BREAST CANCER MORTALITY: A SOCIAL JUSTICE PERSPECTIVE

by

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ABSTRACT OF THE DISSERTATION

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Disparities in breast cancer mortality are explored through a complex set of political and economic circumstances. The forms of social injustices derived from inequitable income distribution and through systematically diminishing resources for social programs are central to this research. Quantitative research methods are used to determine if political, economic and demographic factors are associated with breast cancer mortality. Using data from the Agency for Healthcare Research and Quality's: Monitoring the Health Care Safety Net Dataset for States and Counties, the results demonstrate that communities that have hospitals with a major teaching status have an effect on breast cancer mortality. The results also showed that race had a minimal effect on the breast cancer death rate in the presence of political and economic factors. However, these results do not explicitly confirm that breast cancer mortality can be explained from a political and economic perspective or that race determines causality. A qualitative analysis is performed and serves to supplement the quantitative findings. A case study analysis of four states with high and low income inequality examines if investing in critical resources for a breast cancer screening program could offset mortality. The results did not substantiate that investing in targeted recruitment of selected groups, outreach activities or funding resources results in lower mortality.

This research broadens existing scientific perspectives that address the impact of race, culture and poverty on mortality. The social construction of race and disease impacts program delivery and funding on current breast cancer prevention programs. Such programs devise behavioral models as a preventative measure. Programs that integrate political and economic factors could be a crucial determinant to improving breast cancer outcomes.

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CHAPTER 1

Introduction

Social researchers attribute disparities in breast cancer mortality in Black Women (BW) to race and socioeconomic status (Davis et al., 1996; Field et al., 2005). Public health and social science literature is burgeoned with this discourse which juxtaposes poverty and race and often associates individual behavior and lifestyle preferences with health inequities (Caplan, Helzisouer, Shapiro, Wesley, & Edwards, 1996; Wells & Horm, 1992; Sontag, 1977; Paskett, Rushing, D'Agostino, Tatum, & Velez, 1997; Krieger, 2001).

Reiterating prior research efforts on the links between poverty, race, and disparities in breast cancer deaths is not the goal of this dissertation. This research seeks to show that poor health outcomes in populations are not a factor of choice. Rather, that populations that are victims of income inequalities are not afforded the same opportunities to access the services that would enable them to experience better health outcomes (Freeman, 2004).

Rather than identifying race and socioeconomic status as the only factors having a direct effect on disparities in breast cancer deaths, this dissertation proposes a broader perspective – a social justice approach. A social justice approach attributes health inequalities to indirect factors resulting from global changes in the political and economic climate. These global changes, particularly in the U.S., include political and economic decisions to increase investments in economic growth while reducing government funding on social welfare programs. According to Swank (2002), political and economic changes in capitalist economies have resulted in economic policies that encouraged privatized health care and government retrenchment on social insurance and unemployment benefits. These changes also imposed budget cuts in health and other social service programs. As such, issues of race and class are embedded in a broader spectrum of

factors that are affected by economic and political relations. This present study examines how global changes in the political and economic climate influence the formation of policies that ultimately deliver services to populations of different income levels in an inequitable manner. Gershman, Irwin, and Shakow (2003) asserted that such policies indirectly shape health outcomes. They stated, "…the pattern of growth (economic) that shapes (and that can destroy) real human lives is to a considerable extent the fruit of political choices, which are not magical but quite mundane" (p. 183).

As a consequence of global changes, U.S. investments in economic capital have created an environment where there is less financial commitment to social welfare programs, which has been accompanied by rising income inequality levels that have exacerbated health inequities, especially among the poor (Gersham et al., 2003). Other nations that have adopted similar philosophies have also experienced increasing poverty rates and high levels of income inequality (Labonte, 2003). Income inequality levels only increased following policies that endorsed privatization of public services (Rodas-Martini, 1999). Vast differences in income enabled those with wealth to exercise the privilege of being able to purchase the best health care (Labonte, 2003). Wilkinson (1996) noted that poverty is associated with ill health and disease, while income inequality is associated with life expectancy. The social justice approach identifies policy decisions that foster economic inequality as factors that impact mortality (Raphael, 2003). According to Raphael, such decisions are direct determinants of health outcomes.

In applying a social justice perspective, this present study offers a useful, yet broader approach to analyzing disparities in breast cancer mortality. Initiatives to reduce disparities in breast cancer deaths among black women have not been effective (Voelker, 2008; Clayton and Byrd, 2001). Mortality rates are still relatively higher in this group. This research posits that

global changes in the political and economic climate have negatively impacted breast cancer mortality, not just among black women but also in women who are not wealthy. This present study explores the relationships between global changes that result in economic disparities and income and health inequalities (namely disparities in breast cancer mortality). Political and economic factors, and the substantive role of these forces in creating and exacerbating disparities in breast cancer mortality, are explored. This present study investigates two political and economic choices: (1) testing the association between the distribution of income and breast cancer deaths and (2) testing whether a robust social program could offset excess breast cancer mortality (Lynch, Davey-Smith, Kaplan, & House, 2003). The hypotheses of this dissertation are:

1A) Income inequality is a significant predictor of breast cancer mortality

1B) Among states with high income inequality, those with a stronger social welfare program are more likely to have lower breast cancer mortality rates

How income is distributed is of central importance to this present study. Therefore, the economic variable, income inequality, is selected as a primary factor in affecting breast cancer mortality. Additional political and economic variables will be assessed as social determinants, which include household income, educational attainment, Medicaid expenditures and public assistance. If income is redistributed towards increasing economic growth, then wealthy people profit significantly more than people in other income groups, especially people living in poverty. This drives the gap in health status between the rich and the poor (Daniels, 2002). Thus, Hypothesis 1A of this present study investigates whether income disparity is associated with

breast cancer mortality. Hypothesis 1B suggests that if levels of income inequality remain invariable, then funding for pertinent safety net programs at the federal, state, and local levels is also a critical factor in breast cancer mortality rates (Raphael, 2003; Ronzio, Pamuk, & Squires, 2004). The National Breast and Cervical Cancer Early Detection Program (NBCCEDP) is the safety net program of interest for this present study. This program offers free breast and cervical cancer screening to low-income and uninsured women. The government provides funding to states for the program. Hypothesis 1B suggests that if appropriate resources are available to operate this program in a high-income inequality state, then this could impact breast cancer mortality levels. It is expected that breast cancer mortality rates would be lower in states that have sufficient resources to manage their breast cancer screening programs. If state programs have appropriate resources, then lower income groups would have equal access to crucial breast cancer screening services.

In support of the hypotheses of this research, this chapter will present an overview of income inequality in the U.S. A description of opposing views on the links between income inequality and health inequalities will follow. Theories in social justice are also presented in this chapter so as to frame the political and economic context through which health and income inequalities subsist. These theories are used to justify a proposal for equitable solutions for disparities in breast cancer deaths and to further guide recommendations for policy initiatives. Finally, an outline of the chapters in this present study is discussed.

<u>Overview: Income Inequality and the U.S.</u>

This present study seeks to illustrate how income inequality is associated with breast cancer mortality. This research considers income inequality as unjust. In accordance with Daniel's (2002) claim, "The health of a population depends not just on the size of the economic

pie, but on how the pie is shared." Daniels asserts that this concept emerged from the income inequality hypothesis, which implicates a strong link between life expectancy and the degree of income disparities. Alternatively, John F. Kennedy's stance on income inequality was that, "A rising tide lifts all boats." Kennedy and supporters of supply-side economics hypothesized that capital gains would trickle down to ultimately benefit low-income groups (Michel, 1982). According to Davey-Smith (1996), rising income inequality, resulting from increasing economic gains, did not ultimately benefit the poor. The Center for Budget and Public Priorities provided evidence, through economic research on income inequality in the U.S., that supply-side economics does not reduce income inequality (Bernstein, McNichol, & Lyons, 2006). According to Greenstein (2008), there were unprecedented economic gains since 2001 in corporate profits, while wages and salary growth were not as strong during the same period. Other research studies indicate that welfare states with high levels of income inequality have populations with lower life expectancies, while nation states with more equitable income distributions have populations that experience higher life expectances (Kawachi, Kennedy, & Wilkinson, 1999; Wilkinson, 1996).

Based upon these theories and forthcoming literature review, it is reasonable to posit that the U.S. experiences health disparities as a result of income inequality. Research by Bernstein (2006) and Kaplan, Pamuk, Lynch, Cohen and Balfour (1996) showed that the income gap between the rich and the poor in the U.S. was higher than any other advanced nation. In the past two decades, U.S. families in the highest income percentile (top fifth) experienced enormous gains in income when the economy performed well, while families in lower income groups (bottom fifth) had moderate to minimal economic growth (Bernstein et al., 2006). This data

suggests that Kennedy's trickle-down economic policies do not necessarily result in "a rising tide" for lower income families.

By the year 2000, the degree of income inequality began to decrease somewhat due to downturns in the stock market. Families in all income groups experienced a loss, but the families in the bottom and second fifth of the income gradient were mostly affected, as shown in Table 1.1.

Table 1.1

Change in family income during economic downturn, U.S. 2000-2004

Income Gradient	Percent Change in Family Income
Bottom Fifth	-8.3%
Second Fifth	-4.6%
Middle Fifth	-2.6%
Next to Top Fifth	-1.2%
Top 5%	-3.5%

From Economic Policy Institute/Center on Budget and Policy Priorities analysis of data from the U.S. Census Bureau's Current Population Survey. Retrieved on February 10, 2007 from www.census.gov/cps.

Table 1.1 illustrates the changes in family income between each quintile group in the U.S. during economic downturns. Although all quintile groups experienced decreases in economic gains, the bottom fifth experienced greater levels of income loss compared to other quintile groups. However, since 2003, the market recovered and income inequality increased. This occurred mainly among families in the top five percent of the income gradient during a one-year period. In this segment, the average income grew 8.2 times more than the average income of families at the bottom of the income gradient, as shown in Table 1.2 (Bernstein et al., 2006):

Table 1.2

Change in Real Post-tax Household Income, 2002-2003

Income Gradient	Percent Change in Family Income
Bottom Fifth	-1.4%
Second Fifth	0.3%
Middle Fifth	0.7%
Next to Top Fifth	1.6%
Highest Fifth	3.9%
All Quintiles	2.1%
Top 10%	5.1%
Top 5%	6.3%
Top 1%	8.2%

Note: Includes capital gains and losses, as well as the cash value of in-kind benefits and in-kind value of publicly provided health care. From Comprehensive Congressional Budget Office Data. Retrieved February 2007 from www.cbo.org.

Table 1.2 shows the changes in family income for each quintile group during the period the market began to recover. The top 1% had the highest gains while the bottom fifth continued to experience negative growth during this period.

According to Bernstein et al. (2006), states with the highest degree of income inequality during the period of economic gain included New York, Texas, Tennessee, Arizona, and Florida. The cause for these high-income gaps varied among the states. Wage attrition, particularly among workers with less than a high school education, was a major factor. Tax policies that favored higher income families also exacerbated the income gap, particularly among middle- and

low-income families. Bernstein concluded that this widened the overall degree of income inequality in the United States.

Marmot (2001) claimed that health inequities reflect social conditions, such that nations with greater health inequalities were observed to have populations with poorer health status. Countries with wealthy economies are more likely to endure populations with ill health gradients (Daniels, Kennedy, & Kawachi, 2000). These gradients show that there are correlations between income and health status. Disparities according to grade of employment were also associated with diminishing health and greater mortality (Ferrie, Shipley, Davey-Smith, Stansfeld, & Marmot, 2003). Their health gradient did not remain static over time. This showed that given the appropriate conditions, this gradient could be altered (Marmot, 2001).

> According to Bernstein (2006), Senior Economist at the Economic Policy Institute:
>
> There is evidence that income inequality causes direct harm to the poor….a number of papers at a recent conference on income inequality sponsored by the Federal Reserve Bank of New York found a link between higher levels of inequality and poor schools, substandard housing, and higher levels of crime victimization….The slow growth in the incomes of the poorest families is particularly disturbing. Research has shown that poverty can have a substantial effect on child and adolescent well-being. Children who grow up in families with incomes below the poverty line have poorer health, higher rates of learning disabilities and developmental delays, and poorer school achievement than non-poor children. They also are far more likely to be unemployed as adults (p.12).

In addition, growing income inequality resulted in lower social cohesion, lack of political participation, and mistrust in political institutions (Putnam, 2000; Baum, 1999; Wilkinson, 1996). Researchers found that families in the bottom fifth of the income scale lacked adequate

public resources in their communities, particularly in housing and education (Bernstein et al., 2006).

Pathways from Income Inequality and Poor Health: Challenging Perspectives

Wilkinson (1996) and Kawachi et al. (1999) used measures on the degree of income inequality to demonstrate that the more unequal the distribution of income for a given population, the higher the morbidity and mortality rates of that population. If a nation had low income inequality, then its mortality rates were low (Lynch, 2003). Rodgers (1979) found that high levels of income inequality were associated with infant mortality, life expectancy at birth, and life expectancy at age 5. Table 1.3 provides a list of income inequality levels, life expectancy, and infant mortality rates for selected nation states that were members of the Organization for Economic Cooperation and Development (OECD), an organization of 30 member countries that share a commitment to economic growth and democratic governments (OECD, 2006).

Table 1.3

Income Inequality Levels of Selected Organization for Economic Co-Operation and

Development Countries, Adjusted for Household Size for the Most Recent Year.

