Triple Bottom Line Approach to Community Sustainability and Cohesion: A Conceptual Framework

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Authorization to Submit Thesis

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Abstract

Sustainable development has become both a key policy objective for community development agenda and a significant public matter. Coherent policy development and productive public debate are, however, both threatened by the fact that the concept of Sustainability is used with widely differing measures. Based on a review of related literature and primary fieldwork in settings of organizational literature, A framework linking three domains is presented as a tool to foster success and measure regarding normative conceptions of sustainable development in community settings. The paper identifies elements central to perceptions of what constitutes 'successful' measure of community sustainable development. Key domains of integration are proposed related to three bottom lines: Economic, Social, and Environmental. This analysis introduces a conceptual framework and model as a measure for community sustainability drawing from The triple bottom line (TBL) accounting framework or theory which recommends companies to commit giving the same weight of focus to social and environmental concerns the same way they do on profits by focusing on three bottom lines representing, People, Profit, and Planet as a whole. A further analysis of the presences of cohesion across 28 communities was conducted with results indicating that TBL is a significant driver of community cohesion with residents giving equal consideration to all three bottom lines as a measure of community quality.

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Chapter 1: Introduction

In efforts to increase the quality of life and economic well-being of a society, many communities have gone great lengths to implement economic, environmental, and social development and sustainability initiatives directly or indirectly aimed at improving the lives and well-being of their residents and to boost the economic growth and sustainability of the community. Also, the recognition that communities have finite resource constraints now and for future generations has always been the strong driving force behind various community development and sustainability efforts. To achieve this, communities must set appropriate achievable sustainable economic development policies and goals that cover various aspects of the community's interest on issues regarding the social, economic, and environmental well-being of the community, which serves as a benchmark for measuring development and growth. Economic development spans rural and urban contexts developed and emerging economies, and local, regional, and national scales (Hammer & Pivo, 2017). Irrespective of what the focus, the definition of economic development has always been in terms of wealth creation, which is usually quantified by employment, per capita income, tax base, and gross domestic product (GDP) (Blakely Bradshaw,2002; Koven Lyons,2010). Community development itself is very broad in concept, for this paper, I define community development as planned efforts to build assets that increase the capacity of residents to improve their quality of life through economic, social and environmental policies and efforts which are made possible through goals set by the community as a whole(Green & Haines, 2017).

Community Development literature at the level of reliance and sustainability and policy implementation is well developed, nonetheless, there is still a gap in the literature concerning measuring the degree to which a community is being sustainable or pursuing sustainable growth because it is difficult to measure. How do communities measure community sustainability goals? Do community sustainability goals encourage community cohesion? Sociologists have long been concerned with the level of cohesion in societies, communities, and neighborhoods. (Hipp & Perrin, 2006) . There are numerous studies have tested for the existence and determinants of cohesion at various geographical levels of analysis, and there is a growing realization that cohesion at one geographical level does not necessarily translate into cohesion at another (Forrest and Kearns,2001). According to (Hipp and Perrin,2006), A long line of social and political theorizing has argued that cohesion among residents is a key ingredient for healthy societies and communities. With some researchers arguing that the ideal society citizens will experience a collective 'public will' that guides their interests over their own 'private will', allowing them to view the interests of all members of the larger society when making political and social decisions. Rousseau (1968), while other researchers theorize that a sense of cohesion and trust is important for fostering an attachment to the larger city or community (Putnam,2000). Literature on community cohesion is extensive with different

researchers focusing on the importance and kinds of Cohesion on various levels, from neighborhood levels to larger community levels. Despite the extensive study into this area of research interest indicating the importance of Community cohesion, there is still more to be understood about the relationship between community cohesion and how communities view and measure sustainable economic development using economic, environmental and social factors and also how important these factors are to the residents of the community.

The purpose of this study is to answer questions like: How are economic, social, and environmental aspects balanced in a community's economic activity? What is the cohesiveness of the community towards sustainability goals measured by these balanced aspects? Does sustainable development efforts of a community influence community cohesion? How do individuals weigh community economic sustainability goals based on the three factors (social, economic and environmental)? These questions are vital and interesting to a community as answering them facilitates an understating of the key processes and pathways that allow communities to efficiently and effectively manage and integrate development goals with sustainable innovations to aid community growth and better policy decisions. Furthermore, sustainable development requires a "society pool" approach to innovation whereby different stakeholders (e.g., trade partners, employees, governments for innovation's projects are involved (Muñoz-Pascual, Curado, & Galende, 2019), it is important therefore to understand the cohesiveness of the community as represented by its resident's ability to agree on common goals as stakeholders. To achieve this objective, I explored empirically community cohesion (the extent to which residents have similar attitudes, preferences and practices) looking at variances of cohesion across sample communities. further, I analyze the data to identify which aspects of sustainability goals are most important to a sample of community residents in twenty three communities across the USA similar to (Zeemering, 2009)to identify the presence of community cohesion as measured by environmental, social and economic goals statements responses by residents and sustainable economic development in the context of the triple bottom line approach (TBL). Finally, I propose a conceptual framework from measuring sustainability in a community that encompasses all three elements using the TBL approach.

Community cohesion is defined as programs, policies, or activities designed to create or retain jobs and wealth in ways that contribute to environmental, social, and economic well-being over time. (Hammer & Pivo, 2017) and by applying a quantitative method to test for sustainability following (Muñoz-Pascual et al., 2019) example. Few studies have analyzed cohesion and sustainable development together from a TBL perspective at a community level. Most studies either focus on only one development goal at a time, whereas the approach used here accounts for the economic, social, and environmental developments that lead to community cohesion, benefiting the community well-being. Research regarding how economic

development practitioners understand and prioritize TBL or sustainable development is parse (Hammer and Pivo, 2017).

In the absence of a consensus in the literature on community sustainability development measure and community cohesion, I study community sustainable development measure by introducing a conceptual framework adopting the Triple Bottom Line(TBL) approach to community sustainable development measure to address a major gap in the literature.

The Triple bottom line (TBL) approach is a popular framework used for evaluating the sustainability of supply chains where not only financial aspects are considered. It emphasizes environmental and social measures too. It makes an organization understand that sustainability, at a broader level consists of three components, the natural environment, society and economic performance (Carter and Rogers,2008). The definition captures the essence of sustainability by measuring the impact of an organization's activities on the world, including both it's profitability and shareholder values and its social, human and environmental capital (T. Slaper & Hall, 2011)). while it is most popular within organizational literature evident of the fact that Many authors show a similar understanding of sustainability in relation to an organization (Sapukotanage, Warnakulasuriya and Yapa,2018), one great advantage is the flexibility of its application. I hypothesize that Strong Community cohesion has a positive effect on sustainable economic development, Economic enfranchisement has a positive effect on community cohesion. The study critically analyses empirical data to examine how communities measure economic sustainability goals and how cohesive communities are in their sustainable development agenda by analyzing how the residents' rate different sustainable goals category. I also analyzed how communities measure these sustainable goals for policy decision making. This helps understand how community cohesion influenced by sustainable economic development efforts of a community, with implications for residents and communities by employing the TBL approach and theory.

Chapter 2: Literature Review

This chapter presents a theoretical framework for the thesis through a critical analysis of key literature relating to community cohesion, TBL and sustainable community economic development. This is organized into two topics areas with an attempt to cover the most central pieces of literature review, whilst also investigating research gaps to set the scene for the empirical sections of the thesis. Firstly, research on community cohesion provides a basis for how communities think about community development and sustainability goals and provide context for why people may seek to strive towards common achievable community goals for a sustainable community. Also, a brief conceptual definition of 'cohesion' and the concept of 'cohesion' in community development research is provided with some insights into its changes in definition with time. Secondly, research on sustainable community economic development explores community sustainability measures based on economic, environmental and social factors using the TBL approach to sustainability measure, though research regarding how economic development practitioners understand and prioritize TBL or sustainable development is sparse (Hammer and Pivo, 2017).

Community cohesion and sustainable development

Community cohesion has long been viewed in policy consideration and is seen as a great tool for sustainable development across the world. In its simplest terms, community cohesion has been understood as: 'Helping micro-communities to gel or mesh into an integrated whole' (Cantle, 2001), or as 'creating supportive communities', 'where everyone feels at home', and 'sticks together' regardless of pressures such as economic inequalities, or ethnic, racial, faith, political or other differences (CIC,2007). Since its inception, it has become increasingly popular in public policy debates, closely linked to other concepts such as inclusion and exclusion, social capital and differentiation, community, and neighborhood (Cantle,2001). According to (Ratcliffe, 2012), The cohesive society is a fundamental aspiration of contemporary multi-ethnic democracies. What this means is that cohesiveness in society goes beyond residents agreeing to disagree on simple and complex everyday choices fora better community but serves as a pillar of racial and multi-ethnic democracies. Although a great deal has been written about community cohesion (particularly in North America), there is no universally agreed-upon definition (Cantle, 2001). It is worth noting that, an ongoing challenge for the issue of cohesion is to agree a definition. On one hand it is believed that a cohesive community should be a place where people have a shared vision a central requirement of its definition. But some may argue that shared characteristics among some people can be exclusive of others. Therefore, cohesion practitioners may have to accept that what constitute cohesion can differ from neighborhood to neighborhood or even from community to community (Muers,2011).

In North America for instance, particularly Canada, community cohesion is defined as The ongoing process of developing a community of shared values, shared challenges and equal opportunity within Canada, based on a sense of trust, hope and reciprocity among all Canadians (Cantle,2001), According to the Cantle Independent Review Report (2001), Community cohesion is defined as a set of values and shared challenges that endeavored to develop trust and hope in a community. For this paper, Community cohesion is defined as a term used to describes 'groups who live in a local area getting together to promote or defend some common local interest (Forrest & Kearns,2008). The concept of community cohesion, however, is the centerpiece of the policy that was formulated by the British government in response to the urban disturbances in northern English towns during 2001 (Samad, 2013) which was then seen by the central government to be the solution to solving the issues of segregation among communities(Jamie Halsall, 2013). Since its inception and years after the historical events, there has been a fundamental change to government policies and economic development efforts surrounding community cohesion with more countries and localities worldwide adopting and modifying the concept to suit their policy needs. Also, there have been numerous written and debated contributions (Kundnani, 2007; Flint and Robinson, 2008), but one thing remained common which is the benefits of a cohesive community. According to the cantle report 2001, It is accepted that in societies where there is a high degree of community cohesion, there is greater economic growth and stronger development, for example, to create and develop a community, people in groups need to engage and participate in common practices and be committed to making decisions in cooperation with each other (Schulenkorf, 2012), which simply means that for a community to continually innovate and grow, cohesion is needed amongst individuals and stakeholders. Furthermore, research linking sustainable economic development to the cohesiveness of the community shows that with cohesion comes trust and a common goal. Strategic integration of people from different backgrounds into joint community projects has shown to contribute to increase dedication of individuals and groups, and participation can thus be described as the "engine of community life" (Kenny,1999). This is largely because community cohesion gives residences a sense of Belonging (that is , residents feel connected to their neighbors and feel at home, Trust (how much residents have faith in and feel they can trust other residence and local government in charge of handling affairs), safety (how safe do residents feel in their public and personal space), Supporting networks and reciprocity(support one another for either mutual or one-sided gain, and more importantly residents believe in collective norms and values which gives them a protective edge of contributing to a sustainable community. According to (Knack & Keefer, 1997), it has been shown empirically by economists that, there is a strong correlation between trust between citizens and economic growth. Since community cohesion is illustrative of the phenomenon of 'decentered' governance and policymaking (Bevir & Rhodes 2003), it is therefore important for community sustainability because it fosters social integration if implemented and practiced well. Meanwhile, critics such as (Flint &

Robinson,2008) also argue that argue, 'community cohesion reflected an empty vessel into which a variety of public policy concerns (social exclusion, race relations, national identity, immigration, law and order) were poured and re-articulated'. Others have critiqued community cohesion for its linkage to perceived ambiguities in the policy to an implicit shift from government responsibility towards individualized responsibility for the structural problems of institutionalized racism, poverty and unemployment (Burnett, 2004; Clarke, 2005; Kundnani, 2007). That notwithstanding, it is vital to note that, there is not one approach to community cohesion or one community focus but rather, the mapping of communities and the identification of locally specific points of division and conflict are intended as precursors to action (CIC, 2007), Neither is it sufficient to write off community cohesion as a 'New Labor fad' or an 'empty concept' (Robinson, 2008)

Triple Bottom Line and Sustainable Economic Development

Sustainable performance of a community works similarly to the concept of sustainable performance of an organization which is explained in literature, as the improvement in its performance in terms of environmental contribution and social contribution while gaining an economic advantage. (Sapukotanage et al., 2018). According to the Urban Sustainability Associates (USA) 2009 report, the sustainability revolution is taking place from an old economy that is high carbon, high pollution, waste intensive, and ecologically disruptive, to a new economy that is low carbon, low pollution, energy/resource-efficient, and ecologically supportive. Stakeholders for this revolution have a higher success rate that those that lag and are in danger of being left behind. Communities across North America in efforts to be part of this revolution have in one way or another created an enabling environment through initiatives geared towards the creation of jobs and attracting investments and business through an effective sustainable economic development approach to policymaking. Some cities have reconsidered the distribution of benefits from downtown development, initiating programs to help unemployed, and underemployed city residents participate in economic growth (Zeemering, 2009).

Although research regarding how economic development practitioners understand and prioritize Triple Bottom Line (TBL) or sustainable development is sparse (Hammer & Pivo,2017), it is vital to measure community sustainability accrual using a similar approach as businesses. In this paper, I propose a TBL approach to community economic sustainability measurement across communities. Commonly called the three Ps: people, planet, and profits, describing the Triple Bottom Line (TBL) dimensions. TBL is an accounting framework that incorporates three dimensions of performance: social, environmental, and financial. This differs from traditional reporting frameworks as it includes ecological (or environmental) and social measures that can be difficult to assign appropriate means of measurement (T. Slaper & Hall, 2011). The TBL approach according to (Roberts Cohen, 2002) and (Emerson, 2003) aims to more

accurately value assets and leverage resources so that capital is employed as efficiently and effectively as possible. The concept is sometimes referred to as the3Ps (people, planet, profit), triple value-adding, and blended value. A TBL orientation begins with the assumption that "we're all in this together" and that the relationships between my profit and individuals well-being are linked (Slaper & Hall, 2011), which means that members of the communities believe that they are responsible for the overall well-being of the growth and development of the environment they coexist in and put in supporting efforts to preserve and sustain it for not just for individual profit but the good of the community and future generations. There is no universal standard method for calculating the TBL. Neither is there a universally accepted standard for the measures that comprise each of the three TBL categories. This can be viewed as a strength because it allows a user to adapt the general framework to the needs of different entities (businesses or nonprofits), different projects or policies (infrastructure investment or educational programs), or different geographic boundaries (a city, region or country)(T. F. Slaper, 2011). Regardless of the main challenge in Finding a common unit of measurement, TBL has shown to be an effective tool used by various stakeholders, for example, the business world uses TBL and its core value of sustainability due to accumulating anecdotal evidence of greater long-term profitability with companies like General Electric, Unilever, Proctor and Gamble, 3M and Cascade Engineering using this approach. Also, many nonprofit organizations have adopted the TBL and some have partnered with private firms such as the Ford Foundation-funded studies to address broad sustainability issues that affect mutual stakeholders and last but not the least, State, regional and local governments are increasingly adopting the TBL and analogous sustainability assessment frameworks as decision-making and performance-monitoring tools with states like Maryland, Minnesota, Vermont, Utah, the San Francisco Bay Area and Northeast Ohio area conducting analyses using the TBL or a similar sustainability framework. For example, the State of Maryland uses a blended GPI-TBL framework to compare initiatives—for example, investing in clean energy—against the baseline of "doing nothing" or against other policy options (T. Slaper & Hall, 2011). Many studies have shown that TBL (referring to the social, environmental, and economic)value of an investment concept is increasingly salient to economic development-related fields such as business, finance, planning, and real estate, however, the concept is not as well developed as in related fields such as economic even though aspects of the TBL are addressed in economic (Hammer & Pivo, 2017). According to (Hammer & Pivo, 2017), Most significantly, TBL economic development necessitates new forms of accounting for impact, and a more nuanced understanding of the interactions between economic, environmental, and social factors. Furthermore, with more concerns by a large body of literature on integrated assessment (T. Slaper & Hall, 2011), to be successful, there is a need for stakeholders to cooperate. A study by (Grodach, 2011) exploring barriers to sustainable economic development in 15 Texas cities found that economic development officials rarely mentioned TBL themes when asked to define the purpose of economic development, but

did mention TBL themes when asked to identify important assets for economic development (e.g., human capital, educated workforce, quality of life, accessibility, and regional collaboration). Sustainability themes were viewed primarily in relation to how they may negatively impact future growth and as outside the economic developer's control (Hammer & Pivo, 2017).

Regardless, The TBL concept is identified as important by practitioners according to a research conducted by where survey respondents were asked how important it is to consider the TBL of economic development investments, in efforts to understand the Perceived Importance of Considering Triple Bottom Line, nearly all the respondents (91%) reported that in their opinion it is "moderately important" or "very important" to consider the TBL of economic de-elopement investments, including nearly two thirds who view it as "very important, however, it is not commonly integrated into practice due to some gap in its application which the study suggested is attributed to the absence of TBL themes from education, training, and accreditation programs as well as the presence of disincentives. Further, to understand the importance of economic sustainability goals for communities, with reference to a study by (Zeemering, 2009) which utilized Q methodology with 28 economic development officials in the nine counties San Francisco Bay Area, findings suggested that there is no consensus in participants conceptualization of sustainability because do not hold a unified view on varying levels of emphasis on economic, environmental, and social factors and that prioritization of potential actions is influenced somewhat by context (Hammer & Pivo,2017). Interestingly, Zeemering's research found three types of cities, Aspiring cities appear to integrate sustainability in their future growth and development plans. Traditional development cities appear more likely to pursue programs that retain business and provide more equitable opportunities for current city residents, while participatory cities, sustainability may be associated with new programs to renew neighborhoods and enhance civic participation (Zeemering,2009).

Chapter 3: Conceptual Framework and Theoretical Model

In this section, I propose a conceptual and theoretical framework for measuring Community sustainability development and evaluating its influence on community cohesion. In proposing this conceptual framework, I outline how communities can look at sustainability from the TBL approach and present how the TBL approach to community sustainability is distinct in measure yet similar in concept to its application as an accounting framework in the business environment.

A Proposed Conceptual Framework for Community Sustainability Development Measure: The Triple Bottom Line Approach

Sustainable Development has been discussed by many research studies about economic development, environmental development, and social development. Advocates of environmental governance have always recommended sustainability be considered as the supreme managing of all human activities – political, social, and economic. The concept of sustainability relies on sustainable development. The most widely recognized definition was phrased by the Brundtland Commission in1987: "Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs."(Jamieson, 2017). This definition allows room for researchers and communities to identify sustainable development practices as a multidimensional construct having indicators for each dimension. (Law et al., 1998) explained the advantages of having a multidimensional construct. According to them that the dimensions of a multidimensional construct can be conceptualized under an overall abstraction and using the overall abstraction as a representation of the dimensions is theoretically meaningful and parsimonious. The sustainable performance of individual organizations also has not been studied as a composite concept in previous studies. Rather, only the individual dimensions of sustainable performance have been taken to reflect sustainable performance rather than taking it as a combination of environmental, social, and economic performance (Jamieson,2017). TBL is a framework or theory which is most popular in the business scene. This is a theory recommending companies to commit giving the same weight of focus to social and environmental concerns the same way they do on profits. That is, companies should focus non three bottom lines being, people, profit, and the planet as a whole instead of focusing on profits alone. The idea of TBL was first coined in 1994 by John Elkington looking for a new language to express what we saw as an inevitable expansion of the environmental agenda that Sustainability (Foundedin, 1987) had mainly focused upon to that point (Elkington, 2013). It reintroduced the need to look beyond financial accounting and encourage corporations to also account for their environmental and social impact. According to Elkington, the major challenge of the model lies in quantifying the true cost/benefit of social and environmental responsibility (Dixon, 2014). Well before

Elkington introduced the sustainability concept as "Triple Bottom Line," environmentalists wrestled with measures of, and frameworks for, sustainability. Academic disciplines organized around sustainability have multiplied over the last 30 years. People inside and outside academia who have studied and practiced sustainability would agree with the general definition of Andrew Savitz for TBL. The TBL "captures the essence of sustainability by measuring the impact of an organization's activities on the world including both its profitability and shareholder values and its social, human, and environmental capital (T. Slaper & Hall, 2011). There are notable gaps in the literature surrounding measuring sustainable development goals. There is no real consensus as to the exact dimensions used for the performance measures. Some other dimensions used are community improvement, environment, entrepreneurship, and education (Sher, 1994) and stakeholder engagement, organizational integrity, and stakeholder activism(Painter-Morland,2006). (Amos O. & Uniamikogbo, 2016). One of the challenges applying the Triple Bottom Line is the difficulty in measuring due to lack of a common unit of measurement of the three P's (People, Planet, and Profit) however one advantage of the concept is its versatility in application and measure. This research builds on Elkington's1994 framework of the TBL concept and model of 14sustainability on the assumption that communities who practice and incorporate the TBL approach to sustainable development stands a higher chance of success and attracts more residents who care about the overall sustainable health of their community.

Theoretical Framework

The concept of TBL is a framework or theory which is most popular in the business scene. This is a theory recommending companies to commit giving the same weight of focus to social and environmental concerns the same way they do on profits. That is, companies should focus non three bottom lines being, people, profit, and planet as a whole instead of focusing on Profits alone. The term TBL was coined by John Elkington in 1994 as his way of measuring performance in corporate America. This idea was geared towards sustainability and how companies can help improve the livelihoods of the people and its community and not just focus on profit maximization by aiming at maximizing financial, social, and environmental performance. The concept of the effect Triple Bottom Line can be illustrated by TBL= PR + PE + PL Where;

• Profit (PR): The traditional measure of community profit in the form of the community's economic activities.

• People (PE): Measuring the factors that contribute to the social welfare stainability of a community to show how socially responsible the community is

.• Planet (PL): Measures how environmentally responsible a community has been towards its sustainable development efforts.

