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POLITICAL SUBCULTURE: A RESILIENCE MODIFIER

by

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September 2011

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With the number and severity of disasters seemingly on the rise, there is an increased call for enhancing resilience to mitigate the post-event costs. Resilience is widely known to revolve around the demography, geography, sociology and economy of the area under study. What is not known is what other factors have multiplicative effects on the overall resilience of communities. One potential factor in this equation is political subculture, Dr. Daniel Elazar's term for the cultural stance of a community with regards to views on government and politics and their role in the society. In seeking to discover whether political subculture affects the resilience of a community, the author proposes to use analysis of disaster case studies from three representative communities—each highlighting one of Dr. Elazar's three subcultures of Traditional, Individual and Moral—to determine whether pre-evaluated resilience values and predicted response to disaster coincide with actual event outcomes. By using the Social Vulnerability Index values as a baseline metric for a quantifiable measure of resilience, the author found that political subculture does alter the predicted outcome and should be further researched as a potential modifier of planned resilience and response.

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POLITICAL SUBCULTURE: A RESILIENCE MODIFIER

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ABSTRACT

With the number and severity of disasters seemingly on the rise, there is an increased call for enhancing resilience to mitigate the post-event costs. Resilience is widely understood to revolve around the demography, geography, sociology, and economy of the area under study. What is not known is what other factors have measurable effects on the overall resilience of communities. One potential factor in this equation is political subculture, Dr. Daniel Elazar's term for the cultural stance of a community with regards to views on government and politics and their role in the society. In seeking to discover whether political subculture affects the resilience of a community, the author used analysis of disaster case studies from three representative communities—each highlighting one of Dr. Elazar's three subcultures of Traditional, Individual and Moral—to investigate whether pre-evaluated resilience values and predicted response to disaster coincided with actual event outcomes. By using the Social Vulnerability Index values established by Dr. Susan Cutter as a baseline metric for a quantifiable measure of resilience, the author found that political subculture affects resiliency and should be further researched as a potential planning factor of resilience and response.

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I. INTRODUCTION

A. BACKGROUND

Natural disasters continue to rock the globe and, per meteorologists and scientists worldwide, will likely increase in number and intensify in strength (Reuters, 2007). In addition, manmade disasters such as terrorist incidents and hazardous material spills are increasing in frequency and magnitude (Department of Commerce, 2010). Studies likewise show that the number of Presidential Disaster Declarations is on the rise in the United States, indicating an upward trend in reliance on federal governmental aid for disaster relief. To some degree this diminution in own-source resilience can be attributed to increased urbanization, which in turn leads to greater recovery costs after disasters (Earthscan, 2007). A sample of the past 21 years of United States Presidential Disaster Declarations is illustrated in Table 1, showing an upward trend in both numbers of declarations and costs illustrative of the concept of increased disaster costs overall. There are many argued causes for the increase in federal disaster declaration—increase in scope and size of disasters, learned dependence on federal aid in lieu of local capabilities, larger population centers, and media attention leading to increased public outcry for action come to mind. The data reflect an upward curve in cost and number of declarations, though, and while all factors above are involved, the increased reliance on federal aid is the focus of this paper. It is not the sole factor in the illustrated upward trend in Table 1, but the nature of a community's reliance on government assistance is a factor in calling for outside aid (or not) and thus worthy of deeper investigation. The data in Table 1 is only reflective of declarations through 2008, but in noting the summation at the bottom of the table, a significant trend is visible.

Table 1.   Presidential Disaster Declarations (From Sylves, Hoetmer, & Racca, 2010)

	Reagan	GHWBush	Clinton	GWBush		Total
1989	1	30	0	0		31
1990	0	38	0	0		38
1991	0	43	0	0		43
1992	0	45	0	0		45

	Reagan	GHWBush	Clinton	GWBush		Total
1993	0	2	30	0		32
1994	0	0	36	0		36
1995	0	0	33	0		33
1996	0	0	74	0		74
1997	0	0	44	0		44
1998	0	0	65	0		65
1999	0	0	50	0		50
2000	0	0	45	0		45
2001	0	0	4	41		45
2002	0	0	0	49		49
2003	0	0	0	56		56
2004	0	0	0	68		68
2005	0	0	0	48		48
2006	0	0	0	52		52
2007	0	0	0	63		63
2008	0	0	0	75		75
Total	1	158	381	452		992

Not only is the number of declarations increasing, but the overall cost of disaster aid is climbing swiftly. Table 2 shows the overall cost of these disasters by administration in thousands of dollars (table value x 1000). An upward trend of fiscal outlay is quite visible when the data is collated in this manner even with the limitations of data available at the start and end of the monitored periods.

Table 2.   Presidential Disaster Declaration Costs (After Sylves, Hoetmer, & Racca, 2010)

Administration	Timeframe	Total (x$1000)
Reagan	1981–1989	$1,892 (data represents last year in office)
G. H. W. Bush	1989–1993	$9,823,833
Clinton	1993–2001	$31,071,445
G.W. Bush	2001–2009	$88,721,307
Obama	2009–Present	$1,372,306 (data represents residual cost of prior administration events)

Communities and governments are continually analyzing and planning for the next big disaster in hopes that recovery will go swiftly and smoothly. One word often used in the context of emergency management is "mitigation"—the ability to reduce the effects of a hazard before an event occurs. Mitigation, though, is a tricky political issue in that many efforts cannot be achieved through construction or money but require a shift in culture or mindset on the part of the populace. An example of this is the failure of levees in New Orleans during Hurricane Katrina. A great deal of government funding was put toward the upkeep and repair of the levee system during the preceding decades, though not all was spent as planned. For example, over $17 million was diverted by the Louisiana-run Orleans Levee Board to recreational projects that included a $2.4 million Mardi Gras Fountain and $15 million for two overpasses to grant better access to Bally's Riverboat Casino (Meyers, 2005). In part, the political culture of New Orleans inhibited the proper maintenance of the levee system and, no matter how much money was targeted at the problem (Garcia, 2009), the conclusion was a failure of physical protective systems that cost thousands of people their homes and hundreds their lives (Seed, 2006).

The resilience of the community—the community's capability to anticipate risk, limit impact, and rebound rapidly through survival, adaptability, evolution, and growth in the face of turbulent change—bears a direct relationship to mitigation efforts applied to hazards affecting that community (Community and Regional Resilience Institute, 2006). Resilience has become the focus of planners at all levels due to climbing costs of recovery. In an era of economic difficulty characterized by budget shortfalls, funds invested in mitigation and resilience have proven to save post-disaster costs (Lewis, 2006).

Perhaps the clearest definition of resilience comes from Joshua Ramo, who likens resilience to "a measure of how much disturbance a system can absorb before it breaks down so fundamentally that it can't easily return to the way it once was" (2009, p. 172). A more resilient community should, by definition, weather and recover from disasters better than less resilient communities, all other factors taken into account (i.e., education, economics, demography, and geography). In short, the "will problem" is more severe

than the "skill problem,"—military parlance for defining whether a failure to perform is due more to lack of desire or willpower versus lack of knowledge or training.

What, then, enhances a community's overall resilience? In seeking to understand resilience, one must look at the factors which can affect the status quo, or normal state of affairs within a community—disasters, changes in population, economic turmoil or any other things that can dislodge a community from a normal state. Knowledge of these potential disruptions enables an educated planning effort that anticipates effects upon the community and enables pre-event mitigation measures to be employed. Examples of resilience, good and bad, exist in current times and are tested by many external factors especially climate change and natural disasters, terrorism, and the effects of a global economy and interconnectedness. This thesis, however, will focus on disasters as a whole defined as an amalgam of events that have drastic damaging effects upon a community or region regardless of cause.

One does not have to look far to see recent examples of disasters and their consequences. Hurricanes Katrina and Rita imposed massive devastation on the Gulf Coast and rendered heart-wrenching images of human suffering. These storms and their outcomes raised many questions about the nation's ability to recover from such massive disasters and resulted in tremendous shake-ups of government agencies and response paradigms. Only later did questions begin to arise about the role of the affected communities in preparing for such disasters. After all, when one lives on the Gulf Coast of the United States, should one not take hurricanes into account when planning home sites, construction projects and preparedness activities? Or, is it indeed the "the government's job" to step in and provide all needed resources and recovery should something occur? Initial cost estimates of the damage from the two storms were 141 billion dollars, not counting the environmental impact or loss of life (Burton & Hicks, 2005).

The question of what fraction of responsibility lies with the public and with the government was again raised following the 2008 floods in the Midwest. Once more, television screens were dominated by images of devastation but without the desperate pleas for outside assistance. Instead, viewers saw images of local communities banding

together to protect homes against rising water and working to clean up the after-effects once the rivers had calmed again. In both Katrina and the Midwest floods, water was the damaging agent, but with a markedly different response on the part of government and citizens during and after the disasters. Preliminary cost estimates for the floods and recovery in the Midwest placed expenses near 15 billion dollars (Infoplease.com, 2009), though final costs have yet to be fully tallied and posted to a government source.

Why is there such a disparity in cost of recovery from two water-based, geographically extensive disasters? The factors influencing the responses and the communities are many, ranging from economic factors, government influence (and some would argue, interference), societal norms and culture, political cultures, and many other factors. The commonly accepted metrics used to quantify the resilience of an area are found in the examination of economy, geography, demography, and sociology. While a direct relationship between any one factor, or even a combination thereof, and the resilience of a community is unknown, it would seem that certain factors may well have more influence than others. Some attempts have been made to measure and quantify these factors through experiments and models such as the Social Vulnerability Index (Cutter, Boruff & Shirley, 2003). This theory has been speculated upon and explored to some extent in business models, which are a form of community unto themselves, leading to the theory that similar factors and relationships would affect entire communities (McCoy and Elwood, 2009). Resilience indices are subject to extensive research as planners seek to quantify a measurable value of community preparedness and resilience to enhance pre-disaster planning efforts. Modifiers, taken as variables that would change raw data, to these quantified resilience factors or indices, however, are unexplored, which is unfortunate given the potential change to predicted response and variation to planned resilience. One potential modifier that stands out particularly is the influence of, and public desire for, government intervention in both preparation and response as evidenced in the disparate reactions to Federal Emergency Management Agency aid between the Gulf Coast and the Midwest. These differences in attitudes toward government and individual responsibility have been identified in the literature as political subcultures.

Dr. Daniel Elazar expanded on the theories of political subcultures—an underlying culture based on a community's view on government and politics and shaped by background, tradition, economics and religion (Elazar, 1984)—and their effects on the actions, thoughts, culture, and responses of the people (Riley, n.d.). Dr. Elazar's theories are founded in the sociological and theological roots of a region or area and might allow predicting anticipated behavior of citizens that may have magnifying or minimizing effects on the resilience of that area.

