in any community or local area clubs, groups or other organizations of any kind?
1   Yes   ---------→   **Q10 b. If yes, how many organizations are you in a leadership position?**
2   **No**   **1**   **1-3 organizations**
          2   **4-5 organizations**
          3   **More than 6 organizations**

Q11. Using a scale of 0 (COMPLETELY DISSATSIFIED) to 10 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your community on each of these items listed below.

	COMPLETELY DISSATSIFIED			EQUALY SATISFIED AND DISSATISFIED					COMPLETELY SATSIFIED	
Local Schools……….	1	2	3	4	5	6	7	8	9	10
Law Enforcement..	1	2	3	4	5	6	7	8	9	10
Fire Protection……..	1	2	3	4	5	6	7	8	9	10
Medical and Health Services….	1	2	3	4	5	6	7	8	9	10
Mental Health/ Counseling………….	1	2	3	4	5	6	7	8	9	10
Social Services……..	1	2	3	4	5	6	7	8	9	10
Availability of Suitable housing..	1	2	3	4	5	6	7	8	9	10
Availability of Good jobs…………..	1	2	3	4	5	6	7	8	9	10
Senior Citizen Programs.	1	2	3	4	5	6	7	8	9	10
Youth Programs….	1	2	3	4	5	6	7	8	9	10
Recreational facilities and programs within the community…..	1	2	3	4	5	6	7	8	9	10
Continuing education Programs.	1	2	3	4	5	6	7	8	9	10

Q11 continued. Using a scale of 0 (COMPLETELY DISSATSIFIED) to 10 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your community on each of these items listed below.

	COMPLETELY DISSATSIFIED		**EQUALY SATISFIED AND DISSATISFIED**				**COMPLETELY SATSIFIED**			
Physical condition of roads………….	1	2	3	4	5	6	7	8	9	10
Sewer services …..	1	2	3	4	5	6	7	8	9	10
Courts and Judicial System….	1	2	3	4	5	6	7	8	9	10
Property tax rates……..	1	2	3	4	5	6	7	8	9	10
Quality of the natural environment	1	2	3	4	5	6	7	8	9	10
Day Care (children)	1	2	3	4	5	6	7	8	9	10
Elder Care	1	2	3	4	5	6	7	8	9	10
Public library……..	1	2	3	4	5	6	7	8	9	10

Q12. Using a scale of 0 (COMPLETELY DISSATISFIED) to 10 (COMPLETELY SAFE), please indicate how satisfied you are with your present economic situation?

COMPLETELY DISSATISFIED						**COMPLETELY SATISFIED**				
0	1	2	3	4	5	6	7	8	9	10

Development Strategies

Q13. In rural communities many development strategies have been used to maintain or enhance the local economy. When you think of your community how would you rate the following development strategies?

		Very Satisfied	Neither Satisfied Nor Dissatisfied		Very Dissatisfied	Does Not Apply
1	**Small Business Development**	**1**	**2**	**3**	**4**	**5**
2	**Industrial Recruitment**	**1**	**2**	**3**	**4**	**5**
3	**Tourism Development**	**1**	**2**	**3**	**4**	**5**
4	**Retaining and Expanding Existing businesses**	**1**	**2**	**3**	**4**	**5**
5	**Recruiting big box stores**	**1**	**2**	**3**	**4**	**5**
6	**Enhancing agricultural Businesses**	**1**	**2**	**3**	**4**	**5**
7	**Enhancing Agricultural Production**	**1**	**2**	**3**	**4**	**5**
8	**Expanding Mining**	**1**	**2**	**3**	**4**	**5**
9	**Expanding Oil extraction**	**1**	**2**	**3**	**4**	**5**

Q14. As the economy in the Uintah Basin has changed over the last five years would you say that the following items have improved a great deal, improved, stayed the same, become somewhat worse or become a great deal worse?

		Improved A great Deal	Improved	Stayed the same	Become somewhat worse	Become a great deal worse
1	Local Traffic	1	2	3	4	5
2	Access to housing	1	2	3	4	5
3	Access to jobs	1	2	3	4	5
4	Access to Health care	1	2	3	4	5
5	Quality of Education	1	2	3	4	5
6	Access to Social Services	1	2	3	4	5
7	Outdoor Recreational Access	1	2	3	4	5
8	Quality of Law Enforcement	1	2	3	4	5
9	Quality of streets	1	2	3	4	5
10	Air Quality	1	2	3	4	5
11	Water Quality/ Quantity	1	2	3	4	5
12	Wildlife Habitat	1	2	3	4	5

BACKGROUND INFORMATION

For the final section of the survey, we would like to ask you some questions about you and your household. We are asking these questions to better understand how different individuals and families see their community. **Your answers are completely confidential.**

Q15. **What is your age?_____years**

Q16. What is your gender?
1   **Male**
2   **Female**

Q17. What is your current marital status?
1   **Married**
2   **Never Married**
3   **Divorced/Separated**
4   **Widowed**

Q18. How many people live in your home (including yourself)?_____

Q19. How many children do you have?_____

Q20. What was your approximate household income from all sources, before taxes, for 2008?

1   **Less than $20,000**
2   **$20,000-$29,999**
3   **$30,000-$59,999**
4   **$60,000-$89,999**
5   **$90,000-$99,999**
6   **$100,000-$149,999**
7   **$150,000 or more**

Q21. What is your highest level of formal education? (please circle one answer)

1   **Less than 9th grade**
2   **9th to 12th grade (no diploma)**
3   **High school diploma (or equivalency)**
4   **Some college, no degree**
5   **Associates degree**
6   **Bachelors degree**
7   **Graduate or professional degree**

Q22. How many years have you lived in Utah?_____years

Q23. How many years have you lived in this community?_____years

Q24. Is this your permanent residence? **1** **Yes** **2** **NO**
|
|
Q.24b. If no, where is your permanent residence?_____State

Q25. Do you live in a
1 **House**
2 **Apartment/Condo**
3 **Temporary housing (travel trailer or similar accommodation)**

Q26. Do you own or rent your residence?
1 **Own**
2 **Rent**
3 **Other**

Q27. What is your current occupation?_____

Thank You for completing this survey. If you have additional comments you would like us to know about please write them here.