TBL Measures for Community Sustainable Development

1. Economic Bottom Line (PR): Economic variables ought to be variables that deal with the bottom line and the flow of money. It could look at income or expenditures, taxes, business climate factors, employment, and business diversity factors(T. Slaper & Hall, 2011). The economic measure for this study includes a measure for community economic development indicators including how much impact businesses have on the community's social well-being by looking at the values businesses create in terms of job creation, job security, corporate social responsibility among others.
2. Environmental Bottom line (PL): How does the community manage, monitor, and report your consumption and waste and emissions? Are business held accountable for their waste management compliance and pollution, are there measures in place to help protect underdeveloped lands. All this was taken into consideration in measuring the environmental bottom line construct.
3. Social Bottom Line (PR): The Social bottom line measures the community's business' profits in human capital. This includes how the community measures the role businesses play including its position within the local society. A community social Bottom line is improved by having fair and beneficial labor practices and through corporate community involvement and was also measured by the impact of your business activities on the local economy.

Chapter 4: Data and Methods

The study utilized data collected from rural communities as part of the Area Sectoral Analysis Process (ASAP) program in its analysis. The ASAP program is a University Extension effort that aids communities in identifying feasible development options(Harris et al., 2012). The program administered surveys across these localities as part of an outreach program aimed at supporting economic development initiatives through community goals and preferences incorporation entitled Community Prioritized for Quality of Life. The survey includes questions geared towards understanding individual responses about their economic, environmental, and social priorities and goals preference as well as the communities as a whole. On the community level, the survey encompasses communities' Key steps in determining community assets for example the quality of schools, availability of retail shopping opportunities, clean water, public safety, and characteristics of the resident labor force. It also includes a community goal survey of residents focusing on general community goals which include economic, environmental, and social goal statements and outcomes that are more desirable to residents. These Community assets and the desired outcome of socio-economic and environmental development efforts gives the community base for identifying future policy trends aimed at its sustainable efforts and which sectors it needs to focus its efforts for the welfare of all the residents.

The sample for this study is based on the community goals survey (CGS) In recent years from 2014 to 2018 implemented in rural counties in Arizona (AZ), Idaho (ID), New Mexico (NM), and Utah (UT) a total of 28 counties as shown in Table 4.1. A sample total of 3,321 respondents was used in this analysis. A breakdown of goals statements includes Economic goals new business presence (business expansion) and new labor market recruitment included job creation, keeping business profits local, hiring locally, buying other inputs locally, and increasing wage. Environmental goals encompass expansion efforts of the community and attracting new businesses adds to environmental pollution efforts by improving or not worsening water and air resources, limit the production of hazardous wastes and emission of greenhouse gases, limit the development of undeveloped lands. Social goals included New businesses contributing to increase the local tax base, supporting community activities, providing new full-time Jobs offers that improve social welfare by providing benefits(health and/or retirement and provide training programs. The CGS also asked respondents for basic personal information, such as age, sex, income, education. The survey had respondents answer a series of questions relating to the quality of some characteristics of the community and have them rate the importance of some goal statements which was categorized into three sections which were used to indicate the triple bottom line to represent the communities responsiveness to all three bottom lines as a whole and individually to determine how cohesive their response are. The question "Which goal statement is more important to your community?" was used to determine the

cohesiveness of the respondents to the general quality index of the community. This allowed for the measuring of what drives the respondents to the community more and what matters to them when it comes

Table 3.1. Community Demographic characteristics of sample (N = 3,321)

Characteristic	Value	Freq(n)	Percent %
Gender	Male	1539	50.02%
	Female	1538	49.98%
Residency	<10 years	658	23.43%
Duration(years)	10-19 years	534	19.02%
	20-29 years	547	19.48%
	30 - 39 years	467	16.63%
	540-49 years	297	10.58%
	>50	305	10.86%
HH Income	< $15,000	145	5.73%
	$15,000-$24,999	179	7.07%
	$25,000-$34,999	229	9.04%
	$35,000-$49,999	401	15.84%
	$50,000-$74,999	549	21.68%
	$75,000-$99,999	469	18.52%
	$100,000-$149,999	401	15.84%
	$150,000-$199,999	97	3.83%
	>$200,000	62	2.45%
Communities	Cochise, AZ	340	10.24%
	Graham, AZ	149	4.49%
	Greenlee, AZ	101	3.04%
	Mohave,AZ	84	2.53%
	Monterey,CA	24	0.72%
	Valley, ID	105	3.16%
	Beaverhead,MN	14	0.42%
	Deer Lodge,MN	50	1.51%
	Granite,MN	30	0.90%
	Madison,MN	34	1.02%
	Powell,MN	26	0.78%
	Silver Bow,MN	53	1.60%
	Lander,NV	59	1.78%
	White Pine,NV	39	1.17%
	Cibola, NM	132	3.97%
	Beaver, UT	118	3.55%
	Cache, UT	40	1.20%

Carbon, UT	222	6.68%
Emery, UT	42	1.26%
Garfield, UT	62	1.87%
Grand, UT	181	5.45%
Juab, UT	271	8.16%
Millard, UT	202	6.08%
Piute, UT	84	2.53%
San Juan, UT	116	3.49%
Sanpete, UT	209	6.29%
Sevier, UT	189	5.69%
Washington, UT	206	6.20%
Wayne,UT	139	4.19%

Table 3.2. Variable descriptions

Variable	Description
Gender	Indicates respondent's gender 1 = Male 2 = Female
Age Demographics	Respondent's age group
HH Income	Indicates respondent's House hold income level Response to the question: *Please indicate your estimated total household income from all sources from the 2014 tax year* 1 = < $15,000 2 = $15,000-$24,999 3 = $25,000-$34,999 4 = $35,000-$49,999 5 = $50,000-$74,999 6 = $75,000-$99,999 7 = $100,000-$149,999 8 = $150,000-$199,999 9 = >$200,000
CommunityCat	Indicates all communities represented in this sample representing different counties based on fips code.
Residency Duration(years)	Indicates respondent's duration of stay in the community represented by number of years Response to the question: *how long have you lived in the community ?.....years*

Table 3.3. Descriptive statistics for sample

Variable	Obs	Mean	Std.Dev.
Gendero	3077	1.5	.50
Age	2618	49.7	14.753
Education	2836	4.085	1.465
Residency(years)	2808	24.742	17.449
HouseHoldIncome	2532	73265.21	43506.08
MedAgeDist	3342	35.50012	5.456502
AHV	3342	157539.1	53868.91

to economic, social and environmental quality, Choosing from a scale of 1 to 10, 1 being the lowest and 10 being the highest quality which issued to indicate one's perception on the quality index of the community with option 8 and above being high-quality rating, options 5to 7 being medium quality and an option less than 5 being low-quality rating. This was further recoded to include choices on both sides from -8 to 8 with 0 being both elements are equally important and the positive numbers signifying a choice to the right and vice versa.

Table 3.4. Survey questions and response distributions

Question	**Responses**	**n**	**%**
Which goal statement is more important to your community? On a scale of Moderately to Extremely important on a scale of (1 to 9) or equally important	1 = Both Equally Important		
	2 = Right Somewhat Important		
	3 = Right Extremely Important		
	5=left Somewhat Important		
	5 = left Extremely Important		
ECENnGS " Economic Quality or Environmental Quality"	1=ALL EQI	824	30.05%
	2= ECONG SI	150	5.47%
	3= ECOG EI	240	8.75%

	4= ENV SI	619	22.57%
	5= ENV EI	909	33.15%
ECSGS "Economic Quality or Social Quality"			
	1= ALL EQI	668	23.93%
	2= ECONG SI	145	5.20%
	3= ECOG EXI	153	5.48%
	4= SOC SI	793	28.41%
	5= SOC EXI	1032	36.98%
ENSSGS "Environmental Quality or Social Quality"			
	1= ALL EQI	730	27.14%
	2= ENVG SI	263	9.78%
	3= EVNG EXI	284	10.56%
	4= SOC SI	596	22.16%
	5= SOC EI	817	30.37%
Which economic goal statement is more important to your community? On a scale of Moderately to Extremely important on a scale of (1 to 9) or equally important	1 = Equally Important		
	2 = Moderately Important		
	3 = Somewhat Important		
	4 = Extremely Important		
ec01 "Every New Job generates additional jobs in the community or New Businesses return profit to the community"	1 = Equally Important	520	23.11%
	2 = Moderately Important	327	14.53%
	3 = Somewhat Important	492	21.87%
	4 = Extremely	911	40.49%
ec02 "Every New Job generates additional jobs in the community or New bossiness high locally"			
	1 = Equally Important	449	28.10%
	2 = Moderately Important	236	14.77%
	3 = Somewhat Important	262	16.40%
	4 = Extremely	651	40.74%
ec03 "Every New Job generates additional jobs in the community or New busyness buy locally"	1 = Equally Important	422	19.16%
	2 = Moderately Important	392	17.80%

	3 = Somewhat Important	458	20.80%
ec04 "Every New Job generates additional jobs in the community Or New bossiness increase average local wage"	4 = Extremely	930	42.23%
	1 = Equally Important	1785	53.22%
	2 = Moderately Important	333	9.93%
	3 = Somewhat Important	390	11.63%
	4 = Extremely	846	25.22%
ec05 "New business return profit to the community Or New businesses hire locally"			
	1 = Equally Important	552	29.16%
	2 = Moderately Important	231	12.20%
	3 = Somewhat Important	291	15.37%
ec06 " New businesses return profit to the community Or New businesses buy locally"	4 = Extremely	819	43.26%
	1 = Equally Important	606	24.91%
	2 = Moderately Important	352	14.47%
	3 = Somewhat Important	449	18.45%
ec07 "New businesses return profit to the community Or New bossiness increase average local wage"	4 = Extremely	1026	42.17%
	1 = Equally Important	505	23.75%
	2 = Moderately Important	298	14.02%
	3 = Somewhat Important	387	18.20%
ec08 "New businesses hire locally, Or New businesses buy locally"	4 = Extremely	936	44.03%
	1 = Equally Important	574	20.11%
	2 = Moderately Important	324	11.35%
	3 = Somewhat Important	484	16.96%
ec09 "New businesses hire locally Or New buss increase avg local wage"	4 = Extremely	1472	51.58%

	1 = Equally Important	577	23.38%
	2 = Moderately Important	314	12.72%
	3 = Somewhat Important	402	16.29%
ec10 "New businesses buy locally vs. New bossiness increase average local wage"	4 = Extremely	1175	47.61%
	1 = Equally Important	562	27.92%
	2 = Moderately Important	258	12.82%
	3 = Somewhat Important	298	14.80%
	4 = Extremely	895	44.46%

Which environmental goal statement is more important to your community? On a scale of Moderately to Extremely important on a scale of (1 to 9) or equally important			
en01 "New businesses do not pollute the water or New Businesses do not release toxic chemical into the air"	1 = Equally Important	1475	52.70%
	2 = Moderately Important	231	8.25%
	3 = Somewhat Important	219	7.82%
	4 = Extremely	874	31.23%
en02 "New businesses do not pollute the water or New businesses stay in compliance with hazardous waste management"	1 = Equally Important	1283	54.23%
	2 = Moderately Important	193	8.16%
	3 = Somewhat Important	180	7.61%

	4 = Extremely	710	30.01%
en03 "New businesses do not pollute the water or New businesses do not emit greenhouse gas"	1 = Equally Important	957	31.89%
	2 = Moderately Important	383	12.76%
	3 = Somewhat Important	375	12.50%
	4 = Extremely	1286	42.85%
en04 "New businesses do not pollute the water or New busyness do not develop underdeveloped land"	1 = Equally Important	432	13.96%
	2 = Moderately Important	322	10.41%
	3 = Somewhat Important	422	13.64%
	4 = Extremely	1918	61.99%
en05 "New Businesses do not release toxic chemical into the air Or New businesses stay in compliance with hazardous waste management"	1 = Equally Important	1291	52.31%
	2 = Moderately Important	206	8.35%
	3 = Somewhat Important	179	7.25%
	4 = Extremely	792	32.09%
en06 "New Businesses do not release toxic chemical into the air Or New businesses do not emit greenhouse gas "	1 = Equally Important	1109	35.43%
	2 = Moderately Important	328	10.48%
	3 = Somewhat Important	388	12.40%
	4 = Extremely	1305	41.69%
en07 New Businesses do not release toxic chemical into the air Or New busyness do not develop underdeveloped land"	1 = Equally Important	460	14.87%
	2 = Moderately Important	315	10.18%
	3 = Somewhat Important	455	14.71%
	4 = Extremely	1863	60.23%

en08 "New businesses stay in compliance with hazardous waste management New businesses do not emit greenhouse gas"	1 = Equally Important	976	31.53%
	2 = Moderately Important	352	11.37%
	3 = Somewhat Important	404	13.05%
	4 = Extremely	1363	44.04%%
en09 "New businesses stay in compliance with hazardous waste management Or New busyness do not develop underdeveloped land"	1 = Equally Important	472	15.25%
	2 = Moderately Important	336	10.85%
	3 = Somewhat Important	456	14.73%
	4 = Extremely	1832	59.17%
en10 "New businesses do not emit greenhouse gas or New busyness do not develop underdeveloped land"	1 = Equally Important	635	21.78%
	2 = Moderately Important	428	14.68%
	3 = Somewhat Important	410	14.07%
	4 = Extremely	1442	49.47%

To indicate the three bottom lines, the three categories about economic, environmental, and social goals statements were used to represent how the community goals can be segmented into People, Planet, and Profit constructs. Within each section, respondents were presented with goal statements about the community relating to the environment, social welfare, and economic development where there were required to choose between the individual statements. Choosing within the Economic bottom line(Profit),10questionersrelating to the economic goal preference of the community were presented to respondents from which they were required to chooses from a scale of moderately important(1) to extremely important(9) with1being equally important by asking the question "Which goal statement is more important to your community?". The same question was asked for environmental goals and social goals as well. To determine the Triple bottom line measures to community sustainable development the three sections relating to economic, environmental, and social goals preference was taken into consideration running a factor analysis principal factors method of extraction. To determine community cohesion across the three bottom lines measured by People Planet and Profit, the three bottom lines were evaluated across various communities represented by the responses of various respondents across all the various communities. the three questions relating to Economic, Social and Environmental goals were used

to evaluate the responses taking into consideration the three bottom lines. The variable Economic Bottom line (Profit), consists of four questions represented by factor 4, asking respondents to choose rate two goals statements according to the level of importance, "ec0_7New business return profit to the comm Vs. New buss increase avg local wage", "ec0_4. New Job generates additional Job or New Businesses increase avg local wage", " ec0_9. New buss hires locally vs. New buss increase avg local wage", "ec_10. New buss buys locally vs. New buss increase avg local wage", indicating the economic bottom line importance. The Environmental Bottom line(Planet) measure consists of eight loadings onto factor 1 and factor 3 which includes "en07. New businesses do not release toxic waste into the air or New businesses do not develop undeveloped land", "en09. New businesses stay in compliance with hazardous waste management or do not develop undeveloped land", "en04. New businesses do not pollute water or New businesses do not develop undeveloped land" and "en10: New businesses do not emit greenhouse gas or New businesses do not develop undeveloped, "en03 New businesses do not pollute water or New businesses do not emit greenhouse gas", "en06: New businesses do not release toxic waste into the air or New businesses do not emit greenhouse gas" and "en08. New businesses stay in compliance with hazardous waste management or New businesses do not emit greenhouse gas". The third measure was Social Bottom line which also consisted of seven questions loading on factor 2 and 5, "s07: New Jobs are fulltime or New business support community activities", "s09: New Jobs offer benefits (health and/or retirement) or New business support community activities", "s06: New Jobs are fulltime or New jobs provide training programs, "s08: New Jobs offer benefits (health and/or retirement) or New jobs provide training programs. The second part is labeled (Social Bottomline Revenue) consists of four questions loading on factor 6, "s02: New businesses increase the local tax base or New Jobs offer benefits(health and/or retirement)", "s03: New businesses increase the local tax base or New jobs provide training program", "s01: New businesses increase the local tax base or New Jobs are fulltime" and "s04: New businesses increase the local tax base or New business support community activities.

All three bottom line measures consist of questions to which respondents had to answer the question "which goal statement is important to your community". Respondents had to choose from a scale of 1 to 9 the level of importance for each of the goal statements with 2 being moderately important 8 being extremely important and 1 is equally important. This was re-coded to include choices on both sides from -8 to 8 with 0 being both elements are equally important and the positive numbers signifying a choice of the statement on the right and vice versa.

The nonparametric Kruskal-Wallis test of equal Variance

To examine the presence of cohesion and understand the extent to which each community is different when it comes to how cohesive they are in their community decision making, The Kruskal-Wallis H test

is a rank-based was used to determine if there are statistically significant differences between the various groups represented by the communities as the independent variable with the responses to their preference of economic, social and environmental goals represented by the general goals category (ec_en, ec_s, and envs). The nonparametric Kruskal-Wallis test (Kruskal and Wallis 1952), is a nonparametric analog to the one-way ANOVA which sacrifices the precision of discriminating means for discrimination of stochastic dominance (i.e. the probability than a randomly drawn observation from one group will be greater than a randomly drawn observation in another), buts gain the ability to do so regardless of the distributions of the measures in each group. If the modest additional assumptions that the measures are continuous, and that the (unspecified) distributions in each group differ only in terms of their centrality, then the Kruskal-Wallis test may be understood as an omnibus test for median and mean difference. (Gooch, 2011).

Given by:

$$H = (N-1)\,\frac{\sum_{i=1}^{g} n_j(\overline{\mathrm{r}_i} - \bar{\mathrm{r}})^2}{\sum_{i=1}^{g}\sum_{j=1}^{n_i}\left(\mathrm{r}_{ij} - \bar{\mathrm{r}}\right)^2}\ ,where$$

n_i is the number of observations in group

- r_{ji} is the rank (among all observations) of observation *j* from the *i* group
- N is the total number of observations across all groups
- $\overline{\mathrm{r}_i} = \frac{\sum_{j=1}^{n_i} \mathrm{r}_{ij}}{n_i}$ is the average rank of all observations in group *i*
- $\bar{\mathrm{r}} = \frac{1}{2}(N+1)$ is the average of all the r_{ij}

Null Hypothesis H_0: Same scores for General Quality statement (ECoENV, ECorSGS, and ENVorSGS)

Because the Kruskal-Wallis H test cannot tell which specific groups are statistically different from each other and that it only shows that at least two groups are different, determining which of these groups differ from each other is important since there are 28 communities. Therefore, a post hoc Pairwise comparisons of means with equal variances using Dunn's test was performed. (Dinno, 2015).

Dunn's test of Variance

Upon rejection of the null hypothesis of this test, one would proceed to conduction multiple pairwise comparisons for stochastic dominance (mean or median difference) (Dinno, 2015).

Dunn's z test statistic approximates exact rank-sum test statistics by using the mean rankings of the outcome ($W = W/n$) in each group from the preceding Kruskal-Wallis test, and basing inference on the differences in mean ranks in each group; for a comparison between one group A and another group B.(Dunn, 1964). Given by:

$$z_i = \frac{y_i}{\sigma_i}$$

where i is one of the 1 to m multiple comparisons, $y_i = \overline{W}_A - \overline{W}_B$, and σi is the standard deviation of yi, given by :

$$\sigma_i = \sqrt{\left[\frac{N(N+1)}{12} - \frac{\sum_{s=1}^{r} \tau_s^3 - \tau_s}{12(N-1)}\right]\left(\frac{1}{n_A} + \frac{1}{n_B}\right)}$$

where N is the total number of observations across all groups, r is the number of tied ranks, and τs is the number of observations tied at the s^{th} specific tied value.

Adjustment method

The Bonferroni adjustment multiplies each p-value by m, as shown in (3). $p* = pm$

$p*$ indicates an adjusted p-value. The p refers to p-values that have the standard two-sided test interpretation $p = P(|Z| \geq |z|)$ and pi refers to p-values as the order for the sequential procedures described below(Dinno, 2015).

Chapter 5: Results & Discussions

Factor Analysis for TBL Measure

The triple bottom line concept allows me to group the different types of goals statements toward one sustainability measure being Economic, Social and Environmental (People, Planet and profit) measure. This allows for the distillation of goals into each category of a bottom line. Results from the Factor analysis and cross tabulations of the three bottom lines are attached to the appendix: A. Using Bartlett's test of sphericity to test for the overall significance of correlations of all variables included in the factor analysis , which tests the overall significance of all the correlations within the correlation matrix, It was concluded factor analysis modeling of the on data was appropriate due to the significance of the results with (Chi-square= 26654.791, $p<0.001$.

Also, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicating high strength of relationship among variables with KMO (0.803) making it acceptable to proceed with initial factor analysis. From initial analysis, 6 factors with eigenvalues greater than one were extruded but upon further analysis of the factors, five factors were retained because an orthogonal (varimax) rotation was performed since factors were expected to be correlated retaining only items with factor loadings of above (0.45) are shown. From the analysis, factors one to five accounted for a total of 80% of the variance with factors one to five having eigenvalue of 2.93349, 2.89663 , 2.89050 , 2.37081 , 2.21089 , 1.77261 respectively and accounting for approximately 16%, 16%, 13% , 12% and 10% of the Variance in the data respectively. From the pattern matrix of Factor rotation in Tab 2, factor one and three consist of seven elements environmental construct with a high internal consistency of an alpha of 0.87 and 0.8265 . The second and fifth factors consisted of 8ightn items including the community' social goals questions with a high consistency of alpha of 0.7974 and 0.7288. This Factor was identified as social bottom line construct . The fourth factor comprised of a factor loading of 4 all related to economic goals statements with an internal consistency of alpha (0.7647) considered highly reliable identified as the Economic bottom line construct.

