

ABSTRACT

The Impact of Technology, Talent, and Tolerance on Community Satisfaction

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This dissertation examines the roles that technology, talent, and tolerance play in community satisfaction. After an introductory chapter, chapter two begins with an examination of the concept of community satisfaction and its reliability in a world of quantitative measures, such as GDP. Through a study of multi-group confirmatory analysis, the study analyzes the invariance of the factor structure of overall community satisfaction. Chapter Three and Four focus on the concept of community satisfaction integrated into the framework of Richard Florida's 3Ts – technology, talent, and tolerance. Through a multi-level statistical approach, the effect of the 3Ts is assessed on domains of community satisfaction. The final chapter briefly reviews the findings of the quantitative chapters as well as the importance of continued research in this area.

The Impact of Technology, Talent, and Tolerance on Community Satisfaction

by

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CHAPTER ONE

Introduction

Overview

Historical Context for the Study of Community in Sociology

As scholars began studying and understanding the period of transition in the 19th century, they found themselves observing their community. With the publication of *Gemeinschaft und Gesellschaft*, Ferdinand Tönnies (1887) laid the groundwork for what some deem the very foundation for the discipline of sociology (Sampson 2012). Usually translated as *Community and Society*, this work took a comparative approach to understand the modernizing efforts of 19th century society and its rural community origins. Ferdinand Tönnies discusses this relationship aspect of community on a continuum. On one end, is *gemeinschaft*, the simple structure, local, and town based society, focused primarily on holistic, immediate relationships. It is in essence the community. On the other end of the continuum is *gesellschaft*, the more complex, industrial society, more rational in its operations and less concerned with familial relations and more on associational relationships. It is in essence the society. While at opposite ends of the spectrum, Tönnies concluded that European societies were leaving behind their *gemeinschaft* origins and were becoming more *gesellschaft*-like. This decline of the traditional community, both in physical make-up and social relationships, is due to the overwhelming advancement of urbanization and industrialization that

became the guiding problem for other scholars at the cusp of sociology: Emile Durkheim, Georg Simmel, and Max Weber.

Utilizing the concept of the continuum, Weber (1921) describes a society that due to industrialization is becoming more rational as a whole from its structural planning down to the individual relationships. Emile Durkheim (1983) elaborates on the individual relationship aspect of community, again on a continuum, through his discussions of mechanical and organic solidarity. Mechanical solidarity is in reference to the more natural holistic relationships developed at a more local level. It is more *gemeinschaft*-like in nature characterized by a more homogenous, simple society. Organic solidarity is in reference to the more forced relations due to the complex nature of the industrialized society. It is more *gesellschaft*-like in nature characterized by a diverse population dependent on external forces to support and hold the society from chaos. Georg Simmel (1936) began the discussion of the unique relationships that exist specifically within this new urban, *gesellschaft* community. By focusing mainly on these experiences, as well as the beliefs and attitudes of the individuals of the community, a greater picture was developed of life within the urban community.

Louis Wirth (1938) extended this study of the urban community determining that the urban setting was characterized by population size, density of the community, and the overall ethnic heterogeneity of the population, all characteristics of a *gesellschaft*-like community. Famously asserting that these defining elements of urban communities would inevitably make social interactions “anonymous” and “superficial,” Wirth unknowingly tapped into fears expressed decades later.

The growth of the ecological approach to community, out of the Chicago School of Thought, had many benefits to the study of community, but also proved to be detrimental in a few key aspects. Robert Park (1936) defined community in three parts: (1) Territorially specific (2) Rooted in the soil (3) Individuals are interdependent upon each other within the space. George Hillery (1955) updated the definition to (1) Common Place, (2) Common Ties, and (3) Social Interactions. While these definitions gave much needed clarity to the ambiguous term of community, it was not enough to unite the discipline. Just as scholars continually found exceptions to Burgess's Concentric Zone theory (1925), scholars also found communities that did not fit the mold. Scholars began to use more tangible measures of the physical community such as Census Tracts or other precisely defined measurements, "Many ecologists even suggested dropping the nebulous, philosophical term 'community' and substituting more neutral or specific concepts such as place, neighborhood, suburb, region, tract, or metropolitan area," (Lyon and Driskell 2011:12).

Does Community, Conceptualized as Place, Matter?

Community and Sociology have been intertwined from the beginning, but the foundations of the relationship are crumbling under the effects of modernization. America is in the midst of another transformation curiosity of the increased mobility and advancements in technology are evident in all aspects of society. Community is no longer the physical location where one spends their life cultivating friends and growing a family. Americans are more mobile than ever. They do not rely upon their neighbors for advice and the whimsical cup of sugar. The argument is not simply if community matters. The abstract construction of community will allow it to continue to flourish.

Instead, the question becomes one of physical place or the roots of the community. We are left to question: Does place truly matter in contemporary society?

As early as the 1960s, scholars began to doubt the relevance of the physical community. Stein's *The Eclipse of Community* (1960) reviewed several holistic studies inspired by Park's (1952) thesis on natural areas, Lynd's "Middletown" studies (1986), and Warner's "Yankee City" (1969). He concluded that the processes of industrialization, urbanization, and bureaucratization had dramatically and sufficiently changed the historical discourse leaving the localized community irrelevant. Even more critical to community was the emergence of the mass society. In Vidich and Bensman's *Small Town in Mass Society* (1968), their examination of the community, Springdale, revealed that the external mass society had more of an impact on individual lives than the local community. Robert Wuthnow states in *Civic Engagement in American Democracy* (1999), "Those with greater mobility could...more easily detach themselves from civic matters," suggesting that mobility plays a key role in the decline of civic engagement. Additionally, Robert Putnam (1996) cited mobility and suburbanization along with a list of other factors, including the changing role of women, the rise of the welfare state, and education, that influence the declines in civic engagement.

It could also be argued that the effects of mobility and technology are warranted as societies have changed from rural to urban, but the processes are also having an effect on small towns as well. As globalization began to impact rural towns with the replacement of locally orientated businesses with large nation-wide corporations and non-local markets, the local economic and demographic characteristics became of less importance to rural residents (Lyson and Falk 1993; Lyson and Tolbert 2010; Putnam

1995). In essence, the argument that residential place does not matter in our increasing mobile and technologically advanced society, is the dominant thesis in the community literature (Fischer 1982; Hampton and Wellman 2003; Oldenburg 1999; Wellman 2001).

Taking the community lost thesis a step further, in specific reference to community satisfaction, two articles have recently affected the literature. Looking into three dimensions of community attachment and localized ties, Guest and colleagues (2006:382) found weak evidence to support community contextual effects. While they argue that their study should not be read as supporting the notion that “neighborhood context is virtually irrelevant,” they ultimately conclude, that “characteristics of communities have minimal direct impacts on the lives of residents.” This is a relatively inflammatory declaration, given that they do find a relationship between residential stability and all three of their dimensions. Additionally, Flaherty and Brown (Flaherty and Brown 2010:535) offer a similar sentiment in their study of small towns in Iowa, finding that “(t)here is nothing about a given community...that compels or repels attachments. Instead, an individual, by living in a particular community...becomes attached through his or her own experiences. This phenomenon happens in all communities to virtually the same extent.”

The impact of this “flat” world view critically impairs researchers’ ability to place importance back on the community (Friedman 2005). However, the concept of the physical location of community is making resurgence. Take the understanding of community through the lens of Robert Sampson, “inequality among neighborhoods in life chances has increased in salience and may have been exacerbated by globalization...the concept of community more generally also thrives despite the global turn” (2012:21). In

fact, there are vibrant small towns in existence. We see large firms leaving the rural scene, giving control back to the locals and local small businesses. Typically, as society moves into a global economic development, rural communities are left with little choice and must adjust the process or risk being left out completely (Lyson and Tolbert 2010). The traditional way of thinking would conclude that just because these small towns have less to offer big corporation, they are often at a disadvantage. However, resilient, thriving communities do exist and have the civically engaged community to thank for it (T. Blanchard, Tolbert, and Mencken 2012; Lyson and Tolbert 2010; Tolbert et al. 2002a; Tolbert, Lyson, and Irwin 1998).

Growth of the Community through Community Satisfaction

If I am to conclude that local community matters in our global society, I must also examine the importance of the civic engagement and the civil society perspective. Civic engagement, as defined in Putnam's *Bowling Alone* thesis, refers primarily to how community residents and community institutions, such as the government, interact. More frequently, civic engagement seeks to determine the frequency and the quality of these interactions. Recent research in this area has found that successful small towns have several characteristics, including small firms with local ownership, regional trade associations, social associations, and local church involvement (Irwin et al. 2004; Irwin, Tolbert, and Lyson 1997, 1999). These characteristics work to bind the residents to their place or community, "These communities have civic foundation that perpetuate community-oriented institutions amenable to community problem-solving efforts and that create cultural attachment to locality," (Lyson and Tolbert 2010:228). They also enhance the level of social capital among residents, contribute to rising levels of civic welfare and

socioeconomic well-being, revitalize rural landscapes, improve environmental quality, and promote long-term sustainability (Berry 1996; Brown and Swanson 2010; Green 2013). These areas with small manufacturing, retail shops, service establishments, and family farms are associated with high county population stability (non-migration), higher income levels, less income inequality, and lower unemployment (Tolbert et al. 2002b). Communities dominated by one or more large national or multinational firms are vulnerable to greater inequality, lower levels of well-being and higher rates of social disruption than localities where the economy is more diverse (Tolbert et al. 2002b). While the presence of these characteristics has been proven to raise the quality of well-being among residents, it does not take into account the quality or appreciation of the amenities. Could the presence of better shops or more socially responsible family farms increase the quality of life even more?

The concept of satisfaction has received much attention from community scholars because of the determination that solely relying on objective indicators, such as economic growth, are inadequate to accurately reflect the nature of the impact of social change (Campbell 1971; Campbell, Converse, and Rodgers 1976; Gitter and Mostofsky 1973) and they do not reflect the viewpoints of the individuals they supposedly represent (Marans and Rodgers 1975). Overall community satisfaction benefits the individual as well as the community. Theodori (2001) found considerable support for the idea that community satisfaction is positively associated with greater individual well-being. This suggests that when the resident expressed greater satisfaction with their community, they were more likely to express greater individual well-being.

Additionally, high levels of community satisfaction and attachment have proven to lower the desire to move away from the community (Fernandez and Dillman 1979; Schulze, Artis, and Beegle 1963; Stinner and Van Loon 1992). Satisfaction and attachment have also been linked to spending on goods and services in the community, having a beneficial impact on the community's growth (Cowell and Green 1994). Helliwell and Putnam (2004) find that measures of social capital, such as civic engagement and trust, are independently and robustly related to happiness and life satisfaction, both directly and through their impacts on health (T. C. Blanchard et al. 2012).

Overall, more research needs to be done in order to determine the beneficial nature of the subjective measure of community satisfaction. While the previous research has demonstrated the positive impact community satisfaction has on personal and community outcomes, scholars are still unable to agree upon a common measurement or even a common understanding of community satisfaction. Across the United States, we are witnessing a resurgence or regentrification of smaller urban and rural communities. Richard Florida has made a career working with city planners and local organizations to develop a plan for structural changes to attract a particular class of worker – the creative class. He asserts this class of worker is critical to the regentrification of a community and advises on changes to policy to ultimately affect the economic growth of the area. Unfortunately, this type of growth and regentrification in general is often unequal. By focusing on the subjective measure of community satisfaction, this dissertation aims to offer a plausible alternative for determining the health of a community.

Chapters

This dissertation examines the importance of community in terms of community satisfaction. First, in Chapter Two, the study will look at the varying definitions of community satisfaction and through invariance testing, come to a resolute measure of overall community satisfaction. Chapter Three will determine how individual and community-level characteristics affect levels of overall community satisfaction. The analysis will take a specific look at the contextual effects asserted in Florida's Creative Class hypothesis of talent, technology, and tolerance. Finally, in Chapter Four, this dissertation will continue the methodology from Chapter Three, but address two different domains of community satisfaction – infrastructure and social life.

The first data driven chapter seeks to provide clarity and continuity to the expansive literature that exists regarding community satisfaction. In the literature the concept of community satisfaction is expressed as well-being (Helliwell and Putnam 2004; Sirgy and Wu 2009), residential satisfaction (Fried 1982), quality of life (D'Acci 2013), livability (Ruth and Franklin 2014), perceived quality of services (Morton 2003), and neighborhood attachment (Greif 2009). This overwhelming amount of descriptors does not lend itself to qualifying community satisfaction as a reliable and reputable measure of community strength and resilience. Chapter Two will address this inconsistency by testing cross-sectional invariance of a measure of overall community satisfaction between two unique populations. This will demonstrate that an accurate measure of community satisfaction does exist and the literature and research should strive for consistency around the concept of community satisfaction.

Chapter Three will utilize the measure of overall community satisfaction tested and verified in Chapter Two, and introduce the explanatory factors of talent, technology, and tolerance. Using the work of Richard Florida and his hypothesis regarding the creative class, this chapter seeks to determine whether or not his findings are transferable to the more subjective measure of satisfaction. Chapter Four will continue this analysis by applying the explanatory factors of talent, technology, and tolerance to two specific domains of satisfaction.