Country	Income Inequality: Gini Coefficient[1] (Most Recent year)	Life Expectancy At Birth, Unweighted average for Men and Women, 2000 estimates	Infant Mortality rate, deaths per 1,000 live births, 2000 estimates
United States	35.7	76.8	6.9
United Kingdom	32.6	77.8	5.6
Greece	34.5	78.1	5.4
Portugal	35.6	76.6	5.5
Italy	34.7	79.6	4.5
Japan	31.4	81.2	3.2
Sweden	24.3	79.7	3.4
France	27.3	79	4.4
Switzerland	26.7	79.8	4.9
Canada	30.1	79.3	5.3
Australia	30.5	79.3	5.2

Note: The most recent values on Income Inequality are for 2000, except Australia and Greece 1999, and Switzerland 2001; Life Expectancy at birth and ages 40, 60, 65, and 80 is the average number of years that a person at that age can be expected to live, assuming that age-specific period mortality levels remain constant; and Infant Mortality rates measure the number of deaths of children under one year of age that occurred in a given year, expressed per 1000 live births. From Calculations from OECD questionnaire on distribution of household incomes published in Income, Distribution and Poverty in OECD Countries in the Second Half of the 1990's, 2005; OECD Health Division

[1] The Gini ratio is a measure of income inequality. Its value may range from 0 to 1, where a 0 indicates that a society has perfect equality, and a Gini ratio of 1 indicates that one person in a society holds all of the resources, which is a measure of perfect inequality (Subramanian and Kawachi, 2004). The gini ratio is expressed as a percentage, ranging from 0 to 100%.

Based on Table 1.3, the U.S. had the highest levels of income inequality compared to other selected nations and experienced lower life expectancy and higher infant mortality rates. Greece, Portugal, the United Kingdom and Italy also had high income inequality, lower life expectancy and high infant mortality rates. In contrast, Sweden, France and Switzerland had lower income inequality levels (24.3, 27.3 and 26.7 respectively) compared to other nations, but experienced greater life expectancy and lower infant mortality rates. This data provides evidence that there is a relationship between income inequality and health. According to researchers, the mechanism through which this relationship unfolds includes causal factors such as a psychological or a biological process, and through a lack of pertinent resources (Wilkinson, 1996, Muntaner, 2002).

Research by Kennedy, Kawachi, Glass and Prothrow-Smith (1998) and Lynch et al. (1998) indicated that the health of middle class groups was different in nation states with varying degrees of income inequality; middle class income groups had worse health outcomes in nations with high income inequality rates compared to lower income groups in nations with low income inequality. Studies also revealed that as individuals moved up the economic ladder, they experienced better health outcomes than individuals in lower income levels (Davey-Smith, 1996). According to Wagstaff and van Doorslaer (2000), income inequality has a diminutive effect on the health of a population.

Researchers differ on the causal factors that lead to poor health outcomes. For instance, Wilkinson (1996) claims that health outcomes and the distribution of income are based on the psychological process of one's perception of place on the socioeconomic scale. According to Wilkinson, an individual who is on the lower economic strata has a perception of their place on the scale that causes a biological process to occur, which ultimately increases their susceptibility to ill health and disease. Kawachi et al. (1999), claim that individuals with a low socioeconomic

status have feelings of resentment and a low sense of worth due to their status. This results in poor health outcomes. The research of Ferrie et al. (2003), that assessed the Whitehall Study's relationship between employment levels and mortality, supports this perception. The Whitehall study, conducted by Marmot, Bosma, Hemingway, Brunner and Stansfeld (1997), evaluated the health status and behaviors of office staff in civil service positions in London. This study assessed mortality from coronary heart disease among workers, and the researchers discovered that staff in lower employment grades had higher mortality rates relative to workers in higher employment levels. Marmot et al. found that individuals in low-wage jobs engaged in more damaging health-related behaviors. Bosma, van de Mheen and Mackenbach (1999) attributed health-damaging behaviors to intrinsic flaws, such as a lack of coping skills or self-discipline. Bartley (2004, p. 66) further claimed in his direct behavioral model that risky health behaviors are the link between personal characteristics and one's position on the socioeconomic scale. Bartley proposed that disadvantaged groups lack self-control and engage in more risky health behaviors compared to higher-income groups that demonstrate greater control over their health behavior lifestyles. Bartley further claimed that more advantaged groups are perceived as "psychologically superior" and lead healthier lifestyles (p. 67). In Bartley's study, these disadvantaged groups succumbed to smoking and drinking addictions and lacked exercise regimens.

Muntaner (2002) challenged Wilkinson's perspective on the effects of the psychological process on health. According to Muntaner, socioeconomic status "does not tap into the social mechanisms that explain how individuals arrive at different levels of material resources" (p. 562). Brunner and Marmot (1999) argued that the continuous exposure to material deprivation generates psychosocial stressors, which ultimately lead to a breakdown in a physiological

process. Jarvis and Wardle (1999) claimed that this resulted in disease vulnerability and consequently health damaging behaviors. Muntaner (2002) stated that research on the relationship between the psychosocial perspective and income inequality excluded the significance of power relations that predestined the distribution of crucial resources. Krieger (2001) argued that identifying a psychosocial perspective as the chief determinant of disease outcomes constitutes blaming the victim for his/her circumstances. Lynch et al., (2003) further claimed that health inequalities are rooted in a lack of neo-material conditions and should be considered as social determinants of health inequities. According to Lynch, neo-material resources include an equitable distribution of income; a political and economic climate that invests in public goods; or social welfare programs in education, adequate housing, employment, or health insurance. He claimed that the health of the population was greatly affected when individuals were deficient in these resources. Benzeval, Judge, and Whitehead (1995) postulated that persistent deprivation of neo-material resources over a person's the life span leads to susceptibility to ill health. Thus, more investments in these resources reduced health inequities (Lynch et al., 2003).

The degree of income inequality in some states correlates with the allocation (or lack thereof) of neo-material resources (Organization for Economic Cooperation and Development, 2001). According to Raphael (2003) and Sen (1993), many U.S. public policies favor the wealthy, which results in fewer resources available for people in lower income brackets. Income inequality persists when these policies are maintained. According to Sen's capability approach (1993), an individual should be able to choose to perform essential functions to enhance his/her well being (Kaufman, 2006). One example of an essential function is the ability to choose appropriate nourishment (Kaufman, 2006). If a person lacks this essential resource as a result of

poverty, then they do not have freedom of choice (Kaufman, 2006; Sen, 1993). Consequently, this can lead to individual social exclusion (Sen, 1993). This perspective supports the social justice approach, where equal access to health services must exist across income levels of populations.

The poor suffer disproportionately from adverse health outcomes in the U.S., based upon data describing populations at both the national and the state level (Navarro, 1993; Raphael, 2003). According to Muntaner (2002), class politics should be recognized as a social determinant. Hence, a social justice stance on breast cancer mortality would address the significance of neo-material conditions. The Universal Declaration of Human Rights written by the General Assembly of the United Nations (1948), article 25 states that:

> (1) Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control. (2) Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same protection.

If policies and programs are not formulated to ensure these basic rights, then a social justice approach is necessary. Issues of equality in the distribution of material resources become central to the discourse on disparities in health inequalities. Neo-material resources are considered to be social determinants. Income distribution, employment status, affordable housing, education, environmental conditions, and investments in social service programs are also recognized as causal factors of health inequalities (Hofrichter, 2003).

A social justice approach critiques emphasis on the individual for his/her own health and well being (Beauchamp, 2003). Using the social justice approach as an indicator, death, disability, and disease are considered to be collective problems. A social justice stance holds that governments are accountable to ensure that protections are provided to alleviate the inequitable allotment of these burdens on the poor. According to Beauchamp, persons are entitled to equality in health outcomes and the ability to maintain livable income standards. Based on this perspective, the following section attempts to frame health and income inequality from a social justice perspective.

Social Justice, Health, and Income Inequality

Given the degree of both health and income inequality in the U.S., a growing body of literature has emerged that explores the need for a social justice approach in health (Hofrichter, 2003). With an uneven distribution of power relations, coupled with inequitable outcomes across class, race, and gender, a social justice framework is considered relevant in shaping effective policy measures to resolve these social problems. According to Hofrichter, society rarely deals with the forces that institute and exacerbate inequalities. A social justice approach presents the opportunity to address and challenge the process through which political forces and unrestrained economic policies cause inequitable social conditions (Hofrichter, 2003). The following section constructs a theoretical framework to justify the need for a social justice approach in the development of health policy initiatives.

Health inequalities: Applying social justice theories

John Rawls' (1999) perspective on justice could be used to evaluate how one's position in society determines his/her health outcomes (Peter, 2001). He separates principles of justice for institutions and for individuals. He stipulates his principles of justice for institutions as follows:

First: Each person is to have an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme of liberties for others; Second: social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to position and offices open to all. (p.53)

Rawls proposed that these conditions and principles form the basis of a society structured by the concept of justice. It is these conditions and principles that explain how basic rights and duties are distributed in a given society. According to Rawls, the first principle describes the political process that ensures freedom of civil liberties, which includes freedom of speech, the right to vote, and freedom from illegal search and seizure. The second principle applies to inequalities in the distribution of wealth and income, where such inequalities are permitted as long as the least disadvantaged members of society benefit. Rawls claims that in the event that an inequality (in wealth or income) does not benefit all members in a society, then this is unjust.

Rawls (1999) claimed that governments are responsible for upholding social contracts with citizens by implementing policies that ensure their well-being. Sen (1998) claimed that mortality could be influenced by examining economic variables. He sought to examine and predict mortality through an economic lens. Sen admitted that mortality was not an "economic phenomenon" (p. 4), and stated rather that economic indicators are associated with augmenting or diminishing mortality. These economic indicators include the availability of health insurance, improvements in education, access to crucial medical information, and improvements in social resources. According to Sen, individuals who have higher income levels are linked to increased life expectancy in some countries. But, this depends on how income growth is distributed across social programs. Sen recommends that when developing health objectives and policies, governments should consider economic indicators as a variable that influences mortality.

Peter (2001) applied Rawls' theories of justice to assess health inequalities. He claimed that variations in health outcomes in populations result from violations of Rawls' principles of justice for institutions. He interpreted Rawls' theories as indicating that health inequities are rooted in unjust policies. Peter proposed that society's institutions produce these injustices, thereby causing the most disadvantaged groups to experience poorer health outcomes.

Daniels (2002) built upon Rawls' theory on the principles of justice for intuitions by applying the theory to an individual's right to opportunities. Daniels regarded opportunity itself as a primary good, and argued that if evidence illustrates that social factors determine health outcomes, then a policy that provides universal access to health insurance is not the ultimate solution. According to Daniels, this solution focuses only on the health care sector and he argued that targeted efforts should be made towards improving the social conditions that cause a specific health outcome.

Daniels (2002) stated that access to health care is necessary in order for justice to be achieved. Daniels claimed that access to health care is essential because it provides individuals with normal functioning capabilities. According to Daniels, when an individual possesses these capabilities, he/she has an equal opportunity to partake in various roles in society, including political, social, and economic life. The utilization of health care services, according to Daniels, aids in sustaining normal functioning by protecting individual health, which ultimately allows individuals the ability to employ a broad range of reasonable choices that are offered by society. An individual who is ill or disabled will have a hindered or limited skill capacity, which will consequently restrict options. Daniels argued that a just society should operate such that access to health care is secured so that individuals are guaranteed a normal and equal range of opportunities throughout their life course.

Rawls' principles of justice only tolerate inequalities if the most disenfranchised are able to benefit. The income inequality theory dealt with the trickle down effect, but individuals in the lower socioeconomic stratum have not profited as this theory assumed (Arloc, Sherman, and Greenstein 2008). Rawls' theory does not tolerate inequalities under these circumstances. Rather, Rawls declares that under conditions of inequality, the most disenfranchised should have adequate resources (income) to lead a decent life (Cohen, 1989). Based upon Rawls' principles, income inequality is unjust and warrants a social justice approach in order to constrain the degree of health inequalities. As Hofrichter (2003) noted, "Eliminating health inequities is important as a matter of social justice because health is an asset and a resource critical to human development, beneficial to society overall" (p. xviii).

<div align="center">Conclusion</div>

This introductory chapter implies that the extent of income inequality and subsequent health inequities can be grounded in social justice theory. In a nation where economic growth is the central doctrine and privatized health markets are pervasive, developing effective economic policies may be instrumental to ensure equitable health outcomes. The political climate, through the pursuit of economic growth and privatization, decreased access to:

1. Health care services.

2. Comprehensive health insurance policies, due to the movement towards privatized health markets.

3. Diminished resources for health care safety net systems for the poor.

Due to the political and economic discourse associated with health inequities, this dissertation research argues that political forces should be considered as determinants for disparities in breast cancer mortality. Thus far, the arguments and statistics supporting a correlation of race and

socioeconomic status with breast cancer deaths only present a partial picture of what may underlie this public health issue. The literature on income inequality and social justice provides the rationale supporting the notion that political ideologies of the U.S. should be a point of investigation for revealing the causes of health disparities. Other political and economic factors that this research considers as determinants include public expenditures on health care safety net programs, policies for the uninsured, unemployment levels, the role of education, and household income at the county level. Hence, examining disparities in breast cancer mortality from this perspective presents a social justice framework, thus intending to develop and inform more directive economic policies.

<p align="center">Organization of the Dissertation</p>

The forthcoming chapters will substantiate why breast cancer mortality should be analyzed from a social justice perspective. Analyzing the choices made by political and economic institutions is a crucial point of investigation of this present study.

This research study is organized in the following manner: Chapter 2 presents a literature review on breast cancer and the range of approaches used to understand disparities in breast cancer deaths. These approaches include the race, class, and the political-economy perspective. It is important to discuss the race and class perspectives because these approaches have been pursued extensively in the social science literature; the U.S. collects health data based mainly upon race, and policy programs have been implemented based upon these perspectives. The political-economy dialogue is presented to offer an alternative approach to understanding disparities in breast cancer deaths. Chapter 3 describes theories of the political-economy approach through discussions on the current globalization era. This chapter is significant because it identifies the relationship between globalization, income, and health inequalities. It serves as

the foundation for the quantitative analysis and case studies described in Chapters 5 and 6. Chapter 4 provides a description of the data and methods used to empirically test the hypotheses of this present study. Chapter 5 is a quantitative analysis that tests the association of political and economic variables on breast cancer mortality at the U.S. county-level. This chapter tests the validity of hypothesis **1A.** The purpose of this chapter is to provide quantitative evidence that breast cancer mortality can be framed from a social justice perspective. Chapter 6 consists of four qualitative case studies of selected states with high levels of income inequality. The case studies serve to inform and supplement the results of the multivariate analysis presented in Chapter 5 and to test the validity of hypothesis 1B. This chapter intends to support the theory that government investments in sufficient resources to operate in a social welfare program (such as NBCCEDP) can have a positive influence on breast cancer mortality rates. Chapter 7 summarizes the results of this present study, offering guided health policy solutions aimed to reduce and eliminate disparities in breast cancer mortality.