B. RESEARCH QUESTIONS

1. What is the relationship between the political sub-culture of a community and that community's resilience in the face of catastrophic events?

2. If there is a relationship, can the effect of political subculture on community resilience be quantified?

C. HYPOTHESIS

Multiple disasters have ravaged the United States over the past several years. No region is immune from disaster, whether natural or manmade, and all must be prepared. Part of preparation is the inherent resilience of a community—its self-sufficiency, willingness and ability to respond to its own needs, and its overall capability to weather and recover from disaster. This capability may vary throughout the U.S. due to several factors including population, jurisdictional geographic size, emergency response population, planning efforts and political influence in either preparing for or failing to prepare for disasters. Further, the various regions of the country have deeply rooted characteristics that influence the reactions and resilience of the people living there. Resilience, as an aggregation of community characteristics, is beginning to be explored with research extending into quantifiable measures based on the traditional foundations of economy, sociology, demography and geography. As yet, though, limited research has delved into cultural factors which would modify the calculated resilience of an area.

Dr. Daniel Elazar postulated that regions within the United States can be classified by "political subculture"—a term that attempts to capture the feeling of a region towards government influence and interaction, whether the government be local, state, federal or (Elazar, 1984). His theory posits three subcultures—moral, individual,

and traditional. Predominant trend places moral, where the view is that government exists for the good of the community as a whole, in the north and western U.S., Individual, where government is a necessary evil that keeps markets viable, is primarily in the Midwest and middle Atlantic states. Traditional subculture which sees government as a noble calling handled by an elite few to maintain the status quo for all, is predominantly distributed through the southern and southeastern U.S. (Riley, 2010). The author posits that, when one takes into account the general locations of these subcultures as well as historical evidence of disparate response to and dependence on government aid and assistance during several recent disasters (Morrow, 2008) political subculture, while not the sole factor, has an influence, or modifying effect, on community resilience. Subsequently, by knowing the subculture, one can reasonably predict the level of resilience likely to exist, all other factors taken into consideration. For example, a traditional subculture, by its definition of respecting government as a higher calling and looking to government to maintain the status quo for all with little effort on the part of the populous (Elazar, 1984), would be less resilient as the cultural underpinnings of the community do not call for citizen participation or preparedness. To what degree the subculture affects the overall resilience index is the focus of this thesis and Dr. Elazar's theories will be expanded in Chapter II.

D.   SIGNIFICANCE OF RESEARCH

In this thesis, the idea of community resilience as it is affected by community/political culture and what factors make a community more resilient will be explored. To date, a great deal of research has gone into extrapolating the influence of economics, geography, sociology and demographics upon community resilience and these relationships are beginning to be established and researched. What is not quantified is the relationship between political subculture, or other influences, and resilience. This thesis will concentrate on one influence, Dr. Elazar's theory of political subculture, and quantify the effect it has on overall resilience. From that data, further and more complete models of resilience can be generated which may be used to help predict response capability, and in so doing offer data that may help direct preparedness efforts to address critical vulnerabilities.

At this time, government officials and planners rely on Department of Homeland Security planning factors and "worst case scenarios" that all communities, regardless of size, must plan around to allocate financial assistance and grants, a process which at best causes a "peanut butter spread" of resources across all states and communities without due recourse to actual needs and threats. These measures do not capture the factors that may help one community survive and bounce back from a disaster where a neighboring community might fail. Not every community requires the same degree of support or resources, either due to a lesser degree of threat (a politically untenable statement) or to a greater degree of resilience. In the interest of creating a more unified and defined approach to community resilience and disaster preparedness, more information is required to truly understand why similar disasters in different regions of the country can wind up having such diverse responses from communities.

Given that disasters are not likely to decrease in quantity or frequency, preparation for and response to future events will need to continue to be honed to ensure most efficient allocation of time and resources. No "cookie cutter" approach exists that grants a whole-picture view of communities and States that would allow a situational-dependent plan to be put in place, tailored to the needs of that particular area and ultimately enhance the resilience of the community. With such a wide scope of potential disasters to plan for, highlighting one potential relationship that helps to determine resilience may assist communities in conducting risk analysis. Simply put, knowing a greater number of community characteristics helps planners better define the potential scope of assets needed to enhance resilience or recovery efforts. While this thesis does not purport to highlight political subculture as a singular determinant factor of resilience, it does delve further into the overall metric of resilience and how political subculture may increase or decrease a known vulnerability index. Furthermore, enhanced ability to quantify resilience can provide a starting point for further study into the sociological effects upon a community and its survivability and vulnerability, facilitating better overall planning with each clarification of determinant factors.

Finally, in preparing this thesis for publication, the author has further delved into literature on resilience and brought several diverse sources together. This list of sources can be used to further additional research into this growing area of interest.

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II. LITERATURE REVIEW

This portion of the thesis discusses the array of literature available on resilience as the topic relates to homeland security. This includes the commonly accepted four factors of resilience as highlighted by the Hazards and Vulnerability Research Institute and the Department of Homeland Security's Community and Regional Resilience Institute as well as leading thinkers in the field such as Dr. Samuel Clovis—geography, demography, economy and sociology—which are normally used in analyzing the resilience index of a community or region. Also reviewed is Dr. Elazar's theory of political subculture (as discussed in Chapter I) and the existing debates on validity and timeliness of the theory. Both of these items must be explained in totality before one explores the proposition that there is a connection between the two.

A. CURRENT FACTORS OF RESILIENCE

Resilience is currently a topic of interest throughout the homeland security community. Much like homeland security itself, a common definition of resilience has yet to emerge (Cutter, 2008). A number of organizations and research institutes are examining factors affecting resilience, while the federal government, particularly the Department of Homeland Security, is pursuing resilience as a prevention modality (Napolitano, 2010). A great deal of the published work on resilience deals with hazard planning (Cutter, 2008), focusing efforts towards risk mitigation through planning. One noted gap in research on resilience concerns the factors affecting it—rather, the research seems to focus on obstacles to planning for disasters and indicators of resilience (items which can be used as planning factors) (Berke & Campanella, 2006). A metric has been developed called the Social Vulnerability Index (SoVI), which takes into account a number of socio-economic factors within census areas (Cutter et al., 2003).

This SoVI metric is of particular interest as it provides a quantifiable measure of the resilience (measured as vulnerability, so an inverse resilience where higher SoVI values imply lower resilience). Cutter et al. (2003) broke the United States down by counties to measure multiple factors of resilience across the country. They compiled

data, mostly from the U.S. Census Bureau, detailing multiple socio-economic factors and standardized this data across the country to create a measurable value that could be used as a tool to determine differential recovery from environmental disasters. Ultimately, 32 socio-economic factors (from an initial 42) were accounted for in the SoVI calculations, all agreed upon by research literature processed by the Hazards and Vulnerability Research Institute of the University of South Carolina as key factors in determining the ability of a community to prepare for, respond to and recover from hazards. The SoVI factors accounted for seventy-six percent of the variance noted in disaster recovery and resilience and thus are a good representation of resilience in a consistent, numerical value system that can be compared across different regions of the country.

Nowhere among these selected values, however, is a factor measuring the impact or influence of political subculture or the associated behaviors on resilience (Cutter, 2008). This is not to discount the broad impact of these known factors upon resilience but simply to enhance the definition to include other potential factors. Resilience, as an operational term, will be defined in this thesis as *the ability of a community to withstand a disastrous event and return to normal life (i.e., business open, people travelling, children attending school, and social and physical services in place and functional)*. For purposes of this thesis, resilience will be examined in the context of the overall Social Vulnerability Index, taking into account the four main factors of economy, demography, sociology and geography. The general agreement among resilience academics is the need for further metrics and indices that can be applied to measure community resilience more effectively.

There is a significant gap in the study of the relationship between the resilience of a community and the reliance on government (local, state and/or federal) in times of crisis. The relative reliance on government by a community in times of crisis is a reasonable output of Dr. Elazar's definition of political subculture, a theory grounded initially in faith-based factors and immigration patterns within the United States but also encompassing social structures to define the behavioral nature of communities. In this thesis, a community is defined as a recognized city, town or similar metropolitan area (to include associated suburbs and districts) that is made up of physical infrastructure,

economic and social capital, natural environment and systems/essential services provided to citizens of that community as well as the citizens themselves. It is more than a collection of structures. The community is an interactive environment sustaining a way of life and society as established by the persons living in that community. In addition, a community is governed by officials elected by the members of that community and supported by infrastructure which is in turn enabled by taxes and fees collected from citizens of the community. Within the arena of political culture and subculture, a great deal of anthropological study has taken place looking at all manner of impacts and factors that influence communities—whether that community be a family, ethnic group, city or region. More specifically, a significant body of work exists that looks into how communities react to outside influence—government involvement or interference, weather, disasters, and turbulence in the economy—and how those reactions are influenced by various aspects of the culture or subculture of the communities.[1] Cicchetti and Luthar examined the effect of community culture on resilience as it applied to psychological impact and found that a correlation existed with respect to the anticipated reaction to an external stimulus (2000). Dynes, meanwhile, postulated that communities possess the necessary tools to react safely to disasters, but that current counter-terrorist policies are undercutting the social capital that creates a culture of resilience (Dynes, 2005).

Overall, experts agree that there are four major influences upon a community's resilience: economy, demography, geography and sociology. In the subsections that follow, the author will develop each discipline as it relates to community resilience and homeland security.

1.   Economy

It is a common assumption in American society to point to affluence as a factor in allowing a community to better weather and recover faster from disasters. In theory, a

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[1] The CARRI Website contains a vast store of research conducted in partnership with the Department of Homeland Security. It is representative of a number of such projects being conducted to study resilience and factors affecting communities. From the Website: "CARRI is developing a common framework including processes and tools that communities and regions can use to assess their resilience, determine a resilience vision and take concrete actions that will have positive economic and social results."

community with a stronger revenue base would be better prepared to withstand a disaster, have a more robust and well-funded emergency response system and in general, be more survivable (Polese, 2010). Current data tend to disprove this theory in part. To some aspect, wealth does enable factors that improve resilience. More affluent neighborhoods tend to have larger tax bases that in turn facilitate better public schools. To this end, a more educated populace is more likely to respond appropriately in the face of a disaster, so wealth is a potential indirect multiplier (Clovis, 2008). This tends to be a cyclic phenomenon as well, with greater wealth fostering better education which fostering better economic success and so on. Longstaff et al. argue that a robust economy is key to resilience—a greater tax base provides better and newer infrastructure which in turn aids survivability and recoverability, describing a robust economy as a sort of "shock absorber" for the community (2010). Paton notes that a capacity to adapt is dependent on the existence of resources to confront challenges—a clear function of a viable economy to provide those resources (Paton, 2008). In its simplest view, a community with more resources can, as long as those resources are well-applied, enhance its resilience by "buying down risk" (Lewis, 2006).