Table 4.1. Table of factor analysis : loadings , Cronbach alpha values, composite reliability and average variance extracted of first order constructs

Construct	Items (Measure)	Factor Loadings	α	% *V.E*	*Factor score*
Environmental Bottomline(F1 + F3)	en0_7. New buss does not release toxic waste into air vs. does not dev undeveloped land (AirPvsDUDL)	0.820	0.8733	0.161	
			0.8265	0.133	0.33104
	en0_9. New business stays in comp with hazardous waste management or does not dev undeveloped land (HWMvsDUDL)	0.816			0.33132
		0.762			
	en0_4. New buss does not pollute water vs. do not dev undeveloped land(WTPvsDUDL)	0.688			0.24400
	en_10. New buss does not emit greenhouse gas vs does not dev undeveloped (GHGEvsDUDL)	0.727			0.17359
	en0_3. New buss does not pollute water vs. do not emit greenhouse gas(WTPvsGHGE)	0.707			0.32973
	en0_6. New buss do not release toxic waste into air vs. do not emit greenhouse gas(AirPvsGHGE)	0.606			0.33510
					0.20541
	en0_8. New buss say in comp with hazardous waste mngt vs. does not emit greenhouse gas(HWMvsGHGE)				

Social Bottomline(F2+F5)	s0_7. New Jobs are fulltime or New business support community activities(FTJvsComSup)	0.727	0.7974 0.7288	0.158 0.098	0.29939
	s0_9. New Jobs offer benefits (health and/or retirement) or New business support community activities(BENvsComSup)	0.714			0.29773
	s0_6. New Jobs are fulltime or New jobs provide training program (FTJvsTraining)	0.571			0.19685
	s0_8. New Jobs offer benefits (health and/or retirement) or New jobs provide training program (BENvsTraining)	0.567			0.14625
	s0_2. New businesses increase the local tax base or New Jobs offer benefits(health and/or retirement)(NBILTvsBEN)	0.656			0.29034
	s0_3. New businesses increase the local tax base or New jobs provide training program (NBILTvsTraining)	0.649			0.31057
	s0_1. New businesses increase the local tax base or New Jobs are fulltime(NBILTvsFTJ)	0.602			0.29034
	s0_4. New businesses increase the local tax base or New business support community activities(NBILTvsComSup)	0.494			0.21852

Economic Bottomline(F4)	ec0_7New business return profit to the comm Vs. New buss increase avg local wage(NBRPtCvsNBIALW)	0.712	0.7647	0.122	0.29147
	ec0_4. New Job generate additional Job or New Bossiness increase avg local wage(NJGAJvsNBIALW)	0.658			0.24148
	ec0_9. New buss hire locally vs. New buss increase avg local wage(NJHLvsNBIALW)	0.628			0.24623
	ec_10. New buss buy locally vs. New buss increase avg local wage(NJBLvsNBIALW)	0.563			0.22415
Overall			0.803	0.835	

Distribution of TBL Constructs: Cross-tabulation of TBL across communities

Further analysis of results presented in Table 5.3 focuses attention on the how individual make decisions on issues concerning the three different bottom lines, it looked at the crosstabulation of the three bottom lines across all 28 communities to understand how each community priorities these bottom lines, represented by the difference in variance among responses to the question 'Which goal statement is more important to your community?' centered around the three bottom lines proposed measures of sustainability. Expanding on the findings presented by (Slaper & Hall, 2011), indicating that a TBL orientation begins with the assumption that "we're all in this together" and that the relationships between my profit and individuals well-being are linked and the framework presented by John Elkington (1994) of the three bottom lines being, people, profit, and planet measure of sustainability being as important as than profit alone. The results from a cross-tabulation of the three bottom lines by communities showed that all the communities in this study to some extent prioritize all three bottom lines when asked to rate TBL elements.

Environmental Bottom Line Construct

Further analysis of the planet construct represented in table 4.32.1. shows a significant representation of the uniqueness of each community when it comes to how they perceive environmental related issues in the community. The results in this section represent rating from 1 to 9 the level of importance of the community's environmental goals statements representing the measure of community cohesion on the Environmental Bottom Line construct. This construct is represented by 7 goal statements having to do with respondents preference and opinion concerning key environmental goals of the community concerning air and water pollution, greenhouse gas emission, land degradation, and hazardous waste management, this 7 goals statements load on to the Environmental bottom line construct as seen from the factor analysis representing factors two(F2) and four(F4). It was observed that the majority of the communities feel strongly about issues concerning the environment. An average of about 60% across all communities showed significant interest in the issues concerning environmental sustainability, answering that each environmental goal statement is extremely or equally important to the community when asked to rate the following statements on a scale of 1 to 9. *'New businesses do not release toxic waste into the air or New businesses do not develop undeveloped land' (AirPvsDUDL), New businesses stay in compliance with hazardous waste management or New businesses do not dev undeveloped land' (HWMvsDUDL), 'New businesses do not emit greenhouse gas or New businesses do not does not dev undeveloped land' (GHGEvsDUDL), 'New businesses do not pollute water or new businesses do not develop undeveloped land' (WTPvsDUDL), 'New buss does not pollute water or New businesses do not emit greenhouse gas' (WTPvsGHGE), 'New businesses do not release toxic waste into the air or New businesses do not emit greenhouse gas' (AirPvsGHGE). and 'New businesses stay in compliance with hazardous waste management or New businesses do not emit greenhouse gas' (HWMvsGHGE),*

For instance, a total of over 68% percent of respondents across all communities said that environmental degradation is extremely important or both issues of environmental degradation and air pollution were of equal concern to the communities when asked to chooses between (AirPvsDUDL), that notwithstanding, the results indicate a trend of uniqueness in community characteristics with regards to their responses to these environmental issues based on what each community believes to be more pressing for their community. For instance, while 53.85% of Beaver, UT community believed that developing underdeveloped land by new businesses was extremely important to them with responses skewed to the right compared to 24% choosing both air pollution and developing underdeveloped land as equally important, a community like Lander, NV showed a different distribution with over 96% of all respondents saying developing underdeveloped land somehow important to extremely important with over 45% saying it was somehow important and over 51% rating it extremely important. This shows that each community can adapt and tailor the TBL framework to their unique preference.

A similar pattern was observed for Valley ID community with 54.84 % of respondents rating air pollution measures extremely important while compared to 23.66% of respondents who said greenhouse gas emission was more

important to their community. There is an opposite outlook when it comes to Washington, UT community with over 53% of respondents saying greenhouse emission was extremely important as compared to the 29% who said it was equally important. Regardless of which environmental issue is more important, the results show that environmental sustainability one way or another is shown to matter to each of our sampled communities.

Table 4.2.1 Cross tabulations of community categories(counties) and Environmental Bottom Line (F1) and (F3)

Communities	AirPvsDUDL						HWMvsDUDL						GHGEvsDUDL					
	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total
Cochise, AZ	54	5	2	59	158	278	64	4	3	67	156	294	76	8	5	66	131	286
	19.42	1.80	0.72	21.22	56.83	100.00	21.77	1.36	1.02	22.79	53.06	100.00	26.57	2.80	1.75	23.08	45.80	100.00
Graham, AZ	24	1	0	28	77	130	19	1	0	32	74	126	25	2	0	32	62	121
	18.46	0.77	0.00	21.54	59.23	100.00	15.08	0.79	0.00	25.40	58.73	100.00	20.66	1.65	0.00	26.45	51.24	100.00
Greenlee, AZ	17	5	0	23	41	86	13	2	1	29	41	86	20	4	1	31	28	84
	19.77	5.81	0.00	26.74	47.67	100.00	15.12	2.33	1.16	33.72	47.67	100.00	23.81	4.76	1.19	36.90	33.33	100.00
Mohave,AZ	5	1	0	34	39	79	5	2	0	37	36	80	9	3	1	36	30	79
	6.33	1.27	0.00	43.04	49.37	100.00	6.25	2.50	0.00	46.25	45.00	100.00	11.39	3.80	1.27	45.57	37.97	100.00
Monterey,CA	3	0	0	13	7	23	2	1	0	14	6	23	5	1	0	10	7	23
	13.04	0.00	0.00	56.52	30.43	100.00	8.70	4.35	0.00	60.87	26.09	100.00	21.74	4.35	0.00	43.48	30.43	100.00
Valley, ID	22	0	2	21	49	94	24	0	2	18	45	89	24	2	1	22	34	83
	23.40	0.00	2.13	22.34	52.13	100.00	26.97	0.00	2.25	20.22	50.56	100.00	28.92	2.41	1.20	26.51	40.96	100.00
Beaverhead,MN	3	0	0	8	3	14	3	0	0	7	4	14	4	1	0	6	3	14
	21.43	0.00	0.00	57.14	21.43	100.00	21.43	0.00	0.00	50.00	28.57	100.00	28.57	7.14	0.00	42.86	21.43	100.00
Deer Lodge,MN	9	0	1	24	13	47	10	2	1	29	8	50	13	0	1	29	6	49
	19.15	0.00	2.13	51.06	27.66	100.00	20.00	4.00	2.00	58.00	16.00	100.00	26.53	0.00	2.04	59.18	12.24	100.00
Granite,MN	2	4	0	15	5	26	6	4	1	9	7	27	1	8	0	10	5	24
	7.69	15.38	0.00	57.69	19.23	100.00	22.22	14.81	3.70	33.33	25.93	100.00	4.17	33.33	0.00	41.67	20.83	100.00
Madison,MN	6	1	1	14	7	29	7	0	1	14	6	28	9	1	2	12	2	26
	20.69	3.45	3.45	48.28	24.14	100.00	25.00	0.00	3.57	50.00	21.43	100.00	34.62	3.85	7.69	46.15	7.69	100.00
Powell,MN	6	0	0	8	7	21	5	0	1	8	9	23	7	2	0	7	4	20
	28.57	0.00	0.00	38.10	33.33	100.00	21.74	0.00	4.35	34.78	39.13	100.00	35.00	10.00	0.00	35.00	20.00	100.00
Silver Bow,MN	9	0	0	19	20	48	8	2	1	15	23	49	11	3	0	27	5	46
	18.75	0.00	0.00	39.58	41.67	100.00	16.33	4.08	2.04	30.61	46.94	100.00	23.91	6.52	0.00	58.70	10.87	100.00
Lander,NV	1	2	0	20	29	52	1	4	0	26	23	54	2	2	0	27	20	51

	1.92	3.85	0.00	38.46	55.77	100.00	1.85	7.41	0.00	48.15	42.59	100.00	3.92	3.92	0.00	52.94	39.22	100.00
White Pine,NV	3	1	0	10	24	38	1	1	0	11	25	38	4	1	0	13	18	36
	7.89	2.63	0.00	26.32	63.16	100.00	2.63	2.63	0.00	28.95	65.79	100.00	11.11	2.78	0.00	36.11	50.00	100.00
Cibola, NM	28	4	5	18	58	113	28	1	2	24	60	115	33	6	3	29	44	115
	24.78	3.54	4.42	15.93	51.33	100.00	24.35	0.87	1.74	20.87	52.17	100.00	28.70	5.22	2.61	25.22	38.26	100.00
Beaver, UT	22	0	6	14	49	91	17	2	7	14	49	89	27	4	9	18	31	89
	24.18	0.00	6.59	15.38	53.85	100.00	19.10	2.25	7.87	15.73	55.06	100.00	30.34	4.49	10.11	20.22	34.83	100.00
Cache, UT	3	1	8	9	16	37	4	2	4	10	18	38	5	7	6	7	11	36
	8.11	2.70	21.62	24.32	43.24	100.00	10.53	5.26	10.53	26.32	47.37	100.00	13.89	19.44	16.67	19.44	30.56	100.00
Carbon, UT	33	1	7	34	78	153	34	2	3	39	73	151	47	6	2	38	54	147
	21.57	0.65	4.58	22.22	50.98	100.00	22.52	1.32	1.99	25.83	48.34	100.00	31.97	4.08	1.36	25.85	36.73	100.00
Emery, UT	6	0	0	5	20	31	7	0	0	6	18	31	13	0	0	6	13	32
	19.35	0.00	0.00	16.13	64.52	100.00	22.58	0.00	0.00	19.35	58.06	100.00	40.63	0.00	0.00	18.75	40.63	100.00
Garfield, UT	10	2	0	11	32	55	12	2	0	10	31	55	16	3	2	13	20	54
	18.18	3.64	0.00	20.00	58.18	100.00	21.82	3.64	0.00	18.18	56.36	100.00	29.63	5.56	3.70	24.07	37.04	100.00
Grand, UT	20	5	8	47	87	167	24	5	11	46	81	167	31	14	11	47	61	164
	11.98	2.99	4.79	28.14	52.10	100.00	14.37	2.99	6.59	27.54	48.50	100.00	18.90	8.54	6.71	28.66	37.20	100.00
Juab, UT	40	8	14	67	110	239	42	5	28	60	102	237	52	11	18	64	90	235
	16.74	3.35	5.86	28.03	46.03	100.00	17.72	2.11	11.81	25.32	43.04	100.00	22.13	4.68	7.66	27.23	38.30	100.00
Millard, UT	10	6	1	55	117	189	11	3	1	55	117	187	28	27	18	50	61	184
	5.29	3.17	0.53	29.10	61.90	100.00	5.88	1.60	0.53	29.41	62.57	100.00	15.22	14.67	9.78	27.17	33.15	100.00
Piute, UT	16	4	1	21	36	78	13	2	2	23	39	79	17	4	2	27	25	75
	20.51	5.13	1.28	26.92	46.15	100.00	16.46	2.53	2.53	29.11	49.37	100.00	22.67	5.33	2.67	36.00	33.33	100.00
San Juan, UT	19	6	4	23	53	105	21	4	4	26	51	106	23	7	3	31	37	101
	18.10	5.71	3.81	21.90	50.48	100.00	19.81	3.77	3.77	24.53	48.11	100.00	22.77	6.93	2.97	30.69	36.63	100.00
Sanpete, UT	10	3	6	49	86	154	12	3	4	49	88	156	19	14	16	47	57	153
	6.49	1.95	3.90	31.82	55.84	100.00	7.69	1.92	2.56	31.41	56.41	100.00	12.42	9.15	10.46	30.72	37.25	100.00
Sevier, UT	25	3	3	51	87	169	21	6	3	47	93	170	37	10	9	61	52	169
	14.79	1.78	1.78	30.1	51.48	100.0	12.35	3.53	1.76	27.6	54.71	100.0	21.89	5.92	5.33	36.0	30.77	100.0

				8		0				5		0				9		0
Washington, UT	20	2	3	29	83	137	25	1	7	31	75	139	27	2	8	32	55	124
	14.60	1.46	2.19	21.17	60.58	100.00	17.99	0.72	5.04	22.30	53.96	100.00	21.77	1.61	6.45	25.81	44.35	100.00
Wayne,UT	24	1	1	33	64	123	23	1	1	31	62	118	40	2	2	33	37	114
	19.51	0.81	0.81	26.83	52.03	100.00	19.49	0.85	0.85	26.27	52.54	100.00	35.09	1.75	1.75	28.95	32.46	100.00
Total	450	66	73	762	1455	2806	462	62	88	787	1420	2819	625	155	120	831	1003	2734
	16.04	2.35	2.60	27.16	51.85	100.00	16.39	2.20	3.12	27.92	50.37	100.00	22.86	5.67	4.39	30.40	36.69	100.00
Communities	WTPvsDUDL						WTPvsGHGE						AirPvsGHGE					
	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total
Cochise, AZ	53	8	6	59	167	293	87	7	8	50	121	273	103	8	9	58	108	286
	18.09	2.73	2.05	20.14	57.00	100.00	31.87	2.56	2.93	18.32	44.32	100.00	36.01	2.80	3.15	20.28	37.76	100.00
Graham, AZ	17	1	0	28	81	127	46	1	0	22	58	127	51	0	1	28	49	129
	13.39	0.79	0.00	22.05	63.78	100.00	36.22	0.79	0.00	17.32	45.67	100.00	39.53	0.00	0.78	21.71	37.98	100.00
Greenlee, AZ	13	1	1	23	49	87	33	2	2	20	25	82	31	4	1	16	32	84
	14.94	1.15	1.15	26.44	56.32	100.00	40.24	2.44	2.44	24.39	30.49	100.00	36.90	4.76	1.19	19.05	38.10	100.00
Mohave,AZ	6	2	0	31	38	77	21	2	3	34	15	75	28	2	2	32	18	82
	7.79	2.60	0.00	40.26	49.35	100.00	28.00	2.67	4.00	45.33	20.00	100.00	34.15	2.44	2.44	39.02	21.95	100.00
Monterey,CA	4	0	0	12	7	23	7	1	0	9	3	20	6	2	0	8	5	21
	17.39	0.00	0.00	52.17	30.43	100.00	35.00	5.00	0.00	45.00	15.00	100.00	28.57	9.52	0.00	38.10	23.81	100.00
Valley, ID	20	1	1	17	51	90	45	0	4	18	22	89	51	1	2	17	22	93
	22.22	1.11	1.11	18.89	56.67	100.00	50.56	0.00	4.49	20.22	24.72	100.00	54.84	1.08	2.15	18.28	23.66	100.00
Beaverhead,MN	3	0	0	6	4	13	7	0	0	4	2	13	7	0	0	4	3	14
	23.08	0.00	0.00	46.15	30.77	100.00	53.85	0.00	0.00	30.77	15.38	100.00	50.00	0.00	0.00	28.57	21.43	100.00
Deer Lodge,MN	10	0	0	24	11	45	14	3	0	22	5	44	14	4	1	22	6	47
	22.22	0.00	0.00	53.33	24.44	100.00	31.82	6.82	0.00	50.00	11.36	100.00	29.79	8.51	2.13	46.81	12.77	100.00
Granite,MN	3	4	0	13	6	26	6	1	0	18	3	28	5	5	0	14	4	28
	11.54	15.38	0.00	50.00	23.08	100.00	21.43	3.57	0.00	64.29	10.71	100.00	17.86	17.86	0.00	50.00	14.29	100.00
Madison,MN	6	0	1	13	7	27	12	0	0	16	4	32	16	0	0	11	4	31

	22.22	0.00	3.70	48.15	25.93	100.00	37.50	0.00	0.00	50.00	12.50	100.00	51.61	0.00	0.00	35.48	12.90	100.00
Powell,MN	7	1	1	7	5	21	11	1	1	5	4	22	11	1	1	5	5	23
	33.33	4.76	4.76	33.33	23.81	100.00	50.00	4.55	4.55	22.73	18.18	100.00	47.83	4.35	4.35	21.74	21.74	100.00
Silver Bow,MN	8	0	0	27	16	51	7	1	1	37	6	52	9	0	0	36	4	49
	15.69	0.00	0.00	52.94	31.37	100.00	13.46	1.92	1.92	71.15	11.54	100.00	18.37	0.00	0.00	73.47	8.16	100.00
Lander,NV	1	1	0	23	26	51	5	5	1	29	11	51	9	3	1	31	12	56
	1.96	1.96	0.00	45.10	50.98	100.00	9.80	9.80	1.96	56.86	21.57	100.00	16.07	5.36	1.79	55.36	21.43	100.00
White Pine,NV	5	0	0	12	20	37	8	0	0	14	15	37	8	0	0	18	12	38
	13.51	0.00	0.00	32.43	54.05	100.00	21.62	0.00	0.00	37.84	40.54	100.00	21.05	0.00	0.00	47.37	31.58	100.00
Cibola, NM	17	7	6	27	60	117	45	6	14	24	30	119	57	6	7	20	27	117
	14.53	5.98	5.13	23.08	51.28	100.00	37.82	5.04	11.76	20.17	25.21	100.00	48.72	5.13	5.98	17.09	23.08	100.00
Beaver, UT	20	2	1	10	57	90	30	2	5	16	37	90	39	0	4	12	36	91
	22.22	2.22	1.11	11.11	63.33	100.00	33.33	2.22	5.56	17.78	41.11	100.00	42.86	0.00	4.40	13.19	39.56	100.00
Cache, UT	4	1	3	9	20	37	18	3	2	7	8	38	19	2	0	5	10	36
	10.81	2.70	8.11	24.32	54.05	100.00	47.37	7.89	5.26	18.42	21.05	100.00	52.78	5.56	0.00	13.89	27.78	100.00
Carbon, UT	29	2	6	30	77	144	69	4	4	35	39	151	86	2	3	27	42	160
	20.14	1.39	4.17	20.83	53.47	100.00	45.70	2.65	2.65	23.18	25.83	100.00	53.75	1.25	1.88	16.88	26.25	100.00
Emery, UT	6	0	0	5	21	32	11	1	2	8	9	31	14	0	1	3	11	29
	18.75	0.00	0.00	15.63	65.63	100.00	35.48	3.23	6.45	25.81	29.03	100.00	48.28	0.00	3.45	10.34	37.93	100.00
Garfield, UT	8	1	1	9	37	56	25	0	6	14	10	55	26	2	1	11	14	54
	14.29	1.79	1.79	16.07	66.07	100.00	45.45	0.00	10.91	25.45	18.18	100.00	48.15	3.70	1.85	20.37	25.93	100.00
Grand, UT	27	2	11	45	82	167	69	3	7	45	43	167	74	5	7	35	45	166
	16.17	1.20	6.59	26.95	49.10	100.00	41.32	1.80	4.19	26.95	25.75	100.00	44.58	3.01	4.22	21.08	27.11	100.00
Juab, UT	32	5	23	56	124	240	80	15	20	57	69	241	97	2	9	57	77	242
	13.33	2.08	9.58	23.33	51.67	100.00	33.20	6.22	8.30	23.65	28.63	100.00	40.08	0.83	3.72	23.55	31.82	100.00
Millard, UT	11	2	0	45	136	194	27	3	7	59	90	186	42	3	1	52	86	184
	5.67	1.03	0.00	23.20	70.10	100.00	14.52	1.61	3.76	31.72	48.39	100.00	22.83	1.63	0.54	28.26	46.74	100.00
Piute, UT	16	3	3	17	40	79	26	5	5	19	25	80	35	4	3	13	26	81

	20.25	3.80	3.80	21.52	50.63	100.00	32.50	6.25	6.25	23.75	31.25	100.00	43.21	4.94	3.70	16.05	32.10	100.00
San Juan, UT	18	6	3	28	49	104	46	4	5	22	28	105	49	5	5	19	27	105
	17.31	5.77	2.88	26.92	47.12	100.00	43.81	3.81	4.76	20.95	26.67	100.00	46.67	4.76	4.76	18.10	25.71	100.00
Sanpete, UT	11	2	6	53	91	163	36	4	4	52	69	165	39	1	3	48	72	163
	6.75	1.23	3.68	32.52	55.83	100.00	21.82	2.42	2.42	31.52	41.82	100.00	23.93	0.61	1.84	29.45	44.17	100.00
Sevier, UT	19	1	7	50	98	175	60	6	4	47	55	172	63	4	1	45	60	173
	10.86	0.57	4.00	28.57	56.00	100.00	34.88	3.49	2.33	27.33	31.98	100.00	36.42	2.31	0.58	26.01	34.68	100.00
Washington, UT	26	1	4	29	83	143	42	1	6	21	81	151	46	0	0	27	83	156
	18.18	0.70	2.80	20.28	58.04	100.00	27.81	0.66	3.97	13.91	53.64	100.00	29.49	0.00	0.00	17.31	53.21	100.00
Wayne,UT	23	1	1	30	59	114	48	3	5	28	36	120	58	0	2	33	33	126
	20.18	0.88	0.88	26.32	51.75	100.00	40.00	2.50	4.17	23.33	30.00	100.00	46.03	0.00	1.59	26.19	26.19	100.00
Total	423	55	85	738	1522	2823	941	84	116	752	923	2816	1093	66	65	707	933	2864
	14.98	1.95	3.01	26.14	53.91	100.00	33.42	2.98	4.12	26.70	32.78	100.00	38.16	2.30	2.27	24.69	32.58	100.00