Soul of the Community

This dissertation will examine the potential of developing a reliable measure of community strength through the measurement of satisfaction and satisfaction with surrounding amenities utilizing data from the Knight Soul of the Community (SOTC) studies. This fruitful data set includes three waves of data – 2008, 2009, and 2010 – geographically clustered in 26 of the John S. and James L. Knight Foundation communities across the United States. The geographical clusters are mapped out in Figure 1. The unique data set goes beyond the traditional, objective measures of economic growth to assess the role of community satisfaction. It aims to address the more subjective side of the connection between residents and their communities.

Gallup conducted the random and representative sample of at least 400 adults over the age of 18 in each of the 26 communities. The 15-minute telephone surveys were conducted in both English and Spanish with both landlines and cellphones targeted.

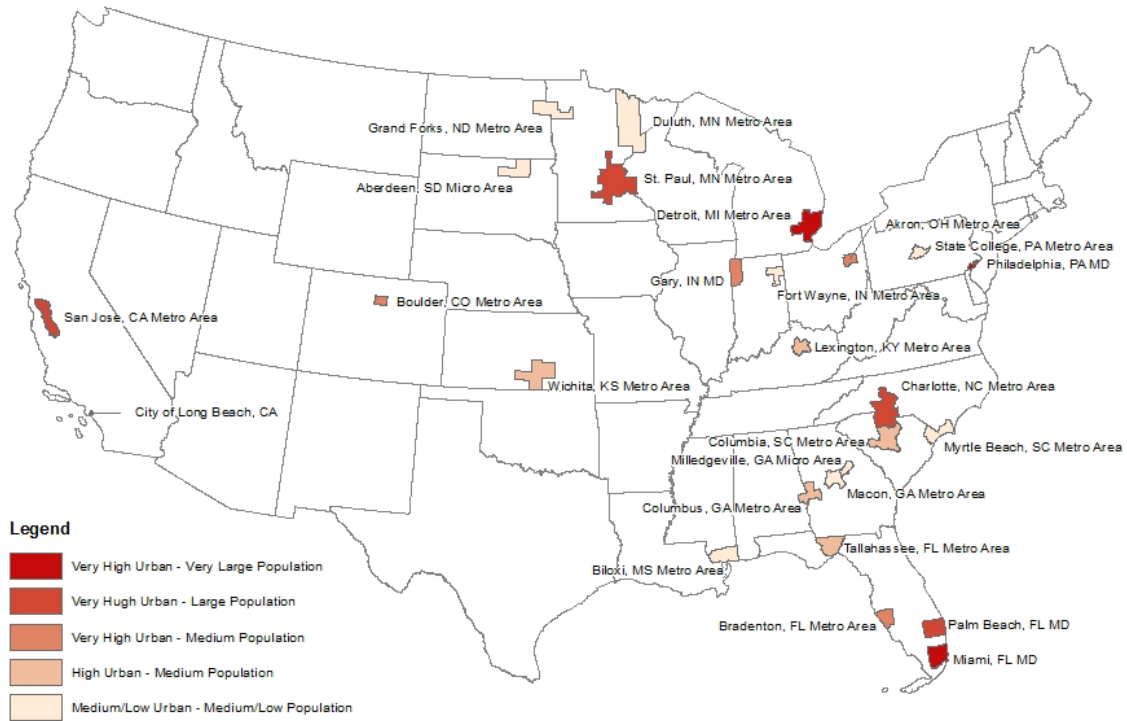


Figure 1. Geographic Definition and Location of the 26 Communities

Each wave of data was weighted by age, gender, race, and ethnicity to more accurately represent the real demographic composition of each community based on the US Census data. Gallup used governmental definitions, or Core Based Statistical Areas, to geographically confine each community. There were 21 Metropolitan Statistical Areas, 4 Metropolitan Divisions, and 1 area defined by the city limits. Community characteristics are denoted in Table 1.

Table 1
Descriptive Statistics for Each of the 26 Communities

Community Name	Urbanicity Classification	Population Size, 2010	Median HH Income, 2010 3-yr
Aberdeen, SD	Medium/Low Urban - Medium/Low Pop.	40,602	\$55,373
Akron, OH	Very High Urban - Medium Population	703,200	\$63,036
Biloxi, MS	Medium/Low Urban - Medium/Low Pop.	248,820	\$59,174
Boulder, CO	Very High Urban - Medium Population	294,567	\$89,944
Bradenton, FL	Very High Urban - Medium Population	702,281	\$65,636
Charlotte, NC	Very High Urban - Large Population	1,758,038	\$72,717
Columbia, SC	High Urban - Medium Population	767,598	\$62,437
Columbus, GA	High Urban - Medium Population	294,865	\$54,954
Detroit, MI	Very High Urban - Very Large Population	4,296,250	\$67,151
Duluth, MN	Medium/Low Urban - Medium/Low Pop.	279,771	\$56,722
Fort Wayne, IN	Medium/Low Urban - Medium/Low Pop.	416,257	\$61,511
Gary, IN	Very High Urban - Medium Population	708,070	\$62,392
Grand Forks, ND	Medium/Low Urban - Medium/Low Pop.	98,461	\$60,429
Lexington, KY	High Urban - Medium Population	472,099	\$65,255
Long Beach, CA	Very High Urban - Medium Population	462,257	\$72,613
Macon, GA	Medium/Low Urban - Medium/Low Pop.	232,293	\$55,724
Miami, FL	Very High Urban - Very Large Population	2,496,435	\$62,853
Milledgeville, GA	Medium/Low Urban - Medium/Low Pop.	55,149	\$45,787
Myrtle Beach, SC	Medium/Low Urban - Medium/Low Pop.	269,291	\$56,265
Palm Beach, FL	Very High Urban - Large Population	1,320,134	\$78,596
Philadelphia, PA	Very High Urban - Very Large Population	4,008,994	\$79,877
San Jose, CA	Very High Urban - Large Population	1,836,911	\$111,612
St. Paul, MN	Very High Urban - Large Population	3,279,833	\$82,191
State College, PA	Medium/Low Urban - Medium/Low Pop.	153,990	\$63,650
Tallahassee, FL	High Urban - Medium Population	367,413	\$59,365
Wichita, KS	High Urban - Medium Population	623,061	\$62,981

Data Source: Soul of the Community, 2010; US Census Bureau, American Community Survey 2010 3-year estimates

CHAPTER TWO

Factorial Structure of Perceived Community Satisfaction: A Test of Cross Sectional Invariance

With ever increasing geographical mobility, and the inevitable dependence on technology, the analysis of community satisfaction has become progressively more complex. Within the sociological literature, community satisfaction is measured in a myriad of forms and is conceptualized a variety of ways – well-being (Helliwell and Putnam 2004; Sirgy and Wu 2009), residential satisfaction (Fried 1982), quality of life (D'Acci 2013), livability (Ruth and Franklin 2014), perceived quality of services (Morton 2003), and neighborhood attachment (Greif 2009).

Adding to the confusion, the notion of satisfaction itself is fickle, and researchers fear it may not fully encompass a resident's appreciation or discontent with their place of residence (Campbell et al. 1976; Christakopoulou, Dawson, and Gari 2001; Sirgy et al. 2000; Sirgy and Cornwell, T. 2002). While there is a growing literature around community satisfaction, the subjective measure does not benefit from the same rigorous standards of its objective counterparts, such as gross domestic product. A few studies have begun to determine that even subjective indicators have a positive impact on researchers understanding of community development. For example, it is not the objective quality of the roadways, but how the residents perceive the roads that really matters (Cummins 2000; Diener and Suh 1997; Stiglitz, Sen, and Fitoussi 2009).

Even within the subjective community satisfaction literature there is little consistency. A majority of the research concerning community satisfaction relies upon a

single measure either through the use of one indicator or an index taking into account several indicators of *overall* satisfaction. Filkins, Allen, and Cordes (2000) use a single, “global” measure of satisfaction with community citing the unrest within the field as their theoretical explanation. Brown (1993) uses multiple separate measures of community satisfaction, community rating, community desirability, and satisfaction with community in their analysis of community satisfaction. Goudy (1977) and Karsarda and Janowitz (1974) use scales featuring numerous items about various aspects of community satisfaction in their analysis. The indicators vary depending on the survey instrument utilized and the availability of accompanying data. This complexity and often convoluted body of literature continues to grow leaving researchers with inconsistent methods of how to determine levels of community satisfaction and its impact on the surrounding area (Theodori 2001). This often leads to inconsistent predictors based on uncommon measures within the field leading to an incapability of direct comparison between studies (Bradburn and Noll 1969; Filkins et al. 2000; Marans and Rodgers 1975; Miller and Crader 1979; Theodori 2001). This study aims to address that inconsistency with a test of cross-sectional invariance of three community satisfaction factors between two unique populations to demonstrate that accurate measures of community satisfaction do exist and should be delineated via domains of community satisfaction.

Literature Review

Prior to the emergence of satisfaction as a measure of community well-being, scholars often relied upon objective measures, such as economic growth, to make determinations of community health and status (Barro 1991; Glaeser 2000; Lucas 1988). Subjective indicators can be very useful tools as “they capture experiences that are

important to residents, not to the experts” (Okulicz-Kozaryn 2013). Community satisfaction grew as an accepted measure because of its nature to accurately gauge the impact of social change in the vicinity (Campbell 1971; Campbell et al. 1976; Gitter and Mostofsky 1973), and its ability to truly reflect the viewpoints of the individuals represented (Marans and Rodgers 1975).

Community Satisfaction – A Long History of Domains

Delving into the rich history of the concept of community satisfaction shows, the original notion of community satisfaction as multi-dimensional tool that is comprised of various dimensions and understandings (attitudes versus behaviors). Vernon Davies (1945) sought to assess attitudes toward the community with the understanding that residents “are conscious of the community and react with varying degrees of satisfaction toward it” (Davies 1945). The resulting unidimensional scale was comprised of items from the 40-item questionnaire, each representing particular community characteristics. However, subsequent research notes that this organizational procedure had little theoretical support for the construction of the scale (Deseran 1978). Despite this downfall, it is used as the foundation for several future adaptations of community satisfaction.

Continuing the trend of satisfaction composing of several influencing factors, Schulze et al (1963) developed a study where satisfaction is operationalized as a Guttman scalogram of Davies’s original scale. Elsewhere, they conclude that, “the concept of community satisfaction can be thought of as a fairly broad concept, including a variety of sub-concepts such as satisfaction with physical community, satisfaction with social environment of the community, ethnocentrism, and other related factors” (Schulze

and Beegle 1963:279). Johnson and Knop (1970) attempted to lend more credibility to satisfaction through the use of factor analysis. They conclude that community satisfaction may be more complex than originally assumed. They continue to describe community satisfaction as multidimensional rather than unidimensional without getting into the contextual determinants of community satisfaction.

Despite the compelling history of a multidimensional nature of community satisfaction, a majority of recent studies and research revert to a single measure of community satisfaction. This single measure of community satisfaction typically refers to a respondent's overall community satisfaction. This is usually phrased in the survey instrument as, ““Taking everything into account, how satisfied are you with this community as a place to live?” As Fitz et al suggest (2014) researchers may not be measuring what they think they are measuring, leading to errors in their conclusions and applications of findings. Continued research in this area of satisfaction demands that a more nuanced approach be taken in order to fully comprehend the respondent's satisfaction.

Community Satisfaction – a Short History of Validity

Much of the attention has shifted away from the construction of community satisfaction and back towards its overall importance and purpose. In recent studies (Flaherty and Brown 2010; Guest et al. 2006), scholars call into question the very importance of the community and its impact on the individual, “There is nothing about a given community...that compels or repels attachment. Instead, an individual, by living in a particular community...becomes attached through his or her own experiences. This phenomenon happens in all communities to virtually the same extent” (Flaherty and

Brown 2010:535). This assertion calls into question of the practicality of assessing not only the community's impact on the individual, but also the validity of community satisfaction as an influential factor in a community's well-being.

While the theoretical backing of community satisfaction has varied greatly over the years, a few key characteristics remain consistent. Despite their surrounding environments, most residents report liking where they live or view their community in a positive light (Bayer et al. 1994; Campbell et al. 1976; Riffkin 2014). Unfortunately, while the environment and individual characteristics of community satisfaction have received lots of attention, measures and indexes created to explore community satisfaction are often not replicated in the literature, leaving no clear direction for the advancement in the study of community satisfaction.

Despite this large body of literature, few researchers in community sociology have put their measures of community under the microscope to determine their validity in the field. Even fewer have employed invariance tests to strengthen their arguments and the validity of their measures. Flaherty and colleagues (2014) recently analyzed the Sense of Community Index to determine its validity. The SCI is one of the more widely used indexes and was designed around McMillan and Chavis' (1986) four-part theoretical model of membership, needs fulfillment, emotional connection, and influence. It is meant to be applicable to multiple types of community including the traditional, location-based community (Chavis and Pretty 1999; Chiessi, Cicognani, and Sonn 2010), as well as the non-traditional virtual-based community (Obst and Stafurik 2010).

