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A County-Level Analysis of the Relationship between Voter Behavior as a Proxy for Partisan Ideology, Income, and the Effects on Health Morbidity and Mortality Measures

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ABSTRACT

Sarah Marie Trimmer

A County-Level Analysis of the Relationship between Voter Behavior as a Proxy for Partisan Ideology, Income, and the Effects on Health Morbidity and Mortality Measures

(Under the direction of: Sheryl M. Strasser, PhD)

Introduction:

Domestic research studies focused on the interrelationships between political ideology characteristics inherent in policy decisions and the contributions these political determinants exert over health indicators and outcomes are limited. Studying the contexts and directionality of ideology, political partisanship, policy and the effects on population health has important implications for the field of public health. Upstream social and economic policy determinants both connected and unconnected to health play a role in creating and perpetuating disparities, especially for those in lower socioeconomic stratum. Given the paucity of research that focuses on political and policy support of health at the county-level, this study sets out to utilize the University of Wisconsin Population Health Institute's (UWPHI) annual *County Health Rankings* data and examine them within the context of county-based majority political partisanship and economic measures.

Methods:

This exploratory ecological study examined differences between independent variables: partisan voting behavior (trichotomized as conservative, moderate, and liberal) and median per capita household income in U.S. dollars (by quartile) on dependent variables related to mortality (years of productive life lost) and morbidity (number of poor mental and physical health days) at the county-level to compare differences in political and ideological underpinnings that may act as influencers on health outcomes. Of particular interest were the potential differences seen at the lower income quartile. Multiple data sources were combined and matched to all 3,140 counties located in the U.S. Two-way between-subjects ANOVA statistical tests were conducted to determine if there is an effect of partisan voter index category on the three aforementioned dependent variables related to health outcomes, and median per capita income by quartile.

Results:

There was a statistically significant main interaction between median per capita household income by quartile and partisan voter index category on years of productive life lost, $F(6,2789) = 19.3, p < .000$, partial $\eta^2 = .040$. While there were also statistically significant interactions between the independent and dependent variables of poor mental and physical health days, results of those analyses should be interpreted with caution. Pertaining to years of productive life lost, post hoc analyses of significant interactions revealed significant differences at the lower income quartile, but not in the expected direction. The conservative category had statistically significant lower years of productive life lost in comparison to the liberal category ($M = -8.21, SE = 1.47, p = .000$). Also, there were significant differences detected in the upper quartile suggesting that the liberal category has lower years of productive life lost in comparison to the conservative category ($M = 7.06, SE = 1.06, p = .000$).

Conclusion:

Results should be interpreted with caution and suggest more research and methodological refinements are needed, particularly related to categorizing county-level political dynamics.

INDEX WORDS: County Health Rankings, political partisanship, voter behavior, health morbidity and mortality, health disparities.

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PROXY FOR PARTISAN IDEOLOGY, INCOME, AND THE EFFECTS ON HEALTH MORBIDITY
AND MORTALITY MEASURES

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A Thesis Submitted to the Graduate Faculty
of Georgia State University in Partial Fulfillment
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2013

A COUNTY-LEVEL ANALYSIS OF THE RELATIONSHIP BETWEEN VOTER BEHAVIOR AS A
PROXY FOR PARTISAN IDEOLOGY, INCOME, AND THE EFFECTS ON HEALTH MORBIDITY
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CHAPTER I - INTRODUCTION

Overview

In 1932 Supreme Court Justice Louis Brandeis delivered the dissenting opinion in the *New State Ice Co. v. Liebmann* case, invoking a now well-known metaphor that pointedly suggests states should be granted the ability to act as *laboratories of democracy*. He expressed how a “single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest the country.” The metaphor, *laboratories of democracy*, has since been vigorously scrutinized and debated by constitutional scholars as it applies to the powers of the Federal Government versus those of individual states. Seemingly no consensus has been achieved regarding the application of this concept to the United States judicial system. However, it has summoned compelling symbolism when directed towards state and county-level governments acting as *laboratories of health* through enacted social and economic policies that support well-being, improve outcomes and reduce inequities, or otherwise do not.

Public health appears to have embraced this idea of historical allegory in earnest; embarking upon a relatively recent paradigm shift that prominently emphasizes evidence-based policy, high impact and sustained community engagement, and the use of robust social-ecological models that allow researchers and practitioners to discover multifactorial contributions of poor population health outcomes and indicators, while leveraging transdisciplinary work and tailoring solutions to unique community conditions (Alexander et al., 2003; Brownson, Chiqui, & Stamatakis, 2009; Dankwa-Mullan et al., 2010; Fielding, Teutsch, & Koh, 2012; Graff, Kappagoda, Wooten, McGowan, & Ashe, 2012; Koh & Tavenner, 2012; Lasker & Weiss, 2003; Perkins et al., 2010). With the unveiling of the Federal Government’s

Healthy People 2020 objectives, a contemporary recognition that health starts in homes, schools, workplaces, neighborhoods and communities has led to the inclusion of the social determinants (which were not recognized in prior releases of *Healthy People*) as a leading health indicator to be addressed not only by public health professionals, but a wide range of cross-sectoral stakeholders including private industry and policy makers (Erickson & Andrews, 2011; Koh, Piotrowski, Kumanyika, & Fielding, 2011). This ongoing metamorphosis is promising, imparting new, productive tools to address population health such as *Health in All Policies* (Mayes & Oliver, 2012) and *Health Impact Assessments* (Hoehner et al., 2012; Ross et al., 2012). These latest insights and tools have also led to an increasing acknowledgment that *one size does not fit all* and better health outcomes can be achieved by harnessing and adapting the evidence both in terms of intervention and policy; in other words to experiment in a systematic and scientific manner to achieve full potential and maximal benefit that focus efforts on upstream causes.

Political partisanship and polarization, especially at the federal-level, tied to upstream policy determinants, play a role in exacerbating the problems surrounding health care reform by creating ineffective gridlock that results in few new laws being passed and/or highly ideological legislation being enacted. There is broad agreement by scholarly experts that the political and governing elite presently operate in an environment that has become more ideologically segregated (Garner & Palmer, 2011; Hussey, 2012). Not only was the 112th Congress (January 2011– January 2013) notably unproductive in terms of passing new legislation due to apparent ideological conflicts in U.S. history (Klein, 2013), but the House of Representatives controlled by the Republican Party called votes to repeal President Obama's signature health care legislation, the Patient Protection and Affordable Care Act of 2010 (PPACA; public law 111-148) over 30 times during the legislative session (Kliff, 2012). These evident divides have revealed that addressing the inherent challenges of the U.S. health care system are not immune to paralysis due to politicized rhetoric and partisan-slanted solutions. The topics of health care delivery, access, payment and financing mechanisms that provide the structural machinery to the system are met with two competing, starkly divergent ideological proposals. On the right, proponents put forward a plan

that champions a market justice paradigm, infusing personal responsibility, free-market competition and a drastic reduction in government involvement and collective action (Beauchamp, 2003). Conversely, the left embraces a public-private partnership that keeps intact the existing market-driven institutions while also advocating for social justice paradigms that enhance consumer protections, expand access, control costs and improve quality of care (R. I. Field, 2011), thus injecting a greater degree of government intervention and oversight into the health care system (Sparer, France, & Clinton, 2011).

Political Scientist, Deborah Stone wrote in *Policy Paradox: The Art of Political Decision Making* (1997), that “Paradoxes are nothing but trouble. They violate the most elementary principle of logic: Something cannot be two different things at once. A paradox is just such an impossible situation, and political life is full of them” (Stone, 2004, p. 62). Logic dictates that executing two contrastingly dissimilar ideas in their purest form cannot produce a similar end product; one idea must invariably outperform the other in terms of accomplishing the desired effect. In the case of the U.S. health care system the desired outcome is collectively agreed upon; to reduce costs while simultaneously improving care. Both sides can reasonably agree that the problem lies within the poor health of the American people paired with uncontrolled expenditures that position the U.S. on a truly unsustainable trajectory, and that the solutions are not easy. However, the two dimensions that form ideology (beliefs of how society should work and how best to achieve the perceived ideal arrangement) block the path forward (Converse, 2006). Based on the scarcity of domestic evidence, scientific inquiry has not adequately assessed, nor aided in reconciling the push-pull between which balance of economic policy arrangements and social principles best accomplish a higher quality, lower cost U.S. health care system that is more inclusive and reduces inequities.

Purpose of the Research

Given the paucity of research that focuses on political and policy support of health at the county-level, this study sets out to utilize the University of Wisconsin Population Health Institute’s (UWPHI) annual *County Health Rankings* data and examine them within the context of county-based majority political partisanship and economic measures. *County Health Rankings* were developed in part to

highlight the broad range of factors that influence health and to catalyze community health improvement efforts (Rohan, Booske, & Remington, 2009). Sources and measures of county partisanship data that are currently absent will provide an opportunity to explore how conservative versus liberal social and economic platforms relate to county-level health metrics; potentially informing policy processes and strategies. Moreover, incorporating new sources, analysis and methodologies using the *County Health Rankings* data could possibly yield rich contextual information to public health researchers and practitioners seeking to drive population outcomes through policy mechanisms, in addition to identifying new and emerging social determinant factors and trends that are sensitive to political and policy movement. The specific questions of inquiry in this study are as follows:

Research Questions

- I. Are there differences in premature death (mortality measured in Years of Productive Life Lost) at the county-level, depending on median per capita household income (quartile) and voting behavior categories that are trichotomized as conservative, moderate, or liberal?
- II. Are there differences in poor mental health days (morbidity) at the county-level, depending on median per capita household income (quartile) and voting behavior categories that are trichotomized as conservative, moderate, or liberal?
- III. Are there differences between poor physical health days (morbidity) at the county-level, depending on median per capita household income (quartile) and voting behavior categories that are trichotomized as conservative, moderate, or liberal?

Significance

This is an opportune moment to examine differences in health status that are potentially influenced by policy, especially pertaining to those of lower socioeconomic status (SES). Strong evidence suggests that polarization among the governing elite is at an all-time high (Klein, 2013; Poole & Hare, 2012), which may allow for less problematic analyses to tease out possible effects of polarized policy that contain clear delineations aligned with a particular set of ideological beliefs (given the assumptions presented are correct). Despite the apparent and marked dysfunction in the U.S. government, some may

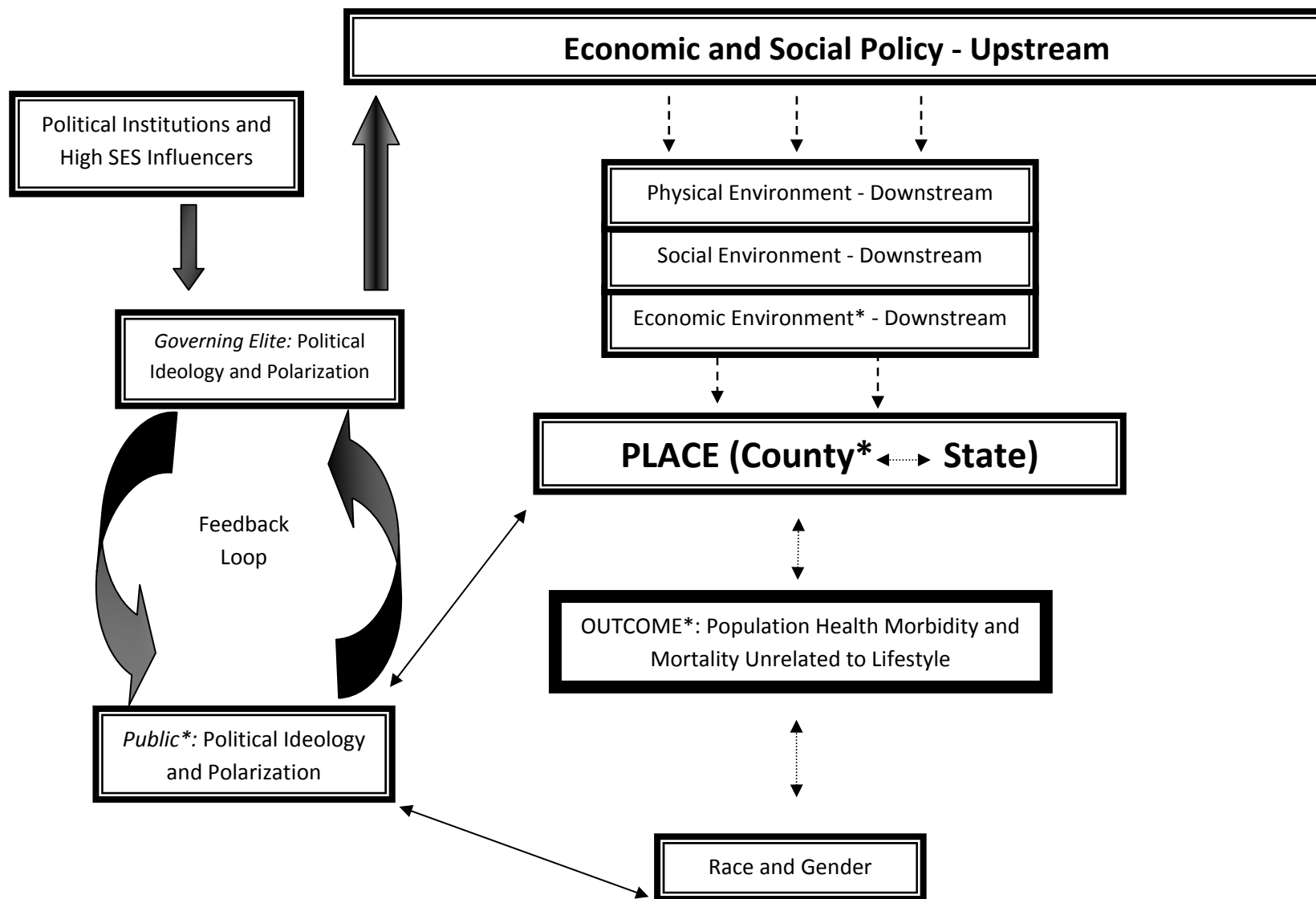
optimistically view this time as a convergence to propel forward new thinking and measurably productive action towards positive change in the health care system. Even though fierce, unresolved political debate fueled by public opinion has ushered in polarized views on how to best enact policies and implement health care reform, these struggles acted out on the political stage have kept reform prominently placed on the agenda. The U.S. is at a critical juncture and must apply pragmatism and evidence to solving the nation's health care problems. A timely Institute of Medicine (IOM) report compared the health of U.S. citizens to other industrialized nations outlining the variety of reasons for the U.S. health disadvantage (2013). Values, policy and politics have all contributed on some level (although empirically unclear) to the out of control costs and poor health outcomes that Americans experience (IOM, 2013). Continuing to piecemeal legislation based on ideology rather than evidence in an incrementalist fashion will not resolve the vast shortcomings of the U.S. health care system. Exploring intricate, complex and distally abstract relationships and externalities that exert influence on health, specifically those directly unrelated or tethered to health outcomes; for example economic policy and the underlying ideology that create, contribute to or perpetuate disparities is a worth-while endeavor.

The systematic and thorough literature review presented in Chapter 2 revealed numerous themes and unearthed several complex associations that pertain to and are of interest to this particular exploratory study in explicit regard to American population health, as well as contributed to the development of the research questions of this thesis study. Chapters 3, 4, and 5, will cover the methods, results, and interpretation of findings, respectively.

Figure 1.1 is a conceptual framework of theoretical premises and relationships thought to be significant. Because there is so little research in this area of inquiry, some concepts and evidence presented may seem superfluous to the study in question, but are relevant to understanding the bigger picture. This study does not address the entire developed conceptual framework derived from the literature review. It presents variables and relationships for future study given the dearth of evidence on policy ideology and how it may or may not influence population health at both the county and state-level. How demographics such as race/ethnicity, gender, the physical environment, social environment, and the

mechanisms and dynamics between influential individuals and intuitions, the voting public, and elected officials interact were significant themes, but will not be explored quantitatively in this study. It is hypothesized that place (the county-level) interacts with varying degrees of economic policy ideology (conservative, moderate, and liberal) to manipulate health in a positive or negative direction. Relationships that will be explored in the framework are denoted with an (*).

Figure 1.1. Literature Review Conceptual Framework.