Counties	HWMvsGHGE					
	ALL EQI	L SI	L EXI	R SI	R EXI	Total
Cochise, AZ	106	7	9	61	101	284
	37.32	2.46	3.17	21.48	35.56	100.00
Graham, AZ	45	1	1	26	53	126
	35.71	0.79	0.79	20.63	42.06	100.00
Greenlee, AZ	24	3	2	23	35	87
	27.59	3.45	2.30	26.44	40.23	100.00
Mohave,AZ	19	3	3	39	14	78
	24.36	3.85	3.85	50.00	17.95	100.00
Monterey,CA	6	1	0	11	1	19
	31.58	5.26	0.00	57.89	5.26	100.00
Valley, ID	43	0	3	20	25	91
	47.25	0.00	3.30	21.98	27.47	100.00
Beaverhead,MN	6	1	0	4	2	13
	46.15	7.69	0.00	30.77	15.38	100.00
Deer Lodge,MN	12	1	0	25	9	47
	25.53	2.13	0.00	53.19	19.15	100.00
Granite,MN	8	2	0	13	4	27
	29.63	7.41	0.00	48.15	14.81	100.00
Madison,MN	12	0	0	11	6	29
	41.38	0.00	0.00	37.93	20.69	100.00
Powell,MN	10	0	1	7	6	24

	41.67	0.00	4.17	29.17	25.00	100.00
Silver Bow,MN	7	1	1	37	6	52
	13.46	1.92	1.92	71.15	11.54	100.00
Lander,NV	5	0	0	30	19	54
	9.26	0.00	0.00	55.56	35.19	100.00
White Pine,NV	5	1	0	13	18	37
	13.51	2.70	0.00	35.14	48.65	100.00
Cibola, NM	56	6	5	12	39	118
	47.46	5.08	4.24	10.17	33.05	100.00
Beaver, UT	31	1	4	17	38	91
	34.07	1.10	4.40	18.68	41.76	100.00
Cache, UT	15	0	1	11	11	38
	39.47	0.00	2.63	28.95	28.95	100.00
Carbon, UT	71	2	5	26	51	155
	45.81	1.29	3.23	16.77	32.90	100.00
Emery, UT	10	0	1	6	15	32
	31.25	0.00	3.13	18.75	46.88	100.00
Garfield, UT	24	2	1	14	14	55
	43.64	3.64	1.82	25.45	25.45	100.00
Grand, UT	65	4	8	41	47	165
	39.39	2.42	4.85	24.85	28.48	100.00
Juab, UT	87	5	19	56	73	240
	36.25	2.08	7.92	23.33	30.42	100.00
Millard, UT	33	2	1	56	91	183
	18.03	1.09	0.55	30.60	49.73	100.00
Piute, UT	34	5	0	19	22	80
	42.50	6.25	0.00	23.75	27.50	100.00
San Juan, UT	38	5	3	19	39	104
	36.54	4.81	2.88	18.27	37.50	100.00
Sanpete, UT	39	6	3	44	63	155
	25.16	3.87	1.94	28.39	40.65	100.00
Sevier, UT	54	4	4	46	68	176
	30.68	2.27	2.27	26.14	38.64	100.00
Washington, UT	48	1	2	33	69	153
	31.37	0.65	1.31	21.57	45.10	100.00
Wayne,UT	48	2	2	31	35	118
	40.68	1.69	1.69	26.27	29.66	100.00
Total	961	66	79	751	974	2831
	33.95	2.33	2.79	26.53	34.40	100.00

Social Bottom Line Construct

Table 4.3.2 represents a cross tabulation of the social bottom line construct across communities. Respondents were asked to answer questions, rating from 1 to 9 the level of importance of the community's Social sustainable goals statements reprinting the social bottom line. The results in this section is represented by 8 goal statements having to do with respondents preference and opinion concerning key social development goals of the community about how the community prioritizes employment opportunities (new full-time jobs), new businesses supporting community activities, offering job benefits such as health and retirement, providing training and increasing local tax. These 8 goals statements load on to the social bottom line construct as seen from the factor analysis representing factors two(F2) and four(F4). The results show similar to the environmental bottom line, the majority of the communities feel strongly about issues concerning social welfare sustainability. An average of about 60% across all communities showed significant interest in the issues concerning social sustainability, answering that elements of social bottom lines were somehow Important to extremely important, if not equally important to the community when asked to rate the following statement on a scale of 1 to 9. '*New Jobs are fulltime or New business support community activities' (FTJvsComSup), 'New Jobs offer benefits (health and/or retirement) or New business support community activities' (BENvsComSup),. 'New Jobs are fulltime or New jobs provide training program' (FTJvsTraining), 'New Jobs offer benefits (health and/or retirement) or New jobs provide training program' (BENvsTraining), 'New businesses increase the local tax base or New Jobs offer benefits(health and/or retirement) (NBILTvsBEN), 'New businesses increase the local tax base or New jobs provide training program' (NBILTvsTraining), New Jobs are fulltime or New jobs provide training program' (NBILTvsFTJ) and 'New businesses increase the local tax base or New business support community activities' (NBILTvsComSup),*

The results show that, For example, on average, about 70% percent across all communities are skewed towards the right, choosing important to extremely important, with an average of 20% of the overall choosing equally important. However, further breakdown just like the environmental bottom line shows that communities are unique in their priorities and preference when it comes to social issues as well. For instance, while about 55% of Washington, UT community believed that *New businesses supporting community activities*' was extremely important to them learning to the right and compared about 20% choosing both *New Jobs are fulltime or New business support community activities*' as equally important, a community like Greenlee, AZ showed a different distribution with over 40% of all respondents saying both issues were equally important, with about 40% saying *New businesses supporting community activities*' is somehow important to extremely important.

Table 4.2.2 Cross tabulations of community categories(counties) and Social Bottom Line (F3) and (F6)

Communities	FTJvsBEN						BENvsComSup						FTJvsTraining					
	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total
Cochise, AZ	92	9	12	65	85	263	77	8	13	65	108	271	74	10	17	66	90	257
	34.98	3.42	4.56	24.71	32.32	100.00	28.41	2.95	4.80	23.99	39.85	100.00	28.79	3.89	6.61	25.68	35.02	100.00
Graham, AZ	33	4	7	28	35	107	30	4	4	32	47	117	32	4	8	31	39	114
	30.84	3.74	6.54	26.17	32.71	100.00	25.64	3.42	3.42	27.35	40.17	100.00	28.07	3.51	7.02	27.19	34.21	100.00
Greenlee, AZ	26	7	4	13	12	62	22	6	2	25	18	73	24	3	5	22	8	62
	41.94	11.29	6.45	20.97	19.35	100.00	30.14	8.22	2.74	34.25	24.66	100.00	38.71	4.84	8.06	35.48	12.90	100.00
Mohave,AZ	13	7	4	27	25	76	8	2	2	37	25	74	9	5	3	38	14	69
	17.11	9.21	5.26	35.53	32.89	100.00	10.81	2.70	2.70	50.00	33.78	100.00	13.04	7.25	4.35	55.07	20.29	100.00
Monterey,CA	5	1	0	8	5	19	3	1	0	12	2	18	5	0	0	13	3	21
	26.32	5.26	0.00	42.11	26.32	100.00	16.67	5.56	0.00	66.67	11.11	100.00	23.81	0.00	0.00	61.90	14.29	100.00
Valley, ID	19	1	13	10	37	80	18	2	5	19	38	82	26	1	6	21	27	81
	23.75	1.25	16.25	12.50	46.25	100.00	21.95	2.44	6.10	23.17	46.34	100.00	32.10	1.23	7.41	25.93	33.33	100.00
Beaverhead, MN	3	2	0	2	4	11	5	0	0	5	3	13	4	1	0	4	3	12
	27.27	18.18	0.00	18.18	36.36	100.00	38.46	0.00	0.00	38.46	23.08	100.00	33.33	8.33	0.00	33.33	25.00	100.00
Deer Lodge,MN	8	2	0	29	6	45	8	3	0	26	12	49	6	4	1	25	5	41
	17.78	4.44	0.00	64.44	13.33	100.00	16.33	6.12	0.00	53.06	24.49	100.00	14.63	9.76	2.44	60.98	12.20	100.00

Granite,MN	5	3	0	8	4	20	4	2	0	11	2	19	2	5	0	15	4	26
	25.00	15.00	0.00	40.00	20.00	100.00	21.05	10.53	0.00	57.89	10.53	100.00	7.69	19.23	0.00	57.69	15.38	100.00
Madison,MN	8	2	1	10	6	27	5	1	1	12	9	28	7	3	1	9	7	27
	29.63	7.41	3.70	37.04	22.22	100.00	17.86	3.57	3.57	42.86	32.14	100.00	25.93	11.11	3.70	33.33	25.93	100.00
Powell,MN	3	1	1	12	5	22	3	2	0	12	7	24	4	0	0	10	4	18
	13.64	4.55	4.55	54.55	22.73	100.00	12.50	8.33	0.00	50.00	29.17	100.00	22.22	0.00	0.00	55.56	22.22	100.00
Silver Bow,MN	4	1	2	30	4	41	1	1	2	26	20	50	2	5	2	31	1	41
	9.76	2.44	4.88	73.17	9.76	100.00	2.00	2.00	4.00	52.00	40.00	100.00	4.88	12.20	4.88	75.61	2.44	100.00
Lander,NV	3	5	1	21	8	38	4	3	1	22	13	43	3	6	1	29	6	45
	7.89	13.16	2.63	55.26	21.05	100.00	9.30	6.98	2.33	51.16	30.23	100.00	6.67	13.33	2.22	64.44	13.33	100.00
White Pine,NV	10	3	1	12	4	30	6	3	1	13	3	26	10	1	1	16	5	33
	33.33	10.00	3.33	40.00	13.33	100.00	23.08	11.54	3.85	50.00	11.54	100.00	30.30	3.03	3.03	48.48	15.15	100.00
Cibola, NM	35	11	25	22	27	120	36	7	10	25	41	119	41	9	17	29	22	118
	29.17	9.17	20.83	18.33	22.50	100.00	30.25	5.88	8.40	21.01	34.45	100.00	34.75	7.63	14.41	24.58	18.64	100.00
Beaver, UT	17	2	14	16	16	65	13	1	5	13	31	63	16	3	9	14	23	65
	26.15	3.08	21.54	24.62	24.62	100.00	20.63	1.59	7.94	20.63	49.21	100.00	24.62	4.62	13.85	21.54	35.38	100.00
Cache, UT	8	5	12	6	6	37	8	5	7	8	9	37	12	5	6	8	5	36
	21.62	13.51	32.43	16.22	16.22	100.00	21.62	13.51	18.92	21.62	24.32	100.00	33.33	13.89	16.67	22.22	13.89	100.00
Carbon, UT	49	4	5	25	59	142	47	2	5	31	69	154	53	6	9	34	48	150
	34.51	2.82	3.52	17.61	41.55	100.00	30.52	1.30	3.25	20.13	44.81	100.00	35.33	4.00	6.00	22.67	32.00	100.00

Emery, UT	7	1	2	7	11	28	6	0	2	7	14	29	6	0	0	6	15	27
	25.00	3.57	7.14	25.00	39.29	100.00	20.69	0.00	6.90	24.14	48.28	100.00	22.22	0.00	0.00	22.22	55.56	100.00
Garfield, UT	12	4	7	16	17	56	8	5	5	16	22	56	10	2	7	17	19	55
	21.43	7.14	12.50	28.57	30.36	100.00	14.29	8.93	8.93	28.57	39.29	100.00	18.18	3.64	12.73	30.91	34.55	100.00
Grand, UT	24	21	13	42	65	165	20	10	6	48	82	166	25	11	11	52	67	166
	14.55	12.73	7.88	25.45	39.39	100.00	12.05	6.02	3.61	28.92	49.40	100.00	15.06	6.63	6.63	31.33	40.36	100.00
Juab, UT	58	31	35	45	75	244	57	13	24	52	97	243	56	17	27	56	89	245
	23.77	12.70	14.34	18.44	30.74	100.00	23.46	5.35	9.88	21.40	39.92	100.00	22.86	6.94	11.02	22.86	36.33	100.00
Millard, UT	21	10	12	56	89	188	13	6	3	58	108	188	24	8	13	63	81	189
	11.17	5.32	6.38	29.79	47.34	100.00	6.91	3.19	1.60	30.85	57.45	100.00	12.70	4.23	6.88	33.33	42.86	100.00
Piute, UT	13	10	7	16	29	75	11	13	5	16	30	75	11	9	4	19	35	78
	17.33	13.33	9.33	21.33	38.67	100.00	14.67	17.33	6.67	21.33	40.00	100.00	14.10	11.54	5.13	24.36	44.87	100.00
San Juan, UT	26	15	17	22	23	103	27	9	12	23	33	104	30	8	13	27	25	103
	25.24	14.56	16.50	21.36	22.33	100.00	25.96	8.65	11.54	22.12	31.73	100.00	29.13	7.77	12.62	26.21	24.27	100.00
Sanpete, UT	20	9	13	51	58	151	22	10	4	47	67	150	22	6	8	56	58	150
	13.25	5.96	8.61	33.77	38.41	100.00	14.67	6.67	2.67	31.33	44.67	100.00	14.67	4.00	5.33	37.33	38.67	100.00
Sevier, UT	32	17	13	50	59	171	28	13	5	48	74	168	32	6	8	59	65	170
	18.71	9.94	7.60	29.24	34.50	100.00	16.67	7.74	2.98	28.57	44.05	100.00	18.82	3.53	4.71	34.71	38.24	100.00
Washington, UT	30	1	7	26	79	143	26	1	2	30	95	154	28	4	6	26	78	142
	20.98	0.70	4.90	18.18	55.24	100.00	16.88	0.65	1.30	19.48	61.69	100.00	19.72	2.82	4.23	18.31	54.93	100.00
Wayne,UT	32	2	4	20	46	104	28	2	3	28	45	106	29	5	7	29	37	107

	30.77	1.92	3.85	19.23	44.23	100.00	26.42	1.89	2.83	26.42	42.45	100.00	27.10	4.67	6.54	27.10	34.58	100.00
Total	616	191	232	695	899	2633	544	135	129	767	1124	2699	603	147	190	825	883	2648
	23.40	7.25	8.81	26.40	34.14	100.00	20.16	5.00	4.78	28.42	41.65	100.00	22.77	5.55	7.18	31.16	33.35	100.00
Communities	BENvsTraining						NBILTvsBEN						NBILTvsTraining					
	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total	A_EQI	L_SI	L_EXI	R_SI	R_EXI	Total
Cochise, AZ	81	8	13	68	105	275	62	8	35	46	32	183	61	13	28	39	52	193
	29.45	2.91	4.73	24.73	38.18	100.00	33.88	4.37	19.13	25.14	17.49	100.00	31.61	6.74	14.51	20.21	26.94	100.00
Graham, AZ	31	2	1	33	57	124	27	5	10	33	22	97	22	4	7	27	39	99
	25.00	1.61	0.81	26.61	45.97	100.00	27.84	5.15	10.31	34.02	22.68	100.00	22.22	4.04	7.07	27.27	39.39	100.00
Greenlee, AZ	25	4	2	28	22	81	17	3	6	20	16	62	14	7	6	17	11	55
	30.86	4.94	2.47	34.57	27.16	100.00	27.42	4.84	9.68	32.26	25.81	100.00	25.45	12.73	10.91	30.91	20.00	100.00
Mohave,AZ	11	7	1	34	21	74	8	8	3	22	6	47	11	4	3	24	13	55
	14.86	9.46	1.35	45.95	28.38	100.00	17.02	17.02	6.38	46.81	12.77	100.00	20.00	7.27	5.45	43.64	23.64	100.00
Monterey,CA	3	2	0	11	3	19	2	2	2	10	1	17	2	1	0	11	3	17
	15.79	10.53	0.00	57.89	15.79	100.00	11.76	11.76	11.76	58.82	5.88	100.00	11.76	5.88	0.00	64.71	17.65	100.00
Valley, ID	20	0	2	24	44	90	14	7	20	10	12	63	16	6	16	9	16	63
	22.22	0.00	2.22	26.67	48.89	100.00	22.22	11.11	31.75	15.87	19.05	100.00	25.40	9.52	25.40	14.29	25.40	100.00
Beaverhead, MN	4	0	0	7	2	13	5	2	1	0	0	8	4	1	0	4	0	9
	30.77	0.00	0.00	53.85	15.38	100.00	62.50	25.00	12.50	0.00	0.00	100.00	44.44	11.11	0.00	44.44	0.00	100.00

Deer Lodge,MN	5	1	2	29	10	47	5	9	3	9	3	29	6	7	2	15	2	32
	10.64	2.13	4.26	61.70	21.28	100.00	17.24	31.03	10.34	31.03	10.34	100.00	18.75	21.88	6.25	46.88	6.25	100.00
Granite,MN	2	2	0	15	3	22	3	3	0	7	2	15	4	2	0	9	2	17
	9.09	9.09	0.00	68.18	13.64	100.00	20.00	20.00	0.00	46.67	13.33	100.00	23.53	11.76	0.00	52.94	11.76	100.00
Madison,MN	3	2	1	15	8	29	5	4	3	8	0	20	5	4	2	11	0	22
	10.34	6.90	3.45	51.72	27.59	100.00	25.00	20.00	15.00	40.00	0.00	100.00	22.73	18.18	9.09	50.00	0.00	100.00
Powell,MN	4	2	0	14	4	24	2	2	1	4	0	9	2	5	1	6	2	16
	16.67	8.33	0.00	58.33	16.67	100.00	22.22	22.22	11.11	44.44	0.00	100.00	12.50	31.25	6.25	37.50	12.50	100.00
Silver Bow,MN	0	2	0	36	15	53	2	5	6	5	1	19	2	2	1	24	2	31
	0.00	3.77	0.00	67.92	28.30	100.00	10.53	26.32	31.58	26.32	5.26	100.00	6.45	6.45	3.23	77.42	6.45	100.00
Lander,NV	0	3	1	33	17	54	4	4	1	11	0	20	2	3	2	18	4	29
	0.00	5.56	1.85	61.11	31.48	100.00	20.00	20.00	5.00	55.00	0.00	100.00	6.90	10.34	6.90	62.07	13.79	100.00
White Pine,NV	8	1	1	15	6	31	5	1	3	15	7	31	5	1	3	13	6	28
	25.81	3.23	3.23	48.39	19.35	100.00	16.13	3.23	9.68	48.39	22.58	100.00	17.86	3.57	10.71	46.43	21.43	100.00
Cibola, NM	30	6	6	29	48	119	24	20	56	9	7	116	29	18	36	17	14	114
	25.21	5.04	5.04	24.37	40.34	100.00	20.69	17.24	48.28	7.76	6.03	100.00	25.44	15.79	31.58	14.91	12.28	100.00
Beaver, UT	13	1	1	13	35	63	17	10	31	4	4	66	13	5	18	8	20	64
	20.63	1.59	1.59	20.63	55.56	100.00	25.76	15.15	46.97	6.06	6.06	100.00	20.31	7.81	28.13	12.50	31.25	100.00
Cache, UT	10	3	2	11	11	37	7	2	11	8	9	37	11	1	8	4	12	36
	27.03	8.11	5.41	29.73	29.73	100.0	18.92	5.41	29.73	21.62	24.32	100.00	30.56	2.78	22.22	11.1	33.33	100.0

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Carbon, UT	48	2	6	29	73	158	40	5	21	25	10	101	47	6	14	21	29	117
	30.38	1.27	3.80	18.35	46.20	100.00	39.60	4.95	20.79	24.75	9.90	100.00	40.17	5.13	11.97	17.95	24.79	100.00
Emery, UT	5	0	0	8	16	29	7	1	6	5	0	19	8	1	1	6	6	22
	17.24	0.00	0.00	27.59	55.17	100.00	36.84	5.26	31.58	26.32	0.00	100.00	36.36	4.55	4.55	27.27	27.27	100.00
Garfield, UT	6	2	6	12	29	55	4	8	33	8	3	56	10	9	17	9	7	52
	10.91	3.64	10.91	21.82	52.73	100.00	7.14	14.29	58.93	14.29	5.36	100.00	19.23	17.31	32.69	17.31	13.46	100.00
Grand, UT	22	8	3	53	80	166	19	40	71	17	18	165	30	27	35	31	36	159
	13.25	4.82	1.81	31.93	48.19	100.00	11.52	24.24	43.03	10.30	10.91	100.00	18.87	16.98	22.01	19.50	22.64	100.00
Juab, UT	53	6	12	63	109	243	46	43	97	40	22	248	44	21	49	51	65	230
	21.81	2.47	4.94	25.93	44.86	100.00	18.55	17.34	39.11	16.13	8.87	100.00	19.13	9.13	21.30	22.17	28.26	100.00
Millard, UT	22	6	6	57	98	189	23	40	86	21	19	189	20	26	53	35	44	178
	11.64	3.17	3.17	30.16	51.85	100.00	12.17	21.16	45.50	11.11	10.05	100.00	11.24	14.61	29.78	19.66	24.72	100.00
Piute, UT	9	5	2	26	35	77	10	24	34	9	1	78	13	19	19	15	8	74
	11.69	6.49	2.60	33.77	45.45	100.00	12.82	30.77	43.59	11.54	1.28	100.00	17.57	25.68	25.68	20.27	10.81	100.00
San Juan, UT	24	5	6	28	42	105	17	22	33	18	13	103	19	18	20	16	28	101
	22.86	4.76	5.71	26.67	40.00	100.00	16.50	21.36	32.04	17.48	12.62	100.00	18.81	17.82	19.80	15.84	27.72	100.00
Sanpete, UT	25	6	3	56	63	153	23	29	55	29	19	155	19	17	21	44	42	143
	16.34	3.92	1.96	36.60	41.18	100.00	14.84	18.71	35.48	18.71	12.26	100.00	13.29	11.89	14.69	30.77	29.37	100.00
Sevier, UT	30	3	5	53	81	172	35	30	57	24	23	169	28	23	27	32	49	159
	17.44	1.74	2.91	30.81	47.09	100.00	20.71	17.75	33.73	14.20	13.61	100.00	17.61	14.47	16.98	20.13	30.82	100.00
Washington,	28	1	2	32	84	147	26	4	15	16	29	90	26	4	10	28	49	117

UT																		
	19.05	0.68	1.36	21.77	57.14	100.00	28.89	4.44	16.67	17.78	32.22	100.00	22.22	3.42	8.55	23.93	41.88	100.00
Wayne,UT	34	5	2	28	41	110	26	7	11	20	17	81	25	5	9	26	20	85
	30.91	4.55	1.82	25.45	37.27	100.00	32.10	8.64	13.58	24.69	20.99	100.00	29.41	5.88	10.59	30.59	23.53	100.00
Total	556	95	86	860	1162	2759	485	348	711	453	296	2293	498	260	408	570	581	2317
	20.15	3.44	3.12	31.17	42.12	100.00	21.15	15.18	31.01	19.76	12.91	100.00	21.49	11.22	17.61	24.60	25.08	100.00