They test a series of factor structures, both from previous literature, and of their own creation, on a population of college students. Additionally, they test for

measurement invariance across waves of data (semesters in college). The researchers conclude that even though the SCI has been widely used and accepted as an appropriate tool for research, they find a limited level of invariance and poor fit throughout their models. This goes to show that even an established index and confirmed factors may not be as reliable as once thought. Flaherty and colleagues recommend moving forward with a new scale rather than “resuscitat[ing]” the old version (2014:948).

This chapter aims to demonstrate a statistical technique, seldom used in sociological community literature. Proposals to measure community satisfaction, like other subjective measures, have been challenged by those who doubt their reliability. The critiques often cite the ability of the survey instrument to capture valid measures of satisfaction (Marans and Rodgers 1975). By testing for statistical invariance with a nationwide survey instrument focused on community satisfaction, this study adds a critical statistical component to the literature. This tool allows for researchers to determine if the difference between two populations is an artifact of the survey instrument or with the population itself. This proves important as the inclusion of community satisfaction on surveys is narrowly interpreted while its popularity is increasing in the literature.

Methodology

Data Set

This study analyzes data two waves of data originating from the Knight Soul of the Community Survey, an annual study conducted by Gallup and the John S. and James L. Knight Foundation. Among other questions concerning the community, this survey also asks detailed questions about residents’ satisfaction with various aspects of their

community make this data set especially appropriate for this study. Data collection was conducted in twenty-six communities in the United States through a 15-minute telephone survey. Gallup interviewed a random, representative sample within each of the twenty-six communities selected.

Interviews were conducted in both English and Spanish and samples of landline and cell phone numbers were utilized. While this survey was conducted annually from 2008 to 2010, this study uses data from only the 2008 and 2010 waves of the survey which include 13,098 and 15,200 participants, respectively. The random sample consists of at least 400 respondents per community, ages 18 and older; eight communities have over 1000 respondents, sample sizes that yield reliable community contextual estimates. The data are weighted for representation and to closely mirror the demographic makeup of each community based on U.S. Census Bureau data.¹ Gallup also utilized U.S. Census classifications of the Metropolitan Statistical Area to determine the geographical confines of each community.²

Measures

The construct of overall satisfaction was derived theoretically and confirmed through confirmatory factor analysis. Reviewing the literature, historically the concept of community satisfaction was envisioned as multifaceted. For example, an individual's satisfaction with a steak dinner is not solely constructed by using the objective measure

¹ Similar methods were used by Neal and Neal (2012) in their analysis of the Soul of the Community survey.

² The only exception is the community of Long Beach, California. Instead, Gallup used city boundaries to determine the community area. For further information about this survey, see John S. and James L. Knight Foundation (2010).

of doneness or its nutritional value. It also includes the individual's existing attitudes towards red meat, the anticipation and expectation regarding the dinner, and even how hungry the individual feels. The same consideration can be given to community satisfaction. Previous studies show that the concept of overall satisfaction cannot solely be limited to a single measure (Fitz, Lyon, and Driskell 2015). Instead the multidimensional approach to overall satisfaction, used in this study, takes into account several factors and it requires an additive index combining several responses to the following questions: (1) "Taking everything into account, how satisfied are you with this community as a place to live?" (2) "How likely are you to recommend this community to a friend or associate as a place to live?" (3) "I am proud to say I live in this community." (4) "This community is the perfect place for people like me." Taking this approach allows for the most complete understanding of community satisfaction to be tested.

Confirmatory factor analysis is executed with the software, *R*, to fit cross-sectional models for each population in 2008 and 2010. The underlying factor emerged in both the 2008 and 2010 populations of respondents. Table 2.1 illustrates that the overall satisfaction factor is dimensionally invariant across groups meaning that the model for each group has the same number of factors per group.

Table 2.1
Factor Structure and Loadings for 2008 and 2010

Indicators	2008	2010
Overall Satisfaction	0.698	0.671
Recommend to Others	0.752	0.746
Proud of Community	0.834	0.847
Perfect Place for Me	0.834	0.849

Data Source: Soul of the Community, 2008 and 2010

While dimensional invariance is desirable, it is not the definitive test to prove quantitatively that the two groups are comparable (Gregorich 2006). Kasarda and Janowitz (1974:392) define community as “a complex system of friendship and kinship networks and formal and informal associational ties rooted in family like and on-going socialization processes.”

Instead of choosing the populations to vary by year of response, this study could have tested for invariance in other populations like differences by gender, age, or location. However, Kasarda and Janowitz (1974:330) continue to perceive the community as “an ongoing system of social networks into which new generations are new residents are assimilated,” making it inherently “a temporal process.” It is for this reason that this study tests the invariance across time periods. The individual’s length of residence within the community has the most opportunity for impacting satisfaction. By choosing the groups to vary by time, this study hopes to find invariance despite the impact of time on socialization and assimilation. Subsequently, throughout the remainder of the paper, Wave 1 will reference data collected in 2008 while Wave 3 will reference data collected in 2010.

Analytic Strategy: Testing for Invariance

Testing for invariance is a critical procedure in determining whether or not specific measures and factors are assessing the same criteria in different populations. It also allows researchers to determine the robustness of their measures across the same time period. Invariance testing is a multistep analysis that becomes more restrictive with each subsequent step (Bryant, Windle, and West 1997). While there are many ways to

test invariance, this study will follow the two criteria set forth by Byrne and Stewart (2006): the traditional perspective and the practical perspective.

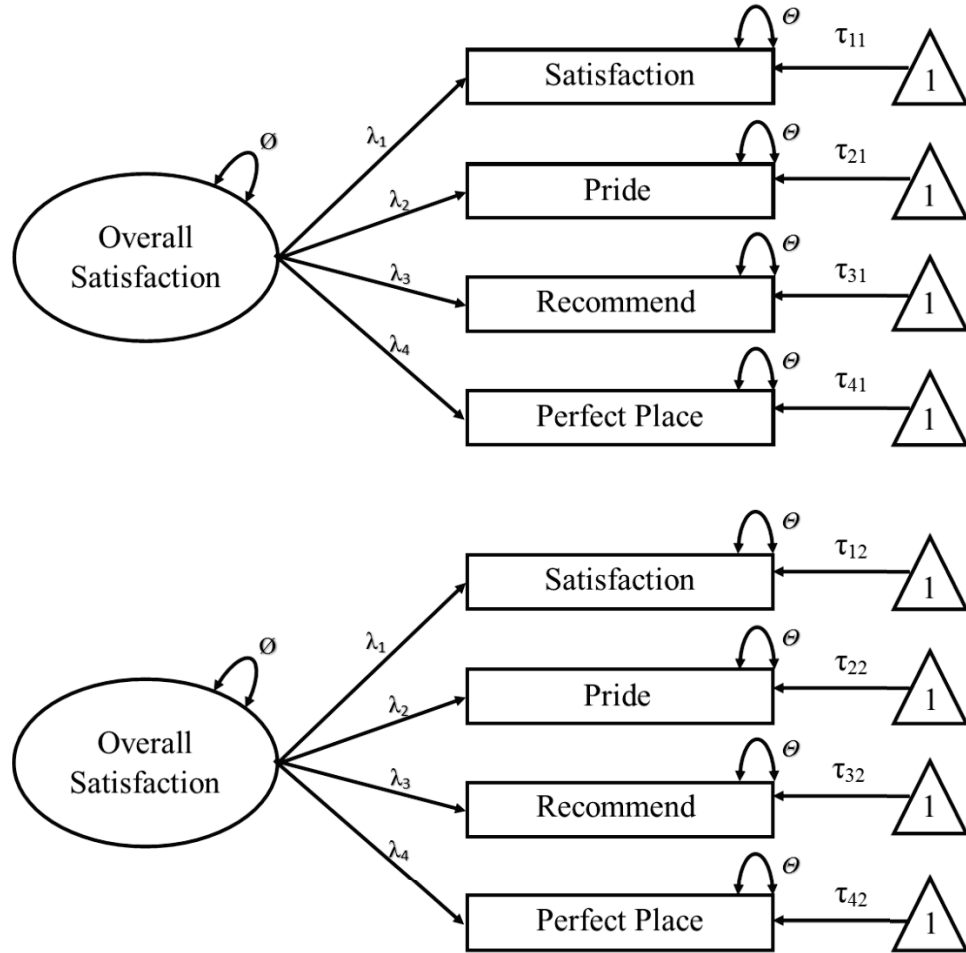


Figure 2. Overall Satisfaction Model for Two Groups

The first criteria, or “the traditional perspective”, focus on the change in chi-square ($\Delta\chi^2$) across the nested models. As the invariance test continues and the steps become more restrictive, and if the values of chi-square do not change significantly, this suggests that the more restrictive model fits the data as well as the less restrictive model. This is evidence that the more restrictive model should be favored over the less restrictive

model. However, while the first criteria has proven useful, several studies have shown that the use of $\Delta\chi^2$ can be sensitive to large sample sizes (Bollen 1989; Cheung and Rensvold 2002).

In order to combat this problem, other fit indices must be taken into consideration, hence, Byrne and Stewart's (2006) second criteria, the "practical perspective." The second criteria suggest a two prong approach that (1) the multi-group factor model exhibits an adequate fit to the data and that (2) the change in values for fit indices is negligible. Unlike other fit indices that are sensitive to sample size, Cheung and Rensvold (2002) and Meade, Johnson, and Braddy (2008) have been able to provide sufficient evidence that some alternative fit indices are not sensitive to variations in sample size. Both studies have found that the comparative fit index (CFI) and McDonald's Noncentrality Index (McD) were robust across a variety of sample sizes. Additionally, the changes in these values in each subsequent model were relatively uncorrelated with the change in values from one model to the next. This provides evidence that the test of invariance between one set of models is not dependent on a test of invariance on previous models.

Based on the two criteria set forth by Byrne and Stewart (2006), this study utilizes two sets of fit indices – one to assess overall fit of the model and a second to assess change in model fit between two models. Multiple fit indices will be evaluated for each (Hu and Bentler 1999). For overall model fit, this study considered the root mean square error of approximation (RMSEA), CFI, McD, and the standardized root mean square residual (SRMR). These fit indices were chosen because they represent a variety of fit criteria and have proven to perform well in previous studies (Beaujean et al. 2012; Marsh,

Hau, and Grayson 2005). As Byrne and Stewart (2006) recommend, this study also looks at the associated χ^2 value and its accompanying p value. What is most crucial in this analysis is the determination of patterns in the fit statistics, and the judged acceptance or rejection of the specific model based the aforementioned indices.

Results

Due to the cross-sectional nature of the data sets, this study will focus on the invariance of corresponding parameters across independent population groups (Gregorich 2006). Models Ia and Ib were estimated separately in order to determine that each population retained a good fit prior to further testing.

Configural Invariance

In Table 3, Model II represents a test of Configural Invariance. The aim of this model is to assess whether each indicator loads into its corresponding factor in an identical fashion across both populations. This means that if both populations, a set from 2008 and a set from 2010, are asked the same set of questions, statistical tests would show that the indicators associated with each factor are identical in both instances. It is important to note that configural invariance only suggests that the same indicators are loaded into the same factor, not the estimates associated with the indicators.

The results of this model yielded a chi-square equal to 1121.93. However, Bollen (1969) states that χ^2 are sensitive to large sample sizes and further modes of fit are considered. Another fit criterion, from the practical perspective, a comparative fit index score of 0.95 or higher is considered ‘good’ model fit. Model II presents with a CFI score of 0.984 and a MFI score of 0.975, suggesting good fit. Further measures of fit, the

SRMR and RMSEA, suggest that values that are closer to zero are indicators of better model fit. Modell II presents a RMSEA score of 0.15 and an SRMR score of 0.020. This suggests that the factor, *Overall Satisfaction*, is configurally invariant across groups. Further models are estimated to continue to test the strength of the invariance across both populations. As this is the most basic test of invariance, its purpose is similar to calculating an ICC score for an HLM analysis. This test solely indicated that the same structure exists in both populations. While this alone is not a surprising finding, it allows the analysis to continue.

Metric Invariance

Metric Invariance is tested in order to answer the question: Do the common factors have the same meanings across groups (Gregorich 2006)? Model III, requires corresponding factor loadings to be equal across groups. For example, in Figure 1, it would require that $\lambda_{11} = \lambda_{12}$, $\lambda_{21} = \lambda_{22}$, $\lambda_{31} = \lambda_{32}$, and $\lambda_{41} = \lambda_{42}$. The goodness-of-fit in Model III once again meets the minimum threshold. The RMSEA is a little high, but the SRMR falls within range. The test of invariance is carried out by means of a chi-square difference test between Model III and the less restrictive Model II. There is a change of 27.43 in chi-square relative to a gain of 2 degrees of freedom. This supports the hypothesis that corresponding factors have the same meaning across groups and allows quantitative group comparisons of estimated factor variances and co-variances are defensible. It also suggests that any differences between the two populations of respondents is not contaminating the common factor variation in the measure of overall satisfaction. For community researchers, this is important because the study can begin to quantitatively compare across populations.