CHAPTER II - REVIEW OF THE LITERATURE

Theoretical Background

Studying the contexts, relationships and directionality of ideology, political partisanship, policy and the effects on population health has important implications for the field of public health. It has been argued that researchers who understand health policy in a way that incorporates political dynamics “can conduct more realistic research and evaluation, better anticipate opportunities and constraints on governmental action and design more effective policies and programs” (Oliver, 2006, p. 195). The public health model of policy analysis seldom accounts for macro-level factors like the ideologies and institutions that ultimately shape policy choices and implementation options (Navarro & Shi, 2001). There is mounting evidence that suggests public health professionals and researchers alike should be encouraged to integrate a political science approach that proactively focuses on how policy-making processes operate upstream, rather than solely and reactively following the tradition of evaluating policy impact downstream, as a means for more effectively introducing and successfully passing health promoting policy and legislation (Bernier & Clavier, 2011).

Health disparities are avoidable in the sense that they are linked to a wide variety of policy options employed by government lawmakers (e.g. tax policy, regulation of business and labor, welfare and health care benefits, and housing), hence are responsive in a beneficial direction towards policy interventions that focus on health impact and reducing disparities (Braveman, 2006; Woodward & Kawachi, 2000). The role of public policy and its effect on health determinants is commonly cited in the literature as a pivotal factor (Bambra, Fox, & Scott-Samuel, 2005). Public health issues that are

contextually related to the social aspects of life are often exposed through health policy mechanisms, wielding profound pressure on health outcomes (Woolf, 2009). Mounting evidence suggests health is impacted by numerous factors outside the health care system. These factors can be ameliorated with community involvement and interventions that tackle underlying forces at the community level related to the determinants of health, and studies have shown a reduction in asthma and obesity with these approaches (Bell & Standish, 2005; Hahn, 2010; Shaw, 2012; D. R. Williams, Costa, Odunlami, & Mohammed, 2008).

Those living in poverty are especially vulnerable to a wide range of negative consequences seemingly unconnected to health policy. For example, economic policy related to development and housing (particularly public housing and the mortgage industry) have demonstrated a negative health impact on those of lower SES (Krumholz, 1999; Redwood et al., 2010; Ruel, Oakley, Wilson, & Maddox, 2010; Ruel & Robert, 2009). Lenient regulation and policy has implicated the housing industry to some extent as being responsible for perpetuating racial and economic disparities in a variety of ways. In the 1990's a number of studies consistently found low-income and minority populations to be less likely to apply for home mortgages and more likely to be rejected (Harvey, Collins, Nigro, & Robinson, 2001; Munnell, Tootell, Browne, & McEneaney, 1996). While some of these denials may have been attributed to poor credit scores or other factors, one study that examined bank loan denial rates among commercial banks, credit unions and saving and loan institutions found considerable variation, suggesting that banking practices and policies influence how well low-income and minority neighborhoods are served (R. A. Williams & Nesiba, 1997). Other economic policies in the 1990's increased class segregation in urban areas, with one study finding that pronounced strengthening of capital investments in the urban core demonstrated a significant link between gentrification and a worsened progression of racial and ethnic discrimination (Wyly & Hammel, 2004).

The pendulum swung the other way in 2005-06 when deregulated mortgage lenders preyed upon and exploited low-income individuals and families, issuing nearly 6 million subprime mortgage loans to borrowers with low credit scores and smaller down payments than other traditional homebuyers (Tax

Policy Center, 2010). The result of these practices resulted in the housing collapse in the Fall of 2008 triggering the *Great Recession*, with subprime mortgages accounting for approximately half of all homes entering foreclosure (Tax Policy Center, 2010). A large portion of the country suffered financially from the recklessness of policy that allowed mortgage lenders and wall-street bankers the facility to speculate with the economy, and recent studies have shown consequences and ripple effects on population health. One study examined the health implications of the housing crisis, and found homeowners in default or foreclosure exhibited poorer mental health and more physical symptoms in comparison to renters or homeowners with moderate or no strain on their mortgage (Cannuscio et al., 2012).

Despite the large amount of evidence linking individual policy decisions that are superficially unrelated to poor health outcomes, studies have shown housing issues are amenable to policy solutions that promote health. One study that reviewed housing programs and policies, revealed that a Housing Choice Voucher Program (section 8) implemented at the federal-level was also associated with improved health by voucher holders, including less exposure to overcrowding, malnutrition attributed to food insecurity, and concentrated neighborhood poverty (Lindberg et al., 2010). Moving upstream and implementing policies that reduce inequities by improving neighborhood conditions were described by D.R. Williams and colleagues (2008). Authors cited a program called *Moving to Opportunity* (similar to section 8) that provided strong evidence about the health benefits of housing mobility policies that allow lower-income, predominantly minority residents, the ability to move to less poor neighborhoods.

This illustration extends beyond the housing industry and percolates into practically every facet of daily life, highlighting the ruinous consequences policy decisions can place on the poor. When capitalism and the wants and needs of those with resources are first met, contrary to what proponents advocate, those lacking resources bear the greatest burden. Policies, irrespective of whether or not they directly impact health, should be considered from the perspective of fairness across all gradients of society (Marmot & Bell, 2012), with special attention paid to the lawmakers and institutions that ultimately determine resolutions to problems.

Cross-national Comparisons

From a global perspective, a voluminous synthesis and analysis conducted by the IOM (2013) elucidates the critical health disadvantage the U.S. experiences compared to other industrialized nations; spending more health care dollars per capita with discordantly more illness and shorter lives in return, consistently ranking in the lower tiers of Organisation for Economic Cooperation and Development (OECD) countries. Factors that enable inequalities (which have continued to widen over the past decades) (Scheve & Stasavage, 2009; Wolff, 1995) such as social, economic and environmental conditions that reduce lifespan, are important explanations that contribute to either stalled improvements or in some cases backwards trends in U.S. health measures, despite the fact that mortality has decreased overall (Berkman, 2009; Bezruchka, 2012; Institute of Medicine, 2013; Pappas, Queen, Hadden, & Fisher, 1993). Compared to the U.S., the European region on the whole has seen noteworthy health gains across populations. And although inequities both between and within countries persist, the 53 Member States of the World Health Organization (WHO) European region, commissioned and supported the proactive development of *Europe: Health 2020* to aggressively address inequities and social determinants within a new health policy framework (Marmot et al., 2012).

The social, economic and environmental conditions in which populations live are profoundly shaped by political institutions and prevailing policy preferences, with cross-national comparisons highlighting marked differences in the way the U.S. chooses to address the health of its citizens. For example, international examinations of political ideology and associations of inequalities and population health have been conducted. Navarro and Shi (2001) contextualized data from OECD countries during the period of 1945-1980 and examined how those countries' political traditions affected a wide range of health disparities and outcomes. Particularly, they found that countries exercising political traditions committed to social and economic redistribution and full-employment policies (e.g. Sweden, Norway, Denmark, Finland, and Austria) were associated with better population health outcomes and conversely, countries tied to stronger capitalist classes and holding a weaker commitment to redistribution (e.g. Canada, Ireland, Great Britain, and the U.S.) experienced poorer health outcomes and greater inequalities

between social stratum. A follow-up study utilizing OECD data from the period of 1950-1998, analyzed the impact of the length of time a particular party (social democratic, Christian democratic or conservative, liberal, and ex-dictatorial) governed and their electoral positions on redistributive policies in the labor market and welfare state; income inequalities measured by Theil and Gini indexes; and health indicators, such as infant mortality and life expectancy. Again, results confirmed that political parties more committed to redistribution policies, such as the social democratic party, were most successful in reducing inequalities and improving infant mortality (Navarro et al., 2003). In 2006 Navarro and colleagues continued their study and again utilized OECD data analyzing political, economic, social and health variables. Results of this study empirically link politics and policy to health indicators; specifically those related to infant mortality and life expectancy at birth were predicted by welfare state and labor market policies. From these analyses, Navarro et al. proposed a conceptual framework to illustrate the relationship between politics (power resources), policy (labor market and welfare state policies), socioeconomic and income inequalities (wealth) and health outcomes (Borrell, Espelt, Rodriguez-Sanz, & Navarro, 2007), reflecting the degree to which societies take care of their citizens. Consistent with these international findings that suggest government policy is a factor in life expectancy, the IOM cited studies indicating that once one turns 65 and thus becomes eligible for guaranteed health coverage under Medicare in the U.S., mortality rates and health indicators improve and are more in alignment with their peers from other industrialized nations (2013).

Performing inequality comparisons across industrialized countries involves heavily relying on creating classifications and accurately describing welfare state regimes and ideological principles adopted by a given country's government (Bambra, 2007). For definition purposes, *welfare state* refers to the provision of welfare services and social transfers; or in other words the extent to which the state has a role in education, health, housing, economic relief, and social insurance in developed industrial countries (Eikemo & Bambra, 2008). Subsequent to assigning welfare state taxonomies (Scandinavian, Anglo-Saxon, Bismarckian, Southern and Eastern), one study examined the magnitude of income-related health inequities across 23 European countries. Results, similar to those ascertained by Navarro and colleagues,

showed differences in magnitude by welfare state regime with Anglo-Saxon countries (United Kingdom and Ireland) that are characterized as providing basic and minimal levels of economic support, means tested benefits, and modest social transfers with strict entitlement criteria as having the greatest income-related health inequities. While Bismarckian welfare states (Germany, France, Austria, Belgium and the Netherlands), “distinguished by their ‘status differentiating’ welfare programs in which benefits are often earnings related, administered through the employer and geared toward maintaining existing social patterns. The role of the family is also emphasized and the redistributive impact is minimal, while the role of the market is marginalized” (p. 594) demonstrated the smallest inequities. However, as the authors noted these results were counterintuitive and not in the expected direction, as it was thought Scandinavian (Denmark, Finland, Norway and Sweden) governments, similar to the Navarro findings, would have the smallest income-related health inequalities (Eikemo, Bambra, Joyce, & Dahl, 2008). Another study of 17 Western European countries evaluated the importance of the type of national health care system (national health services and social security systems) on health outcomes, finding national health service systems to be more efficient at producing lower infant mortality rates than social security systems, similar to those found in the U.S. that are financed through obligatory payroll deductions (Elola, Daponte, & Navarro, 1995).

In a capitalist society that favors business, the life course for individuals in low SES class positions will be at a remarkable disadvantage for optimal growth, development and personal attainment at every life stage (Navarro, 1993; World Health Organization, 2008). Despite criticism and some negative developments, globally socialist-oriented countries and governments have been predominantly more successful than those countries and governments that embrace capitalism as the mechanism for improving population health (Navarro, 1993). An emerging realization, chiefly at the international level, affirms the role that poorly constructed social policy and programs, inequitable economic conditions and political environments that prioritize business or capitalism over its citizens act as influencers, responsible for the creation and preservation of inequalities (Marmot & Bell, 2012).

Contextual Socioeconomic Status Indicators Influence Mortality and Morbidity

It is known and well established in the literature that there is a strong predictive relationship between the social determinants of SES and personal wealth, and how these factors interact with a wide variety of health metrics including insurance coverage, health outcomes related to diabetes, reproductive health, HIV/AIDS, and mortality among others; with those possessing greater class rank and financial resources drastically more likely to enjoy higher quality, longer lives (Bachmann et al., 2003; Backlund, Sorlie, & Johnson, 1999; Conley, 2001; Espelt et al., 2008; Hall, Moreau, & Trussell, 2012; Katz, 1998; Marmot & Bell, 2012; Navarro, 2001; Pappas, 1994; Starfield, 2009; World Health Organization, 2008). Socioeconomic status (regularly used interchangeably with the terms social class or social position, collectively termed SES), is a common variable often controlled for in health research and considered to be a multidimensional, yet somewhat amorphous construct comprising of diverse socioeconomic factors (generally tied to monetary resources/wealth, power and prestige) (Braveman, 2006; Braveman et al., 2005). Socioeconomic status is measured in a variety of ways including educational attainment, occupation, income, medical care access and or by census-tracts/neighborhood characteristics, often times with little explanation as to why a particular measurement of SES was chosen for inclusion in studies (Bovet et al., 2002; Bratter & Gorman, 2011; Braveman, et al., 2005; Katz, 1998; Keegan et al., 2012; Krieger, Williams, & Moss, 1997; McGrath, Matthews, & Brady, 2006; Paeratakul, Lovejoy, Ryan, & Bray, 2002).

Wealth, Income, and Educational Attainment. Several observable reasons explain why individuals with resources fare better health-wise; especially in a capitalist society where health care functions more as a consumer good or service in a market-oriented, diagnose and treat context, rather than delivered on the foundation of a preventative, social justice framework (Bambra, et al., 2005; Bodenheimer, 2011). Greater income creates purchasing power to gain access to health services, either paid directly out-of-pocket or indirectly through insurance coverage, thus allowing those of higher SES to altogether circumvent policies that are created for those of lower SES whom cannot afford health commodities (Braveman, Egerter, & Williams, 2011). A prominent study published in the early 1990's added to the

literature regarding the inverse relationship between SES and mortality; revealing that even though overall death rates had decreased in the U.S. between the period of 1960 and 1986, the poor and poorly educated still died at higher rates than those with higher incomes and educational attainment, and that the disparity widened during the aforementioned time period (Pappas, et al., 1993). Affluence affords choice, and when one is poor opportunity and resources can be incongruously limited by those who have power to manipulate or create the very policies that are intended to help or otherwise produce unintended consequences. Because of this, health disparities are often intensified by distinct economic policy choices that benefit those with resources (Barnidge, Baker, Motton, Fitzgerald, & Rose, 2011; Braveman, et al., 2011; Woolf & Braveman, 2011). Braveman and colleagues (2011) identify these policy created social and economic inequities as upstream social determinants that are defined as “fundamental causes that set in motion causal pathways leading to (often temporally and spatially distant) health effects through downstream factors” (p. 383). Socioeconomic status is highly correlated to mortality, but can be observed as a downstream determinant powered by upstream policy selection.

The influence of wealth, perpetuating inequalities in the U.S. is not only demonstrated by levels of income, but also in differences tied to class that translate into political power. In response to a letter to the editor in *Health Affairs*, Vicente Navarro (2002) clarified the difference between income and class indicating “the working class and what in the U.S. is called the upper or corporate class have different mortality rates not only because they have different income levels but also because they belong to different social classes with different abilities to mobilize political, economic, and social resources” (p. 300). Navarro alludes to the authority the American upper class exert by controlling wealth and property, which is converted into political influence and capital that typically does not endorse or promote social responsibility that aids in supporting the under-classes. Poverty in lower social classes is exacerbated by national policies that allow corporate leaders to pursue profits without consideration of the social costs incurred by their strategies (Jennings & Kushnick, 2001).

Research has shown that American health is strongly (but directionally unclear) tied to wealth (Andrew & Ruel, 2010; Case & Paxson, 2006; Conley, 2001; Jennings & Kushnick, 2001; Navarro, 2002;

Seccombe, 2002). Health disparities perpetuated by low-income and class status take a momentous toll on population health morbidity and mortality and are well documented in the literature. A recent analysis that adds to the expansive evidence-base related to disparities illustrates a dose-response relationship to income and educational attainment, indicating those with the lowest income and who are the least educated have consistently poorer child and adult health indicators; while those in groups with intermediate income and education levels are still less healthy than the wealthiest and most educated (Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010). Of importance, education and income are generally not transposable or work in tandem to produce collinear effects, and while standard measures of education and income are correlated, Braveman et al. (2005) found these correlations are generally not strong enough to justify using education as a proxy for income. For example, one study from two nationally representative data sets produced results that pointed toward substantial variation in health in both strength and shape by level of education (i.e. education improves health, and its effects were larger at lower levels of income), indicating those with more education have better health for all levels of income, and that fewer income-based disparities exist among the well educated in comparison to the less educated; concluding that the linear gradient relationship between income and health is more characteristic of groups with higher levels of education (Schnittker, 2004).