By contrast, however, wealthy neighborhoods in New Orleans took just as long to repopulate after Hurricane Katrina as did less-affluent neighborhoods. This may be less due to the economy of the areas affected, though, than due to the sheer ferocity of the disaster unleashed upon the city. After all, floodwaters do not differentiate between a $250,000 home and an $80,000 one. This is somewhat mitigated by the knowledge that more affluent areas were able to evacuate more quickly due to availability of funds and transport, and were able to return to a sense of normalcy faster due to the ability to provide, through increased availability to buy services, a return to routine life (i.e., even if water is out, the ability to purchase large quantities of bottled water makes possible cooking, and showering). Economically, the ability to purchase commodities that help make up for lack of community-provided services makes for a faster return to life and status quo.

2. Demography

Chamlee-Wright and Storr have delved extensively into the makeup of a community and the effects of this structure upon resilience. While some aspects tie with sociology as well, a great deal of the cultural background and temperament of a community is based upon the demography of its population. A number of researchers have also compiled data examining the characterization of populations and how that demographic makeup affects the capacity for adaptation through psychological, social and cultural resources (Paton, 2008).

In addition, "vulnerable" (at risk or special needs) populations tend to decrease a community's resilience by requiring special health, evacuation and other considerations in the event of a disaster. Communities, and more importantly, their governing bodies, that are not aware of the demography of their population or the populations in high-priority facilities such as nursing facilities have struggled during evacuations and response events, diverting multiple resources to small populations and away from the general community at large. Demography influences the ability of populations to prepare for disaster, both individually and on a community level, an effect which has been modeled to great extent (Paton & Johnston, 2001).

Another factor of demography that has been extensively explored is that of environmental effects and vulnerabilities associated with varying populations. Boyce, Haridas, Lee, & National Center for Ecological Analysis and Synthesis [NCEAS] Stochastic Demography Working Group put considerable time into stochastically modeling the effects of demography on vital statistics of populations (2006). A stochastic model is a tool for estimating probability distributions of potential outcomes by allowing for random variation in one or more inputs over time. Stochastic variation in structured population models influences estimates of population growth rate, persistence and resilience. This model provides a look into the variations of population such as "at risk" factors (poverty levels andspecial-needs populations) and predicts the effect of those population segments on community factors to include resilience. Another aspect of this is the internal demography of a community and how it affects the ability of community residents to work together toward a unified goal, such as disaster recovery

(Paton, 2008; Lasker, 2004). If a population is comprised of groups that traditionally distrust each other, for whatever reason, unified effort even in the face of a common threat may be hampered or even prevented. A community made up of groups who can function well together reduces the friction of conflict and allows all energy to be focused on the preparatory and recovery efforts required. Likewise, a community that contains numerous special-needs populations may struggle toward normalcy after an event due to the disproportionate consumption of recovery resources by those populations.

3.   Geography

The geography of a region influences multiple aspects of its resilience, ranging from the type of weather phenomena it will experience to ease or difficulty of transport of relief assets into and out of affected areas. A great deal of work has gone into defining geography and its many subcategories that range from racial to physical to social media. Some argue that traditional, map-based geographical definitions are not valid in the era of globalization and social networking (Felts, 2009). The Community and Regional Resilience Institute (CARRI) define community as "a group bound by geography and perceived self-interest that carries out common functions" (Plodinec, 2009). If this definition is valid, then the very nature of a community is determined by its geographic make-up or boundaries. By this logic, if resilience is assumed to be a trait of the community, a direct link can be seen between geography and resilience through extrapolation. In addition, geography defines the vulnerability of a region or community, as noted by Reser and Morrissey in terms of site and situation of place (Reser & Morrissey, 2008). One aspect of a community's very existence is the environmental sphere or physical setting (Schwab, Eschelbach, & Brower, 2007). One can argue that southern Florida need not prepare for blizzards or Colorado set aside resources to deal with a hurricane in downtown Denver–the physical setting of a community sets fairly rigid parameters about the sort of threats for which that community must be resilient. By its very nature, geography will also have an effect on industry and thus, the man-made disasters that could affect a community as well. For example, oil terminals along the Louisiana coast bring an additional environmental hazard in the face of storm surge that

would otherwise not be there, but the very nature of the coastline makes it desirable to build up such infrastructure at the natural junction of offshore acquisition and inland shipping.

Finally, as a factor of the geography of a community, the perception of risk as a personal issue to a population is determined by the perceived level of safety of the environment as it affects the livelihoods and actions of the community (Paton, 2008). In other words, if the environment threatens life and property routinely or severely, a population is more likely to take mitigation actions to prepare for disaster due to greater feeling of vulnerability. If the environment does not produce frequent threats, or the threats are relatively minor, a sense of complacency will tend to overtake the community and less emphasis be placed on preparation.

4.   Sociology

Susan Cutter and others have spent a great deal of effort developing social indices that measure effects of various sociological factors upon overall community resilience (Cutter et al., 2003). In this work, they attempted to veer from the traditional look at vulnerability based on individual statistics (e.g., age, race) and bring an indexing equation to the social factors that affected vulnerability and resilience. These factors include things like degree of urbanization, growth rates and economic viability that are often overlooked by looking more at individual characteristics and less at the factors that create social inequality.

Looking deeper into community dynamics, a broad study of work begun with Ann Swidler has evolved around the "cultural tool chest" or aspects of a set community that give it the ability to react differently to the same stimuli than another community or group (1986). These may be defined factors such as geography or economy, or they may be intangibles such as the myth of the model minority—defined by Chamlee-Wright and Storr as a hard-working, no-nonsense minority that blends into the society and does not "make waves" (2007)—which, though not proven through sociological study, has created enough of a mindset to be able to influence the actions of a group. Luthar and Cicchetti (2000) looked into whether these cultural tools make a particular community more

resilient than another, evidence corroborated in the study on post-Katrina recovery in similar Black and Vietnamese communities (Chamlee-Wright & Storr, 2008). In the latter study, the researchers looked at multiple recovery factors—economic, population, return to previously flooded neighborhoods—and compared the two communities. In so doing, they noted significant disparities among ethnic groups who also happen to fall into different political subcultures. One additional study conducted in rural Tasmania to measure the effect of social capital on the well-being of community members found that a great many cultural norms, or tools, directly influence the resilience of communities and indeed the very nature of the community in terms of its cohesion, intrinsic support, and efficacy toward its members (Kilpatrick & Abbot-Chapman, 2005).

B.   POLITICAL SUBCULTURE

1.   Theory of Political Subculture

Daniel Elazar (1984) postulated that there were divisions across the United States that can be grouped into political subcultures. He defined political subculture as "The particular pattern or orientation to political action in which each political system is imbedded" (Elazar, 1966). Each of these subcultures views the role of government differently, partially driven by perception of government as service and partially by influence of religion on morals and standards of the populace. Each group arose from socio-cultural differences among the people moving to and settling in the United States as far back as the original colonization and continuing through intra-border immigration today. Initial geographic distribution of the three dominant subcultures was established by migratory patterns and the tendency of various ethnic and religious groups to congregate together, even upon internal migration and re-settling. The interplay of these groups and the ties back to original settlements, however, have worked to create a weave of subcultures that act to tie states and communities together despite geographic separation and intermingling of different subcultures. The patterns and values of the subcultures within a state or region grant a particular character to that state or region and help establish its fundamental (and unique) relationship to the nation.

The first of his subcultures is the Moral group. This group originally settled in northern New England, the northern Midwest and the western/northwestern states, strongly influenced by the religious factions emigrating into the founding settlements. In this group, the good of society trumps the good of the individual, but does not subsume it, and politics is viewed as a force for good in that it enacts change to the benefit of society. Values within this group derive heavily from agrarian roots and tend to be the force behind the American dream of a "good society" (Elazar, 1984, p. 141). This subculture is often associated with the "Yankees" of the northeast, despite the migration as far as southwestern California of this particular culture. It tends to be the culture that drives the values evaluation of politicians—looking beyond basic promises and platforms to the very nature of the person as a representative of society, or what the society would choose as its voice. This subculture finds its roots in Puritan ethics and manifests high standards from its representatives. The subculture will limit personal freedoms in seeking a better social order and tends to act as a check to unlimited market power at the expense of social good.

The second group, Individual, originally encompassed the Mid-Atlantic states and some areas of the west. Politics and government are largely viewed as utilitarian and best kept out of local and community affairs. However, government is a necessity from which the individual cannot escape so engaging in citizenship to the extent necessary is acceptable. Much of the founding influences of this group came from Irish immigrants who would tolerate a great deal of political corruption and outright inaction as long as it did not affect the market and trade. This subculture enables integration of diverse groups into the framework of American culture by virtue of espousing the "bootstrap" theory of hard work leading to monetary success and trumpeting individual freedom as the pinnacle of societal goals. This has created the beacon of "The American Dream" that has brought so many different peoples into the country in quest of freedoms not found in their former lives. Left unchecked, however, the individualistic subculture does promote individual success at all costs—as long as the actions take place in the market, anything is allowed to pursue success—and can stratify a society economically very quickly.

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Finally, the group originating mostly in the south is Traditional where government is viewed as a positive influence in that it maintains the state of order and hierarchy of society while family drives most local concerns (Riley, 2010). Elazar emphasizes that this subculture is driven by a quest for continuity and legitimacy, though often at the expense of civil rights and opportunity for varied groups of people. When led by an elite figure, it is the idyllic Americana of family, stability, and normalcy. Without that first-rate elite, however, Traditional subcultures can devolve into oligarchic societies where former elites resort to bigotry to maintain the status quo of their society in the face of reduced economic and political power. Because of the deeply-entrenched connection with its roots, however, the Traditional subculture can produce superb national leaders who, versed in the foundations of America as they know it, seek to draw the country back to dreams of a better yesterday in the face of uncertain tomorrows. By consequence, communities with a Traditional leaning tend to look for these elites to rise and lead the society back from disruptions in the status quo, but are conditioned to not put forth individuals who cannot claim to the "legitimacy" of that elite class.