Scalar or Strong Factorial Invariance

Model IV presents a test of Scalar Invariance. Scalar invariance means that in addition to having the same factor loadings per population, there must also be similar intercepts. This means that the entire construct is held invariant except for the residuals. Scalar invariance is an important consideration to the overall picture of invariance because it takes into account other threats to measurement invariance. Through the previous tests of invariance, this study has shown that there is an invariant meaning of overall satisfaction across two populations through common factors; however, it has not accounted for acquiescence response styles (Cheng and Rensvold 2000; Baumgartner and Steenkamp 2001). This means that there may be other cultural norms or societal factors influencing the respondent's answers that are unique to one population over another.

For example, in this time period, the United States was in the middle of the housing crisis where their mortgages were more than their housing were worth and foreclosures were happening at an alarming rate (Federal Reserve 2013). This psychological strain either directly or indirectly on the respondent heightened during this time period and might have a negative impact on their satisfaction responses (Fitz et al 2016). Testing for scalar invariance will take these societal factors into consideration through the identical nature of the societal constant or τ .

Scalar invariance requires that through regressions of the indicators onto their common factors results with invariant intercept values. Model IV demonstrates the goodness-of-fit is again strong with a CFI and a MFI score above 0.95. Additionally, the increase of the chi-square in relation to the increase in degrees of freedom is not worrisome.

Thus, support for the scalar invariance of the factor structure over time is provided. By demonstrating that the common factors of overall satisfaction, both the factor loadings and the item intercepts, are invariant across the two populations suggests that the factor means are unbiased. Moreover, these findings also indicate that any societal influences that may exist between the two populations are not contaminating the respondent's responses to questions regarding overall satisfaction.

Strict Invariance

Model V shows the results of the most rigorous invariance test, Strict Invariance. It holds that there must be an equal measurement of error variances over time, meaning that the residuals, Θ , must hold constant across the groups. This model imposes equality constraints on the factor loadings, the intercepts, and the error terms.

With a CFI and MFI above 0.95 and with both RMSEA and SRMR within acceptable ranges, there is support for that the invariance hypothesis of equivalent measurement variances between groups was achieved.

Table 2.2
Summary of Goodness of Fit Indices for Model Comparison for Overall Satisfaction

	Model Description	N	χ^2	<i>df</i>	$\Delta\chi^2$	Δdf	CFI	RMSEA	SRMR	McD	ΔMcD
I a	Independent Models	11519	582.33	2	-	-	0.982	0.159	0.018	0.975	-
I b		13417	539.60	2	-	-	0.986	0.142	0.016	0.980	-
II	Configural Invariance	24936	1121.93	4	-	-	0.984	0.150	0.020	0.978	-
III	Metric Invariance	24936	1149.36	7	27.43	3	0.984	0.114	0.023	0.977	0.001
IV	Scalar Invariance	24936	1203.54	10	54.18	3	0.983	0.098	0.021	0.976	0.001
V	Strict Invariance	24936	1262.34	14	58.80	4	0.982	0.085	0.022	0.976	0.000

Data Source: Knight Foundation Soul of the Community

Note: CFI – Comparison Fit Index; RMSEA – Root Mean Square Residual; SRMR – Standardized Root mean Square Residual; MFI

This suggests that the indicators for overall satisfaction measured with the first population in 2008 were identically measured in 2010 with a second population.

Discussion

The purpose of this study was not only to test the cross-sectional invariance of the factor structure of community satisfaction, but to demonstrate that a consistent measure of satisfaction can be administered to unique populations with comparable results. The findings provide evidence for configural, metric, scalar, and strict invariance between the two population groups. With much inconsistency in the field, this study offers a stable and reliable measurement for community satisfaction. Additionally, the confirmation of the validity and reliability of community satisfaction as a credible measure allows for subsequent research to be conducted using overall community satisfaction as the dependent variable.

As subjective measures grow in popularity, researchers must have a way to determine that their subjective measure is just as reliable as objective measures. Testing the indicator of community satisfaction and statistically showing that the survey is measuring the same construct across two populations allows for this measure to be used in subsequent analyses with confidence. Furthermore, this study acts as a useful template for future studies to follow and provide reliability to a subjective measure.

This analysis is not without its limitations. The data in this study is limited to the viewpoints and responses of residents located within 26 communities across the United States. While the individual level data are weighted for representation and mirrors the demographic composition of each community, the invariance found in the viewpoints of the 26 communities may not be replicated in other populations. However, it speaks very

clearly to the robustness of the measure of satisfaction. There are also limitations to the survey instrument. The instrument was only given in 2008, 2009, and 2010. While there were changes within the instrument between the years, the gaps between administration of the instrument were not long. Variance between the two waves might have been more noticeable had the spacing between the waves been longer. All this being said, the structure and content of this survey instrument, it is the best tool currently available to assess predictors of community satisfaction at both the individual and community-level.

CHAPTER THREE

Place as Somewhere You *Want* to be, Not Where You *Have* to be.

Introduction

The question of whether or not place matters is ever evolving. Most scholars address this quandary at an aggregate level: the community, city, or regional level. However, among non-academics the question is addressed at a personal level through thoughtful inquiry of, “Do I like where I live?” For most individuals, the place of habitation is the largest purchase, the largest check ever written. Traditionally, a decision to live somewhere comes with a 20-, 30-year commitment to grow roots in a desired location. For others, place of habitation is convenient where rent takes up a large portion of the individual’s monthly income. Whatever the circumstances may be, the decision of where to live is not typically taken lightly.

Scholar Thomas Friedman (2005) famously wrote that the world is flat, claiming that the global economy has leveled the playing field. He continued, “When the world is flat, you can innovate without having to emigrate,” suggesting that innovation and advancement can take place in small rural towns and large urban centers alike. The growing technological advances that have aided the growth of the global and interdependent economy can also bring people together without concern for proximity. This sentiment has continued through the years with celebrated articles in *The Economist* such as Frances Cairncross’s (1995) “Death to Distance” and Adrian Wooldridge’s (1999) article “Conquest of Location” where advancements in communication technology were

thought to be the “great levelers” of their time. Combined with advancements in mobility, individuals should be able to live and work in whatever place they choose.

Fast forward almost 20 years and we know the previous statements to be mostly false. Yes, globalization brought with it great advancements in technology, mobility and even diversity, but the second side of the same coin is less optimistic. As Lyson and Tolbert (2010) argue, most rural communities were left with little choice of whether or not to join the global process, and most are at a disadvantage to larger urban city centers. The theory failed to take into account the hierarchy of place.

Just as an individual is born with privilege and advantages tied to their person, the growth of the global economy has driven place to echo the individual. Some places are more advantageous than others. In a critique of the Flat World theory, Edward Leamer (2007) wrote, “There are many advantages that children can enter this world with – including intelligence, physical power and agility, good looks and caring parents...it also matters where you live.” Research shows that the flat world theory may not be as strong of an argument as once conceived (Castells 2000, 2009; Fischer 2009; Hunter 1975; Massey 1996; Sassen 2013). While at the global level the world is seeing a leveling of some sorts, at a lower level, the community or regional level, the question of place matters still rings true.

Michael Porter (2000) calls this the “location paradox.” He explains, “Location still matters...The more things are mobile, the more decisive location becomes” (Anon 2006). The individual might not have to move in order to provide for his family, but they want to move. They want to have a personal and communal satisfaction with their place of habitation. This leaves cities and towns in competition for the ideal residents – those

who will positively add to the composition of the community and whose presence will ultimately have a benefit for the community as a whole. One prescription for a successful community comes from the work of Richard Florida who claims a community that attracts talented individuals and technological firms, and exhibits a degree of tolerance for those unlike themselves, will be more prosperous through the development of the creative class. This chapter will address the importance of community satisfaction through the community-level indicators of talent, technology, and tolerance.

Literature Review

The work of Richard Florida became popular after the technology boom of the 1990s. As he sought to explain the reasoning for localized economic growth, he developed the notion of the creative class. This emerging class of typically young professionals, he claimed was responsible for recent booms of economic growth and development.

Theory of the Creative Class

Richard Florida introduced the theory of the creative class in his 2002 book, *The Rise of the Creative Class*. His notion of the creative class is not limited to the new class of worker characterized by the term, “creative,” but also included a theorized emerging sector of the economy, and a prescriptive approach to urban planning in the era of technological advancement. The theory suggests that the clustering of technological firms and individuals, talented populations, and higher-than-average tolerance for minority groups, such as LGBT groups, attracts a particular subset, or class of worker, more creative in nature. This creative class drives innovation leading to greater economic

growth and development. The creative class worker is characterized as contributing to the process where they “create meaningful new forms” of goods and services (Florida 2002:68) and specifically includes the following occupational groups: computer and math occupations; architecture and engineering; life, physical and social science; education, training and library positions; arts and design work; and entertainment, sports and media positions. It also includes other professional and knowledge based occupations: management occupations, business and financial operations, legal positions; healthcare practitioners; technical occupations and high-end sales and sales management. Individuals in these occupational fields “engage in complex problem solving that involves a great deal of independent judgment and requires high levels of education or human capital” (Florida 2012:8). Florida’s background in economics drives the conversation toward economic growth while weaving together previous research on diversity, human and social capital, and the impact of culture on economic growth from a myriad of academic disciplines. Together this culminates in the “3Ts”: tolerance, talent, and technology. On their own, each indicator – tolerance, talent, and technology – has its own track record for being linked, or not linked, to regional economic growth and development. Florida argues that each indicator alone is may generate small amounts of regional economic growth, but when all three indicators are present, they may generate substantial amounts of regional economic growth.

Tolerance

Tolerance, in respect to the creative class, is measured through a specific set of indexes, the bohemian and the gay indexes which Florida and his colleagues developed using Census variables. While the creation of these indices is unique to Richard Florida’s

work, the impact of tolerance on economic development has been seen in other research. In his study, Scott Page (2007) concludes that cognitive diversity is not the only beneficial type of diversity. He finds that identity diversity, exposure to various people and groups, enables the individual to accept new perspectives, different from their own – also known as contact theory by many sociologists (Allport 1979). Page asserts that if an identity diverse population has a myriad of perspective, then it should hold that they should generate more solutions. Finding cities that match this profile is often difficult due to the fact that diversity is often positively correlated with factors that deter economic growth. However, enough examples exist for Page to conclude that cities with greater identity diversity can be more productive (2007:331) and correlate with higher growth in wages and rent. Scholar Jane Jacobs notes, “...city areas with flourishing diversity spout strange and unpredictable uses and peculiar scenes. But this is not a drawback of diversity. This is the point ... of it” (1961:238). This openness to individuals may also be extended to an openness of new ideas paving the way for entrepreneurial success. Researchers (Florida, Mellander, and Stolarick 2008) in support of the creative class cite that they do not argue for a mechanical relationship between tolerance and development; instead, arguing that tolerance, sometimes operationalized as openness to diversity or self-expression, allows local resources to be more productive and efficient action.

Talent

Talent is most easily framed around the concept of human capital. Similar to social capital, human capital are the skills, knowledge, and experience of an individual in terms of a value add to the surrounding community. Numerous studies note the positive role human capital plays in economic growth at both the national economic growth

(Barro 1991; Rauch 1993; Simon 1998; Simon and Nardinelli 1996) and the regional economic growth (Glaeser 2000). Human capital is traditionally measure in terms of education, though a few scholars have begun to use occupation as a proxy measure (Marlet and Woerkens 2004). Occupation takes into account the application of education and skill over the presumed education and skill measured by solely examining the percent of the region with at least a bachelor's degree. However, talent in a community is measured, it seems to have a positive influence on economic growth.

Technology

The impact of technology on economic growth and development is multifaceted and arguably less controversial than the presence of talent and tolerance. Technology and innovation often go hand in hand through the literature as innovation through technological advancements benefit all aspects of society. Robert Solow (1956) examined the United States economy from 1909 to 1949 and found that technological changes accounted for approximately seven-eighths of the growth of the U.S. economy. This supported the long held theoretical belief that technological advancement has been the prominent driver in long-term economic growth (Bai and Yuen 2003). Advancements in technology, like the fast growing field of biotechnology, improve the individual lives within the community, but also assist the community to develop more streamline ways of functioning.

Shortfalls of the Theory

However, the theory of the creative class and the application of the theory has unintended consequences. Several studies have shown the pitfalls associated with the

influx of the creative class into neighborhoods (Krätke 2010; Peck 2005; Shearmur 2007; Wilson and Keil 2008). In regards to the talented population, there are two main arguments. The first argument suggests that communities that did not already have a skilled population saw little growth in that area. Economist Avent notes, "Cities that had relatively skilled populations in 1980 have become more skilled and more productive, and have generally featured fast-rising wages and housing costs. Places that were relatively less skilled, by contrast, have stayed that way and have mostly experienced a growing wage and productivity gap with the high flyers" (Avent 2013). The second argument relies on the theory of unequal development, in which the rich get richer, while the poor remain poor. Originally, Florida adopted a 'rising tide raises all ships' approach to the economic growth of a community; however, in recent examination he found that "...on close inspection, talent clustering provides little in the way of trickle-down benefits" (Florida 2013).