An examination of the relationships between disparities in breast cancer death rates and political and economic ideologies in the U.S. is of central importance in this research. By unraveling these relationships, this dissertation research is intended to assist other researchers who are attempting to understand the impact of political choices on income and health inequities. This research is not intended to disregard or disprove conventional discourse on the relationship between race and class to breast cancer mortality. Instead, the objective is to introduce the consideration of political and economic influences into the discourse, with specific reflection directed to income inequality. The goal is to generate a broader approach to understanding why disease disparities exist in the U.S. Research perspectives considering only race and socioeconomic explanations of health disparities in populations offer limited approaches and

may not capture the extent to which populations may be susceptible to poor health outcomes. This approach presents the opportunity to initiate broader policy initiatives, which could be more effective than current policy initiatives that simply focus on AAW who are poor.

Chapter 2

Potential Pathways to Inequalities in Breast Cancer Mortality

A number of explanations have been proposed toward the goal of understanding disparities in breast cancer deaths in different segments of women. One predominant view posits that disparities are an outcome of factors identified through the race perspective, which describes specific characteristics that cause black women to be vulnerable to such outcomes. Other reasons for disparities in breast cancer mortality in women include socioeconomic status, genetic predisposition to the disease, and differences in lifestyle behaviors (Olufunmilayo, et al., 2003; Bibb, 2001). The political-economy perspective, albeit not widespread, links politics and economics to breast cancer outcomes (Zones, 2000).

The following literature review describes the biology of breast cancer, preventative screening and treatment measures, and relevant breast cancer statistics. This chapter identifies the factors that are associated with black women having a higher risk of death from this disease. These factors are described mainly through arguments arising from the race vs. class debate, which incorporate genetic links and behavioral theories. The challenges in using a race or a social class perspective are discussed. Finally, the political-economy perspective is presented and explicitly defined in order to offer an alternative approach for addressing disparities in breast cancer mortality.

Breast Cancer: Biology, Detection, Treatment, and Risk Reduction

Breast cancer is the second leading cause of cancer death and the most recurrent form of cancer among women in the United States (Adami, 2002). As described by Adami, breast cancer occurs when a group of cells divide and proliferate in breast tissue. The initial growth of these abnormal cells is linked to genetic alterations. If these cells continue to grow, a lump or tumor

forms in the breast tissue and this lump or tumor may be clinically diagnosed to be cancerous or non-cancerous when a physician performs a biopsy. A biopsy entails the removal of cells from breast tissue and examination of these cells under a microscope in a laboratory. If the breast tissue is found to be non-cancerous, then the tumor is considered benign; a positive diagnosis identifies the breast tumor as malignant.

Breast cancer is classified in stages that range from I to IV. The classifications are based upon the size of the malignant tumor at initial diagnosis and a determination of whether the cancer has spread to other organs in the body. Stages I and II represent the earliest stages of disease development, where the breast cancer is isolated to the tissues of the breast. Stages III and IV represent late stage breast disease, where the breast cancer is observed to have spread beyond the breast tissue and into other sites of the body (Adami, 2002).

There are different treatment options that can be employed in cases of breast cancer disease that are selected based upon a patient's prognosis. According to Adami (2002), a patient's prognosis is defined by the size of the tumor and a determination of whether the cancer has metastasized to other organs in the body. Possible surgical treatments include lumpectomy or mastectomy. The lumpectomy procedure involves the removal of a cancerous tumor or lump from the breast, while a mastectomy is a procedure that involves removal of a woman's entire breast with the option for breast reconstruction. Coupled with surgical procedures, breast cancer patients can be treated with chemotherapy and/or radiation therapy to further eliminate cancerous cells that remain in the body. Breast cancer patients are often given the option of taking Tamoxifen upon completion of their surgical treatment cycle, and clinical research studies show that this medication may reduce the risk of a breast cancer recurrence (Vogel, Costantino, Wickerham, Cronin, & Wolmark, 2002).

Breast cancer clinical trials may be offered as additional treatment regimens to breast cancer patients (Adami, 2002). These are experimental treatment therapies that have not been officially approved by the Food and Drug Administration (FDA), but which have been determined to be a valuable and optimal choice to treat breast cancer patients.

According to the American Cancer Society (ACS), there is a 95% survival rate if breast cancer is detected in its earlier stages of development. The ACS issued guidelines to physicians to assist them in the early detection of breast cancer; recommendations include scheduling annual mammograms for women who are 40 years of age or older, administering clinical breast examinations, and advising patients to perform breast self-examinations. A baseline mammogram is recommended at 35 years of age. A clinical breast examination is recommended every three years for women who are 20 to 40 years of age, while women who are over 40 are advised to have clinical breast examinations done every year (American Cancer Society, 2002). The ACS also recommends that women should perform breast self-examinations in order to become familiar with any changes, such as the formation of lumps that could occur in the breast.

The ACS (2002) also listed other risk factors for breast cancer. Breast cancer is more likely if an individual has a personal or family history of breast cancer. Another factor is a woman's age, where increased age is correlated with a greater risk of acquiring this disease. There is also a greater probability of breast cancer in women who experience menarche prior to age 12, deliver their first child when they are older than 30 years of age, suffer from obesity, consume high amounts of alcohol, poor nutrition, and do not engage in physical activity (McCullough et al., 2005). The ACS states that a woman can decrease her overall lifetime risk of breast cancer by engaging in healthy lifestyles that include routine exercise and a low fat/high fiber diet with high consumption of fruits, vegetables, and grains.

Breast Cancer: Measuring Incidence and Mortality

The National Cancer Institute (2008) estimated that in 2008, 182,460 women will be diagnosed with breast cancer, and 40,480 deaths will occur as a result of this disease. During the period of 2000 to 2003, the Surveillance of Epidemiology and End Results (SEER) (2001) measured the incidence and mortality of breast cancer based upon race/ethnicity. White women (WW) had the highest incidence rates of breast cancer in the U.S., followed by Black, Asian/Pacific Islander, Hispanic, and American Indian women, except in 2001 when Asian/Pacific Islander women had higher incidence rates than Hispanic and American Indian/Alaskan Native women, as shown in Table 2.1.

Table 2.1

Incidence Rates for Breast Cancer in Women by Expanded Race, 2000-2003

Year	White	Black	American Indian/ Alaskan Native	Asian or Pacific Islander	Hispanic
2000	138.7	120.7	80.9	87.8	93.4
2001	138.6	116.6	76.1	91.3	86.6
2002	134.0	118.7	63.7	92.0	89.3
2003	125.0	116.0	Not recorded	83.6	84.5

Note: Incidence rates are for females, all ages and age adjusted to the U.S. 2000 Standard Population rates, per 100,000. From: National Cancer Institute, Surveillance of Epidemiology and End Results: SEER Stat 6.2. Retrieved November 2006 from http://www.cancer.gov/seerstat

Black women had higher mortality rates during the same period compared to any other

racial/ethnic group, as shown in Table 2.2.

Table 2.2

 Breast Cancer Mortality Rates in Women by Expanded Race, 2000-2003

Year	White	Black	American Indian/ Alaskan Native	Asian or Pacific Islander	Hispanic
2000	26.1	34.3	13.4	12.1	16.7
2001	25.3	34.5	11.9	12.8	16.4
2002	24.9	34.1	13.9	12.9	15.6
2003	24.5	34.0	14.2	12.6	16.1

Note: Mortality rates are for all ages, females, age adjusted to the U.S. 2000 Standard Population rates per 100,000. Mortality rates decreased slightly over the years studied for all racial and ethnic groups, except in 2002, when mortality rates increased for American Indian and Hispanics. From: National Cancer Institute, Surveillance of Epidemiology and End Results: SEER Stat 6.2. Retrieved November 2006 from http://www.cancer.gov/seerstat

Breast Cancer: Shaping the Race Perspective

The data presented in Tables 2.1 and 2.2 show that White Women had the highest

incidence rates of breast cancer, while Black Women (BW) had the highest mortality. Social

science researchers have proposed several causal factors for this paradox. Their studies indicated

that race is a determinant of breast cancer mortality (Budrys, 2003). Social science researchers

have also pursued theories from the psychosocial, biological, and environmental disciplines to

describe disease causality in BW, see figure 2.1 (Budrys, 2003).
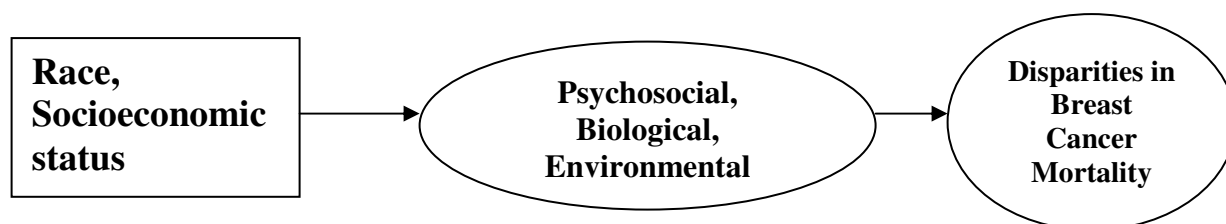
Figure 2.1 Pathways to disparities in breast cancer mortality, Existing Model

Psychosocial theory describes the interaction between an individual's behavior and his/her social environment. Psychosocial theory illustrates how stress related conditions can cause vulnerability to illness and disease (Krieger, 2001). This theory postulated that a biological expression of a disease pattern is likely to occur if an individual is stressed. The psychosocial factors that resulted from stress-related conditions included systematic segregation, social disorganization, rapid social change, and societal status (Krieger, 2001). BW in low-income racially segregated communities suffer from such stress-related conditions. Many women in this racial group have concerns regarding high crime and drug abuse that outweigh the significance that they place on their own health (Dula & Goering, 1994; Anderson, 1968). These environmental risks create a high-stress condition in these women (Krieger, 2001). For example, BW who was impacted by such risks did not regard mammography screening as a priority, compared to other more threatening environmental conditions (Dula & Goering, 1994; Andersen, 1968; Guidry, Mathews-Juarez, & Copeland, 2003; Wolf, 2003).

There were other psychosocial issues that caused BW to delay breast cancer screening. Researchers identify their attitudes, culture, and beliefs about breast cancer and the health care system as causal factors (Guidry et al., 2003). Guidry et al. found that the BW's culture, which includes her customs, values, and language, impact her decision to participate in breast cancer prevention programs. Beliefs that influence the health-related behaviors of BW include that breast cancer is a disease for WW only, that disfigurement is an ultimate outcome and that pain is unavoidable were among other barriers to breast cancer screening. Other crucial barriers

include BW's fatalistic beliefs, distrust of medical institutions, myths that the devil caused cancer, and the belief that cancer spreads when it is exposed to air (Guidry et al., 2003).

It is because of these shared beliefs, coupled with the previously mentioned psychosocial issues, that public health initiatives have promoted culturally sensitive breast cancer early detection screening programs (Tatum, Wilson, Dignan, Paskett, & Velez, 1997; Andersen, 1968). These programs employed behavioral models that were used in campaigns to increase knowledge and awareness about nutrition. The behavioral models were tailored towards Black Women. The social science literature had often reported that Black Women had diets that were low in fiber, and high in fat and cholesterol (Tatum et al., 1997; Jones, 1987). These initiatives also focused on the importance of exercise, since prior studies had shown that Black Women had higher rates of physical inactivity compared to their White counterparts (Bernstein et al., 2005; Jones & Rice, 1987). The goals of these programs were to change the behaviors of Black Women by deflecting their priorities from stressful societal conditions, towards healthier lifestyle behaviors (Guidry et al., 2003).

In addition to psychosocial and environmental factors, the tumor biology of BW was found to affect their breast cancer mortality rates (Polite & Olopade, 2005). The tumor biology of breast cancer patients was predictive of their treatment outcomes and factored into the determination of a woman's overall prognosis (Polite & Olopade, 2005; Chu, Anderson, Fritz, Ries, & Brawley, 2001). A woman's stage of diagnosis was assessed based upon her estrogen and progesterone receptor (ER/PR) tumor status (Polite & Olopade, 2005; Chu et al., 2001). Women with a negative ER/PR status had poorer survival rates compared to women with a positive ER/PR status. Tamoxifen has been more effective in treating tumors with a positive ER/PR status than ER/PR negative tumors (Chu et al., 2001). According to Polite and Olopade

(2005), the tumors of BW differed from WW. Chu, et al. found that WW presented with more

ER/PR-positive tumors compared to BW, as shown in Table 2.3.

Table 2.3

Estrogen/Progesterone Receptor (ER/PR) Status of Women with Breast Cancer by Race and Ethnicity

Race/Ethnicity	ER+/PR +	ER-/PR -
	(%)	(%)
White	63.9	19.8
Black	48.3	34.8
Hispanic	56.7	26.7
Chinese	60.6	22.6
American Indian/Alaskan Native	56.5	30.2

Note. From: "Frequency Distributions of Breast Cancer Characteristics Classified by Estrogen Receptor and Progesterone Receptor Status for Eight Racial/Ethnic Groups," by K. Chu, W. Anderson, W. Fritz, L. Reis, and O. Brawley, 2001, *Cancer,* 92(1), p. 37-45.

BW presented with more negative ER/PR tumors than any other ethnic group. Chu et al.

also showed that ER/PR status determined a woman's stage of cancer upon initial diagnosis and

that Black and Hispanic women were less likely to present with an earlier stage breast cancer

diagnosis based on their ER/PR status, as shown in Table 2.4.

Table 2.4

Hormone Status with Respective Stage at Diagnosis by Race/Ethnicity

Race/Ethnicity	ER+/PR +	
White	Stage I – 52%	Stage II – 37%
Black	Stage I – 39%	Stage II – 44%
Hispanic	Stage I – 42%	Stage II – 49%
Chinese	Stage I – 46%	Stage II – 42%
American Indian/ Alaskan Native	Stage I – 44%	Stage II – 42%

Note. From: "Frequency Distributions of Breast Cancer Characteristics Classified by Estrogen Receptor and Progesterone Receptor Status for Eight Racial/Ethnic Groups," by K. Chu, W. Anderson, W. Fritz, L. Reis, and O. Brawley, 2001, *Cancer,* 92(1), pp. 37-45.