Other findings related to income highlight the strong positive relationship between pre-tax income and self-reported health, particularly those in the low-income distribution, using Survey of Income and Program Participation (SIPP) and Current Population Survey (CPS) data (Larrimore, 2011). A large prospective study using data from the National Longitudinal Mortality Study (NLMS) of 500,000 men and women 25 and older in the U.S. examined the inverse gradient between income and mortality at different income levels. Study findings illustrated a significantly smaller income-mortality gradient at high income levels than at low to moderate income levels in working adults aged 25 to 64 as well as the elderly over 65 years of age in both male and female populations before and after adjustments were made for socioeconomic variables (Backlund, Sorlie, & Johnson, 1996). Data from the Panel Study of Income Dynamics from 1968 to 1989 revealed income level and persistent low-income were strong predictors of

mortality, especially for persons under the age of 65 years. Income instability was also important among middle-income individuals and all effects persisted after adjustment for education and initial health status (McDonough, Duncan, Williams, & House, 1997).

Income Inequality. In no other developed country is the small in size plutocrat class (top1%) more powerful, and the lower-middle and working classes as weak as in the U.S., capturing over 40% of the nation's income while simultaneously choking off upward social mobility and altering society to cater to a small few (Freeland, 2012). Growing income inequality is an issue that has become an increasingly recognized component of fiscal policy in recent years, but appears to produce ambiguous results related to its effects on health outcomes outside of analyses that make comparisons across countries (Deaton & Lubotsky, 2003; Ellison, 2002; Lorgelly & Lindley, 2008; Subramanian & Kawachi, 2006). A study examining low birth-weight across states in the U.S. used income, education, occupational grade, state-level income inequality and length of participation in Women-Infants-Children for pregnant mothers. Researchers found no significant state-level income inequality effects as measured by Gini coefficients for any of the models (Finch, 2003).

Place, Race, and Gender

Across individual states, significant differences in health policy and market characteristics can be observed demonstrating substantial variation in spending and the strategies chosen to control costs, improve access, and ensure quality care (Miller, 2005). These structural, functional and institutional differences result in equally varied effects on population health contained within the borders of a state at the smaller county unit, and yet even smaller at the community and neighborhood level. Where one resides has a determinant influence on health morbidity/mortality measures and inequities across the lifespan through mutually reinforcing relationships between place and space (S. Cummins, Curtis, Diez-Roux, & Macintyre, 2007; S. Curtis & Rees, 1998). Place is measured and described in numerous ways and shaped by many contextual factors. It is often spatially studied and classified as metropolitan/urban, suburban or rural/frontier, or other boundary defining characteristics such as regions, states, counties, neighborhoods, zip codes or census-tracts. Other types of investigation may include distinctive contextual

psychosocial, economic and political dynamics that form the environment in which populations live. More contemporary evidence introduces place and the externalities that mold locations as important aspects of health determinants; which is a departure from many years of study that largely framed health differences in terms of race and socioeconomic indicators.

Epidemiological and health disparities studies frequently control for socioeconomic markers, finding ostensibly indisputable differences in health status by race/ethnicity (Brancati, Whelton, Kuller, & Klag, 1996). One such area that has been extensively researched related to disparities is heart disease (McGrath, et al., 2006; D. R. Williams & Jackson, 2005). A very early study into the inquiry of racial health inequalities found significant variation by socioeconomic indicators and race in death rates for hypertension with mention of heart disease, and diseases classified as other myocardial degeneration for both non-white men and women across all ages and socioeconomic quintiles (Lilienfeld, 1956). Successive studies that compared racial differences in hypertension mortality, utilizing occupation as a proxy for SES produced similar results (Howard & Holman, 1970). A recently published 40 year cross-sectional longitudinal study found race was predictive of higher prevalence of cardiovascular risk factors among African Americans compared to Caucasians, after controlling for obesity, tobacco use, and physical fitness (Frierson, Howard, DeFina, Powell-Wiley, & Willis, 2013).

However, an upsurge of place-based evidence challenges these findings pertaining to race, vis-à-vis a suggested genetic component, as the indisputable primary factor in health disparities even when SES and socioeconomic indicators are controlled for, suggesting social factors and environments play a larger role than was previously thought or designated (Braveman, et al., 2011; D. R. Williams & Jackson, 2005; D. R. Williams, Mohammed, Leavell, & Collins, 2010). Much of the current health disparities literature fails to acknowledge or account for the fact that the nation is still by and large racially segregated, which may consequentially lead to dissimilar social and environmental exposures along racial/ethnic lines (LaVeist, 2005). A recent study aimed to determine if racial health disparities remain similar when black and white Americans live in integrated, psychosocially comparable settings. Researchers studied a racially integrated, low-income neighborhood in Maryland, finding that nationally reported disparities in

hypertension, diabetes, obesity among women, and use of health services were either erased or significantly diminished, with the exception of smoking; concluding that when social factors are held equal, disparities attributed to race are reduced (LaVeist, Pollack, Thorpe, Fesahazion, & Gaskin, 2011). Using similar methods of comparing a low-income racially integrated urban community without racial differences in SES, similar findings were demonstrated regarding alcohol use and binge drinking odds ratios, suggesting those who share social and environmental risk exposures have similar patterns of alcohol use irrespective of racial categorization (Fesahazion, Thorpe, Bell, & LaVeist, 2012). Within the context of studying a singular racial/ethnic group and the role environmental and psychosocial sources of poor health play, one study using self-reported body mass index measures, census and GIS-based data revealed a significant positive linked risk to obesity for both Latino men and women living in residential isolation. Additionally, researchers found the segregation effect was partially attributed to neighborhood SES and the built environment, suggesting that the environmental features are the most amenable to modification (ex: increase green space, park access and mixed land use) in ways that could reduce weight (Wen & Maloney, 2011).

The recent IOM report on the U.S. health disadvantage identified the obesogenic environment as a major contributing factor to the obesity epidemic and related chronic disease (2013). The extent to which the surrounding built environment is predisposed particularly by economic policy arrangements that favor capitalism, is unclear. Although, there is evidence that deregulation brought on by political institutions in the 1980's has manipulated place by producing low-income, disenfranchised neighborhoods in the inner city that are more vulnerable to conditions that perpetuate the cycle of poverty. Some examples include ubiquitous access to payday lenders due to an exodus of regular banking institutions (Graves, 2003). These same areas have been littered with access to cheap, nutritionally-bankrupt fast food restaurants while access to regular grocery stores with fresh produce have vanished (Hilmers, Hilmers, & Dave, 2012; Widener, Metcalf, & Bar-Yam, 2012). Both of these examples can be traced back to policy pathways and a permissiveness and/or preference toward profits and business over the health of people, by altering the environment in a way that produces unintended health consequences.

The approach in which opportunity is distributed by governmental structures among racial groups in metropolitan regions is an emerging area of research as social and economic density to these areas continues to increase (Hutson, Kaplan, Ranjit, & Mujahid, 2012; Lewis & Hamilton, 2011; Osypuk, Galea, McArdle, & Acevedo-Garcia, 2009). One such study utilized cross-sectional methods by comparing regional characteristics and evaluating structural, political and historical factors that affect distribution of opportunity between racial groups. The author's analysis suggests that when taken collectively the aforementioned factors significantly explain regional variation in regards to residential racial segregation, cost and quality of housing and income. With respect to political institutions and structure, larger black populations in a given region was associated with less segregation, but greater economic disparities and higher metropolitan incomes appear to decrease segregation while higher suburban income increases it (Lewis & Hamilton, 2011). An extensive case study that used the Detroit metropolitan area as an example, acknowledged that to truly understand disparities, investigators must not simply document SES and racial differences, but rather account for and attempt to explain the spatial differences that isolate racial/ethnic groups. Studying spatially distinct, impoverished areas reveals that disparities are influenced by access (or lack thereof) to economic, social and physical resources necessary for good health and are perpetuated by regulatory and political systems that are less responsive to resource deprived areas (Schulz, Williams, Israel, & Lempert, 2002). Along these same lines, the evidence points to a pattern of lopsided burden and exposures to environmental hazards in communities of color and poverty, and how the political economy of place influences environmental inequality through suburbanization, segregation and economic restructuring (Morello-Frosch, 2002).

On the other end of the location spectrum uneven distribution of resources and outcomes in rural health status across the lifespan have also been extensively documented in the literature (Ahearn, 2009; A. C. Curtis, Waters, & Brindis, 2011; Leipert & George, 2008; Morgan et al., 2009; Murimi & Harpel, 2010; Nelson, 2008; Noone & Young, 2009; Ricketts, 2005; Wilson, Whitler, & Asher, 2011; Ziller, Coburn, Anderson, & Loux, 2008). The rural health disadvantage has persisted and proven to be an intractable problem related to numerous social and geographical contextual factors that exacerbate access

to care and premature mortality (death before 75 years of age) (Eberhardt & Pamuk, 2004). A growing body of work examines geographical setting as a source of health disparity, hypothesizing individual as well as larger, social and environmental sources of risk, however mechanisms by which these influences operate are not well understood (Arcury et al., 2005; Beyer, Comstock, Seagren, & Rushton, 2011; Carruth, Browning, Reed, Skarke, & Seasley, 2006; Gesler & Ricketts, 1992; Grzybowski, Stoll, & Kornelsen, 2011; Hartley, 2004).

Collectively across U.S. counties, a recent time series study examined mortality data between 1961 and 1999, finding that after 1983, 180 counties for women and 11 counties for men experienced declines in life expectancy, while many counties experienced improvements in life expectancy, others stagnated and county-level health disparities widened during this time. Of importance, during the period between 1961 and 1983, no counties experienced such declines (Ezzati, Friedman, Kulkarni, & Murray, 2008). A similar study examined trends in mortality rates from 1992-96 and 2002-06 in 3,140 U.S. counties, finding female mortality rates increased in 42.8 % of counties, while male mortality rates increased in only 3.4%; notably being located in the south and west was predictive of increased female mortality. Other variables used in the regression model included: population health adapted from *County Health Rankings*, geographic region, population density, race, median household income, percentage of high school graduates, adults with bachelor's degrees, single-parent households and children living below the federal poverty level (Kindig & Cheng, 2013). These findings may be indicative of policy movement during this time period that could have influenced place in ways that produce unfavorable health consequences for the poor, persons of color and women, particularly in the south and west. Specifically, the 1980's ushered in a new level of emphasis on capitalism with the election of President Reagan and his administration's characteristic *New Right* ideology that focused on deregulation, emphasis on small-government resulting in a reduction of social programs, supply-side economics and anti-tax individualism that favor the wealthy (Lassiter, 2011; McFarlane & Meier, 1993); ideology that has persisted with white voters and lawmakers in the south and rural western states.

Political Partisanship and Ideological Characteristics

There is an absence of debate and evidence in regards to how politics, power and ideological underpinnings influence health (Bambra, et al., 2005). Frequently, health services and public health research focuses on the policy impact(s) of changes to programs like Medicaid (Waitzkin, Schillaci, & Willging, 2008), or the implementation of health promotion initiatives such as tobacco cessation, comparing strategy efficacy related to the use of awareness programs, policy or price increases (Dilley, Harris, Boysun, & Reid, 2012) as common examples. However, domestic research studies focused on the *contexts* and *interrelationships* between political ideology characteristics inherent in policy decisions and the contributions these political determinants exert over health indicators and outcomes are limited.

Political Polarization among the Governing Elite. Pinpointing when the Democrat and Republican parties began to bifurcate towards opposite poles depends on the issue areas under examination; however scholarly research identifies the 1980's and 1990's as the time frame when party polarization began to conclusively gather speed (Fiorina, 2002; Garner & Palmer, 2011; Hetherington, 2001, 2009). By the conclusion of the mid-term elections in 2010, it was predicted that the 112th House of Representatives would be the most polarized and conservative in modern history; evidenced partially by the fact that Republicans (R) picked up 66 Democrat (D) seats at the expense of 46 moderates, 18 moderate liberals and only 2 liberals (Abramowitz, 2011). The prediction of conflict and gridlock did indeed move from forecast to reality with the 112th Congress, primarily on a wave of extreme conservative Tea Party candidates that quickly mobilized at the grassroots level, outraged by the current political institutions, social policies and social groups, pulling the Republican Party to the far right (Mann & Ornstein, 2012; Thompson, 2012; Williamson, Skocpol, & Coggin, 2011). The ideological dysfunction resulted in a near government shutdown and close to a breach of the debt ceiling while closing out the year on the verge of going over what was termed the *fiscal cliff*, offering a legislative record that suggested few accomplishments (Klein, 2013).

Prior to the installment of 112th Congress, health care reform in particular was a bitterly partisan topic during negotiations in late 2009 and early 2010 leading up to the passing of the ACA in March of

2010 with not a single Republican vote (Henderson & Hillygus, 2011). Party rhetoric was ratcheted up when former Vice Presidential nominee and Alaska Governor Sarah Palin (R) ignited a political firestorm with a dangerously misinformed statement posted to her Facebook page in reference to Section 1233 of HR Bill 3200 titled *Advanced Care Planning Consultation* (2009). This seemingly innocuous provision of HR 3200 would have reimbursed physicians who provide counseling to Medicare patients regarding advanced directives, living wills and end-of-life care. A Politico news story captured the post of the former Alaskan Governor reacting to the legislation: “Yesterday President Obama responded to my statement that Democratic health care proposals would lead to rationed care; that the sick, the elderly and disabled would suffer the most under such rationing; and that under such a system, these ‘unproductive’ members of society could face the prospect of government bureaucrats determining whether they deserve health care.” She continued “The America I know and love is not one in which my parents or my baby with Down Syndrome will have to stand in front of Obama’s ‘death panel’ so his bureaucrats can decide, based on a subjective judgment of their ‘level of productivity on society’, whether they are worthy of health care” (Barr, 2009; Gitterman & Scott, 2011; Kersh, 2011). This statement was subsequently touted as “lie of the year” by numerous fact-checking entities and is often cited as an example of hyper-partisanship that is common practice inside the beltway.

Polarization at the federal-level has been well documented in both the literature and the news media; however there is a absence of scientific research related to political polarization among governing bodies at the state-level (non-existent at the county-level), and how ideology interacts with public policy. A recent and rare example of one such study indicates polarized ideological positions of both the Republican and Democratic Party on the issue of abortion. In conjunction with institutional control of state government, researchers found a statistically significant impact on the enactment of Targeted Regulation of Abortion Providers (TRAP) laws, in the expected direction (i.e. instigated by Republican controlled state governments) (Medoff, 2012). Similarly, the Guttmacher Institute revealed that in the first six months of 2011, states enacted 80 abortion restrictions and that number represented more than double the previous record of 34 abortion restrictions enacted in 2005—and more than tripled the 23

enacted in 2010. All of which were passed and supported by 19 states with predominantly Republican leadership (Guttmacher Institute, 2011).

The news media has documented the majority of evidence (albeit secondary) substantiating the claim of state-level polarization. Notably, Republican Governors have received the vast bulk of attention related to enacting extreme partisan laws that arguably impact the health and well-being of the poor and middle-class. Republican Governor Scott Walker of Wisconsin championed and signed a bill into law stripping public employees of their union collective bargaining rights to balance his state's budget (Kroll, 2011), while Florida Governor Rick Scott (R) signed a law passed by the Republican-led Legislature requiring applicants seeking Temporary Assistance for Needy Families (TANF) benefits to first pass a drug test (Sanders, 2013) and shut down the state Tuberculosis hospital amid the worst breakout in 20 years according to the Centers for Disease Control and Prevention (Weinstein, 2012). Rick Perry (R), Governor of Texas created a plan to exclude Planned Parenthood from Medicaid dollars for the Texas Women's Health Program. The Federal Government responded in-kind and Texas, as a result of not complying with federal regulations, forfeited hundreds of millions of dollars marked for women's health care (Redden, 2013). Mississippi, the poorest and most obese state in the union has seen numerous health degrading laws signed by Republican Governor Phil Bryant. In response to New York City Mayor Michael Bloomberg's (R) ban on large sugary beverages, Governor Bryant signed Senate Bill 2687 that prohibits cities and counties from placing local regulation on food and beverages (Pettus, 2013). Additionally, Mississippi has a single abortion clinic, which is at risk of being shut down because of a 2012 law requiring abortionists to obtain admitting privileges at local hospitals (The Economist, 2013).