In regards to tolerance, the claimed benefits of the creative class on society is the increased diversity; however, that definition of diversity is quite narrow. The Bohemian and Gay indexes do not take into account either racial or socio-economic diversity. Most of the cities the theory was applied, San Francisco, Portland, and Seattle, tended to have relatively small minority populations to begin with. A recent study conducted by Richard Campanella (2013) in New Orleans, determined that while the creative class brings with them politically correct views and agendas, the adjoining policy approaches do not take into account racial and ethnic communities.

While the theories of Richard Florida and his colleagues suggest that the talent, technology, and tolerance attract the creative class and therefore increase regional

development through economic growth, the theory does not address any longevity to the growth or some sort of sustainability. This is where the concept of community satisfaction comes into play. With the pitfalls and critiques in mind, the remainder of this study will seek to address them through adjustments to the way talent, technology, and tolerance are measured as well as rejecting the notion of regional economic growth as the ultimate measure of success. Instead, the longevity and resilience of the community will be measured through the analysis of community satisfaction.

Community satisfaction can be understood as quality of life (D'Acci 2013) and adopting this understanding allows the connection to talent, technology, and tolerance to easily be made. Richard Florida makes the argument that individuals are shifting their priorities on what's important to them when choosing a place to live (2014). He notes that society is demanding higher level amenities to attract in-migration and ultimately economic growth. For Florida, these amenities culminate in his 3T's: Talent, Tolerance, and Technology. However, as previously noted, the objective measure of economic growth often undermines the true beliefs and attitudes of the individual. Previous studies have linked the 3Ts to positive community outcomes such as improved educational conditions (Almy and Tooley 2012), open and welcoming environment (Florida et al. 2008), and social drivers of innovation (Qian 2013). Each of these studies links an aspect of the 3Ts to a positive community outcome, but has fallen short of linking to community satisfaction.

Methodology

Data Set

This study is conducted using data at both the individual level as well as data at the community level. The individual level data is obtained from the Knight survey, Soul of the Community (SOC), and annual study conducted by Gallup and the John S. and James L. Knight Foundation. The survey asked respondents detailed questions about their own community involvement as well as perceptions about their surrounding community which make this data set especially appropriate for the study. The survey also asked respondents about whether or not the community is a “good place for...” a variety of marginalized groups as well as families and children, specifically about gays/lesbians and minorities. Data collection was conducted across 26 communities, listed in Chapter Two. For this study, only 25 of the communities were included in the analysis. Long Beach, California was the community excluded from the analysis because the individual level data are nested at a City level. This is inconsistent with the other 25 communities nested either within Metropolitan Statistical Areas or Metropolitan Divisions.

The SOC survey is not a nationally representative sample; however, it is representative and weighted to the characteristics of the nested communities. The 25 communities differ in various ways including large urbanized areas and small rural towns. While the variation in nested communities may impose a bias, utilizing a national sample offers new insight. Previous studies, such as Guest et al (2006) and Flaherty and Brown (2010) that used geographically and regionally clustered data, did not have the benefit of a national sample. While the data is not nationally representative, the data are

weighted for representation and closely mirrors the demographic composition of each community based on U.S. Census Bureau data. Each set of responses is weighted to community-specific parameters that include age, race, ethnicity (Hispanic/non-Hispanic) and education. These weights correct for non-response and non-coverage, creating unbiased and representative results. Similar methods were used by Neal and Neal (2012) in their analysis using the SOC data. Consequentially, this study is not able to substantially control of regional variation among the communities, but it is able to control for rural/urban differences through the measure of urbanicity. Gallup used the U.S. Census classifications of urbanicity to distinguish the communities. The rural/urban distinction has proven to have an influence on individual's levels of satisfaction (Campbell et al. 1976; Marans and Rodgers 1975; Ploch 1987), as well as the size of place (Rodgers 1980; Wasserman 1982). Rural residents tend to be more satisfied than urban dwellers and high urban density is significantly related to the dissatisfaction with the community. The discussion about urbanicity will continue in the discussion of the independent variables.

Dependent Variables

Overall community satisfaction utilizes the responses to the following questions: (1) "Taking everything into account, how satisfied are you with this community as a place to live?" (2) "How likely are you to recommend this community to a friend or associate as a place to live?" (3) "I am proud to say I live in this community." (4) "This community is the perfect place for people like me." Based on a 5-point Likert scale, the four components have a standardized Cronbach's Alpha of 0.918 and a possible range of 4 to 20, where a lower value would indicate less satisfaction and a higher value would

indicate a greater level of satisfaction. Table 3.1 displays the descriptive characteristics of the variables chosen for analysis.

Level 1 Independent Variables

At the individual level, several indicators were taken into account. Gender, race, marital status, homeownership, and the presence of children in the home are all dichotomously coded. Gender of the respondent was assigned by the interviewer. Race and ethnicity of the respondent is coded as White, non-Hispanic in comparison to all else. Marital status is coded as “now married” versus all else which includes living in a partnered relationship, never been married, widowed, separated, and divorced. Age is a continuous variable ranging from 18 to 85 years of age. Age is also grand-mean centered for the analysis. Educational attainment is a categorical variable including 1 = “Grade school or less,” 2 = “Some high school,” 3 = “High school graduate,” 4 = “Some college or technical school,” 5 = “College graduate,” and 6 = “Post-graduate work or degree.” To take into account the social embeddedness of the individual, the study also controls for the number of friends and number of family that live in the same area as the respondent. Both measures are on a 6-point scale ranging from 1 = “none” to 6 = “all or nearly all.” The study also takes into account the involvement of the individual in their community in the past 12 months through two dichotomous measures: “Attend a local public meeting in which local issues were discussed” and “Attend a local event, such as a festival, picnic, parade, or street fair.”

Table 3.1
Descriptive Characteristics of Variables

Variable	N	Mean (Median)	Standard Deviation	Minimum	Maximum
Gender, Male	19865	0.438	0.496	0	1
Age	19481	56.207	17.123	18	95
Race, White	19865	0.635	0.481	0	1
Marital Status, Married	14807	0.559	0.497	0	1
Educational Attainment	16672	(4)	1.187	1	6
Home Owner	19654	0.606	0.489	0	1
Presence of Children	19760	0.196	0.397	0	1
Number of Friends	14943	(3)	1.612	1	6
Number of Family	14930	(3)	1.790	1	6
Volunteer	14967	0.549	0.498	0	1
Attend Meeting	14961	0.360	0.480	0	1
Attend Festival	14963	0.740	0.438	0	1
Urbanicity	25	(2)	1.447	1.000	5.000
Technology	25	1.068	1.052	0.200	4.600
Talent	25	0.290	0.087	0.178	0.569
Tolerance	25	6.747	0.462	5.766	7.602

Data Source: Knight Foundation Soul of the Community

Level 2 Independent Variables

At the community, Richard Florida's 3Ts (Technology, Talent, and Tolerance) were accounted for, as well as the community's urbanicity. Each of the Knight communities is assigned one of five urbanicity groups. The definition of urbanicity used is the same as the U.S. Census Bureau: the percentage of the population living in urban areas. This definition also takes into account the population size within the area. The five urbanicity groups used to classify the communities are (1) medium to low urbanicity and low population, (2) high urbanicity and medium population, (3) very high urbanicity and medium population, (4) very high urbanicity and large population, and (5) very high urbanicity and very large population.

Talent is the percentage of the community that had at least a bachelor's degree according to the 2010 American Community Survey. Classifying talent in this fashion is congruent with previous studies by Florida and his followers (Florida, Mellander, and Stolarick 2008; Mellander and Florida 2007).

Tolerance is additive index aggregated from the individual responses in the SOC survey for the following questions, Is this community a good place for... "racial and ethnic minorities," as well as a good place for "gay and lesbian people." Based on a 5-point Likert, the two components are combined into an additive index, where a lower value indicates a less tolerant community and a higher value indicates a more tolerant community. This construct is different from the Gay Index and Bohemian Index popularized by Florida. Traditionally, the Gay Index determines the number of unmarried partners of the same sex and divides by the general population, therefore producing a percentage of gay population. Richard Florida developed the Bohemian index by using Census occupation data to measure the number of writers, designers, musicians, actors, directors, painters, sculptors, photographers, and dancers in a region (Mellander and Florida 2007). The tolerance index used in this study addresses several shortcomings of the two previous indices. First it relies on the perception of whether or not the location would be a good place for a minority population, not just the presence of the minority population. Second, the index used in this study addresses racial and ethnic populations where the original indices are absent of this consideration.

Technology is calculated using the technology Location Quotient (LQ) from the Milken Institute's 2007 Metro Ranks. Richard Florida and his students use the rankings from the Milken Institute in several of their works (Florida 2005; Florida et al. 2008).

Rankings from 2007 may seem outdated, but when considering the individual level data is from 2010, the rankings do not seem as outdated. LQs were not available for the following areas: Aberdeen, SD; Bradenton, FL; and Milledgeville, GA. For these three areas, the LQs were estimated from the 2007 County Business Patterns (NAICS) Censtats. Table 3.2 displays the NAICS Codes for Technology used to develop the Location Quotient.

Location Quotients (LQs) are ratios that allow an area's distribution of employment by industry to be compared to a reference or base area's distribution. Typically, the reference area is the U.S. For this study, the reference area is the U.S. If an LQ is equal to 1, then the industry has the same share of its area employment as it does in the reference area. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case in the reference area. For example, using the U.S. as the reference area, Philadelphia, PA has an LQ greater than 1 in the Technology industry because this industry makes up a larger share of the Philadelphia employment total than it does for the country as a whole. LQs are calculated by first, dividing local industry employment by the all industry total of local employment. Second, reference area industry employment is divided by the all industry total for the reference area. Finally, the local ratio is divided by the reference area ratio.

$$\text{Location Quotient} = \frac{\left(\frac{\text{Region's Industry Employment}}{\text{Region's Total Employment}} \right)}{\left(\frac{\text{U.S. Industry Employment}}{\text{U.S. Total Employment}} \right)}$$

Table 3.2
NAICS Codes for Technology

Label	Numerical Code
<i>High Tech Manufacturing</i>	
Pharmaceutical and Medicine Manufacturing	3254
Commercial and Service Industry Machinery Manufacturing	3333
Computer and Peripheral Equipment Manufacturing	3341
Communications Equipment Manufacturing	3342
Audio and Video Equipment Manufacturing	3343
Semiconductor and Other Electronic Component Manufacturing	3344
Navigational, Measuring, Electro-medical, and Control Instruments Manufacturing	3345
Manufacturing and Reproducing Magnetic and Optical Media	3346
Aerospace Product and Parts Manufacturing	3364
Medical Equipment and Supplies Manufacturing	3391
<i>High Tech Service</i>	
Software Publishers	5112
Motion Picture and Video Industries	5121
Telecommunications	517
Internet Service Providers and Web Search Portals	518
Other Information Services	5191
Architectural, Engineering, and Related Services	5413
Computer Systems Design and Related Services	5415
Scientific Research and Development Services	5417
Medical and Diagnostic Laboratories	6215

Note: Retrieved from NAICS Industry Data

Analytic Strategy

This study seeks to understand the effects and influence of community-level factors, or the contextual effects, on community satisfaction. Previous studies looking at the effects of talent, technology, and tolerance have used structure equation modelling (Mellander and Florida 2007) or bivariate correlation matrix (Hoyman and Faricy 2009). Because of the clustered nature of the individual level data, and the application of community-level variables to the estimates, the study utilizes hierarchal linear modelling to estimate the effects on satisfaction.

Table 3.3
Correlation Matrix between the 3Ts

Variable	Technology	Talent	Tolerance
Technology	1.00	0.69	0.59
Talent		1.00	0.75
Tolerance			1.00

Data Source: Knight Foundation Soul of the Community

Before a multi-level model can be built, the existence of significant within-group observation dependence (Intra-class correlation), must be determined (Wang et al. 2011). The null model is crucial because it allows the total variation to be divided into within-group and between-group variations. This model is used to calculate the ICC and subsequently used to determine whether or not hierarchical linear modelling is warranted.

Results

Prior to executing the hierarchal linear modelling, the null model must be evaluated to determine the applicability of multilevel modeling to the data. The variance of the level-1 random intercept coefficients ($\hat{\sigma}_{u0}^2 = 2.08$, $p = 0.0003$) and the level-1 residual variance ($\hat{\sigma}^2 = 17.0598$, $p < 0.0001$) suggests that the overall level of satisfaction varies significantly across communities. It also suggests that there is a significant variation within sites. The within-group variance is about 8.2 times as large as the between-group variance. The within-group and between-group variance is used to calculate the intra-class correlation defined as the measure of within-group homogeneity, or between group heterogeneity.

$$ICC = \frac{\hat{\sigma}_{u0}^2}{\hat{\sigma}_{u0}^2 + \hat{\sigma}^2} = \frac{2.08}{2.08 + 17.0598} = 0.11$$

An ICC of 0.11 is moderately large, indicating that about 11% of the total variance in the outcome measure, overall satisfaction, is due to variations between communities. As $\hat{\sigma}_{u0}^2$ is statistically significant, this study concludes that the ICC is statistically significant, and that multilevel modelling is necessary for data analysis. Using Raudenbush and Bryk's (2002) method, the proportion of explained between-group outcome variation is estimated from the proportion reduction in level-2 variance $\hat{\sigma}_{u0}^2$ for each of the second level variables. About 9% of the variation in overall level of satisfaction among communities is explained by technology, 21% for talent, 27% for tolerance.