Breast Cancer Mortality: Challenges of Using Race

Prior research studies on breast cancer mortality emphasized race and psychosocial factors that are assumed to be exclusive to BW (Holt, 2003; Jones et al., 2003; Kwate, Valdimarsdittir, Guevarra, & Bovbjerg, 2003). Soler-Vila, Kasl and Jones (2003) challenged this concept and claimed that fatalistic beliefs, coping strategies, and health locus of control are not correlated with decreased breast cancer survival. Rather, it is a woman's perception of her emotional support system that correlates with reduced mortality. Sontag (1977) further contended that Western society represents disease in a discriminatory fashion, such that individuals who disproportionately experience ill health posses character flaws that are viewed as leading them to be responsible for causing their conditions.

Lamont and Molnar (2002) denounced the validity of racial categories. They found that when a group was placed into a racial category, there was a perception that specific traits defined individuals belonging to that group. According to Lamont and Molnar, when a group was assigned to a specific category this led others to frame the members as possessing a shared identity. The members of the assigned group were perceived to possess distinct similarities, such as physical features and cultural beliefs (Lamont, 2002). The perception of a racial identity exploited a physical or human characteristic of a group of individuals only to justify the need for race-based distinctions (Barth, 1998; Lamont, 2002). This human characteristic was perceived as universal to the group (Lamont & Molnar, 2002). Classifying individuals into a racial category led others to assume that the group itself shared collective values and circumstances (Barth, 1998; Lamont & Molnar, 2002).

When race is used as an indicator in the distribution of disease, certain attributes of a particular group become magnified (Caplan et al., 1996; Barth, 1998). A disease state is shaped by such attributes (Caplan et al., 1996; Barth, 1998). Based on the previously mentioned literature on BW and breast cancer mortality rates, the behaviors, lifestyles, attitudes, values, tumor biology, and experiences with racial discrimination are revealed as factors that influence how this disease is framed by such attributes. Furthermore, these attributes have a negative impact on breast cancer screening rates and treatment outcomes of BW (Caplan et al., 1996).

Figgs (2003) asserted that racial categories used to describe breast cancer in BW should be discontinued since these categories represent imprecise measurements. Figgs claimed that distinct boundaries should test correlations between breast cancer and BW. His claims were based on the derivation of the term African American. In the 17th century, the term African American was coined during an era when proponents of the capitalist economy sought to retain

African slaves as cheap labor (Figgs, 2003). Thus, U.S. legislation located this racial group in a position of servitude (Figgs, 2003; American Anthropological Association, 1998). As a result, Figgs proposed that the term African American was rooted in a concept based upon economics, rather than a defined biology. He claimed that racial categories based on economics are not appropriate measures for use in hypothesis testing in cancer disease states. Figgs concluded that due to the biologic and genetic nature of cancer, any factors implicated in disease causality must include variables with a biologic and genetic association. Currently, the racial constructs that have arisen from U.S. legislative history do not fulfill this requirement (Bhopal & Liam, 1998; Figgs, 2003).

From a policy perspective, Makuc, Breen, and Freid (1999) found that racial categories are problematic in describing disease distribution. These researchers observed a disparity in mammography screening use for low-income BW and WW. They monitored trends in low-income women, segmented by racial and ethnic characteristics, who reported that they had a mammogram within the past two years. These researchers discovered that during the period of 1987 to 1994 there was an increase in screening rates among both low-income BW and WW, except in 1994. In 1994, WW experienced a slight decrease in reported mammography use, as shown in Table 2.5.

Table 2.5

Percentage of Low Income Woman 50-64 Years of Age with a Mammogram Within the Past

Two Years (United States, 1987-1994)

Year	White Females	Black Females
1987	21.1	22.2
1990	38.9	38.3
1991	46.2	43.6
1993	46.8	56.8
1994	43.8	60.2

Note. Low income is calculated at family income below twice the poverty level in a given year. From: "Low Income, Race and the Use of Mammography," by D. Makuc, N. Breen, and V. Freid, 1999. *Health Services Research,* 34(1), pp. 229-239.

Table 2.5 illustrates that low-income BW and WW had similar mammography screening

rates in 1987, 1990, and 1991. However, in 1993 and 1994, BW reported higher mammography

screening rates over the preceding two years compared to those of WW (Makuc et al., 1999).

These researchers could not explain the differences in mammography screening rates among

low-income BW and WW from the years of 1987 to 1991. Low-income WW did not share the

causal factors that appeared to lead to lower screening rates in low-income BW. These factors

included BW being underinsured, having public health insurance, being less educated, residing

in metropolitan cities, and not having a regular physician as their usual source of care (Makuc et

al., 1999). The BW in this sample had all of these factors. Starting in 1992, federal funding was

directed towards racially targeted free or low-cost breast cancer screening programs, and

researchers attributed screening differences during the following years to these programs. The focus of these programs was to increase screening mammography in minority populations during this period. Makuc et al. based their conclusions on the prevalence of early detection screening programs in low-income Black communities in contrast to low-income White neighborhoods.

Using race as a determinant in disease causality could be problematic since racial categories are socially constructed (Brodkin, 1998; American Anthropological Association (AAA), 1998; Smedley & Smedley, 2005). Race-based societies assumed discrete biological distinctions, such as genetics, in order to justify racial categories (Smedley & Smedley, 2005; American Anthropological Association (AAA), 1998). Thus far, there is no scientific or genetic basis for definitively determining racial categories (Brace, 2005; Smedley & Smedley, 2005). According to the American Anthropological Association's (1998) research on the association between genetics and race, they found that 94% of physical variation was within racial groups. They also discovered that genes accounted for only 6% differences in geographic racial groupings. Based on the AAA's statement about race, this indicates that there was a greater degree of variation found within racial categories than between them. In accordance with the AAA's theory, Nei and Roychoudhury's (1972) research examined whether there were significant genetic differences between Blacks, Whites, and Japanese populations. These researchers found that although these ethnic groups showed marked differences in their physical characteristics, their gene patterns were strikingly comparable.

In the social construction of race, there is an assumption of continuity in the language, values, beliefs, culture, physical characteristics, and behavior across the spectrum of members within a racial group (Barth, 1998; Smedley & Smedley, 2005, American Anthropological Association (AAA), 1998). According to Brodkin (1998), this representation of continuity is

inaccurate, since historically, racial identities differ depending upon time and place. Brodkin also found that members within racial categories were not homogenous over time. Racial categories were created to depict members who did not belong to the majority as being inferior (Lamont, 2002; American Anthropological Association (AAA), 1998). According to Smedley and Smedley (2005), "inequality is fundamental to all racial systems" (p. 20). Consequently, societies that adopt race-based constructs also assign negative stereotypes to particular racial groups (Smedley & Smedley, 2005). Also, there have been discrepancies among individuals who identified themselves as belonging to more than one racial category (Budrys, 2003). For these reasons, a universal explanation for the causes of disproportionate rates of disease based on the concept of race is considered insufficient (Budrys, 2003).

Given the challenges in utilizing the race perspective, the next generation of researchers applied alternative explanations to describe groups that were vulnerable to breast cancer mortality. This included measurements on an individual's social class status (Basset & Krieger, 1986).

The next section provides a socioeconomic perspective, and arguments for and against using this perspective, to explain disparities in breast cancer mortality.

<div align="center">Breast Cancer: The Social Class Perspective</div>

Navarro (1993) claimed that class differences were a significant factor in understanding illness and disease in the U.S. health care system. He claimed that class differences supercede racial or gender factors. Navarro further claimed that the distribution of health care services is related to class forces. In accordance with this perspective, breast cancer researchers acknowledged that a lower social class status exacerbated breast cancer mortality (Brandt, Broyles, Hann & Coleman, 1995; Wagner & Schatzin, 1994; Walker, Neal, Ausman, Whippple

& Doherty, 1989; Basset & Krieger, 1986). According to Bradley, Given, and Roberts (2002), women with a low socioeconomic status (SES) was associated with late stage breast cancer at disease presentation, and it often correlated with fewer treatment options, and higher mortality. Davis et al. (1996) attributed these outcomes to underutilization of mammography screening as a result of their low literacy skills.

Breast cancer mortality in women was analyzed among racial groups using social class indicators, such as income, education, and professional status as crucial factors (Bassett & Krieger, 1986). High, middle, and low-income categories defined socioeconomic status. A woman's professional status and educational level, defined whether or not a woman had more or less than a high school education and were used to categorize women into particular socioeconomic categories (Bassett & Krieger, 1986).

Bassett and Krieger (1986) explored disparities in breast cancer mortality rates between BW and WW using the previously mentioned social class indicators. Prior to this research, only a single study conducted by Dayal, Power and Chiu (1982) evaluated the relationship between social class and the differences in breast cancer survival rates in BW and WW. Using breast cancer data from a cohort of BW and WW in the counties of North Western Washington, these researchers evaluated the relationship between death rates among BW and WW based upon their level of education, income, family living arrangements, and occupational category. They found that when both race and social class variables were included in their analysis, the race variable had a weaker association to breast cancer survival. SES factors had a stronger correlation and the breast cancer death rates of the two races were nearly identical (Basset & Krieger, 1986). Basset and Krieger concluded that using race as a primary indicator for breast cancer survival led to misinformed results if social class indicators were not included in the analysis.

As mentioned previously, Wilkinson (1996) used behavioral and cultural approaches to describe how SES, particularly among low-income individuals, was associated with health inequities. Research conducted by other scientists provided support for Wilkinson's theory through analysis of health outcomes and the behaviors of individuals with a higher social class status, relative to individuals with a lower social class status (Budrys, 2003). Mortality rates for the major chronic diseases, such as lung cancer, coronary heart disease, and chronic bronchitis, were compared using occupational status. People with lower occupational status ranking had excessive rates of morbidity and mortality compared to people with higher occupational status ranking (Budrys, 2003). Budrys also examined the smoking was associated with SES. Smoking was found to be correlated with occupational status. When Budrys compared smoking behaviors with an individual's professional level, he found that people in the lower occupational ranks smoked more than people who had more prestigious jobs.

<div align="center">Breast Cancer: Challenges In Using Socioeconomic Status</div>

Although some researchers claim that SES is a more accurate determinant for predicting health outcomes related to race, this indicator still has limitations. For instance, it was proposed in some research that an individual's lower class status could provide reasonable cause to explain presentation of late stage disease in BW compared to WW, since being underinsured affects access to preventative health care (Field et al., 2005; Budrys, 2003). However, when class status was used as a primary indicator, this explanation did not provide a sufficient explanation as to why BW who possessed health insurance still suffered disproportionately from poorer cancer outcomes (American Cancer Society, 2002). Also, if social scientists agreed on using social class indicators as primary variables, there could be an inconsistency in how data was collected over time, how social class status was reported, and the ability to differentiate affluent occupations

from jobs in upper middle class categories (Budrys, 2003). Social class indicators shaped by psychosocial factors represent another major limitation (Hofrichter, 2003; Wilkinson, 1996). Overall, these indicators can not account for the root causes that determined the specific income categories of individuals, particularly among the lower social classes (Hofrichter, 2003).

This chapter briefly described how political and economic choices in the distribution of income led to health inequalities. It also presented an overview on how the social science literature shaped breast cancer disparities from a racial and socioeconomic perspective. This present study now examines the association between politics, economics, and cancer, in order to show how a political economy perspective is situated in disparities in breast cancer mortality. The following section will also illustrate how political and economic forces tolerated expensive health care, which resulted in insufficient coverage for specific social classes and racial groups, favored services directed toward caring for the elite, and consequently created inequalities in breast cancer care (Navarro, 1993; Zones, 2000). Such forces were accountable for advancing a culture that pursued profits in the healthcare industry rather than endorsing a more equitable U.S. health care system (Navarro, 1993; Zones, 2000).

Breast Cancer Disparities: Realizing the Role of the Political Economy

Three components of the political economy perspective are considered. These include wealth distribution, the power of the social classes, and welfare state reliance on market forces rather than state intervention (Raphael, 2003). The term political economy refers to "how and why a society produces and distributes societal resources among its population in a certain way" (Raphael, 2003, p. 61). This perspective reveals the process used to sustain a political climate that focuses on wealth and power, and how it can compromise a population's health (Raphael, 2003; Navarro, 1993). The political economy perspective further provides a more substantive

explanation for the poorer health outcomes observed in the U.S. relative to other countries where wealth accumulation is not as significant a factor (Raphael, 2003; Navarro, 1993).

This present study maintains that the political and economic intentions of the welfare state are accountable for breast cancer disparities. The "cancer industry" (Moss, 1998, p. 10), described as a "big business" (Altman, 1996, p.25), has promoted the interests of the wealthy in crucial cancer research, promotion, and treatment decisions (Navarro, 2002; Navarro, 1993; Altman, 1996). According to Moss (1989), the government began investing in cancer research in 1937, when the National Cancer Act was implemented. The National Cancer Association's (NCA) goal was to allocate funds for research on cancer and to launch the National Cancer Institute (NCI) (Moss, 1989). Upon inception, funding in the amount of $700,000 was appropriated annually to the NCI (Moss, 1989). The NCI had an operating budget of $1.5 billion by 1988. Later, additional cancer legislation passed with the intent to eradicate or reduce the disease (Moss, 1989). This guided substantial increases in funding for the NCI (Moss, 1989). NCI funding that was directed towards breast cancer, in particular, increased from $33.9 million in 1981 to $323.7 million by 1995 (Library of Congress, 1994).