Political Polarization among the Masses. Political polarization represents a threat in that it encourages alignment along multiple lines of potential conflict and organizes individuals and groups around exclusive identities, consolidating interests into divisive and competing blocs (Baldassarri & Gelman, 2008). Yet, polarization among the general public, unlike elite polarization is a fiercely contested topic among political science scholars (Garner & Palmer, 2011; Iyengar, Sood, & Lelkes, 2012; Levendusky & Pope, 2011). On one end of the continuum, evidence is presented that challenges the very

methodology that allows researchers to arrive at measures of partisanship among the masses, while also noting examples of Democratic affiliated candidates winning gubernatorial elections in long-standing conservative red states (e.g. Sebelius, former Kansas Democratic Governor; Freudenthal former Wyoming Democratic Governor) with the opposite being true of Republican affiliated candidates winning elections in liberal blue states (e.g. Schwarzenegger, former Republican Governor California; Romney, former Republican Massachusetts Governor); suggesting polarization is not as widespread as thought and mostly functioning as fodder for the news media (Ansolabehere, Rodden, & Snyder, 2006; Fiorina, Abrams, & Pope, 2008; Levendusky & Pope, 2011). Further, Fiorina and colleagues (2006) argue that twenty-first-century Americans, "are not very well-informed about politics, do not hold many of their views very strongly, and are not ideological" (p. 19) and that polarization turns off voters and depresses election turnout. Additionally, Fiorina and Abrams (2008) emphasize that there is no conclusive evidence that elite polarization has neither encouraged voter partisanship nor initiated a withdrawal from politics.

However, these assertions have been disputed and documented. Contrary to Fiorina's findings, Abramowitz and Saunders (2008) found polarization energizes the electorate and stimulates political participation. Other studies have asserted a solidification of a highly polarized American electorate that has evolved over the last several decades and has been both enduring and intractable (Bafumi & Shapiro, 2009; Bartels, 2000; Brewer, 2005), and those that identify with a specific party are a stable component of mass political behavior (Allister & Wattenberg, 1995). It has been noted that ideology has a steady net direct effect on party identification (Smith, 1999). One study supports the idea that identifying with a specific party contributes to stable mass political behavior, demonstrated through a variety of data that Republicans and Democrats increasingly dislike, even loathe their opponents (Iyengar, et al., 2012). A more middle ground analysis of mass polarization posits that citizens with consistently liberal or conservative preferences across both economic and social dimensions have responded to elite polarization with mass polarization, while those that identify with neither are more likely to shift partisan allegiance in the short-term and unlikely to strengthen party identification in the long-term (Carmines, Ensley, & Wagner, 2012b). Claassen and Highton (2009) reported similar results showing that the politically well-

informed responded to growing elite polarization by becoming more partisan in their own opinions.

More specific evidence of an increasingly polarized electorate has been demonstrated over the last several decades during presidential election cycles. For example, in 2008, the Obama-Biden ticket carried 28 states and the District of Columbia; of those the margin of victory was greater than 10 percentage points in 22 and less than 5% in only 4. Conversely of the 22 states the McCain-Palin ticket carried, 15 of those were decisive wins exceeding a 10 point margin, and the ticket won only 2 states by less than 5% (Abramowitz, 2010). At the individual level, studies have shown a growing unwillingness to want politicians to compromise with the “other side” and a determination to blame growing political incivility solely on the other party. Specifically, a solid percentage of the electorate holds strong partisan preferences and wants their party leaders to stand firm on principle rather than compromise with the other side, noting stark partisan atmospheres exist generally and are not concentrated in electorally competitive areas (Wolf, Strachan, & Shea, 2012). Abramowitz and Saunders (2006) found party identification to be generally stable at both the individual and the aggregate level, that party loyal-ties are relatively immune to short-term fluctuations in economic conditions and presidential popularity, and that party identification exerts a powerful influence on evaluations of political leaders and voting decisions.

Demographic and Ideologue Characteristics. According to Abramowitz and Saunders (2006) ideology has been attributed to producing a secular realignment of party loyalties in the U.S. since the 1970's. Abramowitz and Saunders (2005) found there to be deep divisions between red state voters and blue state voters, and between religious voters and secular voters; and that these divisions have become more pervasive and not confined to partisans on both extreme ends. The Republican electoral base is disproportionately white, socially conservative, with a strong religious base of Catholics, regular church-goers and Protestant fundamentalists, are middle-aged or older and geographically located in rural areas (Abramowitz, 2010; Brooks & Manza, 2004; Sheets, Domke, & Greenwald, 2011; Stanley & Niemi, 2006). Democrats on the other hand possess correlates of party affiliation that are typically less religious, tend to have lower incomes, are less likely to be married, supportive of LGBT rights, from a racial minority group, urban dwellers, and more likely to be women (Abramowitz & Saunders, 2006;

Kaltenthaler & Miller, 2012). These demographic differences are likely attributed to policy preferences of each party's members (Abramowitz & Saunders, 2006). Contemporary measures of ideology indicate that voters possess two dimensions of policy preferences that are economic and social in nature (Carmines, Ensley, & Wagner, 2012a). Table 2.1 summarizes prevailing ideological characteristics between liberals and conservatives on social and economic dimensions adapted from the American National Election Survey (ANES) and are commonly used by political scientists to designate qualitative characteristics of partisanship at both ends (Ansolabehere, et al., 2006; Hussey, 2012; Valocchi, 2001).

Table 2.1

Economic and Social Dimensions of Liberal-Conservative Ideology

Ideological Typology	Economic/Social Dimension	Characteristic Policy Preference
Liberal	Economic	Increase government spending on Social Security, food stamps, child care, the poor, homeless, and education.
	Social	Favors laws to protect homosexuals against job discrimination; feels that homosexuals should be allowed to serve in the U.S. military; believes that homosexual couples should be legally permitted to adopt children; believes that by law a woman should always be able to obtain an abortion as a matter of personal choice; believes that the law should allow public schools to schedule time when children can pray silently if they wish; believes the government should make efforts to improve the social and economic position of blacks; supports a government insurance plan; supports equal role of women in business, industry and government.
Conservative	Economic	Reduce government spending on welfare and food stamps and hold spending constant on Social Security, child care, the homeless and education.
	Social	Opposes laws to protect homosexuals against job discrimination; feels that homosexuals should not be allowed to serve in the U.S. military; believes that homosexual couples should not be legally permitted to adopt children; believes that the law should permit abortion only in case of rape, incest or when the woman's life is in danger; believes that the law should allow public schools to schedule time when children as a group can say a general prayer not tied to a particular religious faith; believes the government should not make any special effort to improve the social and economic position of blacks; opposes a government insurance plan; feels a woman's place is in the home.

Partisan Ideology and Health Care. How the U.S. chooses to deliver health care for citizens has been a long-standing partisan debate. Existing policy theories affiliated with strong party ties have demonstrated somewhat obscure relationships on social program funding, support and overall outcomes. Regarding access to care and insurance, there are two policy strategies (state or market-based) that are often examined to reduce uninsurance rates, distinguished by whether states rely on institutional capabilities within the state or the market to provide insurance. Tested models have helped explain the adoption of each policy type, with results indicating institutionally more capable state governments with strong liberal-party presence in the legislature adopt more successful state-based and fewer market-based policies (Barrilleaux & Brace, 2007). Perhaps this can be attributed in some part to the liberal perspective and belief that health care is a matter of equal rights and the implementation of that right is best facilitated through a social insurance system that provides universal coverage (Bodenheimer, 2005).

The State Children's Health Insurance Program (SCHIP) and Medicaid are federally sponsored programs that work in partnership with states. With the passing of the Affordable Care Act (ACA), further devolution of responsibility has been directed away from the Federal Government granting states greater flexibility, while requiring them to play a key role in the reform agenda (Sparer, et al., 2011). Because of the wide array of policy options implemented across all 50 states prior and subsequent to the passing of the ACA, there have been numerous scholarly investigations that examine the role politics has played in policy setting and administration of both the SCHIP and Medicaid programs. A recent study examined SCHIP spending, finding state's with Republican political strength in state legislatures ($p \leq .001$) and governorships ($p \leq .01$) had a negative influence on SCHIP spending; although author's conceded they were unable to determine if lower spending levels translated directly into poorer health outcomes in the SCHIP eligible population (Tope & Hickman, 2012). Contrary to these findings, one study investigated whether party control of government and various state reforms impacted the percentage of the state population without health insurance from 1987 -2007. Empirically, the results suggested Republicans were more effective than Democrats at the state-level at reducing insurance gaps and that three of five policy reforms explored appear to significantly expand insurance coverage; although the

author noted that caution is advised when making interpretations about party control, as the bulk of the policy reforms examined for the study in question were under divided governments (J. Cummins, 2011). Of interest, a recent assessment of Governor's altruism towards health care conducted by the Brookings Institute revealed a different picture relating to the percentage of uninsured in states compared to whether or not a state refused or was considering refusing Medicaid expansion under the ACA, indicating that some of the staunchest advocates against reform (Republican Governors) had the highest rates of uninsured (Hudak, 2012). Table 2.2 shows the top fifteen highest rates of uninsured by state, party control and Medicaid expansion status adapted from the Brookings analysis. According to the Kaiser Family Foundation Texas, New Mexico, Nevada, Florida, Georgia, South Carolina, and Mississippi account for 29% of all uninsured in the U.S. Following the 2012 general election four Republican Governors who were publicly against or considering refusing Medicaid expansion recently reversed their position.

Table 2.2

State Governor Altruism toward Medicaid Expansion by Percent Uninsured and Party

State	Percent (%) Uninsured	Party of Governor	Refusing or Considering Refusing Medicaid Expansion
Texas	25%	REPUBLICAN	YES
New Mexico	21%	REPUBLICAN	NO ^a
Nevada	21%	REPUBLICAN	NO ^b
Florida	21%	REPUBLICAN	NO ^c
Georgia	20%	REPUBLICAN	YES
South Carolina	19%	REPUBLICAN	YES
Mississippi	19%	REPUBLICAN	YES
California	19%	DEMOCRAT	NO
Arkansas	19%	DEMOCRAT	NO
Arizona	19%	REPUBLICAN	NO ^d
Oklahoma	18%	REPUBLICAN	YES
North Carolina	18%	REPUBLICAN	YES
Alaska	18%	REPUBLICAN	YES
Oregon	17%	DEMOCRAT	NO
Montana	17%	DEMOCRAT	NO

Note. Adapted from (Hudak, 2012). Percent uninsured data source: Kaiser Family Foundation

^a In January 2013 Governor Susana Martinez announced her state would expand Medicaid after months of considering to not expand coverage (Schirtzinger, 2013).

^b In December 2012 Governor Brian Sandoval announced his state would participate in Medicaid expansion, despite overall opposition to the ACA (Damon, 2012).

^c Florida Governor, Rick Scott a vocal opponent against Medicaid expansion and the Affordable Care Act reversed his decision in February of 2013 (Kennedy & Fineout, 2013).

^d Arizona Governor, Jan Brewer a staunch proponent against and heavily backed by the Tea Party like Governor Scott reversed her decision for the state to participate in Medicaid expansion (Fischer, 2013).

Much like the governing elite, the public's support for private vs. public health insurance and reform are bound by ideological policy preferences. For example, striking differences in policy liberalism among active partisans using 2004 ANES data and specifically on the issue of health insurance, Democrats were more likely to adopt a liberal policy position by a margin of 66%, compared to Republicans at a 15% margin (Abramowitz, 2010). American National Election Survey questions asked respondents to place themselves on a 7-point scale indicating their support for or opposition against government responsibility for health insurance; Democratic identifiers and leaner's overwhelmingly supported, while Republican identifiers and leaner's overwhelmingly oppose (Abramowitz, 2010; Henderson & Hillygus, 2011). A recent study that surveyed a large, national sample of American adults

inquiring about their willingness to pay for health reform, revealed that self-identified Republicans, older, and high-income Americans (irrespective of party affiliation) were less supportive of reform measures (Brady & Kessler, 2010). Ideological divides regarding a national health insurance system that mandates coverage persist partly because there is little domestic evidence of the effects on cost and health. Before Massachusetts passed mandated coverage in 2006, Hawaii was the only state to require employer sponsored health insurance dating back to 1979 (Buchmueller, DiNardo, & Valletta, 2011; Gabel, Whitmore, & Pickreign, 2008).

Other public health and social issues outside of health care delivery, access and reform have also been subject to polarization. A comprehensive contextual analysis concluded that since the Bush Administration, reproductive health has been segregated into five key issues: sex education, access to emergency contraception and to abortion services, condom effectiveness, and HIV/AIDS prevention and that conservative ideology championed by Republicans have superseded science, public health and ethical concerns (Kulczycki, 2007). Specifically, the Republican Party (i.e. social conservatives) has had a long history of opposing abortion and the use of stem cells for research purposes, whereas the opposite is true for the Democratic Party (Tanne, 2004). Even on less salient themes related to health there appears to be differences along party lines associated with perceptions of how well the government handles public health issues. One study assessed state-level political partisanship and attitudes and behavior towards the H1N1 swine flu crisis of 2009, with results indicating Democrats were far more likely than Republicans to get the H1N1 vaccine if available, and nearly twice as many Democrats as Republicans (82 vs. 49 percent) expressed confidence in the government's ability to deal with swine flu. Moreover, nearly twice as many Republicans as Democrats (18 vs. 10 percent) indicated in an open-ended question that they would not get the vaccine because it was too risky or inadequately tested (Baum, 2011).

Measuring Partisanship. One assumption of partisanship categorization among counties is that in many cases place is an important factor in politics, particularly in presidential campaigns where strategies are hinged on variability in state-level competitiveness (McKee & Teigen, 2009). The majority of states in presidential elections are predetermined by only a few *swing states* deciding the electoral

outcome; political strategists rely on states and districts falling into stable political factions. Party competition is in general only high when it is a function of constituency diversity; county and state analysis are consistent with this theoretical perspective (Aistrup, 2004). Scholars have relied on many approaches including the use of demographic variables, small-sample estimates of public opinion, presidential election results and referenda data (Ardoin & Garand, 2003). One practical approach to measuring party strength called the Majority Party Index (MPI), weights the results of six major elections; presidential (25%), congressional (Senate: 12.5%; House: 12.5%), gubernatorial (25%), and state legislature (Senate: 12.5%; House: 12.5%) (Ceaser & Saldin, 2005). This method of indexing takes into account that a state can maintain a profile at one level (state or federal), but the opposite on the other. In 1990, authors found 17 states that fit this description, while in 2002 the number decreased by 10 suggesting solidification of views by the electorate across states (Ceaser & Saldin, 2005).

CHAPTER III - METHODS AND PROCEDURES

The purpose of this exploratory ecological study is to examine if differences exist between two independent variables: partisan voting behavior (trichotomized as conservative, moderate, and liberal) and median per capita household income in U.S. dollars (by quartile) on dependent variables related to mortality (years of productive life lost) and morbidity (number of mentally and physically unhealthy days) at the county-level to compare differences in ideological underpinnings that may act as influencers towards health based on predominant party affiliation. Of particular interest are the potential differences seen at the lower income quartile as it is hypothesized that the groups of higher income in the upper quartile will have similar health morbidity and mortality measures irrespective of predominant party affiliation. Two-way between-subjects ANOVA statistical tests were conducted to determine if there is an effect created by partisan voter index category and median per capita household income by quartile on the three aforementioned dependent variables related to health outcomes. Testing of assumptions and post-hoc tests and analysis of significant interactions in SPSS/PASW 18 © were also conducted.

Research Questions

- I. Are there differences in premature death (mortality measured in Years of Productive Life Lost) at the county-level, depending on median per capita household income (quartile) and voting behavior categories that are trichotomized as conservative, moderate, and liberal?
- II. Are there differences in poor mental health days (morbidity) at the county-level, depending on median per capita household income (quartile) and voting behavior categories that are trichotomized as conservative, moderate, and liberal?

- III. Are there differences between poor physical health days (morbidity) at the county-level, depending on median per capita household income (quartile) and voting behavior categories that are trichotomized as conservative, moderate, and liberal?