Counties	NBILTvsFTJ						NBILTvsComSup					
	ALL EQI	L SI	L EXI	R SI	R EXI	Total						
Cochise, AZ	64	11	29	51	41	196	70	7	24	45	47	193
	32.65	5.61	14.80	26.02	20.92	100.00	36.27	3.63	12.44	23.32	24.35	100.00
Graham, AZ	16	0	10	28	37	91	29	4	10	25	22	90
	17.58	0.00	10.99	30.77	40.66	100.00	32.22	4.44	11.11	27.78	24.44	100.00
Greenlee, AZ	19	4	0	21	26	70	23	4	7	10	12	56
	27.14	5.71	0.00	30.00	37.14	100.00	41.07	7.14	12.50	17.86	21.43	100.00
Mohave,AZ	6	8	1	25	11	51	9	2	2	40	15	68
	11.76	15.69	1.96	49.02	21.57	100.00	13.24	2.94	2.94	58.82	22.06	100.00
Monterey,CA	2	0	0	14	1	17	2	3	0	7	2	14
	11.76	0.00	0.00	82.35	5.88	100.00	14.29	21.43	0.00	50.00	14.29	100.00
Valley, ID	13	5	14	10	15	57	21	4	20	10	9	64
	22.81	8.77	24.56	17.54	26.32	100.00	32.81	6.25	31.25	15.63	14.06	100.00

Beaverhead, MN	4	0	0	3	1	8	4	1	1	3	0	9
	50.00	0.00	0.00	37.50	12.50	100.00	44.44	11.11	11.11	33.33	0.00	100.00
Deer Lodge,MN	7	6	3	10	4	30	8	5	3	19	4	39
	23.33	20.00	10.00	33.33	13.33	100.00	20.51	12.82	7.69	48.72	10.26	100.00
Granite,MN	2	1	0	8	2	13	5	3	2	5	1	16
	15.38	7.69	0.00	61.54	15.38	100.00	31.25	18.75	12.50	31.25	6.25	100.00
Madison,MN	5	5	1	6	0	17	5	3	2	9	1	20
	29.41	29.41	5.88	35.29	0.00	100.00	25.00	15.00	10.00	45.00	5.00	100.00
Powell,MN	1	2	0	6	0	9	1	3	1	7	3	15
	11.11	22.22	0.00	66.67	0.00	100.00	6.67	20.00	6.67	46.67	20.00	100.00
Silver Bow,MN	1	11	0	17	6	35	3	4	1	28	3	39
	2.86	31.43	0.00	48.57	17.14	100.00	7.69	10.26	2.56	71.79	7.69	100.00
Lander,NV	4	8	3	15	4	34	4	9	1	15	2	31
	11.76	23.53	8.82	44.12	11.76	100.00	12.90	29.03	3.23	48.39	6.45	100.00
White Pine,NV	4	4	1	14	7	30	6	2	3	14	5	30
	13.33	13.33	3.33	46.67	23.33	100.00	20.00	6.67	10.00	46.67	16.67	100.00
Cibola, NM	20	17	41	13	26	117	32	21	39	15	10	117
	17.09	14.53	35.04	11.11	22.22	100.00	27.35	17.95	33.33	12.82	8.55	100.00
Beaver, UT	14	9	19	7	15	64	25	3	22	6	10	66

	21.88	14.06	29.69	10.94	23.44	100.00	37.88	4.55	33.33	9.09	15.15	100.00
Cache, UT	7	2	8	4	16	37	10	4	13	2	8	37
	18.92	5.41	21.62	10.81	43.24	100.00	27.03	10.81	35.14	5.41	21.62	100.00
Carbon, UT	46	7	24	19	16	112	44	5	18	21	26	114
	41.07	6.25	21.43	16.96	14.29	100.00	38.60	4.39	15.79	18.42	22.81	100.00
Emery, UT	8	0	7	6	2	23	10	0	3	6	4	23
	34.78	0.00	30.43	26.09	8.70	100.00	43.48	0.00	13.04	26.09	17.39	100.00
Garfield, UT	7	10	29	6	4	56	8	11	22	7	8	56
	12.50	17.86	51.79	10.71	7.14	100.00	14.29	19.64	39.29	12.50	14.29	100.00
Grand, UT	18	40	64	17	27	166	36	25	41	27	35	164
	10.84	24.10	38.55	10.24	16.27	100.00	21.95	15.24	25.00	16.46	21.34	100.00
Juab, UT	51	39	70	40	46	246	61	38	54	50	44	247
	20.73	15.85	28.46	16.26	18.70	100.00	24.70	15.38	21.86	20.24	17.81	100.00
Millard, UT	27	41	68	23	27	186	27	28	45	47	41	188
	14.52	22.04	36.56	12.37	14.52	100.00	14.36	14.89	23.94	25.00	21.81	100.00
Piute, UT	10	16	35	17	1	79	15	15	26	16	6	78
	12.66	20.25	44.30	21.52	1.27	100.00	19.23	19.23	33.33	20.51	7.69	100.00
San Juan, UT	20	19	24	20	22	105	23	22	29	10	20	104
	19.05	18.10	22.86	19.05	20.95	100.00	22.12	21.15	27.88	9.62	19.23	100.00
Sanpete, UT	31	28	37	27	33	156	28	32	18	35	40	153
	19.87	17.95	23.72	17.31	21.15	100.00	18.30	20.92	11.76	22.88	26.14	100.00

Sevier, UT	33	28	47	30	32	170	36	26	27	39	38	166
	19.41	16.47	27.65	17.65	18.82	100.00	21.69	15.66	16.27	23.49	22.89	100.00
Washington, UT	25	2	12	22	41	102	32	2	12	40	52	138
	24.51	1.96	11.76	21.57	40.20	100.00	23.19	1.45	8.70	28.99	37.68	100.00
Wayne,UT	26	4	11	31	18	90	29	5	4	23	23	84
	28.89	4.44	12.22	34.44	20.00	100.00	34.52	5.95	4.76	27.38	27.38	100.00
Total	491	327	558	510	481	2367	606	291	450	581	491	2419
	20.74	13.81	23.57	21.55	20.32	100.00	25.05	12.03	18.60	24.02	20.30	100.00

Economic Bottom Line Construct

Table 4.2.3. represents a cross-tabulation of the social bottom line construct across communities. Respondents were asked to rate from 1 to 9 the level of importance of the communities economic goals statements representing a measure of community cohesion pertaining to Economic Bottom Line loaded by 4 goal statements capturing the importance of the economic contribution of new businesses to the community in terms of new businesses returning a profit to the community, Increasing average local wage, hiring locally, buying locally and generating additional jobs in the community. These 4 goals statements load on to the Economic bottom line construct as seen from the factor analysis representing factors four (F4). The results show that the majority of the communities feel strongly about issues concerning economics with four elements having high loadings of over 0.45. Compared with the environmental and social constructs however, the responses are more evenly spread on average. A possible explanation is that, communities are more concerned about social and environmental issues compared to their concerns about economic issues, Choosing between somehow important to extremely important or equally important on a scale of 1 to 9. Communities were asked to rate how they feel about the following pairs of issues, *'New Jobs generate additional Job or. New buss increases average local wage' (NBRPtCvsNBIALW), 'New Jobs generate additional Job or. New buss increases average local wage' (NJGAJvsNBIALW), 'New businesses return profit to the community or. New buss increases average local wage' (NJHLvsNBIALW), 'New businesses buy locally or. New businesses increase the average local wage' (NJBLvsNBIALW).* Compared to social and environmental issues however, it was obvious that communities are more concerned about social and environmental issues than they are economic issues due to the close to normal skewness of their responses.

Table 4.2.3 Cross tabulations of community categories(counties) and Economic Bottom Line (F5)

Communities	NJGAJvsNBIALW						NJGAJvsNBIALW					
	ALL EQI	L SI	L EXI	R SI	R EXI	Total						
Cochise, AZ	61	8	13	59	106	247	63	11	19	59	81	233
	24.70	3.24	5.26	23.89	42.91	100.00	27.04	4.72	8.15	25.32	34.76	100.00
Graham, AZ	23	3	8	37	51	122	24	4	10	32	44	114
	18.85	2.46	6.56	30.33	41.80	100.00	21.05	3.51	8.77	28.07	38.60	100.00
Greenlee, AZ	25	7	3	26	18	79	22	7	4	24	14	71
	31.65	8.86	3.80	32.91	22.78	100.00	30.99	9.86	5.63	33.80	19.72	100.00
Mohave,AZ	6	8	6	27	5	52	10	4	4	35	6	59
	11.54	15.38	11.54	51.92	9.62	100.00	16.95	6.78	6.78	59.32	10.17	100.00
Monterey,CA	2	4	2	7	0	15	2	0	2	10	2	16
	13.33	26.67	13.33	46.67	0.00	100.00	12.50	0.00	12.50	62.50	12.50	100.00
Valley, ID	15	6	11	19	17	68	12	4	16	18	19	69
	22.06	8.82	16.18	27.94	25.00	100.00	17.39	5.80	23.19	26.09	27.54	100.00
Beaverhead,MN	4	1	1	5	0	11	4	1	0	4	3	12
	36.36	9.09	9.09	45.45	0.00	100.00	33.33	8.33	0.00	33.33	25.00	100.00
Deer Lodge,MN	8	6	2	10	3	29	4	5	3	15	3	30
	27.59	20.69	6.90	34.48	10.34	100.00	13.33	16.67	10.00	50.00	10.00	100.00
Granite,MN	5	4	1	12	3	25	5	6	0	14	3	28
	20.00	16.00	4.00	48.00	12.00	100.00	17.86	21.43	0.00	50.00	10.71	100.00
Madison,MN	4	6	1	12	3	26	2	5	1	12	3	23
	15.38	23.08	3.85	46.15	11.54	100.00	8.70	21.74	4.35	52.17	13.04	100.00
Powell,MN	5	2	1	12	2	22	2	1	1	13	2	19
	22.73	9.09	4.55	54.55	9.09	100.00	10.53	5.26	5.26	68.42	10.53	100.00
Silver Bow,MN	1	3	3	11	2	20	4	3	3	22	4	36
	5.00	15.00	15.00	55.00	10.00	100.00	11.11	8.33	8.33	61.11	11.11	100.00

Lander,NV	2	5	4	27	7	45	5	9	3	23	4	44
	4.44	11.11	8.89	60.00	15.56	100.00	11.36	20.45	6.82	52.27	9.09	100.00
White Pine,NV	6	1	3	16	7	33	3	0	1	17	11	32
	18.18	3.03	9.09	48.48	21.21	100.00	9.38	0.00	3.13	53.13	34.38	100.00
Cibola, NM	26	12	23	31	25	117	19	21	26	21	29	116
	22.22	10.26	19.66	26.50	21.37	100.00	16.38	18.10	22.41	18.10	25.00	100.00
Beaver, UT	10	15	17	8	16	66	10	19	20	15	4	68
	15.15	22.73	25.76	12.12	24.24	100.00	14.71	27.94	29.41	22.06	5.88	100.00
Cache, UT	4	4	9	10	10	37	10	9	10	7	1	37
	10.81	10.81	24.32	27.03	27.03	100.00	27.03	24.32	27.03	18.92	2.70	100.00
Carbon, UT	39	11	11	29	39	129	41	9	12	26	41	129
	30.23	8.53	8.53	22.48	30.23	100.00	31.78	6.98	9.30	20.16	31.78	100.00
Emery, UT	8	1	3	4	6	22	4	1	4	4	5	18
	36.36	4.55	13.64	18.18	27.27	100.00	22.22	5.56	22.22	22.22	27.78	100.00
Garfield, UT	9	17	14	10	7	57	8	13	12	15	8	56
	15.79	29.82	24.56	17.54	12.28	100.00	14.29	23.21	21.43	26.79	14.29	100.00
Grand, UT	23	39	66	24	13	165	16	28	77	29	17	167
	13.94	23.64	40.00	14.55	7.88	100.00	9.58	16.77	46.11	17.37	10.18	100.00
Juab, UT	52	50	70	47	27	246	40	39	86	57	27	249
	21.14	20.33	28.46	19.11	10.98	100.00	16.06	15.66	34.54	22.89	10.84	100.00
Millard, UT	20	33	59	38	36	186	18	32	59	44	35	188
	10.75	17.74	31.72	20.43	19.35	100.00	9.57	17.02	31.38	23.40	18.62	100.00
Piute, UT	15	18	16	21	4	74	10	20	15	25	8	78
	20.27	24.32	21.62	28.38	5.41	100.00	12.82	25.64	19.23	32.05	10.26	100.00
San Juan, UT	20	13	24	29	20	106	16	13	34	31	15	109
	18.87	12.26	22.64	27.36	18.87	100.00	14.68	11.93	31.19	28.44	13.76	100.00
Sanpete, UT	22	36	44	39	35	176	17	33	52	43	39	184
	12.50	20.45	25.00	22.16	19.89	100.00	9.24	17.93	28.26	23.37	21.20	100.00

Sevier, UT	29	30	41	41	32	173	28	25	50	41	28	172
	16.76	17.34	23.70	23.70	18.50	100.00	16.28	14.53	29.07	23.84	16.28	100.00
Washington, UT	29	4	19	27	36	115	28	4	22	21	27	102
	25.22	3.48	16.52	23.48	31.30	100.00	27.45	3.92	21.57	20.59	26.47	100.00
Wayne,UT	27	5	7	37	21	97	17	11	8	37	16	89
	27.84	5.15	7.22	38.14	21.65	100.00	19.10	12.36	8.99	41.57	17.98	100.00
Total	500	352	482	675	551	2560	444	337	554	714	499	2548
	19.53	13.75	18.83	26.37	21.52	100.00	17.43	13.23	21.74	28.02	19.58	100.00
Counties	NJHLvsNBIALW						NJBLvsNBIALW					
	ALL EQI	L SI	L EXI	R SI	R EXI	Total	ALL EQI	L SI	L EXI	R SI	R EXI	Total
Cochise, AZ	66	6	13	57	128	270	79	12	14	54	94	253
	24.44	2.22	4.81	21.11	47.41	100.00	31.23	4.74	5.53	21.34	37.15	100.00
Graham, AZ	20	5	10	34	52	121	22	5	6	27	46	106
	16.53	4.13	8.26	28.10	42.98	100.00	20.75	4.72	5.66	25.47	43.40	100.00
Greenlee, AZ	22	10	2	26	25	85	24	6	4	23	20	77
	25.88	11.76	2.35	30.59	29.41	100.00	31.17	7.79	5.19	29.87	25.97	100.00
Mohave,AZ	7	5	5	28	12	57	7	6	6	23	7	49
	12.28	8.77	8.77	49.12	21.05	100.00	14.29	12.24	12.24	46.94	14.29	100.00
Monterey,CA	4	1	1	11	0	17	1	4	1	7	1	14
	23.53	5.88	5.88	64.71	0.00	100.00	7.14	28.57	7.14	50.00	7.14	100.00
Valley, ID	22	2	3	23	29	79	18	5	12	15	17	67
	27.85	2.53	3.80	29.11	36.71	100.00	26.87	7.46	17.91	22.39	25.37	100.00
Beaverhead,MN	4	0	1	5	0	10	5	1	1	2	1	10
	40.00	0.00	10.00	50.00	0.00	100.00	50.00	10.00	10.00	20.00	10.00	100.00
Deer Lodge,MN	8	5	2	16	8	39	4	7	3	15	4	33
	20.51	12.82	5.13	41.03	20.51	100.00	12.12	21.21	9.09	45.45	12.12	100.00
Granite,MN	4	1	0	17	5	27	5	5	0	13	4	27

	14.81	3.70	0.00	62.96	18.52	100.00	18.52	18.52	0.00	48.15	14.81	100.00
Madison,MN	4	1	0	13	5	23	2	3	0	12	1	18
	17.39	4.35	0.00	56.52	21.74	100.00	11.11	16.67	0.00	66.67	5.56	100.00
Powell,MN	1	0	1	16	2	20	8	1	0	9	1	19
	5.00	0.00	5.00	80.00	10.00	100.00	42.11	5.26	0.00	47.37	5.26	100.00
Silver Bow,MN	9	2	2	20	4	37	7	2	4	13	0	26
	24.32	5.41	5.41	54.05	10.81	100.00	26.92	7.69	15.38	50.00	0.00	100.00
Lander,NV	2	4	1	28	10	45	5	4	2	28	4	43
	4.44	8.89	2.22	62.22	22.22	100.00	11.63	9.30	4.65	65.12	9.30	100.00
White Pine,NV	4	0	1	13	14	32	4	2	2	10	10	28
	12.50	0.00	3.13	40.63	43.75	100.00	14.29	7.14	7.14	35.71	35.71	100.00
Cibola, NM	25	9	12	23	47	116	33	22	26	17	20	118
	21.55	7.76	10.34	19.83	40.52	100.00	27.97	18.64	22.03	14.41	16.95	100.00
Beaver, UT	18	9	7	12	20	66	14	12	24	9	6	65
	27.27	13.64	10.61	18.18	30.30	100.00	21.54	18.46	36.92	13.85	9.23	100.00
Cache, UT	10	4	6	8	9	37	9	6	10	5	7	37
	27.03	10.81	16.22	21.62	24.32	100.00	24.32	16.22	27.03	13.51	18.92	100.00
Carbon, UT	44	4	13	34	50	145	44	3	12	29	34	122
	30.34	2.76	8.97	23.45	34.48	100.00	36.07	2.46	9.84	23.77	27.87	100.00
Emery, UT	8	1	2	5	8	24	8	1	5	2	4	20
	33.33	4.17	8.33	20.83	33.33	100.00	40.00	5.00	25.00	10.00	20.00	100.00
Garfield, UT	13	12	6	15	11	57	9	17	17	10	5	58
	22.81	21.05	10.53	26.32	19.30	100.00	15.52	29.31	29.31	17.24	8.62	100.00
Grand, UT	31	33	53	29	22	168	21	39	72	20	14	166
	18.45	19.64	31.55	17.26	13.10	100.00	12.65	23.49	43.37	12.05	8.43	100.00
Juab, UT	53	36	63	41	58	251	48	51	82	33	30	244
	21.12	14.34	25.10	16.33	23.11	100.00	19.67	20.90	33.61	13.52	12.30	100.00
Millard, UT	27	25	43	47	46	188	26	42	66	30	23	187

	14.36	13.30	22.87	25.00	24.47	100.00	13.90	22.46	35.29	16.04	12.30	100.00
Piute, UT	18	13	9	19	17	76	20	24	13	11	7	75
	23.68	17.11	11.84	25.00	22.37	100.00	26.67	32.00	17.33	14.67	9.33	100.00
San Juan, UT	20	8	24	28	27	107	19	19	28	20	17	103
	18.69	7.48	22.43	26.17	25.23	100.00	18.45	18.45	27.18	19.42	16.50	100.00
Sanpete, UT	26	23	25	43	48	165	26	39	37	32	32	166
	15.76	13.94	15.15	26.06	29.09	100.00	15.66	23.49	22.29	19.28	19.28	100.00
Sevier, UT	37	21	36	38	41	173	30	44	42	27	27	170
	21.39	12.14	20.81	21.97	23.70	100.00	17.65	25.88	24.71	15.88	15.88	100.00
Washington, UT	31	1	13	22	52	119	27	4	20	15	35	101
	26.05	0.84	10.92	18.49	43.70	100.00	26.73	3.96	19.80	14.85	34.65	100.00
Wayne,UT	33	5	6	38	30	112	31	8	9	34	21	103
	29.46	4.46	5.36	33.93	26.79	100.00	30.10	7.77	8.74	33.01	20.39	100.00
Total	571	246	360	709	780	2666	556	394	518	545	492	2505
	21.42	9.23	13.50	26.59	29.26	100.00	22.20	15.73	20.68	21.76	19.64	100.00

Analysis of Community Cohesion

To investigate community cohesion and analyze the hypothesis that communities are unique in their characteristics when it comes to which sustainable goals are more important to them, my analysis compared the difference in the variance of all communities concerning their responses to the general goals' category responses. Responses to the general goal statements representing indicator for the overall preferences for the three bottom is encapsulated by ' Which goal statement is more important to your community?'. Respondents were asked to rate how they feel in general about Economic, Social and Environmental quality of the community presented in three pair groups after they have given some thoughts and consideration to the community goals statements specific to each three goals category being economic, social and environmental goals representing the three bottom lines of sustainability, they were asked to compare the categories themselves keeping in mind the relative importance of each goal category within each of the three pair as well as how each goal category ranks within the whole group.

Results from my analysis of the means show a significant presence of community cohesion within each group. A cohesion score was assigned to each community represented in my sample. The score was calculated by taking the average of the three % of overall standard deviation(Variance) Serving as the overall Community cohesion score, the % of the overall represent the proportion of variance to the total variance of each goal category. According to the results presented in table 4.3., a majority of communities are cohesive in their responses. Even though the level of cohesion varies within each community, partly based on individual community differences and other constraints, the majority of the communities score lower cohesion scores which were less than 1. Out of all 28 groups, 21 communities representing 75% of all communities sampled scored below 1 ranging from 0.7 to 0.9 representing a strong sense of cohesion in their response based on the three categories. What this implies is that it is easier for communities that are more cohesive to make decisions and implement policies for sustainability because getting everyone on board the community agenda is much easier when community members have similar interest as compared to communities such as Valley ID, Sanpete, San Juan, Cache, Beaver, Piute, Juab, Grand, and Garfield Where there seems to be less cohesion in their responses, scoring above 1. Making meaningful policy changes in situations like that is mostly welcomed with a difference of opinions of far-right or left movements. Furthermore, it was also observed that each community is unique when it comes to which of the three categories is more relevant. For example, a closer observation into Washington UT community and Cochise UT community shows that, even though both communities have an overall mean for the three elements of 1.57, they both have different variance in their responses with Washington being less cohesive scoring 0.95 than Cochise scoring 0.84, what's more, interesting is that the Cochise community has equal variance across the three goals categories whiles Washington UT, has unequal variances. It can

be therefore inferred that making sustainable decisions in the Cochise community will be easier than making a policy decision concerning economic, social, and economic sustainability in the Washington community.