Moss (1989) claimed that bankers, wealthy Americans, and corporate executives were at the core of health care decisions regarding prevention, detection, and treatment for cancer. As such, these elite groups had a vested interest in cancer outcomes. For instance, the board of executives that presided over the NCI's programs and policies was comprised of members from wealthy elite groups. They included Elmer Bobst, president of Warner Lambert pharmaceutical company, and Dr. Phillip Frost of Key Pharmaceuticals. Renowned cancer facilities, such as Memorial Sloan Kettering Cancer Center (MSKCC), also had boards of trustees that fit this profile. The MSKCC board was comprised of bankers and corporate executives with power and

influence over the decisions regarding research and treatment. Alfred P. Sloan, who was the former president of General Motors and the former director of Du Pont and Morgan Guaranty Trust Company, contributed millions of dollars to this facility, as well as Charles Kettering, who was the former Vice President of General Motors. Reginald Coombe, a New York banker, was also a former president of MSKCC, and the Rockefeller family also had controlling interests in MSKCC for some period of time (Moss, 1989). There were other corporations that made substantial contributions to MSKCC in the late 70s, including Mobil Oil, Texaco, Exxon, and IBM (Moss, 1989). Hence, corporate elites had the decision-making influence over the NCI, as well as other private cancer institutions. According to Moss (1989):

> "The top leaders generally see eye-to-eye on the major questions concerning cancer. They favor cure over prevention. They emphasize the use of patentable and/or synthetic chemicals over readily available or natural methods…They are also, generally speaking, socially homogenous – older white males predominate here." (p. 417)

Coupled with wealthy executives exerting their influence in health care institutions, the pharmaceutical industry also consisted of elite groups. These industries exacerbated health inequities by causing health care to be unaffordable (Navarro, 1993). These transnational companies earned enormous profits from the sale of anticancer drugs that were approved by the FDA for public use. Overall, the price of drugs for consumers in the U.S. was higher than in Great Britain. Drug sales were a major source of high profit for these companies. For instance, when the FDA endorsed chemotherapy agents as an effective approach for treating cancer, drug companies profited substantially. The cost of chemotherapy drugs, particularly in the U.S., was higher than any other country. Also, in the U.S., Tamoxifen, was priced at a 242% higher cost

when compared to Great Britain. As a result, Tamoxifen was inaccessible to minority groups (Altman, 1996).

The costs to treat breast cancer using chemotherapy agents for advanced stage disease ranged from $15,000 to $40,000 (Napoli, 1996). The most commonly used chemotherapy agent to treat cancer at this stage was Taxol, which was produced by Bristol-Myers Squibb (BMS) (Fellers, 1998). BMS, a major drug company in the industry, grossed over $2 billion in 1998 in sales for this drug (Fellers, 1998; Zones, 2000). The pharmaceutical industry increased profits that it acquired through sale of drugs used in breast cancer treatment by creating unique procedures that they claimed improved breast cancer outcomes (Zones, 2000). Research studies reported that women treated for breast cancer with High Dose Chemotherapy (HDC) had longer survival rates compared to women who did not receive this treatment (Wood, Budman and Korzun, 1994). However, according to Zones (2000), HDC was more toxic than standard methods of chemotherapy. Many renowned cancer physicians encouraged their patients to be treated with this chemotherapy agent despite the costs, side effects, and denials by insurance companies to cover this expense (Altman, 1996). In 1999, the NIH found that HDC was not as successful as drug companies and oncologists had claimed, in that it did not aid in prolonging life (National Institutes of Health, 1999).

Aside from breast cancer treatment, early detection screening was another instance where elite groups gained substantial profits (Zones, 2000). Initially, mammography screening was targeted towards menopausal women (Zones, 2000). Later, the patient base expanded to include premenopausal women between the ages of 35 through 55 (Zones, 2000; American Cancer Society, 2006). The American Cancer Society utilized fear tactics to encourage more healthy women in this age group to obtain mammography screening (DiLorenzo & Bennett, 1994;

American Cancer Society, 1995). Although Welch and Fisher (1998) claimed that screening women in this age group decreased their mortality rates, there was still some uncertainty about the overall benefit (Berry, 1998). According to Berry's (1998) randomized study on the significance of mammography screening in preventing breast cancer mortality, he found that of the 52 women involved in this study, 36 premenopausal women who did not obtain mammography screenings died from breast cancer. In comparison, 26 women who received a mammogram still died from this disease. This supported Berry's findings that screening for breast cancer did not necessarily prevent mortality. Studies conducted by Love and Lindsey (1995) further supported Berry's research. They claimed that due to tumor biology, women in the premenopausal age group would survive even if their breast cancer is not detected at an early stage. Bailar, (1976) also found that women who did not engage in early screening still had the same survival rates regardless of the time they were aware of their diagnosis. Berry (1998) also claimed that annual screening among premenopausal women would, in fact, increase their risk for acquiring this disease.

There were other factors that added to claims that mammograms were not beneficial to premenopausal women. In 1995, premenopausal women were most likely to file malpractice suits against health institutions because they were often misdiagnosed as disease-free through mammography screening (Leopole, 1998). On the other hand, some women who did not have breast cancer were wrongfully given mastectomies based upon false positive mammogram screenings (National Women's Health Network, 1983). The American Cancer Society and federally funded screening programs continued to boast about the efficacy of mammography screening and its success at detecting more breast cancers, especially during the early 90s (American Cancer Society, 2002; National Breast and Cervical Cancer Early Detection Program,

2006). However, breast cancer incidence was already on the rise among the elderly (40%) and Blacks s (30%) during the period of 1973 and 1991, and this was not attributed to increased mammography screening (Feuer & Wun, 1992; Harris, 1992).

Radiologists and companies that manufactured screening equipment also gained substantially when they included premenopausal women in their screening guidelines (Zones, 2000). Radiologists made profits of approximately $100 per mammography exam, and would have generated over $2 billion in revenues if every woman in this age group had complied with this recommendation (Ernster, 1997). Radiologists also profited substantially from follow up testing (Ernster, 1997). General Electric (GE) produced the mammography screening machines and grossed over $100 million annually in sales, while Du Pont, the company that supplied the films for this equipment, also profited (Zones, 2000).

Overall, breast cancer prevention programs grounded in behavioral interventions benefited from readily available resources (Bernstein et al., 2005). However, research on the association between environmental toxins and breast cancer continues to be inadequately funded in spite of the insurmountable evidence linking hazardous waste dumping and increased breast cancer incidence in various counties in the U.S. (Zones, 2000; Griffith & Riggin, 1989; Hoover & Fraumeni, 1975).

Wolf et al. (2003) found an association between breast cancer incidence in BW and environmental toxins or chemicals. These chemicals, known as genotoxins and organochlorines, are found in the air and act as agents that cause normal cells to differentiate. As these cells differentiate, this changes (or alters) a normal gene pattern, thus forming a malignant tumor in the breast. Such chemicals were found to increase breast cancer risk in BW at the genetic level. Wolf et al. discovered that BW had higher levels of genotoxins and organochlorines when

compared to WW. The compounds of organochlorines, which include -1,1-dichloroethene (DDEs) and polychlorinated biphenyls (PCBs), were twice as likely to be found in BW than WW. Measurements of these same compounds were also found to be high at (or just prior) to their breast cancer diagnosis. According to Wolf et al., the effect of environmental toxins on BW should be further explored. They believed that BW with no known risk factors for breast cancer was at a higher risk for this disease due to such toxins. They also believed that this could explain why malignant tumors have been more aggressive among this racial group.

Lewis-Michl et al., (1996) and Schemo (1994) substantiated a connection between environmental hazards and the risks of obtaining breast cancer. These researchers found that breast cancer incidence rates increased according to the number of chemical plants in the area. They also found that the distance between a woman's residence and these plants strengthened the risk of contracting this disease. Corporations were responsible for generating these environmental pollutants (Lewis-Michl et al., 1996). Numerous scientists acknowledged that such pollutants accounted significantly for the incidence of various cancers. However, corporations would lose considerable profits if regulations were imposed on the production and disposal of these substances (Moss, 1989; Zones, 2000). According to Glasser (1979):

"Today, more than ever before, the price of health is vigilance, and this vigilance means that we must recognize not only the poisons in our environment but also the efforts on the part of industry to resist, in the name of profit, the removal of these carcinogens and mutagens, as well as government tolerance of these efforts" (p. 173).

Although based largely on observational studies and theoretical inferences, the literature review in this study on the political economy approach makes it clear that the health care industry continues to uphold the interests of the elite groups in breast cancer care. The interest of

the corporate elites is on treatment and prevention methods that sustained profits regardless of the challenges in validating if such methods were remedial (Zones, 2000). These treatment and detection procedures had little effect on mortality outcomes. However, strong evidence linking hazardous waste dumping, carcinogenic exposures, and breast cancer incidence have not been pursued. Corporations would lose profits if regulations were not implemented to prevent toxic waste dumping. The health care industry was selective in the breast cancer preventative methods that they chose to endorse. The health care industry (particularly in health policies) has not engaged in aggressive actions to discontinue hazardous waste dumping by corporations. Corporations also have not been held accountable for the health impact this has had on underserved communities.

The political economy approach to breast cancer recognizes the power of the corporate class. The production of expensive drugs, the development of preventative approaches, and the implementation of methods to treat this disease have especially supported corporate interests. There has been less emphasis on exploring the environmental toxins that were implicated in causing this disease. Therefore, one can begin to examine how society shapes disease, why women with substantial resources receive treatment for breast cancer relative to others with fewer resources, and, how society identifies the groups more susceptible to breast cancer incidence and mortality (Zones, 2000).

The challenges in using race and socioeconomic status to shape disparities in breast cancer mortality were discussed in this literature review. Prior research revealed evidence of the pursuit of profit in breast cancer care, thus, contextualizing the role of political and corporate influence. Hence, the presence and decision-making power of corporate elites in determining

breast cancer care should be considered. Therefore, this dissertation research posits that the political economy approach can address disparities in breast cancer deaths.

Given that the U.S. has not met its projected goals to reduce cancer mortality, perhaps political and economic choices should be explored as a more relevant approach. This approach provides justification for addressing the underlying causal factors linked to disparities in breast cancer mortality. It exposes the motives of those in power and employs the need for justice for those who lack wealth and affluence. The allocation of neo-material resources is considered as a social determinant, thus reducing the importance of race and socioeconomic status. According to Kasper and Ferguson (2000):

"In the absence of universal health insurance, full employment at a living wage, readily available public assistance for individuals, families who face serious hardship, and a national commitment to raise all members of society out of poverty, poor women with breast cancer will continue to face near insurmountable barriers and carry wrenching burdens that few who live outside the boundaries of poverty can imagine" (p. 210).

Chapter 3

Income Inequality and Health Disparities: Justifying the Role of the Political Climate

The primary goal of this chapter is to show how neo-material conditions, such as income inequality and diminished investments in social welfare programs, are side effects of a globalized economy. Through a historical and critical analysis of the facets of globalization, theoretical evidence on the actions of political and economic forces in shaping health inequalities is exposed. The discourse on globalization and the structural consequences derived from it will be explored. This chapter is organized (a) to provide a description of the globalization eras and the changing forms of the welfare state, (b) to present factors that link globalization to a neo-material condition, such as income inequality, (c) to present challenging arguments for and against globalizations' impact on health inequalities, (d) to investigate links between neo-liberalism, income inequality, and health inequalities, (e) to examine evidence of globalization's relationship to poverty outcomes, and (f) to incorporate a social justice framework as justification for including politics in the discourse on disparities in breast cancer mortality.

A) The Welfare State, from Keynesian to Schumpeterian Forms and the "New" Globalization Era

Globalization is defined as the integration of international market economies throughout the world, where the spread of capital, goods, services, and technology reach nation states at accelerated speed (Heshmati, 2005). There are two periods of globalization: The years 1870-1913 encompass, the first period of globalization, while 1950 to the present time constitutes the second era of globalization (O'Rourke & Williamson 2000; O'Rourke, 2001; Maddison, 2001; Williamson, 2002; World Bank, 2002). There were two other distinct periods noted in the

globalization literature and these include the de-globalization period, between the years 1913-1950, which was known to be an era of increasing economic disparities and the Golden Age, which occurred during the years 1950-1973, and was noted for its period of decreasing disparities, rapid growth, and stability (O'Rourke & Williamson 2000; O'Rourke, 2001; Maddison, 2001; Williamson, 2002; World Bank, 2002).

In the first globalization era (1870-1913), the gap between the rich and the poor diminished due to the demand for unskilled labor in the global market (Williamson, 1996a). As a result, wages for unskilled workers rose. This era was also marked by mass labor migrations within the U.S. (Shorrocks, 2002).

During the de-globalization period of 1913-1950, the U.S. was described as a Keynesian Welfare National State (KWNS). This type of political entity had specific national domestic regulations, which included active economic and social policies, a commitment to a closed economy, and the ability to intervene when markets failed (Jessop, 1998). KWNS functioned to maintain labor power by strengthening bargaining agreements and securing full employment. According to Jessop, capital growth was significant to this era, as was within-nation economic development, sustained welfare policies, and unemployment benefits. KWNSs focused on equalizing economic and social conditions at the national level. The KWNS only exercised its authority to balance market forces in the absence of stimulated economic growth, secured employment, or equitable resource distribution (Jessop, 1998).

In the second era, trade exports dominated international markets, coupled with regulations that controlled the influx of new immigrants (Shorrocks, 2002). This new era, known as the Schumpeterian Competition State (SCS), emerged as a political response to the class inequalities that existed during the Keynesian era (Jessop, 2002). Although the KWNS era was

recognized as a period of economic growth and development, this era was also known for its extreme economic downturns. According to Jessop (2002), the crisis that arose under the KWNS included depressed economic growth, growing public debt, reshaping institutions to accommodate an expanded economy, and new technology. Social movements were also on the rise during this era, as these movements contested KWNS' redistributive policies. Jessop also claimed that welfare provisions during the KWNS era created more dependence on the government and magnified existing social problems. These social problems included inequalities, the collapse of the nuclear family to single parent families (which called for more social support), persistent poverty, and conflicts between the middle and working classes. Such conflicts were due to welfare policies in education, housing, and health that favored middle class groups. Overall, the challenges that arose during the KWNS era suggested the need for government reform, leading to new functions under the SCS regime (Jessop, 2002).