Data Sources and Variables

Multiple data sources were combined and matched to all 3,140 counties located in the U.S. according to assigned Federal Information Processing Standard (FIPS) codes. Specifically, data sources and variables of interest are presented in Table 3.1. Data originated from: 2012 *County Health Rankings* (www.countyhealthrankingsdata.org); historical county-level presidential voting records for 2008 and 2012 (www.uselectionatlas.org) representing the percentage of the vote captured by party; population information and demographic characteristics (gender, age by category, and race/ethnicity from the 2010 U.S. Census Bureau (www.census.gov); and American Community Survey (ACS) (<http://www.census.gov/acs/www/>) variables that show *how* people live relating to social and economic characteristics including: educational attainment and key economic indicators (e.g. median household income, % of families who fall within the Federal Poverty Level (FPL), and Gini Coefficients). All U.S. Census Bureau and ACS information were obtained using the Census Bureau's American FactFinder interactive tool for variables at the county-level.

Table 3.1

Study Variables of Interest by Source

Variable Name	Data Source	Date	Measure/Description
County and State	U.S. Census Bureau	2012	Federal Information Processing Standards (FIPS) Codes; Place
Mortality	National Center for Health Statistics (NCHS); compiled by <i>County Health Rankings</i>	2006-2008	Premature death; Years of Potential Life Lost
Morbidity	Behavioral Risk Factor Surveillance System (BRFSS); compiled by <i>County Health Rankings</i>	2004-2010	Poor mental health days
Morbidity	BRFSS; compiled by <i>County Health Rankings</i>	2004-2010	Poor physical health days
Gender	U.S. Census Bureau	2011	Demographic
Age by category	U.S. Census Bureau	2011	Demographic
Race	U.S. Census Bureau	2011	Demographic
Median Per Capita Household Income (\$)	American Community Survey (ACS)	2007-2011	SES; 5 year estimate
% Families within FPL	ACS	2007-2011	SES; 5 year estimate
Children in poverty	ACS	2007-2011	SES; 5 year estimate
Educational attainment	ACS	2007-2011	SES; 5 year estimate
Gini Coefficient	ACS	2007-2011	Income inequality; 5 year estimate
County Partisan Voter Index (PVI)	U.S. Election Atlas	2008; 2012	County-level partisanship

Note. United States Census Bureau demographic information was collected but not utilized in analysis, nor was collected ACS data related to % families within the Federal Poverty Level (FPL), children in poverty, educational attainment, or Gini Coefficients. These variables were included as relevant given the findings of the literature review.

American Community Survey Data. There are several widely used federal survey data sources available for use. The use of the American Community Survey (ACS), which is a general household survey conducted by the U.S. Census Bureau has numerous advantages compared to other data sources. The ACS data is derived from a large, nationally representative sample (almost 15 times larger than the Community Population Survey also administered by the Census Bureau); provides sub-state estimates (of

interest pertaining to this study county-level); and allows for robust subpopulation analysis. ACS replaces the “long form” of the decennial census collecting detailed economic, social, demographic and housing information annually instead of once every 10 years, which in turn provides communities with up-to-date information on key demographics and policy relevant data. In terms of methodology, the ACS data is collected continuously, collecting samples in all counties in the U.S. every year producing 1 year estimates, 3 year estimates and 5 year estimates. The 3 and 5 year estimates are multiple years pooled together to produce reliable estimates for areas and subgroups with smaller populations (Health Care Financing and Organization, 2013).

Partisan Voting Behavior. The Cook Partisan Voting Index (PVI) was used as a proxy to gauge partisan voting behavior to characterize political ideology. Similar to the Major Party Index described in the literature review (Ceaser & Saldin, 2005), the Cook Political Report introduced the PVI in 1997 and it has since been commonly used by political campaign strategists to measure how strongly a U.S. Congressional district leans Democratic or Republican compared to the nation as whole to determine competitiveness (i.e. the degree of partisanship) (Wasserman, 2012). Partisan voting indexes are calculated by comparing the district's (in this case county) average Democratic (or Republican) Party's share of the two-party presidential vote in the past two presidential elections (2008-2012) to the nation's average share of the same. The national result was 52% Democratic, 46% Republican for the whole number average of the 2008 and 2012 presidential election. For example using rounded whole numbers in Cullman County, Alabama, the Republican candidate won 82% and 84% of the two-party share in the 2008 and 2012 presidential elections, respectively. Comparing the average of these two results (83%) and subtracting it against the average Republican national share (46%), Cullman County, Alabama is 37% more Republican than the country as a whole. Table 3.2 reports the results of the 2008 and 2012 presidential election by percentage of the vote captured by party.

Table 3.2

Vote Captured by Party (Candidate) and Year; 2008 and 2012 Presidential Elections

Presidential Election Year	% National Vote Captured (D)	% National Vote Captured (R)
2008	52.9% (Obama)	45.6% (McCain)
2012	51.1% (Obama)	47.2% (Romney)

From those calculated PVI values, cut points were established to classify counties into three new nominal categories re-coded as conservative, moderate and liberal. Cut points were selected somewhat arbitrarily due to the fact that no literature was found for guidance. For purposes of this study, counties representing a PVI that leans Democrat $\geq +10$ or Republican $\geq +10$ denotes partisan liberal and conservative counties respectively, while counties that lean in the range of Democrat $\leq +9$ to Republican $\leq +9$ are categorized as moderate. It was thought that counties possessing a PVI value greater than 10 percentage points above the combined two election cycle average could be safely categorized as partisan in the liberal or conservative categories; double digit victories are generally viewed as decisive victories in the political science literature (Abramowitz, 2010).

Years of Productive Life Lost. One measure of mortality, specifically premature death can be expressed by years of productive life lost (YPLL) rates (death before age 75 per 100,000 population). *County Health Rankings* calculated rates using data from Vital Statistics and the National Center for Health Statistics (NCHS) for 2006-2008.

Poor Mental Health Days. *County Health Rankings* utilized data from the 2004-2010 Behavioral Risk Factor Surveillance System (BRFSS) across several dimensions of morbidity. Poor mental health is measured as the average number of self-reported unhealthy days in the past 30 days at the time of response.

Poor Physical Health Days. *County Health Rankings* utilized 2004-2010 BRFSS data that reports the number of poor physical health measured as the average number of self-reported unhealthy days in the

past 30 days at the time of response.

Procedures

Data from all sources was synthesized, cleaned and sorted. Of the 3,140 county and county equivalents (boroughs, parishes and independent cities) in the U.S., 149 counties were removed from the population due to missing and unreliable dependent variable health data or sporadic independent variable voting records. For example in Boone County, West Virginia Barack Obama captured 54.1% of the vote in 2008 and 32.8% in 2012 for a net change of (-21.3%). Differences between partisan categories are based on the assumption of stability over time to accurately estimate levels of partisanship; 13 counties had unexplainable net swings from 2008 to 2012 of over (-15%) percentage points away from President Obama, thus an accurate gauge of partisanship could not be achieved. The state of Alaska was excluded from analysis because vote percentage captured is reported by district, not county; so data could not be matched up with county health measures. See Appendix A for a full list and explanations of the 149 counties excluded from analysis.

Protection of Human Subjects

Although this study is classified as a systematic investigation that involves obtaining information about living individuals, it does not qualify as human subjects research because it does not involve data that is obtained in a manner that requires intervention or interaction with individuals, individual identities cannot be obtained through the data sets because they are reported at the population level, nor is the data considered private information. Because of these factors an Application for Designation of Not Human Subjects Research was submitted to the Georgia State University (GSU) Institutional Review Board and approved on February 4, 2013 by the University Research Services Administration Compliance Office.

CHAPTER IV - RESULTS

The total number of county and county equivalents included in the analysis was 2,991. Table 4.1 shows the distribution of counties re-coded as conservative, moderate and liberal based on PVI methods. Figure 4.1 represents the coding scheme of conservative, moderate and liberal by county and Figure 4.2 represents county median per capita household income by quartile. All maps were created using ArcGIS® software by Esri. ArcGIS® and ArcMap™ are the intellectual property of Esri and are used herein under license. Copyright © Esri. All rights reserved.

Table 4.1

Distribution of Counties Re-coded as Conservative, Moderate, and Liberal using PVI Methods

PVI Category	<i>n</i>	Percent (%)	Cumulative Percent (%)
Conservative	1,733	57.9%	57.9%
Moderate	1,045	34.9%	92.9%
Liberal	213	7.1%	100%
Total	2,991	100%	

Figure 4.1. County Map of Partisan Voter Categories.

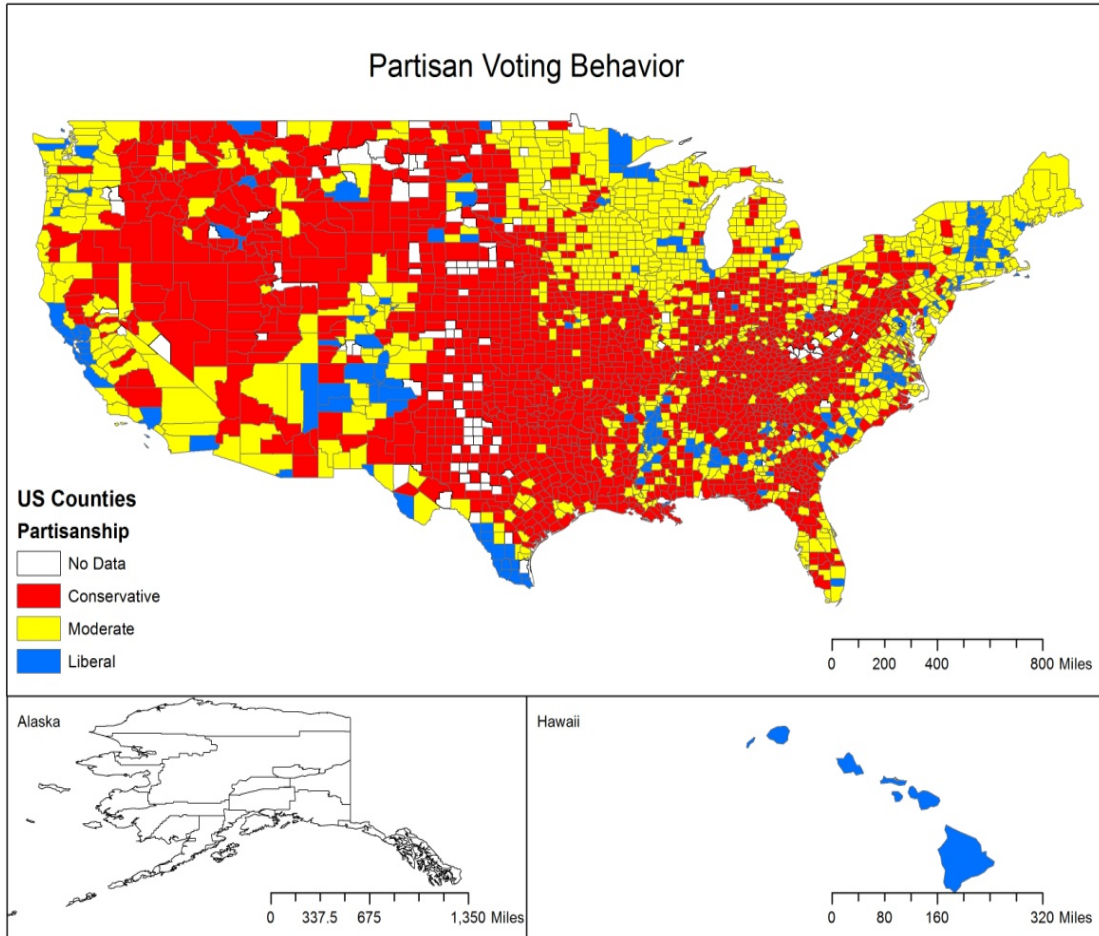
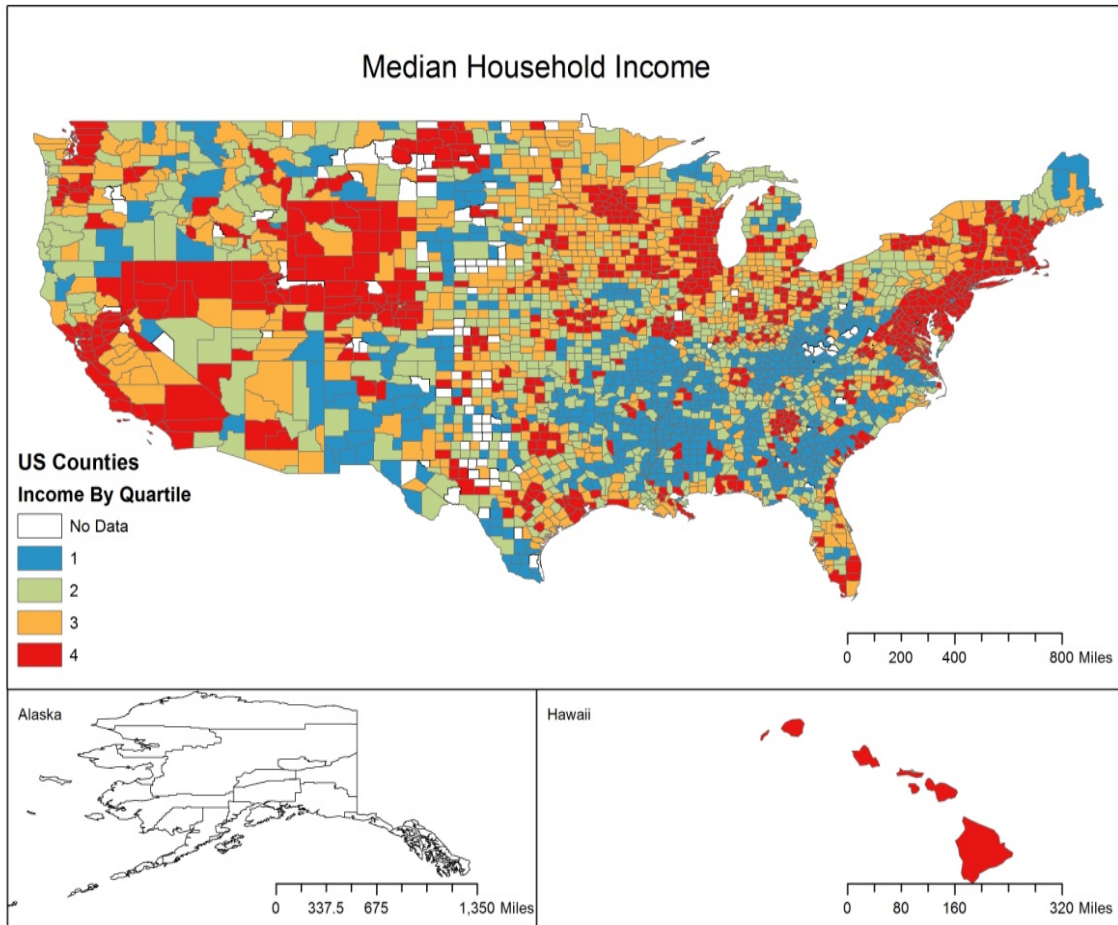


Figure 4.2. County Map of Median Per Capita Household Income by Quartile.



Years of Productive Life Lost

Two-way between-subjects ANOVA procedures were conducted to determine if there is an effect created by partisan voter index category and median per capita household income by quartile on years of productive life lost. Preliminary assumptions were tested to assess normality of the population distribution within the data. Inspection of box-plots, histograms and the Shapiro-Wilk statistic revealed non-normal distributions in the data across the 12 group combinations analyzed in the 3 x 4 design. Outliers were examined and it was assumed that they were valid data points and thus not removed from the sample. To attempt to correct for the non-normal population distribution, the dependent variable was transformed using the square root function. Tests were replicated and visual interpretation of Q-Q plots and Shapiro-Wilk statistic for normality was inspected showing an approximately normal distribution

across groups.

Two-way between-subjects ANOVA tests were conducted with studentized residuals requested. Levene's test was statistically significant ($p < .000$), indicating heterogeneous variance. Normality and outliers were again checked by examining studentized residuals; with any value $\geq \pm 3$ standard deviations classified as an outlier. Upon inspection 24 counties contained extreme values and were removed from the sample (See Appendix B for the full list of counties excluded with corresponding studentized residual values). The ANOVA procedure was repeated and again Levene's test was statistically significant ($p < .000$). Because of the statistical power of the data, detection of even trivial deviation from homogeneous variances is possible and was therefore disregarded, but results should be interpreted with caution.