Elazar further established that the general migration across the United States, which had the effect of intermingling immigrants, religions, families, and other influences upon culture, led to a blending of political subcultures (see Figures 1 and 2). As such, no clearly defined boundary exists between Individual and Traditional, for example, and the continued evolution of the American frontier (as seen in changes in populations, migratory patterns, and the "agrarian-to-urban" shift) alters the geography of the initially-postulated characteristics of each subculture. While some patterns such as the farm-to-city movements only concentrated values of outlying regions into a stronger base, others, such as the general westward expansion, saw the original spheres of subculture influence blurred and comingled. Elazar noted, though, that even with intermingling and sharing of ideas and values—a cultural inevitability that evolutionand devolution will occur over time—the general predominance in regions tends to unite individual states within those regions even in the face of differences in economics and material interests.

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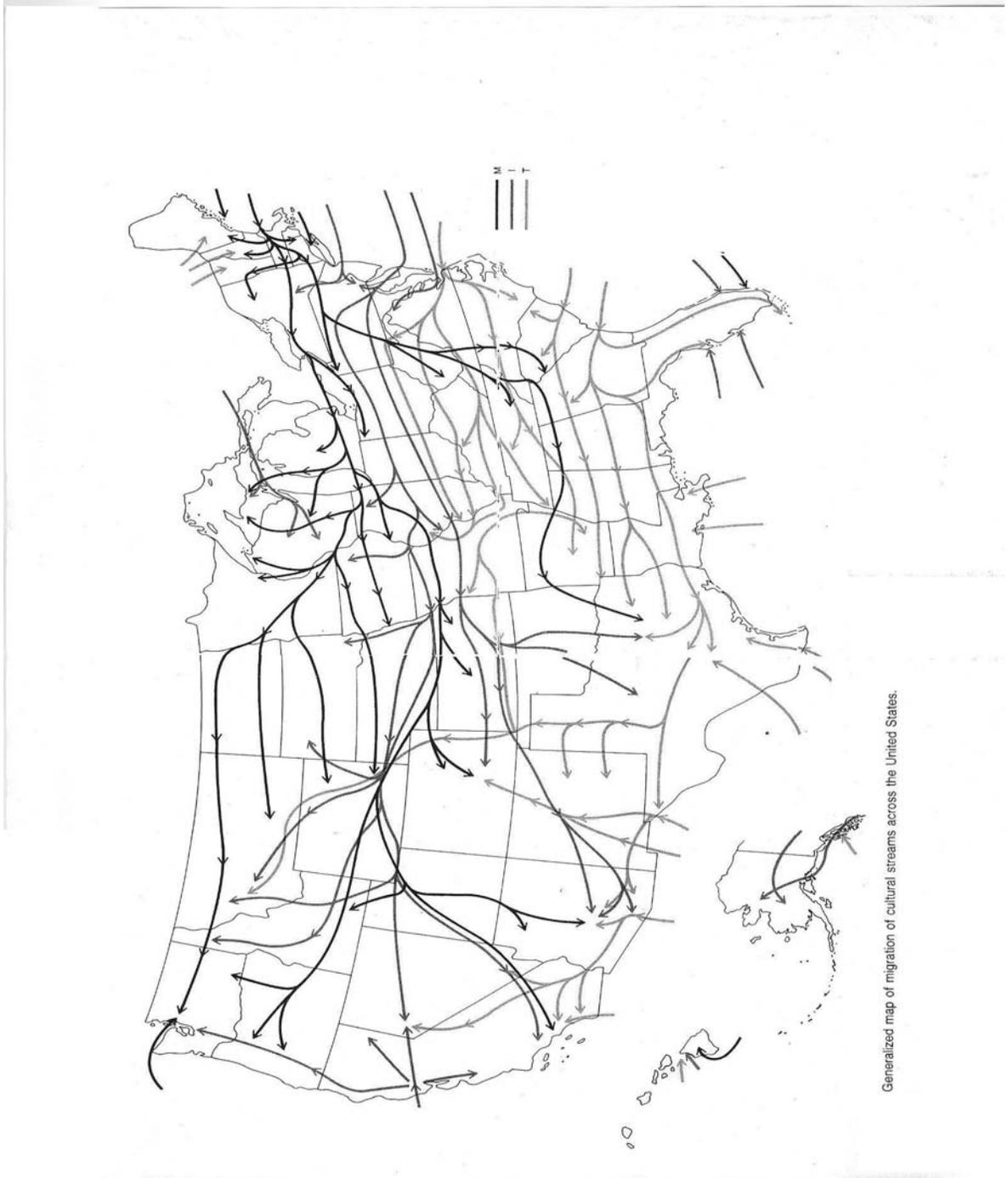
Figure 1.   Migration of Political Subcultures (From Elazar, 1984)

As seen in Figure 1, there has been a great deal of shifting of the initial postulated subculture regions. The result of this is the blending of subcultures across the country. Elazar noted, however, that even as populations moved and intermingled, people of

similar mindset and culture tended to gather together. The result of this, while not necessarily apparent from an overview of the entire country, is communities or portions of communities that display a dominant political subculture. This means that the overview in Figure 2 is representative of overall regional trends, but does not capture the identity of each community within the regions and states.
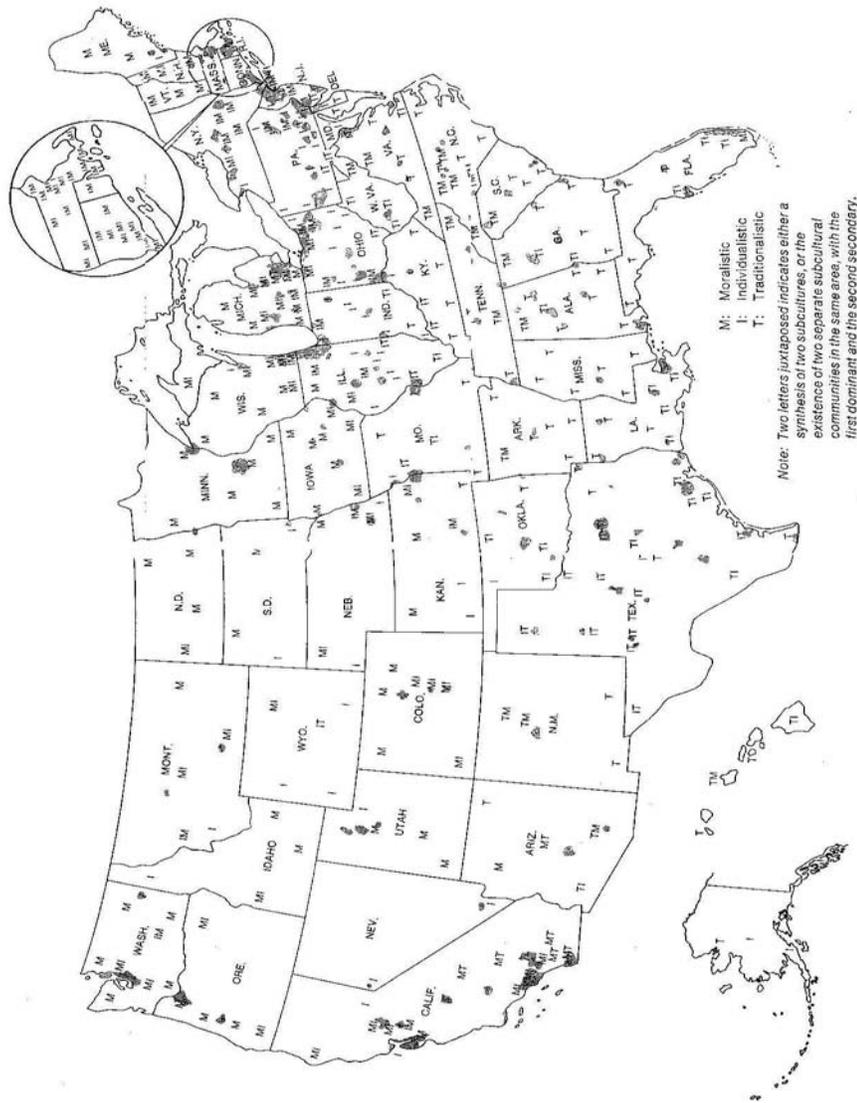
Figure 2.   Post-Migration Geography of Political Subculture (From Elazar, 1984)

Subcultures take into account views on politics and government but do not fully define the regions to which they are tied (i.e., there is more to a community than its political subculture). At its most basic level, political subculture influences, but does not

dictate, the actions of the associated community. In this aspect, a number of authors, most notably Peter Nardulli have criticized Elazar's work as too broad (Nardulli, 1990) and have attempted to bore deeper into the culture of communities and what influences—migration, familial contacts—have shaped those cultures (Lieske, 2004). Elazar's research is also over two decades old and does not account for the influx of immigrants or changing population demographics across the United States (U.S.). That said, Hanson points out, based on overall subculture dynamics and reactions to both government and significant events, the idea of three subcultures still holds true as though the changing population acclimatized to the dominant subculture of the community rather than the reverse (Hanson, 1992). Elazar's theory also grounded itself heavily in religion and the effects of faith upon views of national and trans-national organizations and institutions. This is corroborated by additional research into the definitions of culture such as those espoused by Kim (2009).

A lingering question yet to be studied in existing research is whether Elazar's political subcultures are a part of or are enhancements to a "cultural toolbox" for their representative geographical communities, and if so, whether the political subculture influences the resilience of those regions. Primarily, resilience is considered to be a product of economy, geography, demography and sociology of an area or region. Thus resilience, though, may well be modified or adjusted by the political subculture of the affected area. While it would seem to be the case as seen in the differing responses to disasters across the U.S., no real empirical evidence seems to point to a direct link beyond interpretation of events as seen through Elazar's lens (Nardulli, 1990). If one takes Elazar's theory of political subculture to be true, or mostly true, then it is a logical step to say that subculture is one of the intangible cultural tools that affect communities. Based on this thought and Swidler's theory of "cultural toolboxes," there is a yet unexplored link between political subculture of a community and its resilience to disaster.

The individual pieces of the formula—Elazar's theory of political subculture, Swidler's "cultural toolbox" and overall community resilience—are readily at hand through research. As of yet, however, they have not been mathematically aligned to measure the effect on resilience. If such a relationship exists, local, state and federal

governments could use it to aid communities in preparing for, weathering and better recovering from disasters by tailoring messages, aid and education to fit the community culture. Thus, it is of benefit to explore the multiplicative effect of political subculture upon known resilience measures within communities, which is the goal of this thesis. Any factor that modifies a planned resilience value either up or down has significant impact by creating a truer picture of a community's state of preparedness and survivability.