The SCS was an outcome of reactions from the existing political climate to address the perceived economic crisis in the KWNS era (Jessop, 2002). SCS was named for the competitive nature of the time and was later renamed the Schumpeterian Workfare Postnational Regime (SWPR). The SWPR evolved when the pursuit for competition in open economies provided the opportunity for promotion of policy initiatives that advanced capital accumulation (Jessop, 2002). This guaranteed economic growth that extended both within and outside the borders of nation states. This perceived economic crisis in the KWNS era was reformed such that states now had a commitment to a neo-liberal approach to enhance growth (Jessop, 2002). According to Jessop, the neo-liberal approach promoted a privatized, liberalized, and a deregulated market society. This neo-liberal approach became the main focus of capital development. Consequently, labor was regarded as substitutable and powerless. There was a global movement to lower labor

compensation in order to maximize profit. The promotion of a knowledge-based economy was a central turning point in the formation of the political climate under the SWPR. This called for welfare states to incorporate policies that allowed them to invest in a knowledge-based economy. Broad-based knowledge became privatized through licensures and copyrights, and knowledge was sold as a commodity, particularly in the advanced field of technology (Jessop, 2002).

According to Jessop, economic policies under the SWPR were reformed. These policies became the priority of the nation state. Jessop claims that the SWPR required less welfare provisions and reduced public spending, as these investments were perceived to depress economic growth. The network economy, known as the interconnectedness of international economies, replaced the mixed economy, and the government no longer regulated the market. Jessop claimed that the neo-liberal approach required a denationalization of the state. Therefore, the responsibility for correcting market forces was shifted towards a reliance on public and private partnerships to handle such affairs. Market domination was the primary approach, with the belief that the market could correct itself without state intervention. The nation state still had some authority, but was restricted by the political influence of the transnational capitalist class. According to Jessop, the political forces of this era shifted government functions towards a paradigm where capital accumulation was fundamental to this new regime. Regardless of the degree of denationalization that occurred under the SWPR, nation states still had the power to choose how to meet the requirements for capital accumulation (Jessop, 2002).

Based on Jessop's accounts, globalization was not a new phenomenon compared to what had existed under the KWNS. A different form of government advanced under the SWPR, such that economic and state policies were separated from state authority towards the pursuit of capital accumulation at the international level. This reduced state sovereignty over economic

affairs and exploited wage labor. The supply side of market forces was favored. SWPR's main outcome was the redistribution of wealth away from certain classes and the implementation of policies that advanced capital accumulation. The balance of power lay within political institutions that were influenced by the corporate class. As the shift continued in governance towards the SWPR, the current neo-liberal movement produced more disparities and social exclusion than what had existed under the KWNS. Even in this neo-liberal globalization period, the economy still demonstrated evidence of instability (Jessop, 1998).

In spite of the conflicts or social ills that were manifested under both the KWNS and SWPR, globalization was still credited with progressing humanity, bringing about prosperity to nations, and contributing to European prosperity by embracing the knowledge-based and technologic advancements that originated from globalization (Sen, 2002). Hence, the central debate regarding a globalized economy was not about the economic progress that globalization offered to nations. Rather, it was about whether the poor and underserved, both within and across countries, had benefited from the resulting economic progress of globalization (Sen, 2002).

It is the changing forms of globalization and the economic policies under the SWPR that are of primary interest to this present study. This new political climate resulted in a denationalization of the state and a shift towards capital accumulation. Developing economic policies supported this new doctrine. The processes of globalization and economic change have played out in particular ways, such that disparate conditions persist in income and health status. These processes included neo-liberal policies that were advanced under the SWPR with the intent to accelerate profits. Under such conditions, class inequalities widened more during the SWPR than during the KWNS. Although the connections between globalization and health status are indirect, the effects of economic globalization on class inequalities become significant. The

following sections explore how neo-liberal policies and ideologies influenced income inequality

levels, health inequality, and poverty rates.

B) Influence of the Political Climate on Income Distribution

Having presented a historical context of the various forms of globalization, this chapter

now investigates how the effects of the political climate shaped income inequality within a given

nation.

Cornia and Court (2001) claim that it is essential to understand inequality at the national

level since this ultimately gives rise to global inequality. They also claim that instructive policies

within nation states that address issues of inequality can be amendable at this level, as opposed to

employing global initiatives to eradicate inequality. Lindert and Williamson (2001) and

O'Rourke (2001) believe that the degree to which policies on inequality at the national level are

exploited can determine whether globalization can have a negative or positive impact on that

nation's economy. This assumption situates the argument that any source of within-country

inequality can, in fact, be indicative of a non-democratic government. They further hypothesize

that globalization's influence reduces inequality: specifically, income inequality between

nations.

The impact of globalization on inequality, specifically the distribution of income, gained

some attention by researchers. Heshmati (2005) found that politics and economic globalization

were major factors in distributive outcomes. There were arguments that challenged whether

globalization had a positive or negative effect on income distribution (Heshmati, 2005). Mahler

(2001) could not establish a systematic relationship between income inequality and globalization

indexes through factors such as trade, foreign investments, and nations with open economies.

Heshmati (2005) used the Gini coefficient to determine if there was an association between

income inequality and globalization. Heshmati found that there was no association between the two indices across nation states. Alternatively, Williamson (1996b) claimed that the distribution of income was a side effect of globalization and caused rises in wage inequality. Miller (2001) further supported Williamsons' claim by acknowledging that globalization resulted in increased production from capital investments, which created the demand for skilled labor in the technology field. This demand increased the salaries for skilled labor, while the salaries for unskilled labor decreased. Wood (1998) attributed the increase in wage inequality to trade competition, while Richardson (1995) challenged such notions. Richardson argued that when nations establish and increase international trade investments during the same time that wage inequality increases within their country, it does not necessarily mean that one caused the other. He found that trade competition had a modest role in contributing to wage inequality and overall income inequality. Richardson concluded that trade was essential and effective since it stimulated economic growth for both the rich and the poor.

Cornia and Court (2001) claimed that globalization was associated with income inequality and that there were both old and new causal factors that ultimately contributed to the rise in income inequality within nations. But prior to understanding variations of income inequality among countries, Cornia and Court found it necessary that the origins of income inequality within nations were examined.

Cornia and Court (2001) claimed that income inequality originated from rural-urban inequality and wage inequality, and capital growth. According to these researchers, the rural-urban gap leads to increasing income inequality, and this finding was strongly evident among Asian countries. The distribution of income is also dependent on wage earnings. In many countries, wages account for 60-70 percent of a nation's total income (Cornia & Court, 2001). As

such, the rise in income disparities from wages is caused by substantial increases in salaries among higher wage-earning workers compared to decreased earnings of low-skilled workers (Gottschalk & Smeeding, 1997). The factors that influence disparities in wage earnings include levels of education levels, work experience, and the demand for various types of employment. Inequalities in wage earnings are maintained at existing levels or are nonexistent in nations that have high union support and sufficient minimum wages (Cornia & Kiiski, 2001). In contrast, rises in wage inequality in the U.S. and U.K. are due to declines in unionization and wage bargaining power (Cornia & Kiiski, 2001).

Cornia and Court (2001) also claimed that the increased share of profits from capital provide a traditional explanation of the causes for the rise in total income, thus leading to income disparities. They focus that there were increases in returns on capital and profit shares, but decreasing returns in labor shares. Such capita returns substantially increased due to the national consensus that supports the idea of maintaining financial deregulated markets (Cornia & Kiiski, 2001). In spite of such differences in returns, the distributional approach was not equalized (Cornia & Kiiski, 2001). As a result, the wages of unskilled workers became affected, especially when social support networks were not established (Cornia & Court, 2001). The impact on capita vs. labor shares is often found among nations that are members of the Organization for Economic Cooperation and Development (OECD), including some developing countries (Cornia & Court, 2001).

Cornia and Court (2001) showed that the disparities in the distribution of income are determined in part by traditionally identified nation-based factors, such as inequality in land ownership and education opportunities. In a study of OECD countries, they found that land ownership inequality was rooted in the diminished capacity for use of agricultural property

during a period when industrialization was most significant. Cornia and Kiiski (2001) found that changes in access to education are crucial to the distribution of income. Higher education increases wages for skilled workers, particularly in the U.S. Increasing the years of education lessens the degree of wage inequality (Cornia & Kiiski, 2001; Cornia & Court, 2001). Education had a positive effect on wage earnings when highly educated people were the minority and people with average education levels made up the majority of the population (Cornia & Court, 2001). However, the positive effect of educational years diminished after more than six years of education due to the type of jobs that were available in firms.

While the traditionally recognized causal factors explain the variation for cross-country income inequalities, they do not account for the rise in income inequality experienced within nations, especially in the U.S and in Europe, over the past few decades (Cornia & Kiiski, 2001). Factors responsible for the rise in income inequality, according to Cornia and Court (2001) originated from technological advancements, privatization, trade and financial liberalization, stabilization programs, changes in labor institutions, and state tax and transfer systems.

Technological innovations contributed to rises in wage inequality by creating a demand for workers who could fill better paying skilled labor jobs: skilled workers received higher compensation than unskilled laborers. Unskilled workers were often replaced with new technologies or skilled workers. As a result, the unemployment rates of unskilled workers increased. Nations with policies that supported public programs were capable of balancing income polarization. In particular, policies that encouraged post-secondary education reduced the side effects of technological progress (Cornia & Kiiski, 2001).

Privatization was noted as a new causal factor leading to income inequality, but it was difficult to measure its impact (Cornia & Court, 2001). Some countries experienced favorable

outcomes as a result of privatization programs, while other nations experienced rising inequality due to such programs. Opponents of globalization, particularly in poorer countries, attributed trade liberalization as a significant new cause for income inequality, while others argued that it contributed to the decline in inequality. Those who supported trade liberalization indicated that it increased the demand for unskilled workers, while others found that countries that opened up their markets to exports in the 1980s experienced a rise in inequality. According to Cornia and Court (2001), Latin American countries in particular experienced increased wage differentials during this period, and this was linked to trade liberalization.

Findings from the United Nations University/World Institute for Development Economics Research (2002) indicated that policies that supported capital mobility were more significant contributors to the rise in income inequality than trade policies or privatization. According to this source, capital mobility increased public debt and total income and contributed to wage inequality, specifically in nations with fewer safety net programs.

Stabilization and structural adjustment reform programs were also identified as causal factors in rising inequality. These programs were shown to increase poverty levels and to generate recessions and budgets cuts in public expenditures. Stabilization programs were implemented to reduce inflation and impose budget cuts. Unfortunately, programs that decreased inflation inevitably resulted in sharp recessions. Fiscal budget cuts were often among expenditures for programs that supported the poor. Also, stabilization programs resulted in decreased wages, particularly among unskilled workers, and led to rising income inequality (Cornia & Court, 2001). The structural adjustment reform programs (SAPs) were economic policies instituted by the World Bank and the International Monetary Fund (IMF) (Welch and Oringer, 1998). In 1982, these banks imposed SAPs on nations that had enormous debt and

needed a loan (Welch and Oringer, 1998). The SAPs mandated countries that wanted debt relief to liberalize their markets (Welch and Oringer, 1998). The SAPs required countries to endorse free markets, specifically for competition from U.S. companies. According to Welch and Oringer, 1998, the SAPs only perpetuated poverty and inequality.

Persistent changes in labor market institutions contributed to wage differentials, thus exacerbating inequality in salaries between skilled and unskilled workers. Government tax and transfer systems had a positive impact on the equitable distribution of income when the political climate was in favor of progressive tax policies or investments in public spending (Cornia & Court, 2001).

Each of these previously mentioned causal factors was associated with regimes that favored neo-liberal economic policies. This caused new surges in income inequality within nations. Inequality, therefore, was expected to rise as long as policy regimes within welfare states continued to execute such policies. When neo-liberal policies remain deregulated, rising levels of inequality were inevitable, as was the case in the U.S (Cornia & Court, 2001).

Cornia and Court (2001) indicated that rising income inequality was a side effect of the new global era. Globalization's tenets, privatization and technological advancements, drove wage inequalities and subsequently increasing income inequality. For this reason, income inequality remains a crucial factor to this study. Cornia and Court also suggested that national policies that supported the unemployed and promoted higher education could offset income inequality levels. Based on these findings, this study uses pertinent social welfare programs and programs that provide income supplements as political indicators. Income inequality, education, and unemployment levels are among the economic factors that are also tested in the following chapters. Although the research findings employed by Cornia and Court analyzed income

inequality at the national level, this research study investigates whether such political and economic factors are crucial at the county level.

C) Globalization and Health Inequality: A Positive or Negative Correlation?

There are arguments for and against the claim that globalization has had a positive effect on health (Lee, McMichael, Butler, Ahern, & Bradley, 2002). Supporters of globalization claim that nations that have opened their economies to trade and investment agreements have better health indicators than countries that do not have open economies (Labonte, 2003). McMichael and Beaglehole (2000) claim that advanced technology, a component of globalization, improves life expectancy. They further argue that as wealth accumulation continues for the privileged, the underserved ultimately benefit from a trickle down effect that result in significant health improvements

The critics of globalization assert that globalization initially has had an adverse effect on health, mainly among the most disadvantaged members of society (Lee et al., 2002). They argue that globalization's negative impact on health require a redistribution of wealth. This redistribution is essential to lessen the disparate effects that globalization has had on the poor, especially on health outcomes. These critics believe that economic growth causes class stratification and increased disparities between the rich and the poor (Lee et al., 2002). A chief concern of these globalization opponents is that the multilateral trade agreements under the World Trade Organization (WTO) have given precedence to economic rather than health priorities (Labonte, 2003). WTO provisions advocate for health services, medicines, and health information to be traded on the market. In contrast, anti-globalization critics depict health as a human right, not a commodity to be sold on the market. They further posit that globalization breeds wealth accumulation and political power among an elite few within a society and

excludes the ideologies and culture of the majority from social, economic, and political

institutions (Lee et al., 2002). Therefore, those who hold political power are the ones who decide

how resources are allocated among the classes. Lee et al., affirm that these arguments on

globalization's positive or negative effect on health depend upon an individual, population,

gender, or educational level.