Data outputs were compared between the first and second ANOVA tests conducted. Removal of the 24 counties did not materially affect or change the results, suggesting those cases were less likely to be acting as influential outliers. A Q-Q plot for the residuals was generated and although not perfect, the residuals were not distorted from the line to suggest the data violate the normality assumption. Figure 4.3 shows the profile plot line graph to visually represent the relationship between median per capita household income, partisan voter category and the transformed YPLL variable. Table 4.2 reports the summarized between-subjects descriptive statistics. Inspection of both shows a clear relationship that as median per capita household income increases, years of productive life lost decreases. Consistent with previous findings in the literature, increasing household income is inversely correlated to mortality outcomes.

Figure 4.3. Profile Plot Line Graph of the Relationship between Dependent Years of Productive Life Lost (Square Root) and Median Per Capita Household Income and Partisan Voter Index Category.

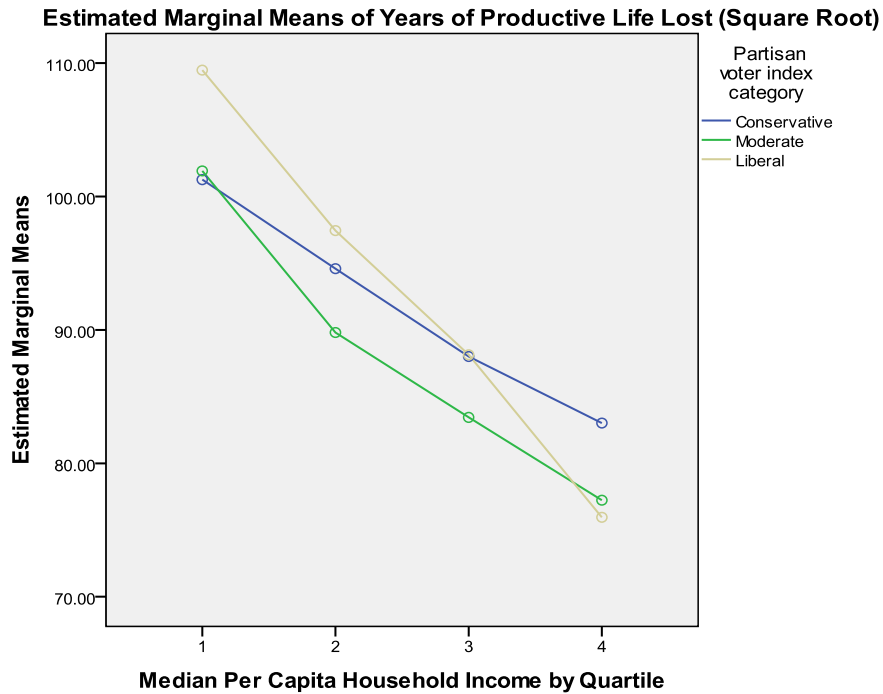


Table 4.2

Means, Standard Deviations, and n for Years of Productive Life Lost (Square Root) as a Function of Median Per Capita Household Income and Partisan Voter Index Category

MPCHI Quartile	<u>Conservative</u>			<u>Moderate</u>			<u>Liberal</u>			<u>Total</u>		
	<i>n</i>	M	SD	<i>n</i>	M	SD	<i>n</i>	M	SD	<i>n</i>	M	SD
1	435	101.3	8.6	191	101.9	9.9	71	109.4	11.9	697	102.3	9.6
2	451	94.6	8.4	207	89.8	9.1	21	97.4	14.1	679	93.2	9.1
3	368	88.0	9.2	299	83.4	8.0	30	88.1	12.5	697	86.0	9.2
4	337	83.0	8.9	315	77.2	7.9	76	75.9	8.3	728	79.8	8.9
TOTAL	1,591	92.4	11.1	1,012	86.3	12.3	198	92.1	18.3	2,801	90.2	12.5

Note. The total (n=2,801) reflects excluded cases for years of productive life lost missing in the County Health Rankings data file.

Levene’s test indicated that the assumption of homogeneity of variance had been violated ($F(11, 2789) = 5.56, p < .000$). Transforming the data did not rectify the problem; F-tests are reported nevertheless. Table 4.3 summarizes the tests of between-subjects effects for the ANOVA procedure

conducted on years of productive life lost. There was a statistically significant interaction between median per capita household income by quartile and partisan voter index category on years of productive life lost, $F(6,2789) = 19.3, p < .000$, partial $\eta^2 = .040$. The effect size indicated that the effect of income and voting category was present but very small.

Table 4.3

Two-way Analysis of Variance for Years of Productive Life Lost (Square Root) as a Function of Median Per Capita Household Income and Partisan Voter Index Category

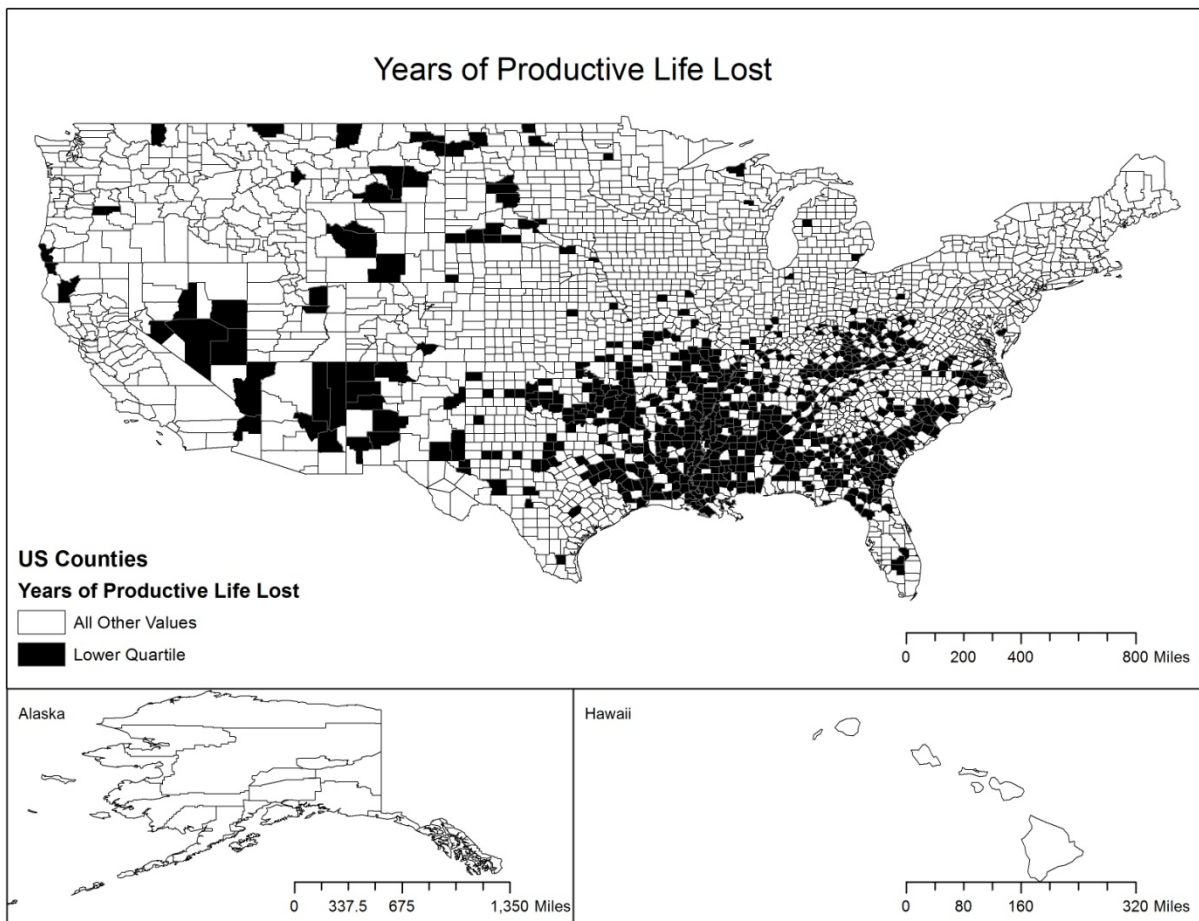
Variable and source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
MPCHI – Quartile	3	49,477.37	624.02	.000	.402
PVI Category	2	4,327.85	54.58	.000	.038
MPCHI – Quartile*PVI	6	1,530.50	19.30	.000	.040
Error	2,789	79.28			

Subsequent to conducting the ANOVA tests, the violation of homogeneity of variances assumption was considered. Post hoc analysis of a significant interaction was chosen to test all combinations and pairs of means. Post hoc comparisons using the Games-Howell test revealed, that of counties in the bottom income quartile, the liberal category seemed to be associated with greater mortality measures by years of productive life lost. The conservative category had statistically significant lower years of productive life lost in comparison to the liberal category ($M = -8.21, SE = 1.47, p = .000$); as did the moderate category in the bottom quartile ($M = -7.55, SE = 1.58, p = .000$). However, the conservative and moderate categories did not significantly differ from each other ($M = -0.65, SE = .833, p = 1.000$).

There were no significant differences between voter category and per capita income in the second and third quartile other than a statistically significant difference between the conservative and moderate category in the second quartile ($M = 4.79, SE = -0.75, p = .000$). There were, however, significant differences detected in the upper quartile suggesting that the liberal category has lower years of productive life lost in comparison to the conservative category ($M = 7.06, SE = 1.06, p = .000$). The moderate category also suggested lower rates of premature death in comparison to the conservative

category ($M = 5.79$, $SE = 0.66$, $p = .000$). There were no differences between the moderate and liberal categories ($M = 1.28$, $SE = 1.04$, $p = .998$). Figure 4.4 represents the counties in the bottom quartile for years of productive life lost. To ensure unambiguous interpretation counties were not classified by partisan category given the small n of liberal counties. The map was generated to highlight state and regional patterns.

Figure 4.4. Counties in the Lower Quartile for Years of Productive Life Lost.



Poor Mental Health Days

Two-way between-subjects ANOVA procedures were conducted to determine if there is an effect created by partisan voter index category and median per capita household income by quartile on the number of poor mental health days. Preliminary assumptions were tested to assess normality of the

population distribution within the data. Inspection of box-plots, histograms and the Shapiro-Wilk statistic revealed non-normal distributions in the data across the 12 group combinations analyzed in the 3 x 4 design. Outliers were examined and it was assumed that they were valid data points and thus not removed from the sample. To attempt to correct for the non-normal population distribution, the dependent variable was transformed using the square root function. Tests were replicated and visual interpretation of Q-Q plots and Shapiro-Wilk statistic for normality was inspected showing an approximately normal distribution across groups.

Two-way between-subjects ANOVA tests were conducted with studentized residuals requested. Levene's test was statistically significant ($p < .000$), indicating heterogeneous variance. Normality and outliers were again checked by examining studentized residuals; with any value $\geq \pm 3$ standard deviations classified as an outlier. Upon inspection 29 counties contained extreme values and were removed from the sample (See Appendix C for the full list of counties excluded with corresponding studentized residual values). The ANOVA procedure was repeated and again Levene's test was statistically significant ($p < .000$). A Q-Q plot for the residuals was generated and although not perfect, the residuals were not distorted from the line to suggest the data violate the normality assumption. Figure 4.5 shows the profile plot line graph to visually represent the relationship between median per capita household income, partisan voter category and the transformed poor mental health days variable. Table 4.4 reports the summarized between-subjects descriptive statistics. Inspection of both shows a downward trend similar to YPLL that as household income increases the number of poor mental health days decreases.

Figure 4.5. Profile Plot Line Graph of the Relationship between Dependent Poor Mental Health Days (Square Root) and Median Per Capita Household Income and Partisan Voter Index Category.

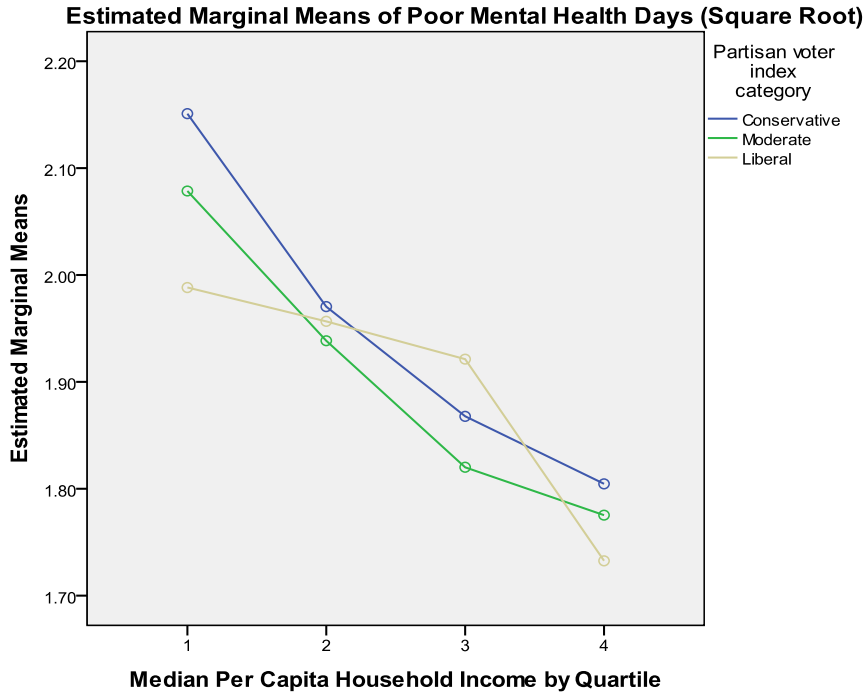


Table 4.4

Means, Standard Deviations, and n for Poor Mental Health Days (Square Root) as a Function of Median Per Capita Household Income and Partisan Voter Index Category

MPCHI Quartile	<u>Conservative</u>			<u>Moderate</u>			<u>Liberal</u>			<u>Total</u>		
	<i>n</i>	M	SD	<i>n</i>	M	SD	<i>n</i>	M	SD	<i>n</i>	M	SD
1	438	2.02	.27	180	1.98	.26	72	1.88	.20	690	1.99	.26
2	475	1.90	.26	214	1.86	.25	21	1.95	.17	710	1.89	.25
3	382	1.78	.26	298	1.77	.25	31	1.89	.16	711	1.78	.25
4	334	1.76	.22	316	1.76	.18	77	1.75	.16	727	1.76	.20
TOTAL	1,629	1.87	.27	1,008	1.80	.25	201	1.83	.19	2,838	1.85	.26

Note. The total (n=2,838) reflects excluded cases for poor mental health days missing in the County Health Rankings data file.

Levene’s test indicated that the assumption of homogeneity of variance had been violated ($F(11, 2826) = 8.92, p < .000$). Transforming the data did not rectify the problem; F-tests are reported nevertheless. Table 4.5 summarizes the tests of between-subjects effects for the ANOVA procedure

conducted on poor mental health days. There was a statistically significant interaction between median per capita household income by quartile and partisan voter index category on poor mental health days, $F(6,2826) = 4.7, p < .000$, partial $\eta^2 = .010$. The effect size indicated that the effect of income and voting category was present but very small.