2. Geographic Considerations

As mentioned in the overview above, additional limits of current data on Elazar's theory are the exact definition of the geographic regions representing each subculture and the intermingling of various cultures within regions and even communities due to migration and population changes. Elazar postulated some broad areas and some work has been done since then to define more concrete boundaries, but changing demography, "urban to suburban" population shifts and immigration have changed some of the former regions. Elazar himself noted a shift in population over time and that some areas of formerly clearly bounded subculture have subsequently intermingled and co-located as an inevitable evolution of cultures. Original foundations for majority subculture distribution are illustrated in Figure 3 and are indicative of the overall subculture leanings of the illustrated states, but this does not fully highlight the blend of cultures within each region and state (see Figure 2). This blend created shifts within traditional boundaries, values and norms of each subculture, such as Moralistic politicians embracing a more Individualistic economic-driven set of values to enhance their appeal to their constituency. One item highlighted by Elazar is the fact that even in blended societies groups or neighborhoods will demonstrate a dominant political subculture based on the tendency of people of similar mindset and background to gather together.

MAP 1-2 Dominant Political Culture by State

Moralistic
Individualistic
Traditionalistic

Source: Virginia Gray, "The Socioeconomic and Political Context of States," in Politics in the American States: A Comparative Analysis, ed. Virginia Gray and Russell Hanson, 8th ed. (Washington, D.C.: CQ Press, 2004), 24.

Figure 3.   Initial Dominant Political Subculture (From Riley, 2010)

Glenn Richardson, Jr., and Amy Jasperson (2008) have attempted to corroborate Elazar's original mapping via a unique look at the tone and nature of political advertising, noting that the nature of the political advertisements reflects an understanding of and focus on the political subculture of the region. Much as advertising is carefully planned out to appeal to the market demography by highlighting known concerns, likes or favorites, political advertising must play to the view of politics of the community in which it is aired to have maximum effectiveness. Jasperson and Richardson looked at over 200 campaign ads as well as in-depth case studies to prove that ads toned in alignment with dominant regional culture find a more receptive audience among voters (Richardson & Jasperson, 2008).

These scholars noted that there is a great theoretical appeal with some empirical support for Elazar's theory but sought to expound upon the point where Elazar's political subculture would be most expected to reveal itself. The authors noted that, particularly in state and local (i.e., community-based) campaigns, candidates are compelled to explicitly address voters' geographic and political identity. Their work expands on previous research done by Richard Joslyn in 1980 that omitted the traditionalistic subculture. Through the course of their research, Richardson and Jasperson concluded that Elazar's formulation was not as precisely defined as it could be, but was viable and explained a great deal about policy outputs and elite orientations with a theory operable in terms of three distinctive subcultures (2008). They concluded by noting that Elazar's theory is based firmly in dominant and subdominant strains of culture in each state, and in differing regions within states, a finding that aligns itself well with the overall theoretical bounds of Elazar's three subcultures (Richardson & Jasperson, 2008).

Finally, given the religious factor that helped shape Elazar's initial postulate (1966), some work has been done to verify the initial assumptions of state cultures based on current religious data with the intent of creating a more valid mapping to help predict political trends within the states. Watson and Morgan reviewed religious census data from the states as of 1980 to update the initial construct used by Elazar that took into account turn-of-the-century data (1991). Their findings indicated an overwhelming validity and alignment of current trends (as of 1990) with Elazar's initial theory (Morgan & Watson, 1991). The sole exception was Florida that saw a shift away from the Traditionalistic subculture due to shifts in population away from fundamentalism to more main-line religions. Overall, however, their data indicated that the initial mapping of political culture by state was, for the most part, valid (Morgan & Watson, 1991).

This still leaves a shortcoming in the overall data concerning political culture of communities and results in the overall data being skewed more to a regional/state perspective. It is possible that some variance in political culture, by county or city within a state, predominantly of one subculture, might result in differentiation of overall data. For purposes of focus, however, this thesis will focus on community-specific effects as bounded by the dominant regional subculture and indicative community behaviors.

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III.   METHODOLOGY

In order to seek a link between community resilience and political subculture, the author employed an analysis of historical case studies followed by a comparison of case study data to predicted resilience values. The intent of this comparison was to determine deviation from predicted data, thus demonstrating possible influence of political subculture upon community resilience.

A.   SCHEME OF ANALYSIS

The first step of this method was to seek case study data from areas representative of Elazar's three subcultures. This effort was somewhat hampered in that, due to migration within the United States, no area demonstrates a singular subculture. A predominant subculture is evident in each of the identified case study communities, however, making comparison to anticipated behavioral data possible. Each case study community suffered a disaster that significantly, on a per capita basis, affected the community and tested its resilience. Each case study represented damage significant enough to affect the majority of the community and in so doing, the predominant political subculture.

Secondly, each community was analyzed based on historical and census data to determine additional influencing characteristics such as educational attainment, economic bases, dominant industries, and demographic factors that additionally shape resilience. This was done in order to ensure comparison of actual post-disaster actions versus predicted behaviors was done with a foreknowledge of other influencing factors. The intent of this effort was to make sure each community was compared in a similar manner to ensure results were statistically comparable and that damage was accounted for on a per-capita basis in an attempt to mitigate the effect of different community sizes and backgrounds on the analysis.

Next, data was obtained for each community using the Social Vulnerability Index or SoVI (Cutter et al., 2003). While not the only measure of resilience and vulnerability available, the SoVI is extensively researched and has been updated by University of

South Carolina staff and provides a comprehensive measure of predicted vulnerability (and by consequence, resilience) based on 32 academically-accepted factors that fall into the disciplines of demography, geography, economy and sociology. The SoVI does not, however, account for political subculture in its calculations. It serves to provide a consistent baseline metric for predicted behavior against which actual response was compared to determine variance and variable factors.

Data from the SoVI was compared to actual recovery timelines and measures of return to normalcy such as repopulation, post-disaster population, and economic growth. The SoVI provides a numerical value of vulnerability that can be transposed to determine how likely a disaster would be to significantly affect a community. The original 2003 SoVI scale is based on deviations from the mean (either above or below) with factors increasing vulnerability contributing to positive deviations above the mean while factors enhancing resilience provide negative index values below the mean. A community found to be within the mean range of the SoVI (i.e., less than one standard deviation above or below) is theoretically less vulnerable to a disaster than one more than a standard deviation away from mean. This index was further refined in 2009 to be represented on a numerical scale of 0.0-8.0 where higher numbers are indicative of increased resilience. In this method, the SoVI is a comparative metric that can be used to predict differential response to disasters. This predicted response was then compared to the actual response to determine if a relationship could be found between political subculture and resilience. In the case study analysis, data from the 2003 SoVI was used as an initial characterization of the community while the 2009 numerical value was used in the final comparison of predicted resilience to demonstrated resilience. This shift in SoVI values was done to avoid the potential variables of using mean/deviation data (as found in the 2003 study) and instead, focus on a more consistent, single-number value (as presented in the 2009 study) for comparison. In this way, rather than compare a range of numbers, concrete, single figures are used to make contrasts easier to note.

B.   LIMITATIONS OF METHOD

This analysis method has several limitations that preclude it from providing a definitive and bounded relationship value for the modifying effect of political subculture on resilience. That said, the intent was to explore whether a relationship exists and in so doing to provide a basis for further research to quantify that relationship.

First, the case studies themselves are representative of only one sample of each type of subculture and thus are not statistically valid. Further research encompassing additional communities would be required to generate a true statistical model. This thesis sought only evidence of connection and not quantifiable statistical data.

Additionally, the communities chosen for analysis are different in size, history and overall makeup as evidenced in the descriptive portion of the case studies. To alleviate this variance within this paper, the SoVI was used to provide a comparative value that was consistently derived across all communities. Further research could look at other measures of relationship by comparing similar size communities and additional measures of resilience to solidify and quantify the relationship of political subculture and resilience. A potential area for follow-on research would be to further compare the 2003 and 2009 SoVI data against Elazar's model of subculture migration and see if another connection could be made based on changes in community vulnerability.

The factors used to determine community return to normalcy were also limited in this thesis to pre- and trans-disaster evacuation rates and follow-on repopulation data. Additional factors such as educational rates, economic growth, restoration or loss of key industry and demographic shifts should be considered in future research to further define what a true state of normalcy is for a community.

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IV.   CASE STUDIES

In the following pages, three separate case studies are illustrated—one each representing a Traditionalistic, Individualistic and Moralistic community. Each suffered a disaster of significance (on a per-capita basis for the community affected) that tested the resilience of the community. By examining the response to the disaster in terms of recovery speed and repopulation data (two illustrative factors of resilience as defined as a return to a state of normalcy), it is possible to expand upon the idea of community resilience as more than an attribute determined by geography, sociology, economy and demography. While these factors are the accepted determinants of primary influence upon resilience, this thesis purports to show that political subculture, as a regional or community attribute, acts as a modifier upon the resilience of a community, either enhancing or detracting from the overall resilience depending upon the culture in question.

All three communities involved in the case studies are quite different in population size and primary economic basis. Each was chosen as representative one of Elazar's subcultures and for the fact that the disasters caused, on average, a similar per capita impact to the citizens of that community.

By way of review, Susan Cutter et al., developed an index called the Social Vulnerability Index (SoVI) encompassing the factors of demography, economics, sociology and geography, ranking all counties in the United States for vulnerability to natural disaster (Cutter et al., 2003). The formula allowed for comparison of counties using eleven factors: personal wealth, age, density of the built environment (as a measure of economic robustness), single-sector economic dependence, housing stock and tenancy, race, ethnicity, occupation, and infrastructure dependence. These factors, taken together, give a range of values from -9.6 (low vulnerability) to 49.51 (very high vulnerability) with a mean value of 1.54. The counties were noted by range of standard deviations from the mean, with counties scoring one or more standard deviations from the mean being most vulnerable (least resilient) while those scoring at one or more standard deviations below the mean were categorized as the least vulnerable, indicating greater resilience to