An example of globalization's threat to health was evident in the WTO's endorsement of

stipulations. These stipulations promoted economic growth as a priority and failed to protect the

health and human rights of individuals who were employed in multinational corporations (Lee et

al., 2002). For instance, Hippert (2002) described how multinational corporations exploited

women who were employed as factory workers in their overseas establishments in developing

countries. These companies also offered women workers wages that were much less than what

they would have offered to workers in the headquarters country. The women employed in

multinational corporations were treated as second-class citizens and typically were uneducated

working class women who had little choice in the employment arena (Hippert, 2002). Hippert

claimed that these corporations provided unsafe and unhealthy environments that presented

occupational hazards and often lacked safety equipment for employees. The health of these

employees and populations living in the surrounding environments was compromised: a higher

prevalence of infant mortality, birth defects, and brain disorders was observed in populations

whose drinking water was contaminated by pollutants released from chemical plants (Lee et al.,

2002).

The changing economy, new technologies, global trade, and the acceleration of capital

investments also brought unionization changes that prescribed the type of health coverage

available to workers (Kuhn & Wooding, 2003). Kuhn and Wooding found that there were health

consequences associated with these changes that include exposure to hazardous chemicals in the workplace for low-income workers. Also, musculoskeletal injuries resulted from the demands of technology jobs that required repetitive motions and long periods of sitting or standing. Stress was another health consequence, particularly experienced by women in low-service positions. Kuhn and Wooding claimed that the labor force was powerless against such changes because political ideologies upheld the rights of the corporate class, limiting the power of the state to initiate policies to protect the health of workers. Labor unions were also constrained in their ability to negotiate employment security and wages for workers. Since the 1970s, labor unions had fewer strikes and there was a subsequent decline in union membership.

　　Labonte and Torgerson (2005) claimed that in order to understand how globalization impacts the health of an individual or group, examining social, economic, and environmental factors is essential. These researchers were critics of globalization. They claimed that globalization influenced health and led to an increased spread of infectious diseases that ultimately became resistant to some treatments (Labonte & Torgerson, 2005; Harris & Seid, 2004). Also, the acceptance of Western civilizations' unhealthy lifestyles, such as smoking and poor diet, also led to health problems (Labonte & Torgerson, 2005; Harris & Seid, 2004). According to Labonte and Torgerson (2005), the anti-globalization literature on health argues that the wealthy predominantly benefit from economic growth. Programmatic expenses towards the health of the poor are mostly under-funded (Labonte & Torgerson, 2005). For instance, public programs supporting children and safety-net healthcare systems for the poor declined in nations that pursued economic growth. They claimed that globalization resulted in gender inequities, since women gained more opportunities in the labor market but received lower wages when compared to men. Overall, these researchers noted that liberalized trade and investments

did not inevitably cause increased economic growth and had no effect on reducing ill health

associated with poverty. In fact, they asserted that these situations produced more inequality.

Labonte (2003) presented a framework to explain the damaging impact globalization has

on health. According to Labonte, the populations of nations that swiftly liberalized their

economies and lacked social welfare systems were observed to experience harmful health

effects. Labonte stated that a historical context of political and social conditions within a given

nation predetermined the extent to which neo-liberal globalization affected health. These

historical conditions included how nations formed their structural adjustment programs, which

enforced policies towards: (1) trade agreements rather than a focus on human rights, (2) domestic

policies that were crucial in determining health conditions: this included increased access to

health and education or failure to inhibit tobacco and waste exposure, (3) failure to redistribute

resources towards equitable health care, and (4) programs that dealt with urbanization. The

aforementioned programs determined the degree to which neo-liberal globalization affected the

health of people within these nations.

Labonte also noted that trade agreements administered by the WTO on member OECD

nations also had an impact on health outcomes. The WTO sanctions nations that do not comply

with its trade agreements. For instance, the Agreement on the Application of Sanitary and

Phytosanitary Measures (SPS agreement) was executed such that if a given product from an

exporting country presented a scientific uncertainty that posed a risk to human or environmental

health, the WTO would rule in favor of the importing nation to ban that product (Labonte, 2003).

Unfortunately, the SPS agreement called for complex scientific risk assessments in order to

prove that such products were harmful to health (Labonte, 2003). These assessments often

favored the producers from exporting countries. Thus, importing countries were not able to ban

products to protect their population's health (Labonte, 2003). This was evident in the case where the European Union attempted to ban hormone-treated beef products produced by the U.S. and Canada (Labonte, 2003). The European Union provided reports to the WTO panel from the International Agency for Research on Cancer that these products contained carcinogens that could harm the health of its population (Sullivan & Shainblum, 2001; Charnovitz, 2000). The WTO panel ruled in favor of the producers, citing that the European Union did not provide sufficient proof to support its allegations (Sullivan and Shainblum, 2001; Charnovitz, 2000).

The Agreement on Trade-Related Intellectual Property Rights (TRIPS) was another policy under the WTO that Labonte considered to be a health-determining pathway. TRIPS mandated that WTO members place patent protections on their products to ensure property rights. This prescription, in turn, caused some countries to increase their drug costs, since the TRIPS agreement prevented other countries from reproducing their products. This essentially affected access to certain medications, such as antiretroviral drugs. The antiretroviral drugs were privatized. The clauses under the TRIPS agreement mandated nations to decrease funding for health programs if most of their drugs were traded on the market. More importantly, the TRIPS agreement did not provide any provisions for nations to obtain access to drugs at lower costs in the event a nation experienced a public health emergency.

The General Agreement on Trade in Services (GATS) provided another determinant that Labonte (2003) claims led to inequitable access to health care. The consequences of the GATS provisions were privatized health care services. According to Labonte, GATS favored transnational corporations with interests in expanding business opportunities. Institutions such as the IMF and the World Bank encouraged nations to privatize public health services. GATS required members of the WTO to commit to privatizing more, instead of fewer services. In the

event that a member nation did not comply with these commitments, they were penalized by the

WTO. Most governments were inclined to concede to WTO regulations rather than incorporate

public financing for health care services. People with higher earnings specifically benefited from

privatized health care since tax policies gave incentives to those individuals who purchased

health care. This ultimately led to reduced access for the poor in receiving adequate health care

coverage and services (Labonte, 2003).

According to Cornia and Court (2001) the economic paradigm associated with

globalization has a significant impact on health indicators. The influence that globalization has

on health indicators are linked through political decisions on how income is redistributed. Given

these critical arguments, health inequities will continue to persist unless both international and

national institutions realize the need for accessible social welfare programs and until there is a

regard for health as a human right (Krieger, 2003).

This research study presented the positive and negative correlations of globalization to

health inequities. The examples provided represent perspectives on the international and national

levels. Nevertheless, this research study embraces the viewpoint that globalization has had a

negative impact on health and posits that this perspective can be tested at the state and local

levels. This hypothesis is influenced by research studies that describe the rationale for structural

adjustment programs, exploitation of health coverage for labor workers, and domestic policies

that do not increase access to health care. Health care safety net systems have been threatened as

a result of globalization. Based on arguments presented, this study considers health from a

human rights perspective, thus providing the basis to propose a social justice approach to health

inequalities. An analysis of income is vital to this discourse, especially if only the wealthy

benefit from privatized health care services and expensive drug costs. The associations between

income and health inequalities become evident. Therefore, the crucial links between income and health inequalities will be explored in the following section.

D) Income and Health Inequality: The Continual Role of Neoliberalism

This section seeks to establish how welfare states with neo-liberal ideologies form the broader framework that leads to health inequalities arising from income inequalities.

According to Coburn (2003), the discourse on the relationship between income inequality and health status involves contextual explanations that address political doctrines. Coburn posits that historical changes in capitalistic governments exacerbated inequalities. He claims that capitalism has always existed, but that it underwent a series of phases in its development throughout the decades. According to Coburn, it was the most recent globalized form of capitalism that led to increased economic stratification, class monopoly, and the emergence of a dominant neo-liberal polity. Coburn (2004) and Jessop (2002) claim that earlier forms of capitalism did not enforce neo-liberal ideologies, even though these earlier forms were associated with class inequalities. Coburn (2003) emphasizes that it is the degree of neo-liberal globalization within a welfare regime that determines the degree of health inequality for any given nation. He found that welfare regimes, such as the U.S. and U.K., that have adopted more market-oriented policies since 1978 have experienced increasing rates of income inequality and health inequities.

Coburn (2003, 2004) demonstrated that income inequality was a consequence of a broader political ideology, rather than a chief determinant for societal ills. In accordance with Wilkinson (1996) and Muntaner (2002), Coburn found that income inequality operated through both material and psychosocial pathways, but that it could also be juxtaposed with other factors that correlated with poorer health. His research showed that in some instances, income inequality

might not play as significant a role in determining societal ills in some U.S. states as factors that include racial composition or educational differences. Coburn (2004) suggests that health inequalities can best be explained by understanding how neo-liberal pursuits are articulated among welfare regimes. Coburn found that class structure, political ideologies of welfares states, and neo-liberalism underlie the broader framework for understanding overall health inequality. Through his historical analysis, Coburn (2004) came to the conclusion that:

Income inequality is itself the consequence of fundamental changes in class structure which have produced not only income inequality but also numerous other forms of health-relevant social inequalities….income inequality is a consequence, not the determinant of societal types (p. 43).

Coburn (2004) also proposed that high levels of income inequality are caused by a rise in market-oriented pursuits in capitalist societies. Coburn described that the effects of increases in neo-liberalism include high levels of income inequality, low social cohesion, and the diminution of state power. He claimed that all are associated with the discourse on globalization, as these are the causal pathways responsible for the decline in population health. According to Coburn, the globalization process is accompanied by class stratification, policies that favor political dominance among the wealthy classes, decreased power among the working classes, enhanced poverty and income inequality, and a division in health resources. Coburn (2004) argued that:

The forceful enactment of neo-liberal ideologies and politics exacerbates differences amongst rich and poor within the market, and, at the same time, undermines those social institutions which might help reduce poverty or income inequalities or which buffer the effects of income inequalities on health (p. 44).

The extent to which neo-liberal ideologies are evident in welfare regimes is determined by levels of inequality, poverty, and class structure (Bernstein, 2000). For instance, Bernstein (2000) claimed that welfare states, such as the U.S. and U.K., that incorporated more neo-liberal policies since 1968 (the beginning of the neo-liberal era) experienced a rapid rise in income inequality. He also stated that prior to this era, these nations had lower income inequality rates. Specifically, during the period of 1977 and 1999, the wealthiest households in the U.S. (top 1 percent) experienced a 93.4 percent increase in income after taxes, while the lowest stratum experienced a -8.9 percent decreases in income.

Navarro (1993) believed that in order to understand the medical system in the U.S., an analysis of the political and economic context through which medical decisions were determined must be explored. He stated that, "In the U.S., economic power means political power" (p.31). Navarro claimed that unbalanced power relations were significant to this discourse even though race and gender were predominately cited in the literature as primary determinants. Navarro's described how whites had more power than minorities and men had more power than women. Navarro also noted that class is the single most important category in understanding how the U.S. health care system operates and that this category is often ignored. Navarro stated that an individual's class status determines illness, death, and access to the type of health care received. Navarro contended that "class discrimination is not only the least recognized type of discrimination in the United States, but it is the most persistent and continuous form of discrimination" (p. 41).

According to Navarro (1993), the political context of U.S. health care systems should also include major sectors within the U.S. economy. These major sectors include the government sector, market or competitive sector, and the monopolistic sector. The government sector

consists of state, local, and government agency funding services. The labor force in the

market/competitive sector is comprised of small businesses, nonwhites, low-income earners, and

mostly females. Navarro noted that the monopolistic sector is the most significant since it

contains major financial and manufacturing corporations, such as hospital lobbyists, insurance,

and pharmaceutical industries. The U.S. has not endorsed universal health insurance largely

because of the influence asserted by these industries. Thus far, the U.S. has abstained from

certain policy initiatives in order to maintain the interests of this dominant class (Levins, 2003).

European countries, particularly Sweden, have not challenged capitalist ideologies, but have

acknowledged inequality as problematic (Levins, 2003). In Sweden, initiatives were

implemented to address certain social conditions in order to achieve equitable social services

solutions. This includes policies that provide for unemployment insurance and union

participation in negotiating fair work conditions. According to Levins (2003), in order to

understand which health policies come to fruition, and why others do not, we need to:

> See health care in a more complex way. Health is part of the wage goods of a society,
>
> part of the value of labor power, and therefore a regular object of contention in class
>
> struggle. But health is also a consumer good, particularly for the affluent, who can buy
>
> improvements in health for themselves….Health is also a commodity invested in by
>
> health industries, including hospitals, HMO's, and pharmaceutical companies. They sell
>
> health care to as large a market as can afford to pay for it; they even push it on people
>
> who do not need it (p. 383).

As Krieger (2003) noted, health policies and practices are dependent upon who receives

benefits. Navarro (1993) stated that the corporate class has been a powerful force in the health

care sector due to its financial influences. According to Navarro, the corporate class has been the

main force in financing health care systems and political institutions have largely managed these systems. An example of this type of complicity is the inclusion of corporate and upper-middle class whites as members on the board of directors at research and teaching hospitals. The structure of these boards of directors comprised of corporate and upper middle class Whites. Ultimately, there were changes in these boards, mainly due to the demand for more racial/ethnic and gender diversity. Overall, Navarro indicated that the dominant upper class in the health care sector hindered a democratic process where the interests of this group have been maintained, relative to other classes. Yet, class issues have continuously been ignored in the health care sector (Navarro, 1993).

While the U.S. is recognized as one of the richest nations in the world, it has one of the highest poverty rates. (Kenworthy, 1999). Ireland, Australia, Italy and the United Kingdom also have high poverty rates. Nations such as Norway, Finland, Switzerland and Germany have the lowest poverty rates (Kenworthy, 1999). As a liberal nation, the U.S. has experienced lower health status relative to poorer nations (Coburn, 2004). The higher per capita costs of health in the U.S. have not been a result of patients in America receiving more health care relative to other countries; rather, it is a result of the U.S. investing in other areas of the health care sector (Levins, 2003). For instance, Levins claimed that approximately 20 percent of health care costs were directed towards administrative expenses, pharmaceutical costs, and physician salaries. He also found that the U.S. performed more surgical procedures, such as cesarean sections and implants for pacemakers, compared to European countries. The implication, based upon Levins' research, is that surgeons in the U.S. have been encouraged to perform a certain number of surgeries per year. Levins also noted that the health outcomes of Americans were not favorable relative to other nations. While there may be several reasons for why this occurred, Levins

observes that accountants in Health Maintenance Organizations (HMOs) have often been involved in medical decisions. These accountants favored fewer health services for patients in order keep expenses low and to maximize HMO profits. Therefore, Levins proposes that the U.S. health care system was designed to be inequitable, such that some populations have had access to health care services while others have not (Levins, 2003).