Table 4.5

Two-way Analysis of Variance for Poor Mental Health Days (Square Root) as a Function of Median Per Capita Household Income and Partisan Voter Index Category

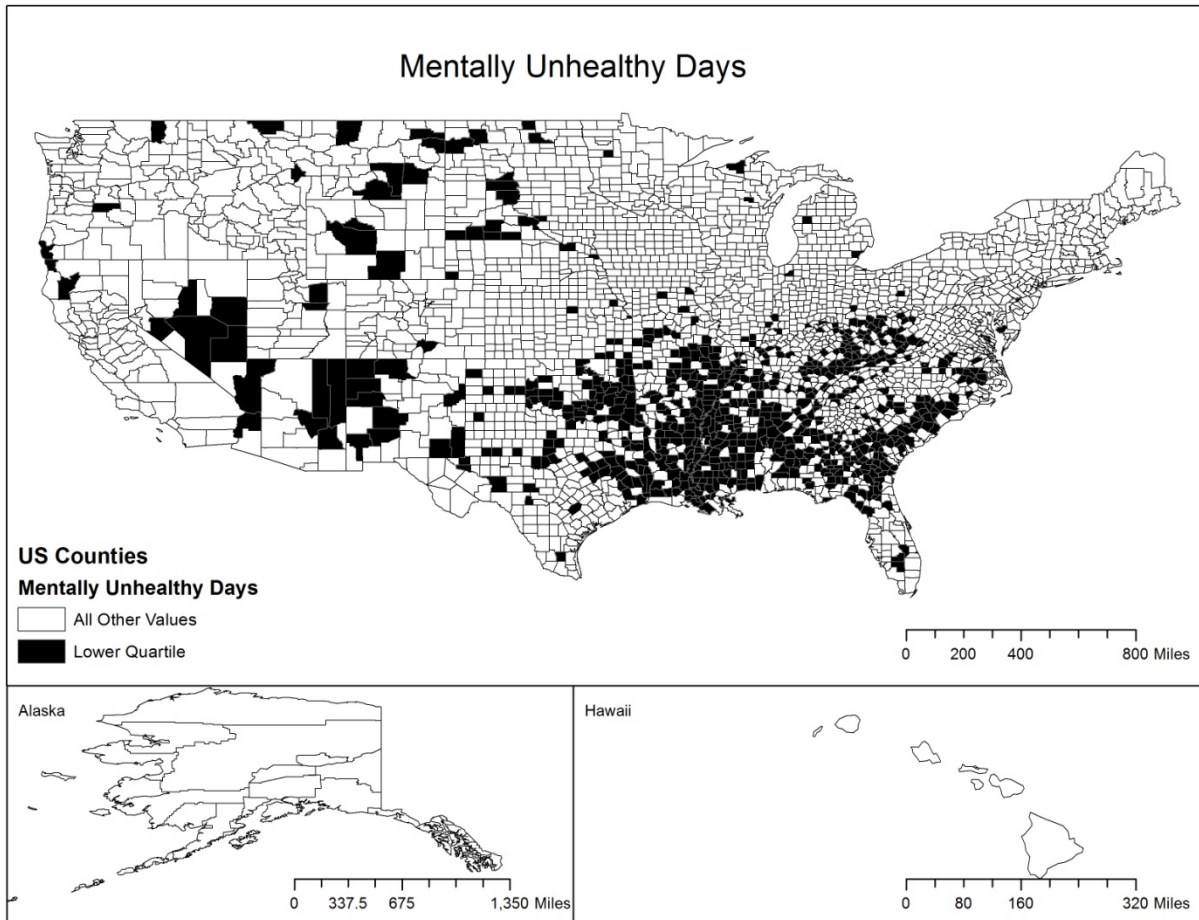
Variable and source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
MPCHI – Quartile	3	3.14	53.65	.000	.054
PVI Category	2	0.14	2.47	.085	.002
MPCHI – Quartile*PVI	6	0.27	4.67	.000	.010
Error	2,826	0.06			

Subsequent to conducting the ANOVA tests, the violation of homogeneity of variances assumption was considered. Even though the effect size between income and voter category was quite small post hoc analysis of a significant interaction was chosen to test all combinations and pairs of means. Post hoc comparisons using the Games-Howell test revealed that of counties in the bottom income quartile, the liberal category seemed to be associated with fewer poor mental health days. The conservative category showed statistically significant greater number of poor mental health days in comparison to the liberal category ($M = 0.15, SE = 0.03, p = .000$); as did comparisons between the moderate and liberal categories ($M = 0.12, SE = 0.03, p = .012$). However, the conservative and moderate categories did not significantly differ from each other ($M = -0.03, SE = 0.023, p = .952$).

There were no significant differences between voter category and per capita income in the second, third or upper quartile other than a statistically significant difference between the conservative and moderate category in the second quartile ($M = 0.13, SE = 0.02, p = .000$) and a difference between moderate and liberal categories in the third quartile ($M = -0.12, SE = 0.031, p = .023$). Figure 4.6 represents the counties in the bottom quartile for poor mental health days. To ensure unambiguous

interpretation counties were not classified by partisan category given the small n of liberal counties. The map was generated to highlight state and regional patterns.

Figure 4.6. Counties in the Lower Quartile for Poor Mental Health Days.



Poor Physical Health Days

Two-way between-subjects ANOVA procedures were conducted to determine if there is an effect created by partisan voter index category and median per capita household income by quartile on the number of poor physical health days. Preliminary assumptions were tested to assess normality of the population distribution within the data. Inspection of box-plots, histograms and the Shapiro-Wilk statistic revealed non-normal distributions in the data across the 12 group combinations analyzed in the 3 x 4 design. Outliers were examined and it was assumed that they were valid data points and thus not removed

from the sample. To attempt to correct for the non-normal population distribution, the dependent variable was transformed using the square root function. Tests were replicated and visual interpretation of Q-Q plots and Shapiro-Wilk statistic for normality was inspected showing an approximately normal distribution across groups.

Two-way between-subjects ANOVA tests were conducted with studentized residuals requested. Levene's test was statistically significant ($p < .000$), indicating heterogeneous variance. Normality and outliers were again checked by examining studentized residuals; with any value $\geq \pm 3$ standard deviations classified as an outlier. Upon inspection 28 counties contained extreme values and were removed from the sample (See Appendix D for the full list of counties excluded with corresponding studentized residual values). The ANOVA procedure was repeated and again Levene's test was statistically significant ($p < .000$). A Q-Q plot for the residuals was generated and although not perfect, the residuals were not distorted from the line to suggest the data violate the normality assumption. Figure 4.7 shows the profile plot line graph to visually represent the relationship between median per capita household income, partisan voter category and the transformed poor physical health days variable. Table 4.6 reports the summarized between-subjects descriptive statistics. Inspection of both shows a highly similar trend to poor mental health days.

Figure 4.7. Profile Plot Line Graph of the Relationship between Dependent Poor Physical Health Days (Square Root) and Median Per Capita Household Income and Partisan Voter Index Category.

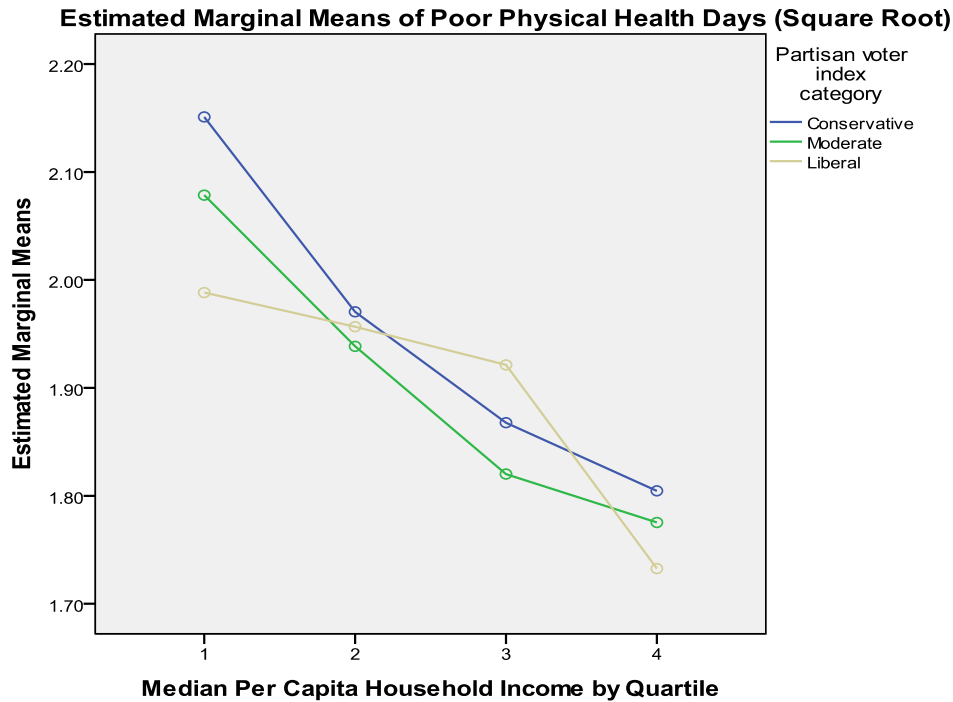


Table 4.6

Means, Standard Deviations, and n for Poor Physical Health Days (Square Root) as a Function of Median Per Capita Household Income and Partisan Voter Index Category

MPCHI Quartile	<u>Conservative</u>			<u>Moderate</u>			<u>Liberal</u>			<u>Total</u>		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
1	430	2.15	.26	181	2.08	.21	72	1.99	.18	683	1.99	.26
2	477	1.97	.25	214	1.94	.22	21	1.95	.12	712	1.89	.25
3	384	1.88	.24	300	1.82	.21	31	1.92	.18	715	1.78	.25
4	336	1.80	.21	315	1.77	.16	77	1.73	.19	728	1.76	.20
TOTAL	1,627	1.96	.27	1,010	1.88	.23	201	1.88	.21	2,838	1.85	.26

Note. The total (n=2,838) reflects excluded cases for poor mental health days missing in the County Health Rankings data file.

Levene's test indicated that the assumption of homogeneity of variance had been violated ($F(11, 2826) = 9.83, p < .000$). Transforming the data did not rectify the problem; F-tests are reported nevertheless. Table 4.7 summarizes the tests of between-subjects effects for the ANOVA procedure

conducted on poor physical health days. There was a statistically significant interaction between median per capita household income by quartile and partisan voter index category on poor physical health days, $F(6,2826) = 3.7, p < .001$, partial $\eta^2 = .008$. The effect size indicated that the effect of income and voting category was present but very small.

Table 4.7

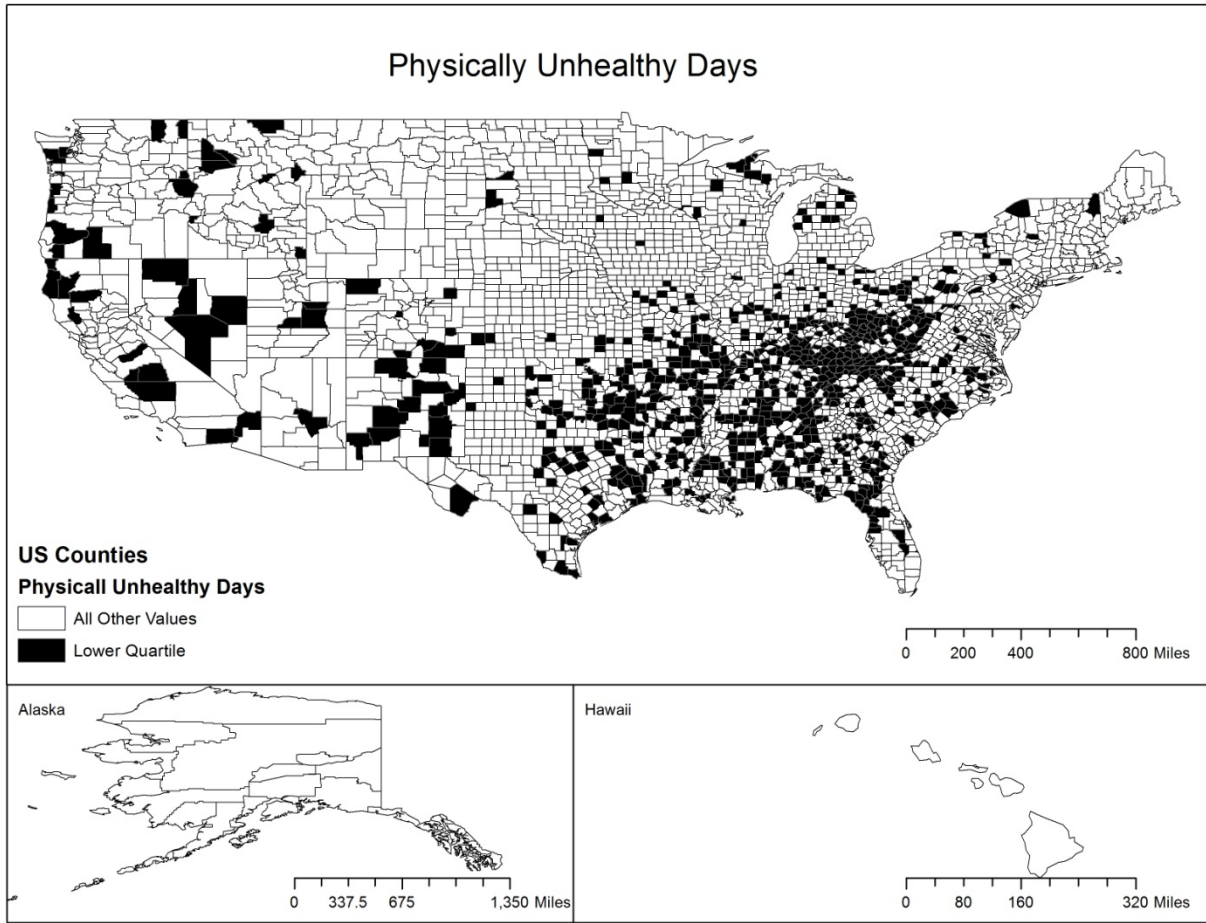
Two-way Analysis of Variance for Poor Physical Health Days (Square Root) as a Function of Median Per Capita Household Income and Partisan Voter Index Category

Variable and source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
MPCHI – Quartile	3	6.92	136.42	.000	.009
PVI Category	2	0.69	13.52	.000	.127
MPCHI – Quartile*PVI	6	0.19	3.73	.001	.008
Error	2,826	0.19			

Subsequent to conducting the ANOVA tests, the violation of homogeneity of variances assumption was considered. Even though the effect size between income and voter category was quite small, post hoc analysis of a significant interaction was chosen to test all combinations and pairs of means. Post hoc comparisons using the Games-Howell test revealed that of counties in the bottom income quartile, the liberal category seemed to be associated with fewer poor physical health days. The conservative category showed statistically significant greater number of poor physical health days in comparison to the liberal category ($M = 0.16, SE = 0.03, p = .000$); as did comparisons between the moderate and liberal categories ($M = 0.09, SE = 0.03, p = .035$). The conservative and moderate categories also significantly differed from each other ($M = 0.07, SE = 0.020, p = .021$). There were no significant differences between voter category and per capita income in the second, third or upper quartile other than a statistically significant difference between the moderate and conservative categories in the second quartile ($M = 0.09, SE = 0.03, p = .035$). Figure 4.8 represents the counties in the bottom quartile for poor physical health days. To ensure unambiguous interpretation counties were not classified by partisan category given the small n of liberal counties. The map was generated to highlight state and

regional patterns.

Figure 4.8. Counties in the Lower Quartile for Poor Physical Health Days.



CHAPTER V - DISCUSSION

The purpose of this study was to employ exploratory data analysis techniques to begin to understand the ambiguous relationship between politics, policy and ideology and how those factors may or may not exert influence on population health mortality and morbidity. While there were main interaction effects between the two independent variables of partisan voter category and median per capita household income and dependent health mortality and morbidity variables they were very small. As previously stated the assumption of homogeneity of variance was violated with all three, two-way between-subjects ANOVA procedures, so the absence of type I errors cannot be guaranteed. All results, specifically those attached to poor mental and physical health days should be interpreted with caution.

There was a statistically significant main interaction between median per capita household income by quartile and partisan voter index category on years of productive life lost, $F(6,2789) = 19.3, p < .000$, partial $\eta^2 = .040$. Pertaining to years of productive life lost, post hoc analyses of simple main effects revealed significant differences at the lower income quartile, but not in the expected direction. The conservative category had statistically significant lower years of productive life lost in comparison to the liberal category ($M = -8.21, SE = 1.47, p = .000$). Also, there were significant differences detected in the upper quartile suggesting that the liberal category had lower years of productive life lost in comparison to the conservative category ($M = 7.06, SE = 1.06, p = .000$). This was counter to the original hypothesis that there would be little or no difference in health outcomes in the upper quartile irrespective of party affiliation. Without further analysis it is unknown why this is the case.