Table 3.4 presents the regression coefficients from the multi-level model predicting overall community satisfaction. The two-level models, with urbanicity and other community characteristics defining the second level. To preserve degrees of freedom, the community-level factors, the estimates incorporate one sector of the 3Ts per model. Additionally, the community effects are correlated and by introducing one factor at a time, this study hopes to minimize variance inflation. Model 1 represents a random intercept model with the individual-level variables and the community-level variable, urbanicity, in the analysis. Models 2 through 4 introduce additional community-level characteristics of technology, talent, and tolerance, respectively.

At the individual level, seven of the explanatory variables have significant effects on the respondent's overall satisfaction with their community. Males and white respondents have lower levels of overall satisfaction, on average, than female and other racial groups, controlling for other individual characteristics. Additionally, the age of the respondent and being a home owner has a significant positive effect on overall satisfaction. This is consistent with previous research that found a positive correlation

between satisfaction and home ownership (Theodori 2001). The social embeddedness measures of friends and family both have a significantly positive effect on the respondent's overall satisfaction with their community. The social network measures have

Table 3.4
Overall Satisfaction

Variables	Null	Model 1	Model 2	Model 3	Model 4
<i>Individual-Level</i>					
Male		-0.541***	-0.540***	-0.540***	-0.540***
Age, Grand mean centered		0.045***	0.044***	0.044***	0.045***
White		-0.346**	-0.346**	-0.348**	-0.337**
Married		-0.179*	-0.179*	-0.178*	-0.178*
Educational Attainment		-0.129***	-0.129**	-0.130**	-0.130**
Home Owner		0.150	0.151	0.152	0.151
Income		0.115***	0.115***	0.115***	0.114***
Number of Children		0.147	0.146	0.146	0.146
Number of Friends		0.381***	0.381***	0.381***	0.381***
Number of Family		0.046*	0.046*	0.046*	0.046*
Volunteer in Community		0.084	0.084	0.084	0.084
Attend public meeting		-0.349***	-0.348***	-0.348***	-0.348***
Attend public festival		0.783***	0.783***	0.780***	0.783***
<i>Community-Level</i>					
Urbanicity		-0.248	-0.344	-0.480**	-0.594**
Technology			0.460		
Talent				10.224**	
Tolerance					2.467***
	df	24	23	22	22
Neg 2LL		84264.6	70893.5***	70890.5	70882.2**
AIC		84268.6	70927.5	70826.5	70918.2
BIC		84271.0	70948.3	70948.4	70940.2
					70930.6

Data Source: Knight Foundation Soul of the Community

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

spilt effects. Attending a public meeting has a negatively significant effect on overall satisfaction; while attending a public festival has a positively significant effect on overall satisfaction. This split is supported in previous research (Fitz et al. 2015) and follows the research of James (2011) and Lyons, Lowrey, DeHoug (1993) where they found dissatisfaction is the more decisive force in activism and political activity over

satisfaction. The community-level explanatory variable, urbanicity has no significant effect on overall satisfaction when controlling for individual-level characteristics. Adding the individual-level characteristics and the sole community-level characteristic, urbanicity, to the null model has reduced the -2LL from 84264.6 to 70890.5, a statistically significant reduction as well as all the information criteria measure have also decreased. This reduction suggests that adding the individual-level characteristics and accounting for urbanicity, significantly improved the fit of the model.

In Model 2, the community-level characteristics of urbanicity and technology are added to the fixed-effects of Model 1. Neither urbanicity nor technology has a significant effect on overall satisfaction. The insignificance of urbanicity and technology, when introduced into the individual-level model, is in part, due to the correlated nature of the two measures. Technology firms tend to locate in urban city centers that would typically be classified as highly urban. Model 3, demonstrates the impact of the community's level of talent, or percentage with Bachelor's degrees or higher, on the satisfaction of the individual residents. Both urbanicity and talent have a significant impact on overall satisfaction, but in opposite ways. The more urban the community, the more concentrated and density populated the community; the less satisfied resident's become.

The more talented the community, communities with higher percentages of college educated residents; the more satisfied residents become. In Model 4, urbanicity once again has a negatively significant effect on overall satisfaction. Similar to talent, tolerance has a positive significant effect on overall satisfaction suggesting that residents are more satisfied when their community is a "good" place for racial and ethnic minorities as well as the LGBT community. In all three models where community-level

explanatory variables were added, the -2LL decreased from the -2LL in Model 1 where just the individual-level variable effects were estimated. All the information criteria measured have also decreased. This reduction suggests that adding the community-level explanatory variables significantly improved the fit of the Models 2 through 4.

Discussion

This study addresses the impact of technology, talent, and tolerance on levels of overall community satisfaction. This study distinguishes itself from previous studies utilizing the 3T model in the construction of the tolerance index, the method of analysis, and ultimately, the dependent variable. The adjustment to the tolerance index is an improvement over the previous Gay and Bohemian indices. The Gay and Bohemian indices are based off of Census data of what already exists in the community. It does not take into account the potential for movement either through mobility rates or perceptions in the community. Research has shown that the previous indices used to measure tolerance may play a role in positive regional growth (Florida 2002, 2005, 2012; Florida et al. 2008). The indices take into account the creative appeal and tolerant attitudes towards particular minority population; however, the previous indices fail to take into account the racial and ethnic subpopulations. The tolerance index used for this study combines tolerant attitudes towards the LGBT and racial/ethnic minorities to create a more inclusive measure towards tolerance.

Furthermore, the method of analysis chosen for this study controls for individual characteristics. It takes into account the educational level of the respondents, the race of the respondents, even whether or not the respondent is a homeowner. The hierarchical linear modelling approach allows individual characteristics to be accounted for while

assessing the impact of technology, talent, and tolerance. This study demonstrates that even though multiple individual characteristics influence the respondent's level of satisfaction with their community, community-level explanatory variables should not be ignored. Talent and Tolerance have proven to be significant and positive effect on levels of community satisfaction. Prevalence of technology among all socioeconomic classes may make this irrelevant. The conception of technology may have also deterred from this relevance. Further discussion of the impact of technology will be discussed in Chapter Five.

CHAPTER FOUR

Domains of Satisfaction

Introduction

Much of the research considering community satisfaction has either dealt with an overall perception or attitude around satisfaction, or satisfaction with a specific attribute of the community, such as road conditions (Jesser 1967; Johnson and Knop 1970; Schulze et al. 1963). Work around these specific attributes of the community often carried the assumption that the objective measures such as presence of facilities, availability of services, and other amenities, would provide enough information for researchers to imply satisfaction. For example, if the residents of an area have access to quality healthcare, they must be satisfied enough with the area to stay.

These assumptions extended their reach beyond merely satisfaction and into a ‘community sustainability concept’ by asserting that certain amenities in a community are key to attracting in-migration to area and boosting tourism (Clark et al. 2002; Judd 1999, 2003; Lloyd 2002). This suggests that the defined places, or communities, can maintain a level of prestige or privilege over one another based on the amount of amenities present in the community. These include natural amenities such as green space, and manufactured amenities such as roads, healthcare, and education (Flora, Flora, and Gasteyer 2015). These consumer services could be interpreted as amenities or things that improve the quality of life. Measuring merely the presence of those amenities is

missing the point. Researchers must measure the satisfaction of those amenities to garner whether or not the amenities are being appreciated and utilized.

Domains of community satisfaction are designed to be more specific measures of community well-being that focus on a concentrated subset of community satisfaction. Consider domains to be the “why” of overall satisfaction. Research has shown that while overall satisfaction is important and can predict several factors of the sustainability of a community, the crucial piece of the puzzle is, “why?” This can be answered through careful analysis of the domains of satisfaction.

While there is a considerably large body of literature on community satisfaction and its associated domains of satisfaction, most use the domains as predictors of the larger, overall-satisfaction. For example, previous research has delineated the domains to satisfaction with services (Fried 1984; Molnar and Smith 1982; Murdock and Schriener 1979; Rojek, Clemente, and Summers 1975; Stinner and Toney 1980), satisfaction with local economy and economic opportunity (Miller and Crader 1979), political satisfaction (Fried 1984), and social dimensions of satisfaction (Goudy 1977). Very few studies have been conducted with the domains as the focal point of the analysis (Bardo and Yamashita 2014; Fitz et al. 2015; Theodori 2001). This study will focus on the subsets of satisfaction with the domains of infrastructure and social life.

Literature Review

Infrastructure Satisfaction

Several studies demonstrate that a well-maintained community leads to greater levels of overall satisfaction with residents (Andrews and Withey 1974; Newman and Duncan 1979). Two studies in particular have examined the role that quality of

infrastructure plays of overall satisfaction. Zehner and Chapin (1974) found that within the Washington, D.C. communities, rankings of the quality of police and safety, education, shopping facilities, and street cleanliness, only accounted for a small percentage of variance within community satisfaction. Expanding this concept to a nation-wide study, Campbell and fellow researchers (1976) examined infrastructure indicators such as public schools, roadways, parks, and climate. Their analysis found that even at a national-level this domain of satisfaction explained little of the variance in their measure of overall satisfaction. The lack of variance explained at the national level may be due to the localized impact of the services examined. The localized effect of quality roads and healthcare may not have been fully taken into account through the type of analysis conducted and could have been potentially washed out in the larger analysis.

Social Life Satisfaction

Much of the conversation around amenities in association with community satisfaction is with service; however, social dimensions of satisfaction have been shown to be effective predictors of overall satisfaction. Goudy (1977) postulates that

“residents find most satisfying those communities in which they think they have strong primary group relationships, where local people participate and take pride in civic affairs, where decision making is shared, where residents are heterogeneous, and where people are committed to the community and its upkeep” (page 380).

However, these indicators, while crucial, do not quite address social life amenities present with a community. Instead of participation in events or concentration of friends, the domain of social life satisfaction takes into account the availability of social and cultural events, the ability to make friends, and the aesthetic beauty of the community.

Green (1999) demonstrated that the beauty of the community and physical setting is associated with residents' positive assessment of the community. Moving beyond the natural amenity, other amenities can be intentionally developed by communities and play a role in community satisfaction (Flora et al. 2015). The community often acts as the social engine bringing together the residents and providing opportunities for entertainment and social connection. Lloyd and Clark (2001) describe the city as catalyst for entertainment, a vibrant nightlife, and thriving culture. Studies have also found that the opportunity of social interaction within the community can have positive impacts on mental health (Nisbet 1969; Sarason 1974) contributing to overall satisfaction. Florida et al (2011) found that the ability to meet people and make friends was a strong contributor to a resident's overall feeling of community satisfaction.

None of the previous work on domains of satisfaction take into account the presence of Talent, Technology, and Tolerance. This study will use Talent Technology and Tolerance as predictors of both infrastructure and social life satisfaction in hopes to determine their influence.

It is important to determine the impact of the 3Ts on the two different domains of community satisfaction because it will allow for a more detailed look into community satisfaction. Using the steak dinner metaphor again, overall satisfaction took into account several dimensions of the dining experience including the steak itself as well as the hunger level of the individual. These two additional domains of satisfaction, infrastructure and social life, following the metaphor, would take into account the ambiance of the restaurant and the quality of the service. While distinct from the overall satisfaction of the dinner, the nuanced measures provide detailed feedback. Just as the

dinner can be delicious, the service can be horrible, tainting the overall opinion of the meal. Similarly, an individual might love where they live, but dislike the number of potholes there are on their drive to work. The predictors for each domain of satisfaction may not be the same given the differences in contributing indicators, but further analysis must be done to determine if that is correct.

Methodology

Continuing use of the 2010 Soul of the Community data set, this study will focus on the infrastructure and social life domains of satisfactions. The survey asks several questions that allow for the distinctive types of community satisfaction to be characterized and levels predicted. Similar to overall satisfaction in Chapter Three, infrastructure satisfaction and social life satisfaction were subjected to a test on invariance across cohorts from 2008 and 2010. However, the measures for this study differ slightly as the 2010 wave of SOC added a few indicators not present in the 2008 wave. The additional variables add to the complexity of the measure, but also remain consistent with previous literature. Respondents were given a list of 15 community characteristics and asked to rate them on a 5-point scale ranging from very bad to very good. A factor analysis was conducted on the set of characteristics and yielded two separate domains of satisfaction: (1) characteristics related to the infrastructure of the community; and (2) characteristics related to the opportunity for a social life in the community. Guest and Lee's work (1983; 1983) clarify the purpose of measuring satisfaction by stating that "satisfaction with an area is believed to reflect its utilitarian value for meeting certain basic needs," suggesting that the satisfaction with the area can be quantified into a useful measurement for community.