***Table** 4.3.*Descriptive statistics for General goals category

Communities		ec_en	ec_s	envs	% of overall	% of overall	% of overall	Cohesion score(avg of OV)
Cochise, AZ	Mean	4.031359	4.262411	2.915385	1.724645561	1.405894159	1.568693233	1.566410985
	SD	3.672197	3.528522	3.971976	0.823568818	0.861899773	0.858839232	0.848102608
Graham, AZ	Mean	3.619835	4.139344	2.752475	1.548592513	1.365302302	1.481035577	1.464976798
	SD	3.599204	3.535687	4.080211	0.807198574	0.863649943	0.882242321	0.851030276
Greenlee, AZ	Mean	3.716049	3.444444	2.08	1.589753583	0.841362333	0.449747331	0.960287749
	SD	1.581199	3.303083	4.447167	0.354617737	0.806832574	0.961587253	0.707679188
Mohave,AZ	Mean	2.19697	2.114286	2.587302	0.939880214	0.697366429	1.392160216	1.009802301
	SD	3.329217	3.321179	3.030144	0.746648208	0.811252821	0.655191911	0.737697647
Monterey,CA	Mean	2.368421	2.227273	1.545455	1.013228235	0.734633545	0.831569347	0.859810376
	SD	2.564946	2.877364	3.432718	0.575244069	0.702843677	0.742238345	0.67344203
Valley, ID	Mean	2.106667	2.686747	1.587629	0.901247914	0.886184348	0.854262085	0.880564783
	SD	4.437474	4.190371	5.06983	0.995198573	1.023567322	1.096222316	1.038329418
Beaverhead, MN	Mean	2.363636	3.416667	2.461538	1.011181176	1.126937824	1.324489906	1.154202969
	SD	3.801913	3.579191	3.406254	0.852660408	0.874276513	0.736516175	0.821151032
Deer Lodge,MN	Mean	1.441176	2.377778	2.545455	0.616545882	0.784275426	1.369643472	0.92348826
	SD	2.630718	3.017209	3.540165	0.589994848	0.737022914	0.765471038	0.697496267
Granite,MN	Mean	0.666667	1.666667	2.833333	0.285205005	0.549725824	1.524543175	0.786491335
	SD	3.383678	2.745222	2.899275	0.758862253	0.670565323	0.626894804	0.685440793
Powell,MN	Mean	3.181818	2.904762	2.347826	1.361205561	0.958093419	1.263304421	1.194201134
	SD	3.23134	2.913842	3.575277	0.724697194	0.711754031	0.773063119	0.736504782

Silver Bow,MN	Mean	3.204545	1.72	0.033333	1.370928342	0.567316937	0.017935786	0.652060355
	SD	2.690029	2.480465	2.592873	0.603296661	0.605918968	0.560643133	0.589952903
Lander,NV	Mean	2.289474	2.27907	2.76	0.979454118	0.751718003	1.485084585	1.072085578
	SD	2.503056	3.935949	3.519972	0.561363911	0.961420547	0.761104813	0.761296424
White Pine,NV	Mean	2.1875	2.25	1.548387	0.935828877	0.742129714	0.833146978	0.837035191
	SD	3.449521	2.951216	3.414076	0.773628956	0.720883248	0.738207484	0.744239896
Cibola, NM	Mean	1.068376	3.457627	2.444444	0.457059251	1.140447884	1.315292067	0.970933067
	SD	4.525267	4.139953	4.478771	1.014888034	1.011251893	0.968420818	0.998186915
Beaver, UT	Mean	1.640449	3.602273	2.932584	0.701796364	1.188157259	1.577947577	1.155967064
	SD	5.112923	4.452952	4.823705	1.146682476	1.087699251	1.043004061	1.09246193
Cache, UT	Mean	-0.763157	1.512821	0.447368	-0.326484636	0.498981963	0.240717316	0.13773822
	SD	5.03734	4.919734	5.191976	1.129731377	1.201726228	1.122633344	1.151363663
Carbon, UT	Mean	3.156627	3.433735	1.985816	1.350428663	1.132567455	1.068516207	1.183837442
	SD	3.682825	3.627146	4.145541	0.825952374	0.885990314	0.896368269	0.869436986
Emery, UT	Mean	3	3.5	2.296296	1.283422456	1.154424	1.235577461	1.22447464
	SD	3.707012	3.331182	3.988588	0.831376827	0.813696219	0.862431157	0.835834734
Garfield, UT	Mean	1.37931	2.160714	1.596491	0.590079144	0.712680028	0.859030498	0.720596557
	SD	5.025645	4.454933	5.020884	1.127108516	1.08819096	1.085639027	1.100312834
Grand, UT	Mean	0.215568906	1.626506	2.102411	0.092221989	0.536479304	1.131252421	0.586651238
	SD	**5.260812**	4.624659	4.553559	1.179849752	1.129634927	0.984591829	1.098025503
Juab, UT	Mean	1.756198	2.098765	1.290456	0.751314652	0.692247053	0.694360983	0.712640896
	SD	4.636414	4.642433	4.850115	1.039815129	1.133990931	1.048714555	1.074173538

Millard, UT	Mean	3.747368	4.112903	-0.25967	1.603152086	1.356581124	-0.13972	0.940004103
	SD	4.161981	4.008524	5.558175	0.933413368	0.979148189	1.201814601	1.038125386
Piute, UT	Mean	3.481013	3.025641	-0.03947	1.489203422	0.997963596	-0.02124	0.821975747
	SD	4.419829	3.87122	5.084462	0.991241304	0.945609419	1.099386116	1.012078961
San Juan, UT	Mean	0.528302	1.283019	0.240385	0.226011508	0.423185122	0.129345	0.259513788
	SD	5.633586	5.222214	5.143561	1.263452304	1.275612016	1.112164	1.217076381
Sanpete, UT	Mean	1.170886	2.662433	1.583333	0.500913797	0.878160442	0.851950	0.743674919
	SD	5.161337	4.418136	5.054488	1.157540353	1.079202685	1.092905	1.109882693
Sevier, UT	Mean	2.372093	3.384615	0.80814	1.014799144	1.116365939	0.434838	0.855334679
	SD	4.089772	3.792223	4.88982	0.917218954	0.926313097	1.057299	0.966943936
Washington, UT	Mean	2.387097	4.395833	4.176056	1.021217968	1.449901462	2.247027	1.572715703
	SD	4.433262	3.906635	3.928978	0.994253942	0.954260118	0.849542	0.932685355
Wayne,UT	Mean	2.596154	2.889908	2.76699	1.110654118	0.953194044	1.488845	1.184231295
	SD	4.724485	3.866617	4.046795	1.059566936	0.944485061	0.875016	0.959689648
Total Variance	Mean	2.3375	3.031815	1.85848	1	1	1	
	SD	4.458883	4.093889	4.624819	1		1	
	Count	3620	3598	3578				

Kruskal-Wallis H test (KW)

Having in mind that there is a sense of cohesion across 75% of all communities, further analysis to understand if there is a statistically significant difference across communities and within communities as well. To accomplish this, a Kruskal-Wallis H test was conducted to determine if economic, social, and environmental goals responses were different across 28 communities representing individual groups. The test is used to analyze if there are any statistically significant differences within the groups, in this case, individual communities as well as any differences across groups. This allowed me to show adopting the TBL measure of sustainability can be flexible and tailored to each community depending on what matters to them and individual community characteristics. As observed by results from the initial boxplots of the three categories shown in the figures A1, A2 and A3 as presented in the appendix, it was observed that when asked to chooses between environmental quality goals and social goals, the responses across the majority of communities were skewed towards the right indicating a choice for the three elements either being equally important or the right elements being environmental and social were somewhat important to extremely important. It was assumed that the one-way ANOVA was inappropriate due to the non-normal distribution of responses.

According to the results, when asked to choose between Economic quality or Environmental quality (ECENnG), there was a statistically significant difference in responses across the 28 groups each having different number of observation, the Kruskal-Wallis H test showed that there was a statistically significant difference in ECENnG responses with a $\chi^2(28) = 176.768$, and a $p = 0.0001$. Similarly, for responses on the choice between economic quality goals or Social quality goals statements (ECSGS), A Kruskal-Wallis H test showed that there was a statistically significant difference in ECENnG responses between the 28 groups, with $\chi^2(28) = 147.831$, $p = 0.0001$. Environmental quality goals or social quality goals statements (ENSSGS) were also statistically different for 28 groups with the Kruskal-Wallis H test showing a $\chi^2(28) = 140.339$ and $p = 0.0001$. for the difference in ENSSGS responses representing the 28 groups.

Overall it was observed that there was a statistically significant difference in responses of the three categories between all 28 groups from the KW test, however, since the KW cannot give more details about which specific groups of your independent variable are statistically significantly different from each other and it only tells provides information that at least two groups were different, a post hoc test was conducted to get a more detailed look. The output following the Kruskal-Wallis test provides all possible pairwise comparisons across the 28 communities. Dunn's test preserves a pooled variance for the tests implied by the Kruskal-Wallis null hypothesis. The null hypothesis in each pairwise comparison is that the probability of observing a random value in the first group that is larger than a random value in the second group equals one half" (Dinno 2015). The results from the Dunn's attached in the appendix A.2 found that there

was significantly different between the following paired communities with p <= alpha/2 where alpha =0.5. when it comes to the three general goals categories responses, Economic vs. Environmental quality preference (ECENnG), Economic vs. Social (ECSGS) and Environmental vs. Social (ENSSGS). Comparing, Cochise community to Beaver(p=0.0088*), Carbon, UT community to Cache, UT (p=0.0025*), Cochise, UT and both Cache, UT, to Cibola with a (p=0.0000*), Cochise, UT to Garfield also had a significant difference with (p=0.0218*), Grand, UT community to Cache, UT (p=0.0002)and Cibola (p=0.0029*). Greenlee community to Cache, UT, and Cibola with p values of 0.0003 and 0.0089 respectively. Same with Juab UT to Cochise (p=0.0000) , Millard to both Cache and Cibola with (p=0.0000), Piute to both Cache and Cibola also different with (p=0.0006 and 0.0189) respectively , San Juan to Cochise (p=0.0000), Sanpete to Cochise (p=0.0000), Sevier to Cochise (p=0.0132), Wayne to Cache p=0.0234), Grand UT to Graham (p=0.0000),Millard to Grand UT and Juab UT (p=0.0000)(p=0.0002),Piute UT to Grand (p=0.0001), San Juan to Graham and Greenlee (p=0.0056 ,p=0.0146) ,Sanpete and Graham (p=0.0214), San Juan to Millard (p=0.0000), Sanpete to Millard (p=0.0001). the rest of the paired communities for ECENnG responses were not significantly different. For ECSGS, Cochise community to Grand, UT community to Cochise, UT (p=0.0000), San Juan to Cochise (p=0.0000), Silver B to Cochise (p=0.0070), Washington to Cache (p=0.0173), Sanpete to Cochise (p=0.0000), Grand UT to Graham (p=0.0003), Juab, UT to Graham (p=0.0097), Millard to Grand UT and Juab UT (p=0.0000)(p=0.0002), San Juan to Graham (p=0.0036), Washington to Grand and Juab (p=0.0000), San Juan to Millard (p=0.0002), Sanpete to Millard (p=0.0001), Mohave, AZ to Millard (p=0.0079), Washington to Mohave, AZ and San Juan (p=0.0010), p=0.0000), Silver Bow to Washington (p=0.0023). The rest of the paired communities for ECSGS responses were not significantly different.

Finally, for ENSSGS, Comparing, Millard community to Beaver(p=0.0002), Piute UT to Beaver (p=0.0094), San Juan, UT to Beaver also had a significant difference with (p=0.0151*), Millard community to Cibola and Cochise with p values of 0.0045 and 0.0000 respectively. Piute to Cochise also different with (p=0.0013), San Juan to Cochise (p=0.0013),Sevier to Cochise (p=0.0028), Washington to Cache and Carbon (p=0.0091 , p= 0.0000),Millard to Grand UT and Graham UT (p=0.0073)(p=0.0015), Washington to Grand and Juab (p=0.0010), p=0.0000), Washington to Piute UT, Millard, San Juan and Sanpete (p=0.0000),p=0.0000, p=0.0000,p=0.0002), Wayne UT to Millard (p=0.0018), and Washington to Sevier, Silver Bow and Valley (p=0.0000,p=0.0001 and p=0.0024). with the rest of the paired communities for ENSSGS responses were not significantly different.

Also, a further breakdown into the responses of individuals across the twenty-eight communities shows a skewness to the right, with over 50% of respondents showing a preference for Environmental and social quality goals compared with economic quality. There is also an average consensus of respondents showing strong concern for all TBL measures with an average of over 39% choosing all goals is equally Impotent

Table 4.4. Cross-Tabulation of selected variables and TBL

Communities	ECENnGS						ECSGS						ENSSGS					
	ALL EQI	ECONG SI	ECOG EI	ENV SI	ENV EI	Total	ALL EQI	ECONG SI	ECOG EXI	SOC SI	SOC EXI	Total	ALL EQI	ENVG SI	EVNG EXI	SOC SI	SOC EI	Total
Cochise, AZ	79	5	6	54	143	287	67	9	3	63	140	282	88	11	12	49	100	260
	27.53	1.74	2.09	18.82	49.83	100.00	23.76	3.19	1.06	22.34	49.65	100.00	33.85	4.23	4.62	18.85	38.46	100.00
Graham, AZ	34	4	2	30	51	121	27	1	3	34	57	122	34	4	6	21	36	101
	28.10	3.31	1.65	24.79	42.15	100.00	22.13	0.82	2.46	27.87	46.72	100.00	33.66	3.96	5.94	20.79	35.64	100.00
Greenlee, AZ	26	0	2	19	34	81	32	0	1	23	28	84	24	5	7	16	23	75
	32.10	0.00	2.47	23.46	41.98	100.00	38.10	0.00	1.19	27.38	33.33	100.00	32.00	6.67	9.33	21.33	30.67	100.00
Mohave,AZ	19	7	1	25	14	66	10	7	3	40	10	70	14	4	1	29	15	63
	28.79	10.61	1.52	37.88	21.21	100.00	14.29	10.00	4.29	57.14	14.29	100.00	22.22	6.35	1.59	46.03	23.81	100.00
Monterey,CA	6	1	0	10	2	19	4	0	1	15	2	22	5	3	1	10	3	22
	31.58	5.26	0.00	52.63	10.53	100.00	18.18	0.00	4.55	68.18	9.09	100.00	22.73	13.64	4.55	45.45	13.64	100.00
Valley, ID	25	4	7	16	23	75	24	6	5	17	31	83	22	12	15	17	31	97
	33.33	5.33	9.33	21.33	30.67	100.00	28.92	7.23	6.02	20.48	37.35	100.00	22.68	12.37	15.46	17.53	31.96	100.00
Beaverhead,MN	5	1	0	2	3	11	4	0	0	4	4	12	5	1	0	4	3	13
	45.45	9.09	0.00	18.18	27.27	100.00	33.33	0.00	0.00	33.33	33.33	100.00	38.46	7.69	0.00	30.77	23.08	100.00
Deer Lodge,MN	6	4	1	21	2	34	5	6	1	25	8	45	6	8	1	18	11	44
	17.65	11.76	2.94	61.76	5.88	100.00	11.11	13.33	2.22	55.56	17.78	100.00	13.64	18.18	2.27	40.91	25.00	100.00
Granite,MN	7	5	1	9	2	24	7	3	0	12	2	24	5	2	0	11	6	24
	29.17	20.83	4.17	37.50	8.33	100.00	29.17	12.50	0.00	50.00	8.33	100.00	20.83	8.33	0.00	45.83	25.00	100.00
Madison,MN	4	4	0	14	2	24	7	1	1	16	4	29	4	1	0	19	4	28
	16.67	16.67	0.00	58.33	8.33	100.00	24.14	3.45	3.45	55.17	13.79	100.00	14.29	3.57	0.00	67.86	14.29	100.00
Powell,MN	9	0	0	6	7	22	4	1	0	12	4	21	5	1	1	12	4	23
	40.91	0.00	0.00	27.27	31.82	100.00	19.05	4.76	0.00	57.14	19.05	100.00	21.74	4.35	4.35	52.17	17.39	100.00
Silver Bow,MN	8	2	0	23	11	44	6	3	1	28	2	40	7	8	2	13	0	30

	18.18	4.55	0.00	52.27	25.00	100.00	15.00	7.50	2.50	70.00	5.00	100.00	23.33	26.67	6.67	43.33	0.00	100.00
Lander,NV	7	4	0	24	3	38	2	5	3	25	8	43	6	6	1	24	13	50
	18.42	10.53	0.00	63.16	7.89	100.00	4.65	11.63	6.98	58.14	18.60	100.00	12.00	12.00	2.00	48.00	26.00	100.00
White Pine,NV	15	1	1	7	8	32	8	1	1	17	5	32	12	4	1	9	5	31
	46.88	3.13	3.13	21.88	25.00	100.00	25.00	3.13	3.13	53.13	15.63	100.00	38.71	12.90	3.23	29.03	16.13	100.00
Cibola, NM	50	7	15	17	28	117	28	7	5	27	51	118	36	7	9	27	38	117
	42.74	5.98	12.82	14.53	23.93	100.00	23.73	5.93	4.24	22.88	43.22	100.00	30.77	5.98	7.69	23.08	32.48	100.00
Beaver, UT	31	5	12	10	31	89	21	0	7	18	42	88	22	5	9	14	39	89
	34.83	5.62	13.48	11.24	34.83	100.00	23.86	0.00	7.95	20.45	47.73	100.00	24.72	5.62	10.11	15.73	43.82	100.00
Cache, UT	14	4	10	2	8	38	12	3	6	5	13	39	12	6	6	5	9	38
	36.84	10.53	26.32	5.26	21.05	100.00	30.77	7.69	15.38	12.82	33.33	100.00	31.58	15.79	15.79	13.16	23.68	100.00
Carbon, UT	75	1	3	27	60	166	62	0	4	36	64	166	65	3	11	23	39	141
	45.18	0.60	1.81	16.27	36.14	100.00	37.35	0.00	2.41	21.69	38.55	100.00	46.10	2.13	7.80	16.31	27.66	100.00
Emery, UT	13	0	1	7	11	32	12	0	0	9	11	32	14	1	1	3	8	27
	40.63	0.00	3.13	21.88	34.38	100.00	37.50	0.00	0.00	28.13	34.38	100.00	51.85	3.70	3.70	11.11	29.63	100.00
Garfield, UT	19	4	9	8	18	58	16	6	4	11	19	56	15	3	9	13	17	57
	32.76	6.90	15.52	13.79	31.03	100.00	28.57	10.71	7.14	19.64	33.93	100.00	26.32	5.26	15.79	22.81	29.82	100.00
Grand, UT	54	18	37	15	43	167	47	18	18	36	47	166	45	13	16	39	53	166
	32.34	10.78	22.16	8.98	25.75	100.00	28.31	10.84	10.84	21.69	28.31	100.00	27.11	7.83	9.64	23.49	31.93	100.00
Juab, UT	80	18	26	45	73	242	67	15	27	55	79	243	70	32	29	43	67	241
	33.06	7.44	10.74	18.60	30.17	100.00	27.57	6.17	11.11	22.63	32.51	100.00	29.05	13.28	12.03	17.84	27.80	100.00
Millard, UT	29	6	12	54	89	190	22	7	10	50	97	186	24	32	51	30	44	181
	15.26	3.16	6.32	28.42	46.84	100.00	11.83	3.76	5.38	26.88	52.15	100.00	13.26	17.68	28.18	16.57	24.31	100.00
Piute, UT	16	7	4	16	36	79	24	3	3	22	26	78	20	14	15	12	15	76
	20.25	8.86	5.06	20.25	45.57	100.00	30.77	3.85	3.85	28.21	33.33	100.00	26.32	18.42	19.74	15.79	19.74	100.00
San Juan, UT	25	7	26	20	28	106	25	5	20	26	30	106	27	17	20	17	23	104
	23.58	6.60	24.53	18.87	26.42	100.00	23.58	4.72	18.87	24.53	28.30	100.00	25.96	16.35	19.23	16.35	22.12	100.00
Sanpete, UT	29	17	27	45	40	158	22	21	9	49	56	157	27	24	21	39	45	156

	18.35	10.76	17.09	28.48	25.32	100.00	14.01	13.38	5.73	31.21	35.67	100.00	17.31	15.38	13.46	25.00	28.85	100.00
Sevier, UT	52	9	12	48	51	172	36	9	6	51	67	169	41	26	29	33	43	172
	30.23	5.23	6.98	27.91	29.65	100.00	21.30	5.33	3.55	30.18	39.64	100.00	23.84	15.12	16.86	19.19	25.00	100.00
Washington, UT	44	2	12	25	41	124	23	1	7	38	75	144	31	2	6	26	77	142
	35.48	1.61	9.68	20.16	33.06	100.00	15.97	0.69	4.86	26.39	52.08	100.00	21.83	1.41	4.23	18.31	54.23	100.00
Wayne,UT	32	2	12	15	43	104	34	6	4	22	43	109	36	8	4	14	41	103
	30.77	1.92	11.54	14.42	41.35	100.00	31.19	5.50	3.67	20.18	39.45	100.00	34.95	7.77	3.88	13.59	39.81	100.00
Total	813	149	239	614	905	2720	658	144	153	786	1025	2766	722	263	284	590	812	2671
	29.89	5.48	8.79	22.57	33.27	100.00	23.79	5.21	5.53	28.42	37.06	100.00	27.03	9.85	10.63	22.09	30.40	100.00

Age Demographics	ECENnGS						ENSSGS						ECSGS					
	ALL EQI	ECO NG SI	ECO G EI	ENV SI	ENV EI	Total	ALL EQI	ENV G SI	EVN G EXI	SO C SI	SOC EI	Total	ALL EQI	ECO NG SI	ECO G EXI	SOC SI	SOC EXI	Total
<10 years	174	41	63	108	167	553	144	44	53	124	205	570	135	47	43	153	207	585
	31.46	7.41	11.39	19.53	30.20	100.00	25.26	7.72	9.30	21.75	35.96	100.00	23.08	8.03	7.35	26.15	35.38	100.00
10-19 years	144	25	46	112	138	465	128	50	46	97	149	470	115	29	36	139	152	471
	30.97	5.38	9.89	24.09	29.68	100.00	27.23	10.64	9.79	20.64	31.70	100.00	24.42	6.16	7.64	29.51	32.27	100.00
20-29 years	148	25	41	113	154	481	127	50	44	105	142	468	115	19	21	129	195	479
	30.77	5.20	8.52	23.49	32.02	100.00	27.14	10.68	9.40	22.44	30.34	100.00	24.01	3.97	4.38	26.93	40.71	100.00
30 - 39 years	116	17	32	83	171	419	116	53	58	86	99	412	97	12	23	123	178	433
	27.68	4.06	7.64	19.81	40.81	100.00	28.16	12.86	14.08	20.87	24.03	100.00	22.40	2.77	5.31	28.41	41.11	100.00
540-49 years	81	11	21	55	97	265	73	18	21	49	82	243	74	13	9	60	108	264
	30.57	4.15	7.92	20.75	36.60	100.00	30.04	7.41	8.64	20.16	33.74	100.00	28.03	4.92	3.41	22.73	40.91	100.00
>50	83	10	19	54	105	271	74	19	40	37	76	246	65	8	9	53	125	260