disaster. Given the robust data available, this can provide a good measure of resilience against which Elazar's political subculture can be compared to seek the value of subculture as a multiplier to resilience (see Figure 4). The SoVI is by no means the only measure of resilience available but does provide a comprehensive and quantitative value against which the postulate of political subculture as a modifier can be weighed, while still accounting for the "traditional" factors of resilience.
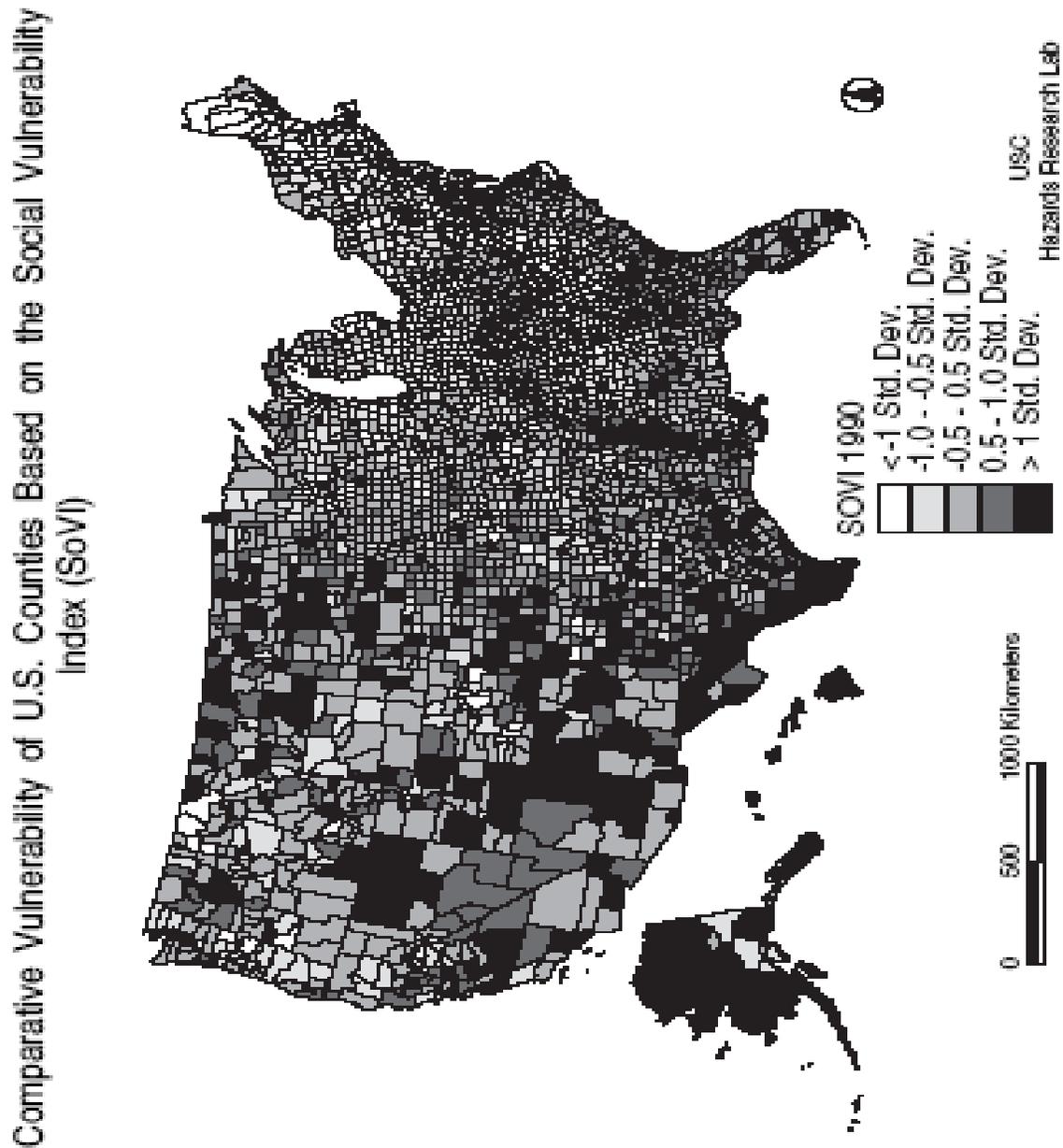
Figure 4.   Social Vulnerability Index By County (From Esri, 2010)

A.   TRADITIONAL SUBCULTURE—HURRICANE KATRINA

1.   Southeast Political Subculture

According to Elazar, the Traditionalistic subculture is most likely to search for continuity and has produced some notable national leaders from among its elites. The

theoretical boundaries of the Traditionalistic subculture lie within the southern United States, mostly in the southeast but has spread across the whole of the southern part of the nation to Arizona.

This subculture region is noted for emphasizing the legitimacy of government, as least as far as its representatives understand the concept (Elazar, 1984). By this view, one would anticipate a paternalistic and elitist conception of the commonwealth. "Good" government maintains traditional patterns and adjusts to changing conditions with minimal upset to the status quo. In short, the government is expected to take care of the community with little to no involvement on the part of individuals, with the exception of the "elites" of a society who take the leadership role.

By this measure, with the individual not expected to truly take a hand in the running of government or of the society, one can expect that resilience would tend to be lower, rates of recovery slower and repopulation more gradual as individuals wait for their elected officials to bring things back to the norm and reestablish societal order. If individuals are conditioned by their culture to not become involved in the running of their society, they will not be inclined to take proactive or reactive measures beyond basic human "fight or flight" responses. In this aspect, the resilience of the community would be lessened due to the reduction in individual contributions to the whole.

For pre-storm resilience-oriented data on New Orleans, the 2000 U.S. Census report provided good data based on wide population surveys and consistent sampling methodology. This demography, geography, education, and economy data is presented in this cases study, as well as the two that follow, to illustrate the nature of the community in review. While this thesis is looking at connections between political subculture and resilience, factors such as those illustrated by the following data are known to have an effect on resilience as well. The data serves to illustrate the community and factors which affect its resilience—for example, poverty levels (often tied to lower educational attainment) increasing demand on community government for support and reducing resilience (Clovis, 2008). In addition, this data further serves to illustrate similarities and differences in the case study communities. For example, average household income is

similar across all three communities, but the distribution of that income varies significantly, indicating a common baseline with differing resilience dispositions.

In terms of demography, the New Orleans population was reported to be 53.1 percent female and 46.9 percent male, with 47.8 percent of the population between the ages of 18 and 49. Twenty-five point five percent of the population was older than 50 and 5.7 percent older than 75. Sixty-six point six percent of the population was black, 26.6 percent white, 3.1 percent Hispanic and 2.3 percent Asian. Educational attainment among the population was distributed at 25.4 percent with a twelfth grade or less education with no diploma, 24 percent with a high school education or GED, 27.5 percent with some college and 23.1 percent with a Bachelor's degree or higher. Average household income was $43,176 across the parish and $35,693 as the average for households reporting less than $200,000 incomes. Fifty-three point six percent of households fell at this level or below, with 21 percent reporting an annual income of $10,000 or less (U.S. Census Bureau, 2000). The geography of Orleans parish is primarily urban, bounded by the Gulf of Mexico, Lake Pontchartrain, and the Mississippi River delta. In addition, a majority of the parish is actually situated below sea level, in some places as much as 15 feet below requiring a great deal of levees, anti-flooding pumps and channels and other water control measures (U.S. Census Bureau, 2000). Economically, the primary sources of income include marine agriculture, tourism (food and lodging services), health care, social services, and petroleum products transportation and distribution (U.S. Census Bureau, 2000). Given these conditions, the relative resilience would tend to be lower due to lesser education and resources as well as geographical constraints and vulnerabilities. These factors are accounted for in the SoVI value for the parish which indicates high vulnerability and low resilience.

Table 3.   New Orleans Population Data Summary

Male	Female	18-49	50-74	75+	White	Black	Hispanic	Asian
46.9%	53.1%	47.8%	25.5%	5.7%	26.6%	66.6%	3.1%	2.3%

Table 4.   New Orleans Educational Attainment

No Diploma	High School/GED	Some College	Undergraduate Degree or Higher
25.4%	24%	27.5%	23.1%

Table 5.   New Orleans Income

Average Household Income	Households At/Below Average	Households Below $10K/yr
$43,176/yr	53.6%	21%

2.   Analysis

Hurricane Katrina may be the most analyzed disaster in the continental United States. On August 29, 2005, the storm came ashore over the Gulf of Mexico coastline centered on the New Orleans, Louisiana area as a category three hurricane. An estimated 1,836 people lost their lives and approximate property damages were estimated to be 81 billion dollars (note this does not include government relief funds and second-order economic effects like disruption of the oil industry) (Knabb, Rhome & Brown, 2005). Total evacuees from the area, estimated to be the largest Diaspora group within the U.S., came to over one million individuals (Ladd, Marszalek & Gill, 2006). This is especially significant when noting that the population of just one affected state—Louisiana—fell almost five percent when a census was taken over a year after the storm (Christie, 2006). This indicates that the repopulation and restoration of storm-wracked areas was not

complete, even with massive federal and state assistance. Many factors affect this repopulation data and while Traditionalistic behaviors dominate the area, responses by individuals vary with most of the non-returning population citing the length of time for the area to return to normal as the reason for staying away (Levitz & Esterl, 2010).

Concerning repopulation of the Gulf Coast region following the passage of the storm and into subsequent time, suitable housing was the key factor in reoccupation of the area (McCarthy, Peterson, Sastry, & Pollard, 2006). Given the violence of the storm, much of the housing was destroyed, so the ability to rebuild and provide shelter for returning citizens must be considered as a part of the measure of resilience—it is, after all, a "rebound" to a state of normalcy. The economic influence and status (cost of repair and material, availability of contractors) factors significantly in the resilience of the region. Even if infinite resources were available, though, the will of the population to return must enable the rebuilding of the area. For example, in New Orleans, a pre-hurricane population estimate of 455,000 was reduced to 91,000 in December 2005. By one year post-storm, population had risen to 152,000 and three years after the hurricane, it was estimated at 272,000 or 56 percent of pre-storm population (McCarthy et al., 2006). Four years after the storm, New Orleans census figures show population at 355,000, or about 80 percent of pre-storm numbers (Plyer, 2010). This data is taken as an overall figure and does not specifically drill into the lower levels of repopulation encountered in more heavily damaged parts of the city.

A number of factors influence the repopulation data including mental and physical distress, housing availability, economic prospects and more, but for purposes of this analysis, data are taken at face value to represent a post-disaster picture of the population and resilience of affected communities. In the case of the Gulf Coast, New Orleans is often viewed as a barometer for area statistics. Data on the Mississippi coast shows less-extensive depopulation, but still significant with approximately a 13 percent population reduction as of 2007 (Chriszt, 2007). In an area where the economy is heavily reliant on oil, tourism, and fisheries, this storm caused a direct impact to the financial ability to recover.

In all, despite massive federal and state efforts, communities all along the Gulf Coast recovered slowly and continue to lag behind pre-storm figures for population even five years post-disaster.

The 2003 SoVI value for New Orleans per Cutter et al. shows Orleans Parish to be outside one standard deviation from the index mean, indicating the parish is one of the most vulnerable/least resilient counties. For reference, all surrounding parishes are also in the "most vulnerable" category while the overall state shows an approximate 50/50 split between "most vulnerable" (1+ standard deviations over the mean) and "more vulnerable (.5-1 standard deviations). Armed with this data, it is reasonable to classify Louisiana in general and Orleans Parish in particular, as less resilient. This will come into play later in analysis of all target regions to clarify the relation of political subculture to resilience.