Dependent Variables

Infrastructure satisfaction combines the respondent's rating of the following attributes: (1) the highway and freeway system, (2) the overall quality of public schools in your community, (3) the overall quality of the colleges and universities, (4) the leadership of the elected officials in your city, (5) the availability of outdoor parks, playgrounds, and trails, and (6) the effectiveness of local police. Respondents were asked to rank these attributes on a 5-point Likert scale where 1 is very bad and 5 is very good. The six components of the additive index have a standardized Cronbach's Alpha of 0.792 and a possible range of 6 to 30.

Karsarda and Janowitz (1974:328) understood the community beyond the physical boundaries and postulated that while the community may be affected by the structure, it should be viewed as "a complex system of friendship, kinship, and associational networks into which new generations and new residents are assimilated while the community passes through its own life-cycle." The second domain, Social life satisfaction, takes that into consideration with the combination of the respondent's rating of the following attributes: (1) the availability of arts and cultural opportunities, such as theaters, museums, and music, (2) the availability of social community events such as festivals, picnics, parades, and street fairs, (3) the beauty or physical setting, (4) having a vibrant nightlife with restaurants, clubs, bars, etc. (5) being a good place to meet people and make friends, and (6) how much people in this community care about each other. Respondents ranked each of the attributes on a scale from very bad to very good. The components are combined into an additive index that has a standardized Cronbach's Alpha of 0.827 and a possible range of 6 to 30.

Independent Variables

Individual-level and community-level variables are used to predict infrastructure and social life satisfaction. At the individual level, several indicators were taken into account. Characteristics of the respondent accounted for include gender, race, marital status, homeownership, and the presence of children in the home (all are binary variables). The gender of the respondent was assigned by the interviewer as either male or female. The race and ethnicity of the respondent is accounted for in this analysis as White, non-Hispanic versus all else. Marital status is coded as “now married” versus all else which includes living in a partnered relationship, never been married, widowed, separated, and divorced. Homeownership is classified as the respondent reporting owning their residence instead of renting or other (rent a room, live as a lodger, squatter, etc.). Respondents were asked to provide either a yes or no response to the question “Do you have dependent children under the age of 18 currently living in your household?” While this question does not take into account how many children are in the home, it is an important control especially when quality of public schools is being assessed in the infrastructure domain of satisfaction.

Age is a continuous variable ranging from 18 to 85 years of age. Age is also grand-mean centered for the analysis meaning that the explanatory variable is centered around the overall mean. This allows our interpretation to be more clear. The estimate is taken of the average age of the respondents, in the case of this analysis, a 56 years old. Educational attainment is a categorical variable including 1 = “Grade school or less,” 2 = “Some high school,” 3 = “High school graduate,” 4 = “Some college or technical school,” 5 = “College graduate,” and 6 = “Post-graduate work or degree.” To take into account

the social embeddedness of the individual, the study also controls for the number of friends and number of family that live in the same area as the respondent. Both measures are on a 6-point scale ranging from 1= “none” to 6 = “all or nearly all.” The study also takes into account the involvement of the individual in their community in the past 12 months through two dichotomous measures, either a yes or no response to have you... “Attended a local public meeting in which local issues were discussed” and “Attended a local event, such as a festival, picnic, parade, or street fair.”

The community-level variables used in this study replicate the variable from Chapter Three. Please refer to Chapter Three for more detailed discussion of each variable. The community’s assigned urbanicity, levels of talent, levels of technology, and levels of tolerance are all taken into account. Each community is assigned one of five levels of urbanicity used by the US Census Bureau that takes into account the percentage of the population living in urban areas¹. The community-level measure of talent is actualized as the percentage of the community that has at least a bachelor’s degree. Data is confined to the metropolitan statistical area of each community and is from the 2010 American Community Survey as the survey data is from the year 2010. Technology also utilizes the metropolitan statistical area for each community as that is the geographical

¹ The Census Bureau classifies as "urban" all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). It delineates UA and UC boundaries to encompass densely settled territory, which consists of: (a) core census block groups or blocks that have a population density of at least 1,000 people per square mile; and (b) surrounding census blocks that have an overall density of at least 500 people per square mile. In addition, under certain conditions, less densely settled territory may be part of each UA or UC. The Census Bureau's classification of "rural" consists of all territory, population, and housing units located outside of UAs and UCs. The rural component contains both place and non-place territory. Geographic entities, such as census tracts, counties, metropolitan areas, and the territory outside metropolitan areas, often are "split" between urban and rural territory, and the population and housing units they contain often are partly classified as urban and partly classified as rural (Knight Foundation Soul of the Community Data Documentation).

area the survey team assigned to each community. Levels of technology is calculated using the location quotient from the Milken Institute’s 2007 Metro Rankings. The 2007 rankings are the most complete set of rankings available for the 2010 data. Location quotients were not available for the following areas: Aberdeen, SD; Bradenton, FL; and Milledgeville, GA. For these three areas, the Milken Institute’s methodology was used to estimate location quotients from the 2007 County Business Patterns (NAICS) Censtats. Levels of tolerance is an additive index that is aggregated from the individual responses in the SOC utilizing the following questions, this community is a good place for... “racial and ethnic minorities” and “gay and lesbian people.” A lower values indicates a less tolerant community and a higher value indicated a more tolerant community.

Analytic Strategy

This study is an extension of Chapter Three and seeks to understand the effects and influence of community-level factors on two specific domains of community satisfaction: infrastructure and social life satisfaction. As in Chapter Three, this analysis will focus on the effects of talent, technology, and tolerance and do so using hierarchal linear modelling. Table 4.1 show the correlated nature of the 3 T’s, technology, talent, and tolerance. This study will approach the 3t’s in a stepwise fashion to determine the contribution of each individually, then as a whole set.

Table 4.1
Correlation Matrix between the 3Ts

Variables	Technology	Talent	Tolerance
Technology	1.00	0.69	0.59
Talent		1.00	0.75
Tolerance			1.00

Data Source: Knight Foundation Soul of the Community

Before a multi-level model can be built, the existence of significant within-group observation dependence (Intra-class correlation), must be determined (Wang et al. 2011). The null model is crucial because it allows the total variation to be divided into within-group and between-group variations. This model is used to calculate the ICC and subsequently used to determine whether or not hierarchical linear modelling is warranted in the analysis.

Results

Infrastructure Domain of Satisfaction

Prior to executing the hierarchical linear modelling, the null model must be evaluated to determine the applicability of multilevel modeling to the data. The variance of the level-1 random intercept coefficients ($\hat{\sigma}_{u0}^2 = 1.94, p = 0.0003$) and the level-1 residual variance ($\hat{\sigma}^2 = 19.6836, p < 0.0001$) suggests that the overall level of satisfaction varies significantly across communities. It also suggests that there is a significant variation within sites. The within-group variance is about 10 times as large as the between-group variance. The within-group and between-group variance is used to calculate the intra-class correlation defined as the measure of within-group homogeneity, or between group heterogeneity.

$$ICC = \frac{\hat{\sigma}_{u0}^2}{\hat{\sigma}_{u0}^2 + \hat{\sigma}^2} = \frac{1.94}{1.94 + 19.68} = 0.09$$

An ICC of 0.09 is moderately large, indicating that about 9% of the total variance in the outcome measure, overall satisfaction, is due to variations between communities. The $\hat{\sigma}_{u0}^2$ is statistically significant and this study concludes that the ICC is statistically

significant, and that multilevel modelling is necessary for data analysis. Using Raudenbush and Bryk's (2002) method, the proportion of explained between-group outcome variation is estimated from the proportion reduction in level-2 variance $\hat{\sigma}_{u0}^2$ for each of the second level variables. About 9% of the variation in the infrastructure domains of satisfaction among communities is explained by technology, 27% for talent, 18% for tolerance.

At the individual-level, in Model 1, several attributes of the respondent influence their levels of satisfaction with their surrounding infrastructure. Older residents with a strong network of friends and family in their community and who attend public festivals are more likely to be satisfied. This is consistent with previous literature that asserts that levels of satisfaction increase with age (Filkins et al. 2000; Goudy 1977; Rigby and Vreugdenhil 1987; Speare 1974) and the greater proportions of friends and family living in the community, the greater the anticipated levels of satisfaction (Filkins et al. 2000; Goudy 1977). Additionally, at the individual level, respondents who identify as white non-Hispanic, male, highly educated, homeowners, and who have attended a public meeting such as town hall event, are more likely to be dissatisfied with their surrounding components of infrastructure. These findings are consistent with previous literature which states that females are more likely to express satisfaction with their community than their male counterparts (Filkins et al. 2000; Jesser 1967; Schulze et al. 1963) and that non-white residents have significantly lower levels of satisfaction (Wasserman 1982).

Filkens, Allen, and Cordes (2000) also found that as educational attainment increases, levels of satisfaction decrease. The finding that homeownership has a negative

association in infrastructure satisfaction counters some of the research on general satisfaction which usually find the opposite effect (Guest et al. 2006). However, there may be other factors not accounted for such as the individual's occupation (Jesser 1967) or value tied to home (Roskrug et al. 2012). It is consistent with other analysis utilizing the same data set (Fitz et al. 2015). There may be some artifact of the data set that is not accounted for in this analysis. Urbanicity does not have an impact on levels of infrastructure satisfaction. The patterns found here remain consistent with the additions of technology, talent, and tolerance at the community-level with the exception of urbanicity which becomes significant in models 3 and 4.

Narrowing my focus to the impact of technology, talent, and tolerance on infrastructure satisfaction (models 2 through 4) the analysis shows varying impact. In model 2, living in a community with a higher location quotient of technology related employment does not have a significant impact on an individual's level of satisfaction with their surrounding infrastructure. Similar to the analysis conducted on overall satisfaction, the insignificance of urbanicity and technology when introduced into the individual-level model may be influenced by the correlated nature of the two measures. Technology firms tend to locate in urban city centers that would typically be classified as highly urban.

However, in models 3 and 4, living in a community with either a higher percentage of talented individuals, or a higher index of tolerance, positively impacts an individual's perception of infrastructure satisfaction. In model 3, the analysis shows that both urbanicity and talent play a significant role in an individual's infrastructure satisfaction.

Table 4.2
Infrastructure Satisfaction

Variables	Null	Model 1	Model 2	Model 3	Model 4
<i>Individual-Level</i>					
Male		-0.613***	-0.612***	-0.612***	-0.613***
Age, Grand mean centered		0.051***	0.051***	0.051***	0.051***
White		-0.256*	-0.254*	-0.254*	-0.247*
Married		-0.169	-0.169	-0.168	-0.168
Educational Attainment		-0.173***	-0.174***	-0.175***	-0.175***
Home Owner		-0.315**	-0.314**	-0.314**	-0.315**
Income		-0.017	-0.017	-0.018	-0.018
Number of Children		0.034	0.034	0.034	0.035
Number of Friends		0.349***	0.349***	0.349***	0.350***
Number of Family		0.049*	0.049*	0.050*	0.050*
Volunteer in Community		-0.003	-0.003	-0.003	-0.003
Attend public meeting		-0.479***	-0.479***	-0.479***	-0.480***
Attend public festival		0.857***	0.857***	0.855***	0.859***
<i>Community-Level</i>					
Urbanicity		-0.235	-0.335	-0.496**	-0.521**
Technology			0.481		
Talent				11.529***	
Tolerance					2.035***
	<i>df</i>	24	23	22	22
Neg 2LL		81132.1	68870.3***	68866.6*	68853.5**
AIC		81136.1	68904.3	68902.6	68889.5
BIC		81138.5	68925.0	68924.6	68911.4

Data Source: Knight Foundation Soul of the Community

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Urbanicity has a negative influence on infrastructure satisfaction, meaning the more densely populated the community, the larger the strain on shared resources, causing a dissatisfaction among residents. The percent of the population with a bachelor's degree or higher within the community has a positive influence on infrastructure satisfaction. This contradicts the individual-level finding that with educational attainment comes a growing dissatisfaction. However, this contradiction may highlight the benefit of

including the community level variable, talent. A clustering of the talented population brings along innovation that might be put into practice through the infrastructure causing the levels of infrastructure satisfaction to increase and more of the population is considered ‘talented’. In all three models where community-level explanatory variables were added, the -2LL decreased from the -2LL in Model 1 where just the individual-level were estimated. All the information criteria measured have also decreased. This reduction suggests that adding the community-level explanatory variables significantly improved the fit of the Models 2 through 4.