	30.63	3.69	7.01	19.93	38.75	100.00	30.08	7.72	16.26	15.04	30.89	100.00	25.00	3.08	3.46	20.38	48.08	100.00
Total	746	129	222	525	832	2454	662	234	262	498	753	2409	601	128	141	657	965	2492
	30.40	5.26	9.05	21.39	33.90	100.00	27.48	9.71	10.88	20.67	31.26	100.00	24.12	5.14	5.66	26.36	38.72	100.00

HH Income	ECSGS						ENSSGS						ECENnGS					
	ALL EQI	ECO NG SI	ECO G EXI	SOC SI	SOC EXI	Total	ALL EQI	ENV G SI	EVN G EXI	SO C SI	SOC EI	Total	ALL EQI	ECO NG SI	ECO G EI	ENV SI	ENV EI	Total
< $15,000	33	6	9	27	44	119	37	11	5	21	42	116	41	5	9	26	34	115
	27.73	5.04	7.56	22.69	36.97	100.00	31.90	9.48	4.31	18.10	36.21	100.00	35.65	4.35	7.83	22.61	29.57	100.00
$15,000-$24,999	43	8	10	35	55	151	41	13	14	28	50	146	51	5	14	30	49	149
	28.48	5.30	6.62	23.18	36.42	100.00	28.08	8.90	9.59	19.18	34.25	100.00	34.23	3.36	9.40	20.13	32.89	100.00
$25,000-$34,999	57	13	19	36	71	196	54	13	21	39	58	185	67	10	16	26	75	194
	29.08	6.63	9.69	18.37	36.22	100.00	29.19	7.03	11.35	21.08	31.35	100.00	34.54	5.15	8.25	13.40	38.66	100.00
$35,000-$49,999	102	24	21	81	131	359	121	25	23	59	119	347	110	23	49	58	115	355
	28.41	6.69	5.85	22.56	36.49	100.00	34.87	7.20	6.63	17.00	34.29	100.00	30.99	6.48	13.80	16.34	32.39	100.00
$50,000-$74,999	121	23	29	126	195	494	131	48	61	95	142	477	156	24	49	96	164	489
	24.49	4.66	5.87	25.51	39.47	100.00	27.46	10.06	12.79	19.92	29.77	100.00	31.90	4.91	10.02	19.63	33.54	100.00
$75,000-$99,999	101	25	20	119	161	426	101	53	53	86	123	416	127	18	34	102	142	423
	23.71	5.87	4.69	27.93	37.79	100.00	24.28	12.74	12.74	20.67	29.57	100.00	30.02	4.26	8.04	24.11	33.57	100.00
$100,000-$149,999	71	10	14	97	183	375	89	41	58	60	108	356	89	16	27	84	162	378
	18.93	2.67	3.73	25.87	48.80	100.00	25.00	11.52	16.29	16.85	30.34	100.00	23.54	4.23	7.14	22.22	42.86	100.00
$150,000-$199,999	22	2	6	26	33	89	25	10	9	16	24	84	26	8	7	15	30	86
	24.72	2.25	6.74	29.21	37.08	100.00	29.76	11.90	10.71	19.05	28.57	100.00	30.23	9.30	8.14	17.44	34.88	100.00

>$200,000	8	0	1	13	30	52	10	1	4	15	23	53	19	1	6	8	17	51
	15.38	0.00	1.92	25.00	57.69	100.00	18.87	1.89	7.55	28.30	43.40	100.00	37.25	1.96	11.76	15.69	33.33	100.00
Total	558	111	129	560	903	2261	609	215	248	419	689	2180	686	110	211	445	788	2240
Residency Duration(years)	ECENnGS						ENSSGS						ECSGS					
	ALL EQI	ECO NG SI	ECO G EI	ENV SI	ENV EI	Total	ALL EQI	ENV G SI	EVN G EXI	SO C SI	SOC EI	Total	ALL EQI	ECO NG SI	ECO G EXI	SOC SI	SOC EXI	Total
<35	97	33	27	115	141	413	114	51	40	83	95	383	115	33	30	92	139	409
	23.49	7.99	6.54	27.85	34.14	100.00	29.77	13.32	10.44	21.67	24.80	100.00	28.12	8.07	7.33	22.49	33.99	100.00
35 - 49	172	38	36	195	296	737	186	87	91	147	188	699	197	36	52	173	279	737
	23.34	5.16	4.88	26.46	40.16	100.00	26.61	12.45	13.02	21.03	26.90	100.00	26.73	4.88	7.06	23.47	37.86	100.00
50-59	132	15	19	124	214	504	137	35	53	88	180	493	171	18	45	99	166	499
	26.19	2.98	3.77	24.60	42.46	100.00	27.79	7.10	10.75	17.85	36.51	100.00	34.27	3.61	9.02	19.84	33.27	100.00
60-89	182	31	49	143	276	681	200	47	73	116	241	677	228	31	85	101	222	667
	26.73	4.55	7.20	21.00	40.53	100.00	29.54	6.94	10.78	17.13	35.60	100.00	34.18	4.65	12.74	15.14	33.28	100.00
Total	583	117	131	577	927	2335	637	220	257	434	704	2252	711	118	212	465	806	2312
	24.97	5.01	5.61	24.71	39.70	100.00	28.29	9.77	11.41	19.27	31.26	100.00	30.75	5.10	9.17	20.11	34.86	100.00

While these results have implications for urban and rural level economic development policy relating sustainable development policies of communities, they open up broader questions surrounding the factors that affect a communities cohesion and sustainable development efforts and even though these elements may not depend on the length of residency in the community or the average home value causally in this study, my analysis of the data sample suggests that responses are cohesive among respondents living in communities with fordable housing, as presented in (Table 4.5.), over 70% of responses across all TBL categories live in communities with an average home value of $150,000. This is suggestive of relationships between community cohesion and home value, although the direction of the relationship is unclear. Further research is required to conclude. This framework, like others, discussed previously, has its limitations. First, the survey it was not clear who showed up for these surveys whether there are specific focus groups with a particular interest in the subject matter.

Chapter 6: Conclusions

The analysis presented in this study has introduced a conceptual framework for Triple Bottom Line (TBL). TBL is a framework is a theory recommending organizations to commit the same weight of focus to social and environmental concerns the same way they do on profit for optimal sustainability outcomes. The analysis observed scientifically strong cohesion in the attitude and goals preferences of individuals in every given community studied. It was further observed that, when individuals were given the opportunity to choose what kind of sustainable development measure matters to them most, a significant portion are cohesive in their response in favor of all the three sustainability measures rating it among very important and equally important implying that most communities are cohesive in about TBL measure of sustainability. What this means is that, according to the analysis, most communities view all three bottom lines to some extent either equally important or extremely important. This is significant because it allows communities and stakeholders to focus on goals that the community feels strongly connected to and issues that are of grave concern to the majority of its residents. It also helps communities set tailored suitable sustainable development goals and policies.

This work contributes to the growing literature on TBL in economics in two main ways. First, most developmental economics research on community development and sustainability focuses gravely on single aspects either economic development, social welfare development sustainability, or environmental sustainability, whereas this research analyzes how these three factors can be measured in one when developing sustainability goals allowing for a more comprehensive solution to sustainability measure. Secondly, the analyses in this studies help simplify the complex nature of measurement TBL is critiqued for, allowing for unique adaptation by individual communities taking into consideration their unique characteristics when it comes to social ,economic and environmental goals that is important to them keeping in mind that no two communities are alike and allowing for better aggregation across the three measures. This is shown by analysis of how different communities respond to the goal's statements differently in a way that is unique to what is important to each community taking into account the unique characteristics of each community. The implication of a successful implementation of TBL measures aims to more accurately value assets and leverage resources, so that resources are employed as efficiently and effectively as possible for communities.

The results of this analysis have implications for sustainable community development on a micro level. As recent research on sustainable development has indicated that sustainability is an effective mechanism for sustainability measure is important as Community cohesion is illustrative of the phenomenon of 'decentered' governance and policy making (Bevir and Rhodes2003), it is therefore important for community sustainability because it fosters social integration as when implemented and practiced well. My

research shows that individuals in various communities are concerned about the overall sustainability of the communities and finds that they rate all three bottom lines as extremely important if not equally important or important when it comes to the development and welfare of the community. It tells a story of a strong bond and cohesiveness when it comes to what induvial perceive as important for their community. That being said, there is still a lot of areas requiring further research and limitation to this study: Further research on the outcomes and implications of communities who use TBL approach in measuring its sustainable agenda is needed to show how the adaptation of this approach could be highly effective and beneficial. Others include how the TBL approach to measuring sustainability can be influenced by external constraints such as factors that are not social, environmental, and economical. Also, it was not clear who showed up for these surveys whether there are specific focus groups with particular interest in the subject matter and the data used in conducting this research was based on survey questions about community perception and preferences about communities goals statements, this could be further expanded by analyzing overall community goal setting outcomes over a given time allowing researchers to study not only study how to measure sustainability but also test the outcomes of weather the sustainability measures made a significant impact on the communities and how each community behaves based on these outcomes. This presents an exciting application a new approach in developmental economics with hopes of further expanding this framework and personalized applications across all fields of economics.

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Appendix A: Supplementary Tables

Table A.1. Variable descriptions

ECENnG			ECSGS			ENSSGS		
CommunityCat	Obs	Rank Sum	CommunityCat	Obs	Rank Sum	CommunityCat	Obs	Rank Sum
Cochise, AZ	287	473076	Cochise, AZ	282	456009.5	Cochise, AZ	260	388096
Graham, AZ	121	189152	Graham, AZ	122	194084.5	Graham, AZ	101	148032
Greenlee, AZ	81	128395	Greenlee, AZ	84	114199	Greenlee, AZ	75	102510
Mohave,AZ	66	84971	Mohave,AZ	70	81127	Mohave,AZ	63	90147.5
Monterey,CA	19	24378.5	Monterey,CA	22	25758	Monterey,CA	22	27283
Valley, ID	75	98976.5	Valley, ID	83	108427	Valley, ID	97	125761.5
Beaverhead, MN	11	14458	Beaverhead, MN	12	17448	Beaverhead, MN	13	18288.5
Deer Lodge,MN	34	39649	Deer Lodge,MN	45	53208.5	Deer Lodge,MN	44	61731.5
Granite,MN	24	24565.5	Granite,MN	24	24796	Granite,MN	24	34920.5
Madison,MN	24	29310.5	Madison,MN	29	33427.5	Madison,MN	28	40760.5
Powell,MN	22	32083	Powell,MN	21	27313	Powell,MN	23	32658.5
Silver Bow,MN	44	64509.5	Silver Bow,MN	40	42565.5	Silver Bow,MN	30	28986.5
Lander,NV	38	48854	Lander,NV	43	53159.5	Lander,NV	50	73506
White Pine,NV	32	40189	White Pine,NV	32	37067.5	White Pine,NV	31	37685
Cibola, NM	117	132077.5	Cibola, NM	118	173142	Cibola, NM	117	166798
Beaver, UT	89	112588.5	Beaver, UT	88	135338	Beaver, UT	89	136129
Cache, UT	38	32525.5	Cache, UT	39	43837.5	Cache, UT	38	42889
Carbon, UT	166	242841	Carbon, UT	166	236791	Carbon, UT	141	188035.5
Emery, UT	32	46164	Emery, UT	32	45808.5	Emery, UT	27	37022
Garfield, UT	58	70612.5	Garfield, UT	56	68533	Garfield, UT	57	75152.5
Grand, UT	167	173774	Grand, UT	166	188391.5	Grand, UT	166	229142.5
Juab, UT	242	304666.5	Juab, UT	243	299932.5	Juab, UT	241	300679

Millard, UT	190	309163.5	Millard, UT	186	300388	Millard, UT	181	188632.5
Piute, UT	79	123912.5	Piute, UT	78	105775	Piute, UT	76	79397
San Juan, UT	106	120042	San Juan, UT	106	120905	San Juan, UT	104	113745.5
Sanpete, UT	158	189802	Sanpete, UT	157	209619	Sanpete, UT	156	202828
Sevier, UT	172	232341	Sevier, UT	169	242382.5	Sevier, UT	172	200704
Washington, UT	124	169732.5	Washington, UT	144	242579	Washington, UT	142	246498.5
Wayne,UT	104	147749.5	Wayne,UT	109	144748	Wayne,UT	103	150436
chi-squared = 171.117 with 28 d.f. probability = 0.0001 chi-squared with ties = 176.768 with 28 d.f. probability = 0.0001			chi-squared = 144.788 with 28 d.f. probability = 0.0001 chi-squared with ties = 147.831 with 28 d.f. probability = 0.0001			chi-squared = 136.975 with 28 d.f. probability = 0.0001 chi-squared with ties = 140.339 with 28 d.f. probability = 0.0001		

The table presents a Kruskal-Wallis H test conducted to the variance in preference across 28 communities for the TBL measures. The test is used to analyze if there is any statistically significant differences within the individual groups , as shown, the variance the p values for all three elements is 0.0001 with a chi-squared with ties of 176.768 , 147.831 and 140.339 respectively for the dependent variables ECENnG, ECSGS and ENSSGS, indicating a very high probability statistically significant difference between responses of more than two communities.

Table A.2. Dunn's Test Output : Variance in Preference within groups : **ECENnG, ECSGS and ENSSGS**

Comparison of x by group
(Bonferroni)

Col Mean- Row Mean	Granit	Powell	Lander,	Madison	White P	Bever,
Powell	-1.906253 1.0000					
Lander,	-1.300812 1.0000	0.834225 1.0000				
Madison	-0.886365 1.0000	1.039370 1.0000	0.319462 1.0000			
White P	-1.113563 1.0000	0.945851 1.0000	0.160339 1.0000	-0.165998 1.0000		
Beaver,	-1.358733 1.0000	1.050573 1.0000	0.137526 1.0000	-0.246275 1.0000	-0.057344 1.0000	
Beaverhe	-1.033621 1.0000	0.504514 1.0000	-0.108606 1.0000	-0.330888 1.0000	-0.216458 1.0000	-0.199732 1.0000
Cache, U	0.832043 1.0000	2.910035 0.7336	2.424023 1.0000	1.813393 1.0000	2.157469 1.0000	2.732229 1.0000
Carbon,	-2.603611 1.0000	-0.026121 1.0000	-1.275714 1.0000	-1.431941 1.0000	-1.387541 1.0000	-1.949083 1.0000
Cibola,	-0.608184 1.0000	1.834782 1.0000	1.086582 1.0000	0.533671 1.0000	0.824153 1.0000	1.252964 1.0000
Cochise,	-3.805353 0.0287	-1.111714 1.0000	-2.719293 1.0000	-2.601180 1.0000	-2.725170 1.0000	-4.088730 0.0088*
Deer Lod	-0.692151 1.0000	1.381947 1.0000	0.655049 1.0000	0.267588 1.0000	0.471648 1.0000	0.634806 1.0000
Emery, U	-2.008457 1.0000	0.073332 1.0000	-0.846830 1.0000	-1.060893 1.0000	-0.966596 1.0000	-1.115019 1.0000
Garfield	-1.033892 1.0000	1.244929 1.0000	0.422756 1.0000	0.020336 1.0000	0.225971 1.0000	0.364917 1.0000
Graham,	-3.125688 0.3601	-0.585865 1.0000	-1.932036 1.0000	-1.980606 1.0000	-2.000917 1.0000	-2.763653 1.0000
Grand, U	-0.100786 1.0000	2.383735 1.0000	1.764648 1.0000	1.071326 1.0000	1.444227 1.0000	2.213611 1.0000
Greenlee	-3.127142 0.3583	-0.682605 1.0000	-1.971256 1.0000	-2.026172 1.0000	-2.040601 1.0000	-2.697581 1.0000
Juab, UT	-1.423501 1.0000	1.158683 1.0000	0.197874 1.0000	-0.227876 1.0000	-0.020958 1.0000	0.063544 1.0000
Millard,	-3.606052 0.0631	-0.970374 1.0000	-2.487402 1.0000	-2.424922 1.0000	-2.514563 1.0000	-3.648715 0.0535
Mohave,A	-1.432699	0.898312	-0.011489	-0.359257	-0.189451	-0.178462

	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Monterey	-1.093730	0.724143	0.011757	-0.260489	-0.121421	-0.092381
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	-3.025900	-0.591590	-1.854443	-1.928101	-1.930733	-2.540807
	0.5032	1.0000	1.0000	1.0000	1.0000	1.0000
San Juan	-0.623517	1.799988	1.048348	0.508385	0.791995	1.193343
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Sanpete,	-1.049838	1.461844	0.604213	0.118102	0.364701	0.622624
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Sevier,	-1.943696	0.614432	-0.470665	-0.769436	-0.638042	-0.850206
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Silver B	-2.257093	-0.038693	-1.054799	-1.248769	-1.171017	-1.412127
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Valley,	-1.634142	0.739972	-0.221341	-0.543101	-0.390929	-0.451201
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-2.003614	0.500729	-0.580571	-0.856232	-0.736938	-0.966696
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wayne,UT	-2.269451	0.207636	-0.921962	-1.139552	-1.054815	-1.394828
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Beaverhe	Cache, U	Carbon,	Cibola,	Cochise,	Deer Lod
Cache, U	1.732845					
	1.0000					
Carbon,	-0.617428	-4.368080				
	1.0000	0.0025*				
Cibola,	0.761230	-1.891789	3.581266			
	1.0000	1.0000	0.0694			
Cochise,	-1.406867	-5.940741	-2.461342	-6.129289		
	1.0000	0.0000*	1.0000	0.0000*		
Deer Lod	0.552998	-1.700678	2.040174	-0.247634	3.440754	
	1.0000	1.0000	1.0000	1.0000	0.1178	
Emery, U	-0.474930	-3.164640	0.135894	-2.035477	1.428570	-1.452781
	1.0000	0.3152	1.0000	1.0000	1.0000	1.0000
Garfield	0.381361	-2.241832	2.082514	-0.713948	3.873563	-0.307437
	1.0000	1.0000	1.0000	1.0000	0.0218*	1.0000
Graham,	-1.022780	-4.922551	-1.086391	-4.335672	1.016190	-2.647618
	1.0000	0.0002*	1.0000	0.0029*	1.0000	1.0000
Grand, U	1.138352	-1.329442	4.987056	0.947922	8.082002	0.863837
	1.0000	1.0000	0.0001*	1.0000	0.0000*	1.0000
Greenlee	-1.090502	-4.799526	-1.167101	-4.085156	0.650347	-2.653505
	1.0000	0.0003*	1.0000	0.0089*	1.0000	1.0000
Juab, UT	0.232615	-2.989114	2.619041	-1.495126	5.774436	-0.655787

	1.0000	0.5680	1.0000	1.0000	0.0000*	1.0000
Millard,	-1.305439	-5.616803	-2.001172	-5.487776	0.292967	-3.204188
	1.0000	0.0000*	1.0000	0.0000*	1.0000	0.2750
Mohave,A	0.106995	-2.742397	1.560461	-1.333100	3.421532	-0.743604
	1.0000	1.0000	1.0000	1.0000	0.1264	1.0000
Monterey	0.106866	-1.967449	0.960897	-0.806889	1.995573	-0.528334
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	-1.022055	-4.671350	-1.792614	-3.907311	0.813221	-2.538820
	1.0000	0.0006*	1.0000	0.0189*	1.0000	1.0000
San Juan	0.743134	-1.892844	3.439489	-0.034785	5.874094	0.221125
	1.0000	1.0000	0.1183	1.0000	0.0000*	1.0000
Sanpete,	0.469336	-2.473670	3.046329	-0.768345	5.840665	-0.240497
	1.0000	1.0000	0.4703	1.0000	0.0000*	1.0000
Sevier,	-0.151706	-3.573127	1.333143	-2.396983	3.993236	-1.273415
	1.0000	0.0716	1.0000	1.0000	0.0132*	1.0000
Silver B	-0.582639	-3.565941	-0.024633	-2.468114	1.456648	-1.700220
	1.0000	0.0736	1.0000	1.0000	1.0000	1.0000
Valley,	-0.021337	-3.014163	1.332139	-1.669522	3.279924	-0.961113
	1.0000	0.5231	1.0000	1.0000	0.2108	1.0000
Washingt	-0.223980	-3.579769	1.025872	-2.409354	3.366425	-1.354860
	1.0000	0.0698	1.0000	1.0000	0.1546	1.0000
Wayne,UT	-0.433923	-3.855721	0.437018	-2.802187	2.574493	-1.667392
	1.0000	0.0234*	1.0000	1.0000	1.0000	1.0000

Col Mean-Row Mean	Emery, U	Garfield	Graham,	Grand, U	Greenlee	Juab, UT
Garfield	1.323341					
	1.0000					
Graham,	-0.785270	-2.802082				
	1.0000	1.0000				
Grand, U	2.696480	1.502074	5.666113			
	1.0000	1.0000	0.0000*			
Greenlee	-0.883254	-2.766308	-0.197278	-5.204972		
	1.0000	1.0000	1.0000	0.0000*		
Juab, UT	1.263714	-0.367333	3.536943	-2.809529	3.288452	
	1.0000	1.0000	0.0822	1.0000	0.2045	
Millard,	-1.249941	-3.534669	-0.711437	-7.157317	-0.410135	-4.916452
	1.0000	0.0829	1.0000	0.0000*	1.0000	0.0002*
Mohave,A	0.932358	-0.503224	2.332576	-2.197502	2.323318	-0.265489
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Monterey	0.712935	-0.321286	1.469298	-1.296332	1.533513	-0.131055
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	-0.777512	-2.627487	-0.047178	-5.003733	0.135951	-3.091798

	1.0000	1.0000	1.0000	0.0001*	1.0000	0.4039
San Juan	1.990041	0.673419	4.190573	-0.957821	3.969503	1.405377
	1.0000	1.0000	0.0056*	1.0000	0.0146*	1.0000
Sanpete,	1.611258	0.136379	3.877738	-1.874133	3.635174	0.729766
	1.0000	1.0000	0.0214*	1.0000	0.0564	1.0000
Sevier,	0.617147	-1.136701	2.316944	-3.696080	2.250209	-1.192147
	1.0000	1.0000	1.0000	0.0444	1.0000	1.0000
Silver B	-0.130906	-1.609747	0.713935	-3.250151	0.822342	-1.635989
	1.0000	1.0000	1.0000	0.2341	1.0000	1.0000
Valley,	0.753526	-0.756647	2.144796	-2.598815	2.143726	-0.594756
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	0.481795	-1.231343	1.969152	-3.583616	1.959549	-1.287380
	1.0000	1.0000	1.0000	0.0688	1.0000	1.0000
Wayne,UT	0.140568	-1.604791	1.379900	-3.938144	1.436210	-1.784991
	1.0000	1.0000	1.0000	0.0167*	1.0000	1.0000