Given the nature of the traditional subculture of the region as outlined by Elazar, the expected behavior is that, in general, the people of the region look to government to restore the status quo and do not get overly involved in their own recovery efforts. Based on this, the question of whether a relationship exists between resilience and the political subculture in Traditionalistic areas appears to be affirmed as the data does corroborate the expected behaviors. In other words, repopulation occurred very slowly indicative of a very gradual return to normalcy and a lack of community effort to regain that normalcy. This is an assumption based on the numerical data and does not account for other factors involved in the area that may also have slowed recovery, but does point to an influence that ties with expected community behavior of waiting for outside assistance. What is not known is to what degree the Traditionalistic culture affects the resilience of the area. While many news stories highlight individual or even community triumphs to the contrary, data from this disaster points to the expected behavioral trend in the region that has yet to see complete return of displaced citizens or full establishment of pre-storm services and business.

B. INDIVIDUAL SUBCULTURE—MIDWEST FLOODING

1. Background

The Individualistic subculture, as defined by Elazar, is centered heavily on the maintenance of commerce and commercial efficiency (1984). This subculture is less interested in the workings of government or in governmental influence in the lives of citizens barring that such influence/activity directly affects earnings and livelihood. Indeed, this subculture is the most tolerant of outright political corruption as long as it does not impact citizens' lives—politics is viewed as a dirty, if necessary, business (Richardson & Jasperson, 2008).

In this aspect, one can expect that citizens of Individualistic areas will be more self-reliant and less inclined to look to government for solutions given the assumed corrupt nature of politics. Activities that drive return to normal market conditions will take precedence and post-disaster recovery should be based on a concept similar to an agricultural co-op with individuals pooling together to increase the revenue/market share of all, but done through individual contributions—the group will turn to help the individual last, so each individual is expected to be able to fend for him/herself. In this aspect, a citizen of an Individualistic community would be anticipated to look to his/her restorative efforts first on the theory that the sooner business is restored, the sooner society will begin to operate smoothly again. This, in turn, could be expected to show a steady, if somewhat slower, return to community normalcy. The negative result of the disparate efforts of individuals might be a disorganized recovery as no coordination between individuals impairs a community-level response. Given an inherent distrust of government, coordination efforts directed from a top-down aspect are likely to be met with indifference or ignored completely. Barring that market issues drive collective efforts, actions will likely be solely individual.

Of particular note in this case is that the dominant culture in the Midwest—Iowa, which was the most hard-hit by flooding, in particular—is Moralistic. This is a representative of the foundational ground of this subculture. Over time, though, the Individualistic subculture migrated westward from the northeast U.S., creating a

significant blend of the two cultures throughout the Midwest. This blend does not necessarily imply that the communities will display both the "good of the community" behavior of a Moral subculture and the commerce-driven "bootstraps" behavior of an Individual subculture (Elazar, 1984). Elazar noted that like attracts like and that communities and neighborhoods will display a tendency for citizens of similar mindset to settle together, creating a dominant subculture. The primary community of focus in this case study, Cedar Rapids, lies in an area of mixed subculture, but exhibited traits exemplifying the Individualistic subculture in its post-disaster response. The community was focused on restoring business and commerce via both pre-disaster and recovery actions.

In terms of city data, Cedar Rapids mirrors the demographics of New Orleans in terms of male/female population at 48.7 and 51.3 percent respectively. Fifty-two point three percent of the population lay between the ages of 18 and 50. Twenty-four percent of the population was over the age of 50 and 6.6 percent over the age of 75. Ninety-one point nine percent of the population was white, 3.7 percent black, and 1.7 percent each Asian and Hispanic. Educational attainment within the population was 2.75 percent with a 12 grade (or less) education without diploma, 36.7 percent with a high school or GED diploma, 23.3 percent with some college, and 36.9 percent with college degrees of varying levels. Average household income was $43,704 with 47.1 percent earning $40,000 or less per year. Sic point one percent reported less than $10,000 per year (U.S. Census Bureau, 2000). Geography of Cedar Rapids is urban, situated upon the Cedar River and surrounded by agricultural, rolling terrain. The area has numerous lakes and rivers throughout the surrounding terrain (City-data.com, 2010). The economy of Cedar Rapids is primarily based in manufacturing of agricultural and food products, steel working and some electronics manufacturing (U.S. Census Bureau, 2000). All of these factors point to a moderately robust community with a significant portion of individually-based industries and a fairly resilient population based on education and economics.

Table 6.   Cedar Rapids Population Data Summary

Male	Female	18-49	50-74	75+	White	Black	Hispanic	Asian
48.7%	51.3%	52.3%	24.5%	6.6%	91.9%	3.7%	1.7%	1.7%

Table 7.   Cedar Rapids Educational Attainment

No Diploma	High School/GED	Some College	Undergraduate Degree or Higher
2.75%	36.7%	23.3%	36.9%

Table 8.   Cedar Rapids Income

Average Household Income	Households At/Below Average	Households Below $10K/yr
$43,704/yr	47.1%	6.1%

2.   Analysis

In June of 2008, massive flooding swamped large tracts of the Midwest United States with fifteen new 24-hour record precipitation levels being noted across the region (Gleason, 2010). Overall regional data is difficult to locate (as one might expect given the Constitutionalist and individualistic nature of the region) though data can be garnered by state. Most heavily hit was Iowa with 83 of 99 counties declared as disaster areas (Gleason, 2010). Using that data as representative of the region, evacuations show in the realm of 10–15 percent of population (24,000 evacuations in a population of 200,000 in Cedar Rapids, for example, or 12 percent) ("500 Year Flood," 2008). Current census figures show the population of Cedar Rapids metro area at 256,324, indicative of not only a total repopulation post-disaster, but a 0.6 percent increase one year later (DeWitte, 2010). This indicates a complete repopulation within one year of the end of the disaster. This repopulation is congruent with individual subculture as citizens took it upon themselves to restore their livelihood as swiftly as possible. The restoration of market

activity would also spawn an increase in population as additional people of similar subculture gravitated to the area, drawn by potential economic benefit and rapid return to the status quo.

Interestingly enough, engineering officials such as the Director of Campus and Facilities Planning for the University of Iowa, Ron Lehnertz, noted that the disaster would have been far worse but for the individual preparatory efforts of citizens, National Guard soldiers, and students. These citizens worked to buffer levees, build barriers to redirect flooding and to mitigate impact of the disaster by other preparatory efforts (Associated Press, 2008). While this effort displays a collective activity, it is still symptomatic of individual subculture as each citizen took it upon themselves to act in order to facilitate survival and rapid restoration of their interests. This trend was not noted at all in the Gulf Coast where headlines showed people waiting on government intervention rather than taking preparatory actions at individual and community levels.

Given the representative repopulation rates and speed with which the region was returned to normal, even in the face of some of the most massive agricultural economic losses in the country's history, it appears that there is a greater degree of resilience in the region as defined as the ability to weather and recover from disaster. Linn County, where Cedar Rapids is located, rates as -1--.5 on the 2003 SoVI scale, indicating a reduced vulnerability to disasters. This tends to indicate higher resilience in the county and was reflected in the response to the floods. Despite the fact that the disaster affected the major cash crops—corn and soybeans—of the region, communities and individuals found the wherewithal to not only rise above economic disaster, but rebuild and subsequently flourish. The drive to return to viable market conditions is also indicative of Elazar's predicted behavior and values for Individualistic regions. As seen in the Katrina/traditional case study, it seems that the political subculture of the Individualistic regions has a relationship to the overall resilience of those regions, but the exact degree to which it enhances this resilience is not yet determined.

C. MORAL SUBCULTURE—COLORADO TORNADOES

1. Background

Elazar's moralistic subculture is prevalent in the western U.S. and draws most heavily on the values of an agrarian society (Elazar, 1984). Elazar described this subculture as the primary source of the continuing American quest for the good society. To this end, citizens of these regions will subsume the individual needs for the greater good of society as a whole, and success is gained through an engaged citizenry (Richardson & Jasperson, 2008). Government is expected to promote public good and remain honest and committed to the welfare of the governed.

Taken as an anticipatory view, then, a Moralistic subculture community would be expected to turn the government to lead and direct a recovery effort while citizens provided the majority of the labor with all efforts focused on the good of the community as a whole. No one individual would be singled out barring that he/she could not take care of his/her own needs. Instead, the collective society would push to restore order for all, utilizing both internal (community) and external (governmental) resources. Failing a government-directed effort, the community itself would be expected to conduct its own planning and execution of recovery with a steady progress toward normalcy.

As in the previous case study, time and migration have seen a blend of subcultures established within Colorado. Originally, the state was considered part of the foundation area of Moralistic subculture. Currently, it is made up of a blend of Moralistic and Individualistic cultures spread across, and even within, the communities. For this thesis, focus was given to Windsor, which retained a great deal of the Moralistic culture of the traditional western U.S.

Demographically, Windsor reported 49.1 percent male and 50.9 percent female in 2000. Forty-seven point seven percent of the population was between 15 and 44, 20 percent between 45 and 64 and 7.8 percent over age 65. 87 percent of the population was white, 10.5 percent Hispanic, and 0.5 percent each Asian and black (Town of Windsor, 2009). Educational attainment was 8 percent with less than a high school education and no diploma, 23.7 percent with a high school or GED diploma, 28.9 percent with some

college, and 39.5 with a college degree or higher (U.S. Beacon, 2005). Average household income for Windsor was $45,200 with 32 percent of the population averaging less than $50,000 and four percent earning under $10,000 (Town of Windsor, 2009). The geography of Windsor is mostly flat plains east of Interstate 25 with some lightly forested areas and wide, grassy areas surrounding the town (U.S. Beacon, 2005). Primary economic industry included manufacturing, public government services, health care, and retail trade (Town of Windsor, 2009). All of these factors point to a small community highly centered on town functions and government with a fairly strong economic base for resilience. The lower SoVI index value predicted for Windsor (as seen in the following chapter) is based heavily on lower population numbers resulting in a smaller workforce to enhance resilience and greater vulnerability to community-wide events.

Table 9. Windsor Population Data Summary

Male	Female	18-49	50-74	75+	White	Black	Hispanic	Asian
49.1%	50.1%	47.7%	20%	7.8%	87%	0.5%	10.5%	0.5%

Table 10. Windsor Educational Attainment

No Diploma	High School/GED	Some College	Undergraduate Degree or Higher
8%	23.7%	28.9%	39.5%

Table 11. Windsor Income

Average Household Income	Households At/Below Average	Households Below $10K/yr
$45,200/yr	32%	4%

2.   Analysis

On May 22, 2008, a category E-F3 tornado devastated the small town of Windsor, a community-board-run town in northern Colorado with a population of around 19,000 (Jaeger, 2009). In all, 2,300 homes were sufficiently damaged to require significant claims and repairs (Arnold, 2008) representing 12 percent of the population. The one month post-storm report indicates that the town manager and town board had already begun extensive coordination with Emergency Support Function 14 of FEMA and were looking to not only rebuild, but build new infrastructure into the recovery efforts. Six month reports show a continued liaison with federal and state officials to best leverage assistance from outside agencies to the betterment of the town. In addition, the six month reports notes that "most displaced citizens have returned home with a few individuals still facing insurance claim issues" (Arnold, 2008). This indicates a near-complete repopulation within six months of the disaster. While the population is admittedly far smaller than the previous two case studies, the devastation on a "per capita" basis was equivalent, if not more severe due to the limited community economic resources available to cushion the devastation.