Social Life Domain of Satisfaction

Prior to executing the hierarchical linear modelling, the null model must be evaluated to determine the applicability of multilevel modeling to the data. The variance of the level-1 random intercept coefficients ($\hat{\sigma}_{u0}^2 = 2.81, p = 0.0003$) and the level-1 residual variance ($\hat{\sigma}^2 = 20.6418, p < 0.0001$) suggests that the overall level of satisfaction varies significantly across communities. It also suggests that there is a significant variation within sites. The within-group variance is about 7.3 times as large as the between-group variance. The within-group and between-group variance is used to calculate the intra-class correlation defined as the measure of within-group homogeneity, or between group heterogeneity.

$$ICC = \frac{\hat{\sigma}_{u0}^2}{\hat{\sigma}_{u0}^2 + \hat{\sigma}^2} = \frac{2.81}{2.81 + 20.64} = 0.12$$

An ICC of 0.12 is moderately large, indicating that about 12% of the total variance in the outcome measure, overall satisfaction, is due to variations between communities. As $\hat{\sigma}_{u0}^2$ is statistically significant, this study concludes that the ICC is statistically significant, and

that multilevel modelling is necessary for data analysis. Using Raudenbush and Bryk's (2002) method, the proportion of explained between-group outcome variation is estimated from the proportion reduction in level-2 variance $\hat{\sigma}_{u0}^2$ for each of the second level variables. About 10% of the variation in social life domain of satisfaction among communities is explained by technology, 34% for talent, 46% for tolerance.

Model 1 demonstrates the effects of the individual-level and the community-level indicator, urbanicity, on social life satisfaction. Male residents, those with higher educational attainment, and homeowners, on average, tend to be less satisfied with their surrounding social life amenities. On the other hand, older residents, white non-Hispanic residents, those with family and friends in the community, as well as those who volunteer, on average, have higher levels of social life satisfaction. Understandably, those who attend "a local event, such as a festival, picnic, parade, or street fair," have higher levels of social life satisfaction as they are utilizing the available amenities. The most notable difference in the individual-level variables is the significant positive effect of volunteering on social life satisfaction. Volunteering has a positive effect on social life, but did not have a significant impact in either overall satisfaction or infrastructure. Because causality or cannot be determined with these data, it could be that the residents volunteer to make the community beautiful, giving them a sense of pride their community's social life amenities or the beautiful setting encourages residents to get out and volunteer. A piece of the social life satisfaction index is that people care about one another in the community which could be influence volunteering or vice versa, since there is a lot component of the population volunteering, it is easier to feel that those in the community care for one another.

Table 4.3
Social Life Satisfaction

Variables	Null	Model 1	Model 2	Model 3	Model 4	
<i>Individual-Level</i>						
Male		-0.676***	-0.676***	-0.676***	-0.676***	
Age, Grand mean centered		0.044***	0.044***	0.044***	0.044***	
White		0.274**	0.275**	0.272**	0.285**	
Married		0.124	0.124	0.125	0.125	
Educational Attainment		-0.198***	-0.198***	-0.199***	-0.198***	
Home Owner		-0.319**	-0.318**	-0.317**	-0.316**	
Income		-0.001	-0.001	-0.002	-0.002	
Number of Children		-0.082	-0.082	-0.083	-0.083	
Number of Friends		0.474***	0.473***	0.473***	0.473***	
Number of Family		0.046*	0.046*	0.046*	0.046*	
Volunteer in Community		0.181*	0.181*	0.181*	0.181*	
Attend public meeting		-0.041	-0.040	-0.040	-0.040	
Attend public festival		1.242***	1.242***	1.240***	1.243***	
<i>Community-Level</i>						
Urbanicity		0.060	-0.038	-0.222	-0.378*	
Technology			0.437			
Talent				12.460**		
Tolerance					3.125***	
	<i>df</i>	24	23	22	22	22
Neg 2LL		82277.0	69725.2	69723.3	69713.5**	69700.4***
AIC		82281.0	69759.2	69759.3	69749.5	69736.4
BIC		82283.5	69779.9	69781.3	69771.4	69758.4

Data Source: Knight Foundation Soul of the Community

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Either way, further research will need to be done to determine causality, but the finding is consistent with previous research which finds a positive association between volunteering, social participation, and levels of community satisfaction (Jesser 1967; Wasserman 1982).

In both models 1 and 2, urbanicity had no impact on social life satisfaction. Meaning either standalone or in relation to the concentration of technology related jobs, the density of the population and the urban nature of the community has no impact.

Research has been conducted comparing levels of satisfaction in the urban and rural settings often finding that those in rural settings report higher levels of satisfaction (Campbell 1981; Marans and Rodgers 1975; Ploch 1987; Rodgers 1980) or that urban density or increasing the size of place leads to greater dissatisfaction (Wasserman 1982).

However, in these cases the analysis was limited to a confined geographic location – contiguous counties, rural towns, regionally clustered areas. Use of this data set's geographically diverse nature, coupled with the hierarchical linear modelling technique, may be affecting the significance of urbanicity on social life satisfaction as well as the other domains of satisfaction. In model 2, having a larger or smaller technology industry regional share in comparison to the technology industry's national share has no impact on resident's levels of satisfaction of social life amenities. Even though this measure, constructed in the same fashion, has proven to have a positive impact on economic development (Mellander and Florida 2007), it has not proven to be a contributing factor in community satisfaction.

Model 3 demonstrates the effect of having a talented/educated population on social life satisfaction. The individual-level characteristics follow the same pattern as in models 1 and 2. Once again, urbanicity is does not have a significant influence on social life satisfaction, but the percent of residents in the community with at least a bachelor's degree does have a positively significant impact. Similar to infrastructure satisfaction, there appears to be contradictory information from the individual-level measure of education and the community-level measure of talent. The individual-level measure of educational attainment suggests that as one becomes more educated, the levels of community satisfaction decrease. However, at the community-level, as the overall levels

of educational attainment increase within the community, satisfaction levels rise.

Retaining talent in the community has proven benefits across the board from improving conditions in high-poverty schools (Almy and Tooley 2012) to economic development (Grant 2014), but perhaps the most important part of a concentration of an education population is the established pool of knowledge existing within the community. This may lead to any number of advancements or progressions that may increase the quality of life experienced by residents.

The pattern at the individual level in model 4 is congruent with model 3 with no major differences existing between the two models at the individual level. Interestingly, out of all four models, urbanicity only appears significant when included in the model with tolerance. While the community is a good place for diversity in the LGBT population and racial and ethnic minorities has a positive effect on social life satisfaction, a higher population density has a negative effect on social life satisfaction. Florida (2012) notes that a more diverse population is indicative of tolerance which in turn creates places that are welcoming and provide low barriers to entering the community and associated jobs. Hracs and Stolarick (2011), in their study of mobility within Toronto, found that this same tolerance was especially attractive to musicians leading to extended lengths of stay within the city. A similar impact could be occurring in communities analyzed in this study.

In all three models where community-level explanatory variables were added, the -2LL decreased from the -2LL in Model 1 where just the individual-level were estimated. All the information criteria measured have also decreased. This reduction suggests that

adding the community-level explanatory variables significantly improved the fit of the Models 2 through 4.

Discussion

The purpose of this analysis was to take the concept of community satisfaction and develop the notion further beyond the traditional conceptualization of overall community satisfaction. Building off the notion that some communities maintain a competitive edge over other communities based on the amount of amenities present in the community either natural or manufactured amenities, this study delineated its concept of satisfaction into two domains: infrastructure and social life. Research in the area of domains of satisfaction already noted there is a calculated difference between the two domains (Fitz et al. 2015). This study aimed to see if the community-level variables of technology, talent, and tolerance play any role in a resident's satisfaction in their infrastructure and social life amenities.

By separating out two additional domains of community satisfaction, it allows researchers to develop a more nuanced view of satisfaction and the role that technology, talent, and tolerance play in cultivating that satisfaction. The hierarchical linear modelling approach used in this analysis allows individual characteristics to be accounted for while assessing the impact of technology, talent, and tolerance. The study found that at the community-level, both talent and tolerance have a positive and significant effect on social life and infrastructure satisfaction. Urbanicity had a significant effect on infrastructure satisfaction when talent and tolerance were added to the regression. Urbanicity also had a significant effect on social life when tolerance was added to the regression. This is in line with previous research that suggest that those living in an

urban setting will more often than, be dissatisfied with their surroundings. However, living in a community with a talented and tolerant population may offset the negative impact of the urban environment.

Technology did not have a significant impact on either infrastructure or social life satisfaction. While there is advancement in technology regarding a community's roads, schools, or police, those advancements may not be as evident to the general public. In fact, those advancements in technology do not have to be created locally. A firm from across the nation could have developed the technology in New York and tested the program in Texas. The transmission of information is made easier with technology. It is easier to imagine how technology could positively impact an individual's satisfaction with their community's social life amenities. Technology exists to quickly and efficiently let patrons aware of upcoming concerts, parade routes, and even reserve tables at their favorite restaurant; however, technology did not act as a significant predictor for social life satisfaction. This could be in part due to the ubiquitous nature of technology. Similar to infrastructure the nature of technology allows for the information to be utilized away from its creation site. Another potential limitation is in the way technology was constructed, through Location Quotients. The ability for smaller firms and individuals to positively impact the technology market may limit the usefulness of measuring technology through LQs.

CHAPTER FIVE

Overarching Conclusion

The results of the analyses in this study lend credence to the argument of developing measures of community strength based on the perceptions of amenities, or satisfaction with said amenities, in a given community. Chapter Two demonstrated that a subjective measure of community satisfaction can hold up to the same scrutiny of statistical tests as their objective measure counterparts such as economic development. Analysis in Chapter Three applied Florida's concept of the 3T's – technology, talent, and tolerance – to the subjective measure of community strength and well-being, overall satisfaction. Chapter Four furthered the analysis of community satisfaction by once again applying the 3Ts approach, but this time to the nuanced domains of community satisfaction, infrastructure and social life satisfaction.

This research coupled with previous research clearly demonstrates that only using objective measures of community strength are inadequate and often miss the mark. Campbell and Converse (1972) noted that in several cases, discontentment with objective conditions has increase while those same conditions actually showed clear improvement suggesting that perceptions often do not immediately respond to reality. Additionally, other researchers have found instances where there is a high level of satisfaction within communities that, on paper, do not meet the qualifications for a thriving community (Gans 1962; Suttles 1968). While this holistic view of community strength and well-

being is uncomfortable for some, it may be the most useful tool researchers have to truly understand the question of what makes communities strong.

While the development of a robust subjective measure of community satisfaction is the primary finding of this dissertation, the secondary finding of the varying significance of the 3T's – technology, tolerance, and talent – is also noteworthy. The introduction of Florida's creative class hypothesis has shifted the views of many governments and industries away from the supply-side of the equation, and towards more holistic view of the community which appeals to more than employment possibilities for the individual. However, this dissertation calls into question the significance of the 3T's on more than just objective economic growth, but questions their significance on subjective community satisfaction.

First, the presence of an above average concentration of technology-based firms and employment opportunities in a community does not determine an individual's level of satisfaction with the community as a whole or with specific domains of satisfaction. Forbes recently released their annual list of Fastest-Growing Cities (Carlyle 2016). In their list, the presence of technology firms already in place and ability to attract more technology firms was a determining factor for the location of new firms and new employment. However, what the release made clear, was that the tech individuals had the advantage. They did not have to move into an area that was already saturated with technology firms to make their startup a success. This echoes the results of this study; it is not the presence of technology firms that is the deciding factor for an individual's satisfaction with their community.

The second finding is the overarching importance of talent and tolerance to both overall satisfaction and domains of satisfaction. The improvement of the tolerance index by estimating the perception of place in terms of the LGBT community and ethnic and racial minorities, proved to be highly indicative of high levels of satisfaction. Previous research shows increased diversity within a localized setting, such as a university or workplace, yields positive outcomes like increases in intellectual engagement and increased sales revenue (Holoien 2013). Contrarily, another study examined solely the racial diversity in neighborhoods across the US and found that the more diverse the neighborhood, the less civic engagement there was within the neighborhood (Putnam 2000). This study relies on the perception of being a good place for minority groups. While perception is not the same as presence of diversity, it supports Allport's (1979) premise that exposure to others unlike yourself has the ability to improve community outcomes. Additionally, across all three areas of satisfaction, the percentage of talented individuals within the community is positively associated with levels of satisfaction. At the individual-level, higher levels of educational attainment had a significantly negative impact on satisfaction, but at the aggregate level, the more concentrate the talented populated the higher the levels of satisfaction. Guest (2006) found a similar result using the constructed community level variable of affluence which takes into consideration household income, college graduates, and employed workers in the professional field. His study found that Further research needs to be conducted to determine the exact root of this difference, but it is conceivable that the sole measure of talent in a community is acting as a proxy for the overall social status of the neighborhood.

Areas for Future Research

This study makes a few recommendations for further study based on the results of this study. As the presence of technology firms did not have an impact on individual levels of community satisfaction, it begs the question is there a business sector that would positively impact community satisfaction and its antithesis, a business sector that would have a negative impact. Future studies should look at the contextual effects of the presence of small business or social entrepreneurs on levels of community satisfaction.

Additionally, this study did not address a crucial component in Florida critiques: unequal re-gentrification. However, it does bring forth the concept of community satisfaction as a replacement for economic growth. Future research needs to be conducted among communities undergoing regentrification to determine if satisfaction can be used as a mediating factor for unequal growth.

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