Col Mean- Row Mean	Millard,	Mohave,A	Monterey	Piute, U	San Juan	Sanpete,
Mohave,A	3.077293					
	0.4240					
Monterey	1.850798	0.021675				
	1.0000	1.0000				
Piute, U	0.567127	-2.181315	-1.445705			
	1.0000	1.0000	1.0000			
San Juan	5.281134	1.279084	0.782380	3.796691		
	0.0000*	1.0000	1.0000	0.0298		
Sanpete,	5.119393	0.760823	0.435985	3.449120	-0.709264	
	0.0001*	1.0000	1.0000	0.1142	1.0000	
Sevier,	3.398238	-0.566499	-0.362637	2.072919	-2.288450	-1.756282
	0.1377	1.0000	1.0000	1.0000	1.0000	1.0000
Silver B	1.245824	-1.188198	-0.862959	0.704420	-2.407833	-2.010809
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Valley,	2.918181	-0.247276	-0.184464	1.997454	-1.605765	-1.092849
	0.7147	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	2.896378	-0.691151	-0.450357	1.795380	-2.312236	-1.807215
	0.7663	1.0000	1.0000	1.0000	1.0000	1.0000
Wayne,UT	2.191059	-1.095619	-0.713712	1.282055	-2.702378	-2.248579
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Sevier,	Silver B	Valley,	Washingt
Silver B	-0.883303			
	1.0000			
Valley,	0.291183	0.998011		
	1.0000	1.0000		

```
         |
Washingt |  -0.197640   0.717724  -0.434614
         |     1.0000     1.0000     1.0000
         |
Wayne,UT |  -0.727747   0.327120  -0.862701  -0.504744
         |     1.0000     1.0000     1.0000     1.0000

alpha = 0.05
Reject Ho if p <= alpha/2

data: x and group
Kruskal-Wallis chi-squared = 147.8311, df = 28, p-value = 0


                          Comparison of x by group
                                (Bonferroni)
Col Mean-|
Row Mean |     Granit     Powell    Lander,    Madison    White P   Beaver,
---------+------------------------------------------------------------------
  Powell |  -1.132485
         |     1.0000
         |
 Lander, |  -1.008535   0.305837
         |     1.0000     1.0000
         |
 Madison |  -0.547939   0.653289   0.440174
         |     1.0000     1.0000     1.0000
         |
 White P |  -0.586600   0.640922   0.422219  -0.028065
         |     1.0000     1.0000     1.0000     1.0000
         |
Beaver,  |  -2.773347  -1.236334  -2.051355  -2.276552  -2.326469
         |     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Beaverhe |  -1.506024  -0.536280  -0.843808  -1.110743  -1.105046   0.345092
         |     1.0000     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Cache, U |  -0.443173   0.825441   0.642157   0.147752   0.182059   2.722308
         |     1.0000     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Carbon,  |  -2.278596  -0.687406  -1.406264  -1.721129  -1.756944   1.069676
         |     1.0000     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Cibola,  |  -2.453057  -0.890470  -1.641050  -1.920711  -1.961234   0.634446
         |     1.0000     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Cochise, |  -3.474371  -1.770009  -2.942909  -3.012980  -3.111260  -0.819871
         |     0.1039     1.0000     0.6600     0.5252     0.3782     1.0000
         |
Deer Lod |  -0.747072   0.565936   0.319530  -0.158011  -0.131601   2.454503
         |     1.0000     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Emery, U |  -1.866497  -0.589728  -1.058138  -1.376087  -1.382445   0.652244
         |     1.0000     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Garfield |  -0.988641   0.379825   0.077775  -0.393387  -0.373659   2.325081
         |     1.0000     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Graham,  |  -3.159940  -1.554361  -2.529732  -2.683639  -2.755210  -0.478792
         |     0.3203     1.0000     1.0000     1.0000     1.0000     1.0000
         |
Grand, U |  -0.589351   0.905362   0.749617   0.111799   0.153816   3.867294
```

	1.0000	1.0000	1.0000	1.0000	1.0000	0.0223*
Greenlee	-1.783970	-0.305417	-0.831603	-1.215094	-1.225146	1.479916
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Juab, UT	-1.189303	0.368969	0.015121	-0.525628	-0.510865	3.087940
	1.0000	1.0000	1.0000	1.0000	1.0000	0.4091
Millard,	-3.394064	-1.727823	-2.831850	-2.929901	-3.018871	-0.753553
	0.1398	1.0000	0.9395	0.6883	0.5150	1.0000
Mohave,A	-0.672845	0.720390	0.504845	-0.036007	-0.003544	2.993980
	1.0000	1.0000	1.0000	1.0000	1.0000	0.5590
Monterey	-0.590059	0.538321	0.315915	-0.081204	-0.056917	1.948650
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	-1.750366	-0.285482	-0.798184	-1.183366	-1.191725	1.479469
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
San Juan	-0.601390	0.847566	0.669383	0.072808	0.111319	3.485855
	1.0000	1.0000	1.0000	1.0000	1.0000	0.0996
Sanpete,	-1.743332	-0.188049	-0.726906	-1.142314	-1.153286	1.926673
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Sevier,	-2.326189	-0.730549	-1.466354	-1.772280	-1.810425	0.998252
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Silver B	-0.151766	1.110322	0.991422	0.459299	0.502652	3.143642
	1.0000	1.0000	1.0000	1.0000	1.0000	0.3387
Valley,	-1.491361	-0.029681	-0.471923	-0.901394	-0.899859	1.914983
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-3.738208	-2.079739	-3.263992	-3.306491	-3.406762	-1.371265
	0.0376	1.0000	0.2230	0.1918	0.1334	1.0000
Wayne,UT	-1.654217	-0.145175	-0.644247	-1.061473	-1.067312	1.853756
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Beaverhe	Cache, U	Carbon,	Cibola,	Cochise,	Deer Lod
Cache, U	1.264672					
	1.0000					
Carbon,	0.116601	-2.150242				
	1.0000	1.0000				
Cibola,	-0.055559	-2.351430	-0.429279			
	1.0000	1.0000	1.0000			
Cochise,	-0.699926	-3.651260	-2.465169	-1.728140		
	1.0000	0.0530	1.0000	1.0000		
Deer Lod	1.057665	-0.337586	1.837208	2.057376	3.425843	
	1.0000	1.0000	1.0000	1.0000	0.1244	
Emery, U	0.084042	-1.631052	-0.033185	0.227196	1.258484	-1.362995
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Garfield	0.915600	-0.605229	1.659172	1.898624	3.401006	-0.261600

	1.0000	1.0000	1.0000	1.0000	0.1363	1.0000
Graham,	-0.572348	-3.210879	-1.744331	-1.210710	0.305890	-2.963050
	1.0000	0.2686	1.0000	1.0000	1.0000	0.6184
Grand, U	1.350684	-0.077147	3.360847	3.492975	6.236107	0.357763
	1.0000	1.0000	0.1577	0.0970	0.0000*	1.0000
Greenlee	0.387390	-1.537582	0.632536	0.955373	2.621504	-1.212965
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Juab, UT	0.940048	-0.808673	2.414567	2.627552	5.532954	-0.404465
	1.0000	1.0000	1.0000	1.0000	0.0000*	1.0000
Millard,	-0.683893	-3.527057	-2.234157	-1.587711	0.027669	-3.294566
	1.0000	0.0853	1.0000	1.0000	1.0000	0.2001
Mohave,A	1.194798	-0.221107	2.374866	2.586003	4.340477	0.155310
	1.0000	1.0000	1.0000	1.0000	0.0029*	1.0000
Monterey	0.998400	-0.221979	1.425546	1.615365	2.550594	0.056383
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	0.399504	-1.497089	0.648517	0.964277	2.580953	-1.173881
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
San Juan	1.301847	-0.111976	2.908843	3.088767	5.291130	0.297236
	1.0000	1.0000	0.7364	0.4080	0.0000*	1.0000
Sanpete,	0.502068	-1.492962	1.037636	1.372385	3.581932	-1.142918
	1.0000	1.0000	1.0000	1.0000	0.0692	1.0000
Sevier,	0.083788	-2.209181	-0.089897	0.348983	2.378074	-1.899257
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Silver B	1.498674	0.336790	2.602633	2.788079	4.140606	0.688639
	1.0000	1.0000	1.0000	1.0000	0.0070*	1.0000
Valley,	0.604895	-1.188177	1.130374	1.421560	3.148061	-0.847076
	1.0000	1.0000	1.0000	1.0000	0.3336	1.0000
Washingt	-0.970960	-3.928891	-2.867879	-2.213864	-0.834102	-3.720320
	1.0000	0.0173*	0.8389	1.0000	1.0000	0.0404
Wayne,UT	0.524306	-1.382807	1.010795	1.327087	3.243112	-1.039333
	1.0000	1.0000	1.0000	1.0000	0.2400	1.0000

Col Mean- Row Mean	Emery, U	Garfield	Graham,	Grand, U	Greenlee	Juab, UT
Garfield	1.185950					
	1.0000					
Graham,	-1.015076	-2.877197				
	1.0000	0.8145				
Grand, U	1.943946	0.727987	4.837813			
	1.0000	1.0000	0.0003*			
Greenlee	0.438548	-0.995298	2.064535	-2.122538		
	1.0000	1.0000	1.0000	1.0000		
Juab, UT	1.326941	-0.089509	4.065875	-1.249009	1.251773	

	1.0000	1.0000	0.0097*	1.0000	1.0000	
Millard,	-1.212980	-3.247153	-0.262085	-5.689165	-2.458915	-4.944129
	1.0000	0.2366	1.0000	0.0000*	1.0000	0.0002*
Mohave,A	1.616071	0.457636	3.644500	-0.213685	1.567972	0.702655
	1.0000	1.0000	0.0544	1.0000	1.0000	1.0000
Monterey	1.190976	0.266434	2.294436	-0.200362	0.996856	0.360703
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	0.454593	-0.955609	2.048924	-2.038782	0.027536	-1.184188
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
San Juan	1.824789	0.637146	4.290320	-0.058257	1.895989	1.018246
	1.0000	1.0000	0.0036*	1.0000	1.0000	1.0000
Sanpete,	0.628608	-0.905145	2.680659	-2.276057	0.227991	-1.246323
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Sevier,	-0.017722	-1.726610	1.668238	-3.465760	-0.708017	-2.525479
	1.0000	1.0000	1.0000	0.1073	1.0000	1.0000
Silver B	1.959878	0.975838	3.657703	0.508230	1.945398	1.261698
	1.0000	1.0000	0.0517	1.0000	1.0000	1.0000
Valley,	0.761078	-0.603945	2.529951	-1.613746	0.434613	-0.717133
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-1.638331	-3.701895	-0.963671	-6.107276	-2.995711	-5.417446
	1.0000	0.0434	1.0000	0.0000*	0.5558	0.0000*
Wayne,UT	0.651651	-0.801571	2.523734	-1.981542	0.274935	-1.028104
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Millard,	Mohave,A	Monterey	Piute, U	San Juan	Sanpete,
Mohave,A	4.114887					
	0.0079*					
Monterey	2.492662	-0.061399				
	1.0000	1.0000				
Piute, U	2.428343	-1.514959	-0.971056			
	1.0000	1.0000	1.0000			
San Juan	4.931939	0.150700	0.163122	1.827546		
	0.0002*	1.0000	1.0000	1.0000		
Sanpete,	3.266934	-1.551166	-0.913357	0.191228	-1.957988	
	0.2207	1.0000	1.0000	1.0000	1.0000	
Sevier,	2.152270	-2.450257	-1.470371	-0.722131	-2.998244	-1.130767
	1.0000	1.0000	1.0000	1.0000	0.5512	1.0000
Silver B	3.998931	0.605282	0.508520	1.899438	0.521443	1.936054
	0.0129*	1.0000	1.0000	1.0000	1.0000	1.0000
Valley,	2.958342	-1.149195	-0.715108	0.399079	-1.430722	0.268537
	0.6279	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-0.793207	-4.564273	-2.839712	-2.956288	-5.377875	-3.831571

	1.0000	0.0010*	0.9166	0.6321	0.0000*	0.0258
Wayne,UT	3.010626	-1.396096	-0.850681	0.239955	-1.737712	0.072962
	0.5292	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Sevier,	Silver B	Valley,	Washingt
Silver B	2.662999			
	1.0000			
Valley,	1.207024	-1.592168		
	1.0000	1.0000		
Washingt	-2.793155	-4.392162	-3.472457	
	1.0000	0.0023*	0.1047	
Wayne,UT	1.094337	-1.805695	-0.187720	3.553927
	1.0000	1.0000	1.0000	0.0770

Kruskal-Wallis chi-squared = 140.3388, df = 28, p-value = 0

Col Mean- Row Mean	Granit	Powell	Lander,	Madison	White P	Beaver,
Powell	0.157818					
	1.0000					
Lander,	-0.079805	-0.261436				
	1.0000	1.0000				
Madison	-0.003356	-0.166959	0.080004			
	1.0000	1.0000	1.0000			
White P	1.155549	0.974311	1.461072	1.208665		
	1.0000	1.0000	1.0000	1.0000		
Beaver,	-0.425235	-0.615009	-0.441269	-0.447077	-1.975477	
	1.0000	1.0000	1.0000	1.0000	1.0000	
Beaverhe	0.183757	0.049654	0.266918	0.191332	-0.759333	0.542533
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cache, U	1.642880	1.447106	2.082483	1.723648	0.471745	2.715216
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Carbon,	0.721810	0.503982	1.088742	0.774875	-0.780352	1.899760
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cibola,	0.172184	-0.032737	0.345656	0.187834	-1.364337	0.969700
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cochise,	-0.231671	-0.438881	-0.191723	-0.243795	-1.913613	0.393963
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Deer Lod	0.269124	0.086442	0.426261	0.286359	-1.048621	0.901288
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Emery, U	0.392224	0.225494	0.543718	0.411415	-0.775522	0.945977
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Garfield	0.736571	0.539134	1.027285	0.780687	-0.604723	1.633033
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Graham,	-0.061512	-0.259779	0.033827	-0.061031	-1.598195	0.576660
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Grand, U	0.448624	0.233360	0.730161	0.484118	-1.105049	1.490195
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Greenlee	0.493734	0.292593	0.742760	0.527051	-0.929146	1.362698
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Juab, UT	1.271694	1.036262	1.879142	1.368012	-0.220020	2.983035
	1.0000	1.0000	1.0000	1.0000	1.0000	0.5794
Millard,	2.494401	2.239829	3.515737	2.672951	1.171377	4.941007
	1.0000	1.0000	0.0890	1.0000	1.0000	0.0002*
Mohave,A	0.131911	-0.059143	0.271698	0.143424	-1.287861	0.786214
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Monterey	0.955535	0.791331	1.179860	0.993228	-0.115310	1.595333
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	2.300076	2.069487	3.066413	2.440345	1.052841	4.074399
	1.0000	1.0000	0.4398	1.0000	1.0000	0.0094*
San Juan	2.094140	1.858247	2.870845	2.231779	0.782122	3.961469
	1.0000	1.0000	0.8310	1.0000	1.0000	0.0151*
Sanpete,	0.926877	0.703716	1.372505	0.994748	-0.564233	2.266184
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Sevier,	1.735579	1.495968	2.477179	1.860380	0.328002	3.645330
	1.0000	1.0000	1.0000	1.0000	1.0000	0.0542
Silver B	2.342652	2.148702	2.863857	2.445094	1.278280	3.502216
	1.0000	1.0000	0.8496	1.0000	1.0000	0.0937
Valley,	0.912558	0.698496	1.308849	0.974128	-0.514430	2.083713
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-1.670423	-1.845082	-2.121350	-1.778395	-3.444496	-2.003429
	1.0000	1.0000	1.0000	1.0000	0.1161	1.0000
Wayne,UT	-0.031980	-0.231111	0.072922	-0.029631	-1.569050	0.625731
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Beaverhe	Cache, U	Carbon,	Cibola,	Cochise,	Deer Lod
Cache, U	1.136215					
	1.0000					
Carbon,	0.331565	-1.471560				
	1.0000	1.0000				
Cibola,	-0.084475	-2.087513	-0.965978			
	1.0000	1.0000	1.0000			
Cochise,	-0.396568	-2.751046	-1.996528	-0.790552		
	1.0000	1.0000	1.0000	1.0000		
Deer Lod	0.015878	-1.625882	-0.527515	0.167994	0.722130	
	1.0000	1.0000	1.0000	1.0000	1.0000	

Emery, U	0.138500	-1.264681	-0.234924	0.334661	0.788638	0.170748
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Garfield	0.377254	-1.189551	0.126437	0.870739	1.563421	0.552821
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Graham,	-0.262163	-2.324264	-1.329834	-0.386916	0.302398	-0.455406
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Grand, U	0.120453	-1.837171	-0.536245	0.491984	1.483613	0.175031
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Greenlee	0.174786	-1.569722	-0.305035	0.521952	1.260505	0.250126
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Juab, UT	0.733748	-0.894642	1.064040	2.073323	3.596896	1.243796
	1.0000	1.0000	1.0000	1.0000	0.0654	1.0000
Millard,	1.666775	0.636173	3.405169	4.242702	6.108198	2.817530
	1.0000	1.0000	0.1342	0.0045*	0.0000*	0.9824
Mohave,A	-0.103859	-1.931426	-0.842954	-0.044420	0.577292	-0.186546
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Monterey	0.625336	-0.546162	0.535062	1.047647	1.492822	0.818583
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	1.583536	0.554657	2.664521	3.393641	4.509055	2.482460
	1.0000	1.0000	1.0000	0.1400	0.0013*	1.0000
San Juan	1.396958	0.242007	2.435778	3.232561	4.513325	2.257201
	1.0000	1.0000	1.0000	0.2491	0.0013*	1.0000
Sanpete,	0.484804	-1.244444	0.377326	1.346259	2.494771	0.790512
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Sevier,	1.094781	-0.279902	1.925947	2.833842	4.350654	1.834308
	1.0000	1.0000	1.0000	0.9336	0.0028*	1.0000
Silver B	1.741555	0.872966	2.398156	2.946431	3.583583	2.421193
	1.0000	1.0000	1.0000	0.6526	0.0688	1.0000
Valley,	0.490151	-1.151176	0.368883	1.234092	2.164049	0.768895
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-1.490657	-4.363838	-4.441559	-3.261714	-3.059390	-2.532518
	1.0000	0.0026*	0.0018*	0.2248	0.4502	1.0000
Wayne,UT	-0.239623	-2.295054	-1.285579	-0.339214	0.362251	-0.419443
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Emery, U	Garfield	Graham,	Grand, U	Greenlee	Juab, UT
Garfield	0.296183					
	1.0000					
Graham,	-0.572364	-1.166209				
	1.0000	1.0000				
Grand, U	-0.058135	-0.529315	0.887043			
	1.0000	1.0000	1.0000			

Greenlee	0.025645	-0.361033	0.851282	0.128075		
	1.0000	1.0000	1.0000	1.0000		
Juab, UT	0.799070	0.631225	2.414244	1.727387	1.182942	
	1.0000	1.0000	1.0000	1.0000	1.0000	
Millard,	2.093201	2.387630	4.475351	4.130627	3.102731	2.741745
	1.0000	1.0000	0.0015*	0.0073*	0.3892	1.0000
Mohave,A	-0.340807	-0.807368	0.284102	-0.448242	-0.492389	-1.700064
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Monterey	0.598869	0.409598	1.258118	0.811264	0.685664	0.044165
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Piute, U	1.912672	2.050708	3.638575	3.181127	2.597447	2.024615
	1.0000	1.0000	0.0557	0.2978	1.0000	1.0000
San Juan	1.686148	1.790029	3.494590	3.008668	2.366112	1.721969
	1.0000	1.0000	0.0964	0.5327	1.0000	1.0000
Sanpete,	0.447111	0.155066	1.700652	0.943952	0.622298	-0.671184
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Sevier,	1.295372	1.301765	3.128226	2.575411	1.896261	1.061763
	1.0000	1.0000	0.3570	1.0000	1.0000	1.0000
Silver B	2.003687	2.049702	3.152669	2.740048	2.433845	1.907804
	1.0000	1.0000	0.3284	1.0000	1.0000	1.0000
Valley,	0.450437	0.172660	1.561699	0.861296	0.599994	-0.533540
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-2.280056	-3.494239	-2.724943	-4.082260	-3.393894	-6.057880
	1.0000	0.0965	1.0000	0.0091*	0.1399	0.0000*
Wayne,UT	-0.542460	-1.129610	0.047985	-0.838873	-0.810559	-2.373851
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Col Mean- Row Mean	Millard,	Mohave,AZ	Monterey	Piute,UT	San Juan	Sanpete,
Mohave,A	-3.488045					
	0.0988					
Monterey	-1.150802	1.011114				
	1.0000	1.0000				
Piute,UT	-0.024283	2.975108	1.059546			
	1.0000	0.5946	1.0000			
San Juan	-0.549751	2.772219	0.818983	-0.426255		
	1.0000	1.0000	1.0000	1.0000		
Sanpete,	-3.099762	1.149476	-0.346043	-2.397116	-2.140713	
	0.3932	1.0000	1.0000	1.0000	1.0000	
Sevier,	-1.537231	2.353183	0.424621	-1.164317	-0.773222	1.582375
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Silver B	0.505708	2.749552	1.280846	0.477728	0.807429	2.198711
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Valley,	-2.652919	1.090201	-0.313332	-2.157502	-1.885748	0.037244
	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Washingt	-8.122323	-2.644416	-2.839985	-6.383146	-6.530793	-4.930771
	0.0000*	1.0000	0.9158	0.0000*	0.0000*	0.0002*
Wayne,UT	-4.449059	-0.243155	-1.231698	-3.609402	-3.463592	-1.657837
	0.0018*	1.0000	1.0000	0.0623	0.1082	1.0000

Col Mean-Row Mean	Sevier,	Silver B	Valley,	Washington
Silver B	1.331155			
	1.0000			
Valley,	-1.339897	-2.075144		
	1.0000	1.0000		
Washingt	-6.586817	-5.027580	-4.378137	
	0.0000*	0.0001*	0.0024*	
Wayne,UT	-3.093604	-3.127313	-1.521686	2.792454
	0.4014	0.3581	1.0000	1.0000

alpha = 0.05
Reject Ho if p <= alpha/2