Within one year of the storm, all damage was rebuilt and the town board leveraged repair dollars to upgrade services for citizens to include enhanced transportation corridors, new town hall, new Art and Heritage Center and new police facilities (Jaeger, 2009). Current census data shows a population of 19,768, or an increase of 0.04 percent, indicating complete repopulation and continued growth of the affected community (Town of Windsor, 2009).

In coming together to direct recovery efforts to the best interest of the town, citizens of Windsor, Colorado displayed remarkable resilience that, like their counterparts in Cedar Rapids, Iowa, has seen the community not only recover, but grow. The economies of both areas are similarly agrarian and the tornadoes that cut a three-quarter mile-wide, 46-mile deep swath through northern Colorado destroyed a great many ranches and farmsteads. Unlike the larger cities considered in previous case studies, Windsor did not have significant resources to direct toward rebuilding—any economic impact to the area is significant in that aspect without having to be, as in the case of the

2008 storm, massive. In addition, the Windsor effort was extremely community-centric with the city government directing the efforts and aid from the state government, both emblematic of Elazar's Moralistic subculture. In contrast to Cedar Rapids where efforts were largely driven by individual interests, Windsor saw recovery efforts driven by a communal urge to restore the whole of the community. This was less driven by individual commercial interests and even today is touted as a community-wide effort for the good of the entire town rather than a series of individual success stories.

Windsor is located in Weld County which scored in the mean range on the 2003 SoVI scale (-.5-.5 standard deviations). This value would rate the county as average in terms of resilience.

The collective response behavior demonstrated in Windsor aligns closely with expected response based on Elazar's theories. In addition, the resilience of the community is well demonstrated by the return to normalcy and ongoing success of the town. Once again, this indicates that there is some relationship between the political subculture of the region and the resilience of the community in question. The exact degree of relationship will be explored in the next chapter.

V. DEVELOPING AN INTEGRATED MODEL OF RESILIENCE

A. MATHEMATICAL REPRESENTATION OF CASE STUDY DATA

1. Repopulation

Repopulation, taken as a measure of return to normalcy, offers stark contrasts among the cast study communities. The data from the case studies is summarized in Table 12.

Table 12.   Repopulation One Year Post-disaster

Case Study	Evacuation/Displacement of pre-disaster population	Repopulation (% of pre-disaster population) after 1 Year	Alignment with Anticipated Behavior
New Orleans (Traditionalistic)	80%	-66%	Yes
Cedar Rapids (Individualistic)	12%	+.6%	Yes
Windsor (Moralistic)	12%	+.04%	Yes

The first thing of note in this data is the disparity in scope between the New Orleans case study and the other two. Given this wide range of evacuation numbers, it is plausible to question whether the political subculture did, in fact, affect the resilience of the communities involved or whether it was a function of the scope of devastation.

To further expand upon the mathematical model, the author examined the same data from four years post-disaster to see what the average repopulation/year value is for each community. Four years is intended to be representative of progress over time and is not fully complete. As 2010, U.S. Census numbers are not available at the time of writing, four years is the best data available. In the case of Cedar Rapids (City of Cedar, 2011) and Windsor (Town of Windsor, 2009), this data must be taken from census forecasts as neither community has passed the four year post-disaster mark yet. This

greater scope of review is intended to show that the influence of political subculture influences resilience and return to normalcy from immediately post-disaster through the foreseeable future.

Table 13.   Repopulation 4 Years Post-disaster

Case Study	Evacuation/Displacement of pre-disaster population	Repopulation (% of pre-disaster population) after 4 Years	Average population growth/year
New Orleans (Traditionalistic)	80%	-20%	12.2%
Cedar Rapids (Individualistic)	12%	+7.5%	2.025%
Windsor (Moralistic)	12%	+9%	2.26%

These forecasts do show an increase in population for all three affected communities over time. The data shows significant growth in Cedar Rapids and Windsor (on a per capita basis), while New Orleans still lags 20 percent below pre-storm population numbers. While the growth per year value for New Orleans is still greater than either Cedar Rapids or Windsor, both of the latter communities have grown above and beyond their pre-storm populations where New Orleans has yet to attain pre-Katrina population. This is indicative of a greater resilience in terms of ability to recover to a state of normalcy from which community growth can occur. The resilience of New Orleans would be surmised to be lower as true growth, in terms of progress to and beyond a pre-storm state, has yet to occur and will take at least two more years to achieve based on the numbers above.

2.   Social Vulnerability Index Data

To further quantify the value of the modifier to resilience, a known value must be used to represent pre- and post-storm resilience that takes into account all other factors (economy, geography, demography and sociology) as a level playing field and extrapolation performed to see if a mathematical value can be developed. A numerical representation of resilience can be assigned by using the SoVI as a base value which

takes into account the number of standard deviations from the mean vulnerability value for the U.S. as a whole (Cutter et al., 2000). According to the revised 2009 SoVI map (Esri, Inc. 2010), baseline SoVI values for the case study communities are (on a scale of 0.0-8.0 with higher being more vulnerable/less resilient) shown below:

- New Orleans: 6.0 (low baseline resilience)
- Cedar Rapids: 2.0 (high baseline resilience)
- Windsor: 6.0 (low baseline resilience)

Interestingly, the current data derived from the original 2003 SoVI formula and updated with current census figures show Windsor and New Orleans to have the same overall vulnerability index, and thus an equally low resilience. This, taken in review of the case studies, indicates that other factors do modify the overall resilience of a community given the disparate responses to disasters. The numerical values above would tend to indicate that Cedar Rapids should recover rapidly while Windsor and New Orleans would take longer to return to normal. Since Windsor exhibited a rapid recovery, other factors must be modifying the resilience to enhance an otherwise low starting value. Likewise, the significantly slower recovery of New Orleans shows an even lower resilience than indicated by the SoVI value.

B.   LIMITATIONS

1.   Single Criteria Data

The data above is suitably evocative and highlights an apparent relationship, but does have some limitations. Primary factors evaluated include repopulation data and overall post-disaster growth/diminishment. Additional factors that might need to be considered in further developing this theory include analysis of sublimation of Diaspora populations into evacuation communities. As Elazar noted in his points about the continued migratory trends within the United States, a disaster evacuation can serve as a migratory impetus and should the host community appeal to the evacuees by similar cultures, values or better services, some populations will not return to their former homes no matter how resilient the community. The factors that appeal to the evacuee populations, may still have ties to the political subculture from which they fled and to

which they found themselves sent to weather the disaster. Given the intermingling of cultures over the decades since Elazar's theory was first published, it is very likely that enough familiarity can be found in differing communities to create a feeling of belonging.

In addition, the exact degree to which political subculture modifies the resilience index of a community is unknown based solely on three case studies. A more broad comparison of disaster recovery efforts giving a statistical sampling of areas of predominant political subculture and comparing those results to the SoVI data for those areas would be required to narrow down the results to exact modifiers.

VI.   CONCLUSION

A.   PREDICTED EFFECT OF POLITICAL SUBCULTURE ON RESILIENCE

By its very nature, political subculture as defined by Elazar attempts to encapsulate the views of a community in regards to government and the role of government in the daily life of that community. In concert with the data that shows increasing governmental involvement in disaster recovery and mitigation (as noted in Chapter I), one could reasonably expect that a community would be more resilient should it hold itself less reliant on outside assistance and effort. In other words, citizens who hold a cultural bias towards independence and freedom of action should be more inclined to take necessary actions to preserve their liberties and way of life. This may be affected by the overall individual knowledge of vulnerability and perspective on how prepared they must be for a given threat. Likewise, citizens of a community that leans toward looking for government to preserve the status quo will be less inclined to take action on their own behalf, either in preparation for or response to an event.

B.   FINDINGS

In summary, the answer to the question of whether political subculture has a relationship to resilience appears to be indicated by the results of comparison of SoVI-based predictive data to actual response data and results as shown in the representative case studies. While the exact degree to which political subculture modifies the resilience of a region or community is unknown, the sample case study data reviewed in this thesis shows that an influence does exist and can thus be considered a variable factor to the overall resilience of a community (either positive or negative).

The above data concludes that political subculture - while not a determinant factor to overall resilience such as geography, economy, sociology or demography - appears to affect overall resilience of a community. The varying subcultures can increase resilience (Moralistic in Windsor) or decrease it (Traditional in New Orleans). Given the increasing severity of disasters, both in terms of overall numbers and overall cost to United States society as a whole, noting that this additional factor can either mitigate some lack of

resilience or detract from a perceived state of resilience will enable planners to better delve into how to allocate resources and time to preparing American communities to better survive disasters and return to a state of normalcy as quickly as possible.

C.   RECOMMENDATIONS FOR FURTHER RESEARCH

It is recommended that further analysis across multiple case studies be undertaken—possibly at varying levels (small town, city, major metropolitan area) across predominant known subculture regions to further pin down a more quantifiable value of the modifier provided by the dominant political subculture affecting the community. While continued migration and societal mixing will further blend the subcultures, Elazar did note that a predominant feeling will arise within even blended regions, and certainly the research into evaluating the subculture of an area or community based on political trends can be used to narrow down areas of focus.

In addition, additional potential modifying factors such as educational attainment should be sought to further crystallize the true nature of a community's resilience. It may be found that areas of higher educational background are able to better recover from a disaster despite other influencing factors, indicating another variable in the overall calculation of resilience.

Given a broader swathe of case study data leading to a better-defined numerical modifier value for each of the three subcultures, the resilience values for communities, or even sub-sections within communities, can be better defined and preparedness efforts better targeted to the needs of that community. For example, community planners can take census data and determine community political subculture from current surveys, then use that data against a predictive value such as the SoVI to determine if additional response assets should be allocated against more vulnerable neighborhoods that would otherwise be considered resilient based on predictive data alone. This thesis has identified one of possibly several factors—each important in its own right for the effect it has upon predicted resilience. In a world of increasing disaster costs and constrained fiscal resources, each step closer to mapping an effective measure of resilience will better ensure community survival and recovery.

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