Particularly noteworthy, are the consistent regional patterns seen across counties related to all three dependent variables. As cited in the literature review, Kindig and Cheng (2013) found in their county-level analysis of mortality using time series regression methods, that being located in the south or west was predictive of higher mortality rates. While lower incomes likely play a significant role in these outcomes, it begs the question as to how much enacted economic and social policy contribute to poor population health. Closer inspection of the county-level maps expose concentrated low median per capita household income in the southeast. However, there are counties in the northeast (particularly Maine) or the great lakes region that are also in the bottom quartile for income, but contain very few counties that concordantly settle into the bottom quartile for years of productive life lost and poor mental health days. The northeast corridor, a bastion for Democratic politics contained no counties in the bottom quartile for years of productive life lost and poor mental health days; while only having a small handful in the bottom quartile related to poor physically unhealthy days. California only had two counties in the bottom quartile for years of productive life lost; also a strongly Democratic state. Conversely, Wyoming, a uniformly high income, conservative state contained counties in the bottom quartile with poor mortality and morbidity measures. These clear state and regional patterns revealed state's with strong Republican support to be more likely to have several counties that descend to the bottom quartile when applied to health outcomes. Whether or not this has to do with an increased ideological emphasis on market-based solutions, small-government principles and values that shy away from collectivism or other unrelated factors is unknown and should continue to be explored.

Limitations

There are several limitations to this study. Foremost is the inherent weakness embedded within ecological study designs; in the case of this examination secondary data aggregated to the county-level was used, thus are not connected to individual data. Secondly and most importantly is the issue of the newly created PVI variable that utilized prior voting information as a proxy for ideological policy preferences. Trichotomizing partisanship into three discrete categories likely does not accurately capture the multi-dimensional nature of political beliefs. As noted in the literature review dimensions of political

ideology are complex. It is also recognized that policy, like partisanship is multi-faceted requiring many layers of government and is very seldom arrived at by one party. Partisanship does not take place in a vacuum, nor does attaching defined boundaries (i.e. counties) with the monikers Republican or Democrat fully encompass or capture the intricacy of beliefs held by a particular population. It should be noted that it is recognized that a county labeled as *liberal* may not fit neatly into operational definitions of what liberal has been defined as, especially on both the social and economic dimensions, and these assumptions are at great risk for being incorrect when using basic or unsophisticated measures.

Another issue with partisan voter categorizations is the method in which the variable was computed and transformed into a new categorical parameter. Very few valid, reliable and feasible methods of approximating partisan attitudes were found in the literature that could also be applied to a large data set containing over 3,000 U.S. counties. Based on PVI methods the result yielded only 213 counties labeled as liberal, with many of those found in large metropolitan areas or in southern states with high percentages of Hispanic or African American populations. The opposite was true for conservative counties (n=1,733), primarily located in sparsely populated, rural areas with predominantly Caucasian residents. Making valid comparisons based on the developed coding scheme likely contributed in some part to the obscure results. Given the unequal variances which were disregarded given the statistical power of the population data, more sophisticated statistical analysis including non-parametric tests (however, there is no equivalent non-parametric test for the two-way ANOVA procedure) or bootstrapping techniques to better deal with complex parameters of the distribution may have possibly aided with these inherent issues (A. Field, 2009). Lastly, these exploratory methods of analysis also did not take in to account state and regional influences which certainly play a role in enacted policy.

Future Research

There is very little domestic empirical research examining the political and policy contributions to population health outcomes. Measuring constituency opinion and party strength that then translates into similar governing institution action has proven to pose an obstinate problem for political scientists. When voting on candidates based on complicated issues, it makes sense that most voters view the investment of

time and energy as irrational and look for shortcuts, not always understanding the full scope and depth of the candidate's ideology (Goodman & Murray, 2007). Candidates, if elected will in turn make decisions on the public's behalf, which are not always in alignment with what the voting public wants, sometimes producing dissimilar policy outputs. Approximations and classifications (e.g. those discussed in the literature review based on international studies) are used for many types of analyses, but there is little evidence that links measures of party strength to outcomes, particularly those related to U.S. health. Future studies could incorporate enhanced or more in depth partisan measurement models that utilize survey data, demographics and state factors similar to those proposed by Levendusky, Pope, and Jackman (2008). Similarly, Percival, Johnson, and Neiman (2009) cited several studies showing county variation in spending within states on public health based on ideological preferences and were able to use county-level California Field Poll Surveys, income, education, county structure and demographics to create a model of partisanship to assess various policy outputs, finding conservative counties in California spend less on public health. These methods were not practical or realistic at the time of study but for future analyses could be employed on a smaller scale to test variable relationships using similar methods conducted in this study.

It is also possible that approaches that measure ideology are not appropriate surrogates to gauge the ideological underpinnings of enacted policy, and other variables that paint a better picture of economic and social environment dynamics are better suited for this type of analysis. For example, could the density of fast food restaurants, or national chain stores that provide predominantly low wage jobs, or the presence of food deserts or pay-day lenders provide a more tangible and concrete measure of a county's economic development strategy and policy as an alternative? *County Health Rankings* is increasingly interested in data that contextualizes the physical, social and economic environment and now includes variables related to the percent of uninsured adults, access to healthy foods and number of fast food restaurants that could be utilized.

Two examples anecdotally highlight reasons why exploring contextual variables related to place may be more appropriate. Shannon County, South Dakota (FIPS Code 46113) overwhelmingly voted for

President Obama by 88.7% and 93.4% in 2008 and 2012, respectively. Shannon County makes up the largest community of Oglala Lakota Sioux Native Americans on the Pine Ridge Indian Reservation. According to *County Health Rankings* data the county's years of productive life lost rate is 22,145, ranking third worst in the nation. The high rate of premature death can be attributed in part not by ideology, but the exploitive capitalist practices in neighboring town Whiteclay, Nebraska. A town with a population of 14 residents, and 4 liquor stores, that according to the Nebraska Liquor Control Commission in 2010 sold 4.9 million cans of beer equating to gross sales of \$3 million, mostly to the neighboring South Dakota County (Abourezk, 2012). The poor health of the Lakota Sioux can be traced back to a variety of factors from lifestyle choices, race/ethnicity and poverty among others, but the fact that a near-by town prioritizes profits over people likely contributes to poor health outcomes.

Hidalgo County, Texas (FIPS Code 48215) ranks in the bottom quartile in both poor physical and poor mental health days according to *County Health Rankings*; a largely Hispanic south Texas border town that voted for President Obama by a margin of 68.9% and 70.4% in 2008 and 2012, respectively. A well known and much debated article published in the *New Yorker* painted a picture of the town of McAllen, TX (located in Hidalgo County) as having the lowest household income, and spending almost twice the amount on Medicare per person, despite having a state of the art medical complex and hospital. The article went on to chronicle the high cost of care largely due to the pervasive volume based, fee-for-service payment culture. Medicare data revealed patients received almost 50% more specialist visits and were two-thirds more likely to see ten or more specialists in a six-month period compared to their highly similar (demographically) peers in El Paso, TX 800 miles away (Gawande, 2009).

Conclusion

Individual policy analysis that incorporates ideological characteristics at the state and county-level is not a feasible or efficient method for determining what set of preferences and beliefs improves population health and which do not. Research that focuses on alternative variables, factors and outputs outside of enacted policy should be analyzed. An emerging realization that what collectively contributes to health outcomes often times has little to do with the health care system and whether or not individuals

are provided with regular health care. Health researchers and government lawmakers alike need a better understanding of how upstream social and economic policy selection and mechanisms that may or may not be tied to health, such as housing, transportation, taxes, or economic development increase disparities and produce poor population health outcomes. Studies that examine political and policy influences on health and wellbeing of citizens are imperative, and needed to challenge rhetoric of governing bodies. Evidence of how populations are affected by political majority is needed to reveal ripple effects of economic, regulatory, and social platforms and their association with health indicators of a community. Paradoxes are nothing but trouble.

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APPENDICES

Appendix A: Counties Excluded From Analysis

FIPS	STATE	COUNTY	EXPLANATION
02013	AK	Aleutians East	1
02016	AK	Aleutians West	1
02020	AK	Anchorage	1
02050	AK	Bethel	1
02060	AK	Bristol Bay	1
02068	AK	Denali	1
02070	AK	Dillingham	1
02090	AK	Fairbanks North Star	1
02100	AK	Haines	1
02110	AK	Juneau	1
02122	AK	Kenai Peninsula	1
02130	AK	Ketchikan Gateway	1
02150	AK	Kodiak Island	1
02164	AK	Lake and Peninsula	1
02170	AK	Matanuska-Susitna	1
02180	AK	Nome	1
02185	AK	North Slope	1
02188	AK	Northwest Arctic	1
02201	AK	Prince of Wales-Outer Ketchikan	1
02220	AK	Sitka	1
02232	AK	Skagway-Hoonah-Angoon	1
02240	AK	Southeast Fairbanks	1
02261	AK	Valdez-Cordova	1
02270	AK	Wade Hampton	1
02280	AK	Wrangell-Petersburg	1
02282	AK	Yakutat	1
02290	AK	Yukon-Koyukuk	1
06003	CA	Alpine	2
06091	CA	Sierra	2
08053	CO	Hinsdale	2
08057	CO	Jackson	2
08061	CO	Kiowa	2
08079	CO	Mineral	2
08111	CO	San Juan	2
13101	GA	Echols	2
13265	GA	Taliaferro	2
13307	GA	Webster	2
15005	HI	Kalawao	2
16025	ID	Camas	2
16033	ID	Clark	2
17059	IL	Gallatin	3
17117	IL	Macoupin	3
18157	IN	Tippecanoe	3
18165	IN	Vermillion	3
20071	KS	Greeley	2
20083	KS	Hodgeman	2

20187	KS	Stanton	2
20199	KS	Wallace	2
20203	KS	Wichita	2
21071	KY	Floyd	3
21119	KY	Knott	3
21153	KY	Magoffin	3
21195	KY	Pike	3
26083	MI	Keweenaw	2
27069	MN	Kittson	2
27077	MN	Lake of the Woods	2
27155	MN	Traverse	2
29186	MO	Ste. Genevieve	3
30011	MT	Carter	2
30033	MT	Garfield	2
30037	MT	Golden Valley	2
30051	MT	Liberty	2
30055	MT	McCone	2
30069	MT	Petroleum	2
30079	MT	Prairie	2
30103	MT	Treasure	2
30109	MT	Wibaux	2
31005	NE	Arthur	2
31007	NE	Banner	2
31009	NE	Blaine	2
31075	NE	Grant	2
31085	NE	Hayes	2
31091	NE	Hooker	2
31103	NE	Keya Paha	2
31113	NE	Logan	2
31115	NE	Loup	2
31117	NE	McPherson	2
31149	NE	Rock	2
31165	NE	Sioux	2
31171	NE	Thomas	2
31183	NE	Wheeler	2
32009	NV	Esmeralda	2
35021	NM	Harding	2
38007	ND	Billings	2
38023	ND	Divide	2
38033	ND	Golden Valley	2
38065	ND	Oliver	2
38083	ND	Sheridan	2
38087	ND	Slope	2
38091	ND	Steele	2
38095	ND	Towner	3
39111	OH	Monroe	3
41021	OR	Gilliam	2
41055	OR	Sherman	2
41069	OR	Wheeler	2

45091	SC	York	3
46003	SD	Aurora	2
46021	SD	Campbell	2
46055	SD	Haakon	2
46063	SD	Harding	2
46075	SD	Jones	2
46111	SD	Sanborn	2
46119	SD	Sully	2
48011	TX	Armstrong	2
48033	TX	Borden	2
48045	TX	Briscoe	2
48081	TX	Coke	2
48095	TX	Concho	2
48101	TX	Cottle	2
48109	TX	Culberson	2
48125	TX	Dickens	2
48151	TX	Fisher	2
48155	TX	Foard	2
48173	TX	Glasscock	2
48211	TX	Hemphill	2
48235	TX	Irion	2
48261	TX	Kenedy	2
48263	TX	Kent	2
48269	TX	King	2
48271	TX	Kinney	2
48295	TX	Lipscomb	2
48301	TX	Loving	2
48311	TX	McMullen	2
48319	TX	Mason	2
48327	TX	Menard	2
48333	TX	Mills	2
48345	TX	Motley	2
48359	TX	Oldham	2
48393	TX	Roberts	2
48413	TX	Schleicher	2
48417	TX	Shackelford	2
48421	TX	Sherman	2
48431	TX	Sterling	2
48433	TX	Stonewall	2
48443	TX	Terrell	2
48447	TX	Throckmorton	2
49009	UT	Daggett	3
49031	UT	Piute	3
49033	UT	Rich	3
49043	UT	Summit	3
51091	VA	Highland	3
51678	VA	Lexington City	3
51720	VA	Norton City	3
54101	WV	Webster	3

54067	WV	Nicholas	3
54005	WV	Boone	3
54109	WV	Wyoming	3
54059	WV	Mingo	3
54047	WV	McDowell	3

Note. ¹ Vote % captured by district not county, ² Unreliable health outcome data, ³ Sporadic voting records from 2008-12.

Appendix B: Counties Excluded due to +/- 3 Standard Deviations for Dependent Variable – Years of Productive Life Lost (YPLL)

FIPS	STATE	COUNTY	STUDENTIZED VALUE
01047	AL	Dallas	3.31
01105	AL	Perry	3.17
01119	AL	Sumter	3.26
01127	AL	Walker	3.87
08021	CO	Conejos	-3.60
12125	FL	Union	6.45
16065	ID	Madison	-3.31
30085	MT	Roosevelt	4.92
31173	NE	Thurston	3.75
38061	ND	Mountrail	3.06
38085	ND	Sioux	4.83
46017	SD	Buffalo	3.39
46031	SD	Corson	3.54
46071	SD	Jackson	4.98
46113	SD	Shannon	4.18
46121	SD	Todd	3.91
48043	TX	Brewster	-3.04
48061	TX	Cameron	-3.34
48215	TX	Hidalgo	-3.46
48323	TX	Maverick	-3.47
48489	TX	Willacy	-3.28
48505	TX	Zapata	-3.33
53075	WA	Whitman	-3.50
55037	WI	Florence	-3.05

Appendix C: Counties Excluded due to +/- 3 Standard Deviations for Dependent Variable – Poor Mental Health Days

FIPS	STATE	COUNTY	STUDENTIZED VALUE
06105	CA	Trinity	4.10
08017	CO	Cheyenne	-3.45
08025	CO	Crowley	3.29
13301	GA	Warren	-3.32
19119	IA	Lyon	-3.04
19133	IA	Monona	-3.75
20039	KS	Decatur	-3.07
20097	KS	Kiowa	-3.70
20179	KS	Sheridan	-3.45
21075	KY	Fulton	3.64
22107	LA	Tensas	-3.49
26135	MI	Oscoda	3.31
27125	MN	Red Lake	-3.63
30075	MT	Powder River	-3.50
38039	ND	Griggs	-3.14
39117	OH	Morrow	3.54
39135	OH	Preble	3.04
40025	OK	Cimarron	-3.75
40141	OK	Tillman	4.27
46049	SD	Faulk	-4.13
48019	TX	Bandera	3.62
48279	TX	Lamb	-3.23
48285	TX	Lavaca	-3.04
48341	TX	Moore	3.19
48403	TX	Sabine	-3.57
48415	TX	Scurry	-3.24
48455	TX	Trinity	4.04
51115	VA	Mathews	-3.18

Appendix D: Counties Excluded due to +/- 3 Standard Deviations for Dependent Variable – Poor Physical Health Days

FIPS	STATE	COUNTY	STUDENTIZED VALUE
01005	AL	Barbour	3.07
01023	AL	Choctaw	3.44
01059	AL	Franklin	3.00
13169	GA	Jones	3.46
13273	GA	Terrell	3.75
13301	GA	Warren	3.12
20023	KS	Cheyenne	-3.22
20179	KS	Sheridan	-3.15
21049	KY	Clark	4.13
21051	KY	Clay	3.95
21077	KY	Gallatin	5.50
21077	OH	Harrison	5.86
21095	KY	Harlan	3.43
21121	KY	Knox	3.00
21131	KY	Leslie	3.74
21139	KY	Livingston	3.73
21147	KY	McCreary	3.53
21189	KY	Owsley	6.80
27107	MN	Norman	3.97
30019	MT	Daniels	-3.53
38043	ND	Kidder	-3.22
39117	OH	Morrow	3.99
39135	OH	Preble	4.24
40057	OK	Harmon	3.11
47013	TN	Campbell	3.64
47063	TN	Hamblen	3.31
48147	TX	Fannin	3.92
48193	TX	Hamilton	3.31
51051	VA	Dickerson	3.54