Social democratic nations that are less neo-liberal were observed to have better health outcomes relative to more liberal nations (Kenworthy, 1999). These nations also experienced lower income inequality rates when compared to liberal nations. The social welfare policies of less neo-liberal nations resulted in reduced poverty rates (Kenworthy, 1999). According to Coburn (2003), income inequality was higher in nations that adopted fewer social welfare policies designed to alleviate ill health and poverty. Coburn further contended that nations with wealthy economies did not ultimately have better health outcomes. In fact, he claimed that neo-liberalism was associated with poor health and mortality. Coburn stated that income inequality is crucial to the discourse on health inequalities, since it is related to the manner in which the economic pie is shared and how income is redistributed among the wealthy classes.

Bernstein's, et al. (2000) research indicated that income inequality and health inequities are linked through neo-liberal politics. Nations that adopted more neo-liberal policies were observed to experience rising income inequality, which subsequently caused a decline in health status. In contrast, nations with less-neo-liberal policies were observed to have lower income inequality levels and better health outcomes. Poverty rates were also lower in these nations. In considering Bernstein's research, it may be challenging to investigate how income inequality directly causes a lowering of health status solely through neo-liberal policies. Therefore, this

dissertation research embraces Bernstein's studies and will empirically test income inequality as a determinant for a health inequality.

Navarro (1993) argues that the wealthy hold political power and through this power, this group has diverted funding away from crucial health care safety net programs. For instance, a universal health program in the U.S. does not exist largely because the dominant upper class does not support this program. As such, the relationship between health status and being poor and uninsured has been well documented in the social science literature. In spite of this recognition, the ideology of the dominant class has prevailed. Therefore, this dissertation research adopts Navarro's principles as an argument for a social justice approach to health inequalities. It is apparent from his research that the availability of crucial resources exerts an impact upon health outcomes. Specifically, it is proposed in this research study that health care safety net programs designed for the poor can alleviate ill health.

Based on Navarro's proposals, Chapter 6 of this research study will qualitatively evaluate whether a breast cancer program (NBCCEDP), designed for the poor and under-insured, is critical to breast cancer outcomes. This study identifies NBCCEDP as a health care safety net program specifically for poor women. This research study proposes that income inequality is a determinant of breast cancer mortality. Given this stance, Chapter 6 explores the hypothesis that when resources are available to administer and access a vital health care program in high income inequality regions, then better breast cancer outcomes are expected. If this hypothesis is validated, then it can be suggested that there is an association between political ideologies, income inequality, and the diminishing health of the poor. As such, a review of the association between globalization, income inequality, and poverty is required. This probable association is addressed in the next section.

E) Establishing the Links between Globalization, Poverty and Income Inequality

Some researchers argue that with a global economy, growth will ultimately trickle down to the poor (Levins, 2003). But, evidence presented by Rao (1999) showed that countries that globalized rapidly had higher income inequality and higher poverty rates. In fact, countries that had enormous wealth accumulation were observed to experience large increases in inequalities. Consequently, nations with strong income redistribution programs, health, and education policies had lower poverty levels (Levins, 2003)

Research initiatives have focused on understanding the links between income inequality, poverty, and economic growth within nation states. Such initiatives evolved from the perspective that inequalities are unethical and economic inequality must be eliminated in order to produce social equality (Cornia & Court, 2001). In fact, decreasing poverty by understanding on the extent of economic growth within developed and developing nations was pronounced as an international goal in the United Nations' Millennium Summit. Between the years 1990 and 2015, the United Nations' goal was to eradicate or reduce poverty from 30 percent to 15 percent. Unfortunately, efforts to achieve this were hindered by the increased speed of economic growth experienced by some countries, especially in the U.S., over the past few decades. Therefore, in order for nations to implement successful programs to reduce poverty, there needs to be an effort to maintain the lowest levels of income inequality (Cornia & Court, 2001).

The rate of economic growth remained the focus of attention for anti-poverty strategists groups, since accelerated growth had been identified as a factor in widening income inequality (Cornia & Court, 2001). Cornia and Court claimed that poverty persisted across nations due to increasing levels of income inequality. They found that the economic growth rate had a negative effect on income inequality levels, especially when these levels were very high. Poverty

reduction efforts were compromised by rising income inequality levels. Cornia and Court also claimed that inequality has not been reduced in nation states that executed liberal economic reform policies. They noted that in the midst of rising income inequality there were fewer investments in human capital (i.e., education), economic efficiency was compromised, and there was an increase in social tension and crime rates. These researchers further concluded that in order for welfare states to meet the goal of reducing poverty, policymakers needed to endorse policies with more egalitarian distributions.

According to Sen (2002), in order for the poor to benefit from the profits realized from a globalized economy, a growth-mediated developmental approach is required. This process is defined by a situation where profits are directed towards public expenditures. Sen proposes that implementation of this strategy benefits underserved populations, and stipulates that the underserved require more than the raising of absolute income. He proposed that economic insecurity, hunger, preventable illnesses and deaths, lack of education, social exclusion (due to racial discrimination), and inadequate resources to participate in the market also needed to be addressed in any efforts to eliminate poverty. Sen (2002) hypothesized that national economic growth via globalization would ultimately raise the incomes of the poor. He claimed that political and social institutions needed to secure new resources in order to improve the quality of life of the underserved and maintain an equitable society where all benefited from a globalized economy. The problems with globalization in its current form have been that the poor do not benefit from the imbalance in political power and distributive outcomes (Aisbett, 2003).

According to Levins (2003), issues of poverty and inequality become significant when poor people continuously lack opportunities and resources, resulting in limited choices. The range of alternatives available to the poor is limited because of their deprived conditions. Given

this situation, the poor regard undesirable behaviors, such as smoking, as a rational decision due to their circumstances. Levins claims that expanding the range of choices for the poor can result in more desirable health behaviors. He also believes that as a collective, society needs to recognize health care status as a component of a class struggle, where the interests of capitalists are preserved. Therefore, the range of choices in the health care sector accessible to the poor is a consequence of capitalism. Capitalistic conditions enable the affluent to have the capacity to purchase improved or excess health care, while the poor are denied these opportunities. Levins states that society should look beyond embedded behavior patterns and towards broader social conditions to explain the adoption of undesirable health behaviors by the poor.

According to Levins (2002), countries with low poverty levels are associated with low-income inequality and supportive health and education policies. Cornia and Court (date) showed that poverty is associated with economic inequality. They proposed that accelerated economic growth leads to economic inequality, thus driving the income gap between the rich and the poor. Levins (2002) also describes how health resources are allocated based on class. As such, resources for the poor were limited. These restrictions led to undesirable health behaviors among poor people. These studies support the notion that justice, especially in the distribution of resources, is necessary to improve the health of the poor.

Conclusion

The hypotheses of this research study primarily investigate the following:

1) Income inequality is a significant predictor of breast cancer mortality

1b) Among those states with high-income inequality, those with a stronger social welfare program are more likely to have lower breast cancer mortality rates.

Although the hypotheses of this research study are fundamentally rooted in political and economic ideologies, the role of race and class status cannot be ignored. The literature review presented in Chapter 2 provided evidence supporting the argument for the influences of class over race on health status. At best, race remains the conventional perspective in understanding disparities in breast cancer mortality. As such, race will be applied as a causal factor in the multivariate analysis in Chapter 5, along with other political and economic variables. Race and class are the primary focus for the analysis presented in Chapter 6, which evaluates whether guidelines for the social program of interest, NBCCEDP, are influenced by these factors. If state programs such as NBCCEDP are determined to show that race plays a significant role in program operation, then this affects who benefits and who does not benefit from services offered through the program. More importantly, this could shape outcomes relating to which racial groups are allocated the most resources through NBCCEDP and how future policy initiatives are implemented.

The principles of social justice continue to be a convincing approach to explaining health inequalities. In Chapter 2 of this research study race and class perspectives were discussed, however, the political economy approach to breast cancer outcomes and survival provided substantive reasoning to pursue justice as a determinant of breast cancer outcomes. The literature review on the effects of neo-liberal policies in this chapter further presents evidence that supports the argument that a social justice approach is essential. The political climate, through the pursuit of neo-liberalism and privatization, decreased access to:

1) Health care services

2) Effective drugs for diseases

3) Comprehensive health insurance, since the ideologies of insurance companies have been favored

4) Reduced resources for health care safety net systems for the poor

The position adopted in this chapter is that the pursuit of neo-liberal globalization in the U.S. has caused inequalities, and subsequently health inequities. The current era of competitiveness under the SWP regime pursues privatized markets, driving income inequality levels such that this era has caused the endorsement of:

1) Economic policies that benefited the wealthy

2) Stabilization programs where profits were redistributed not towards social welfare programs, but towards the pursuit of more capital

3) A powerless labor force where unions had no bargaining power, therefore, wages could not be negotiated

4) Wage differentials, where skilled workers were more in demand than unskilled workers

5) Multinational corporations employing unskilled workers, but at cheap wages

6) A workforce that favored workers with high levels of education, which provided them with higher wages

The health outcomes of the poor were affected most by this climate. The multinational trade agreements in the U.S. resulted in welfare regimes proposing more neo-liberal economic policies. These policies were favored over health policies that could have been instrumental in creating equitable health outcomes. Thus, disparities in health then become inevitable.

The potential effects of globalization have set the groundwork for the empirical tests conducted in the following chapters. The political ideologies and economic inequalities described in this chapter and in Chapter 1 present the causal factors that are explored in Chapters

5 and 6. Given the relationship described in Chapter 1 between income inequality and mortality, income inequality is the primary causal factor in the multivariate analysis presented in Chapter 5. The other factors included in the analysis are poverty and education levels, insurance status, employment, and pertinent social welfare programs. The dataset for the multivariate analysis includes safety net measures and is described in depth in Chapter 4. A safety net data source was selected for this study, based on the potential threat of globalization to health care safety net systems highlighted in this chapter. The literature review provided in this study on income inequality and the effects of globalization explored the international and national perspectives. The empirical analyses in this research study will explore whether the relationship between income inequality and globalization effects are maintained at the state and county levels.

Based on the political and economic discourse associated with health inequities, this research study seeks to hold political forces accountable for disparities in breast cancer mortality. Thus far, the arguments and statistics that support race and income levels associated with breast cancer deaths only present a partial picture of what may underlie this public health issue. By empirically framing disparities in breast cancer mortality within political and economic factors, this research intends to inform more directive economic policies.

Chapter 4

Data and Methods

I. INTRODUCTION

This chapter describes the data and the sample observations that will be used in quantitative analyses to identify the relationship between political and economic variables and breast cancer mortality rates. Data described in this chapter will be used to test the hypothesis that:

1) Income Inequality is a significant predictor of breast cancer mortality

Multivariate models will be constructed to test this hypothesis. The data for the independent variables (political and economic measures) will be drawn from the Agency for Healthcare Research and Quality's Monitoring the Health Care Safety Net: Data Book for States and Counties. The data for the dependent variable (breast cancer mortality rate) will be drawn from the National Cancer Institute's State Cancer Profiles. The analysis will be conducted at the county level.

This chapter also includes a description of data sources used in case studies described in chapter 6 to test the following hypothesis:

1B) Among states with high income inequality, those with a stronger social

welfare program are more likely to have lower breast cancer mortality rates.

As mentioned previously, the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) will be assessed. This is a national program aimed to decrease breast and cervical cancer mortality rates among low-income women (National Breast and Cervical Cancer Early Detection Program, 2002). This program funds individual states allowing free breast and cervical cancer screening to be available to such populations.

Case studies on state level breast cancer screening programs are employed in chapter 6 to test this hypothesis. By holding income inequality constant, variability in the political variable is examined. The NBCCEDP serves as the social program assessed in these case studies. The data for this analysis includes information collected through interviews from key program stakeholders as well as from secondary sources. The unit of analysis in these case studies is the states. This level of analysis explores if differences in program content and delivery in four states with high income inequality levels impact breast cancer deaths. More specifically, among states ranked in the top ten for highest income inequality levels, we expect to find more robust programs in states ranked #1 and #2 since they have lower breast cancer mortality compared to states ranked #7 and #9. Hence, this analysis tests the hypothesis that the strength of social programs are important considerations in breast cancer mortality after controlling for income inequality.

II. COUNTY–LEVEL ANALYSIS

Data and Measures

<u>1.) Breast Cancer Rates</u>

The dependent variable in this research study is the breast cancer mortality rate, the data for which is provided by the National Cancer Institute. The National Cancer Institute reports statistics on incidence and mortality rates for all cancers. The NCI contains measures on breast cancer mortality rates for all the states and counties in the U.S. The original data source for these mortality rates is the National Vital Statistics System (NVSS) (National Healthcare Disparities Report, 2004). The NVSS presents birth and infant death data for the 50 states, including the District of Columbia and other U.S. territories by linking birth and death certificates (National

Healthcare Disparities Report, 2004). The NCI calculates breast cancer death rates from NVSS

databases using Surveillance of Epidemiology and End Results (SEER) statistical software

package (NCI, 2006). This software calculates the impact of cancer deaths on a given population

using cancer related records or databases (NCI, 2006).

Cross-sectional data on NCI's breast cancer death rates for the year 2003 is used in the

Multivariate models. These death rates are age adjusted to the 2000 U.S. standard population

(ACS, 2002). Age adjusting calculates breast cancer incidence and mortality rates across states

based on similar age. Previously, NCI death rates were not age adjusted and cancer death rates

were calculated based on crude rates (ACS, 2002). The crude rate for any given state included

the total number of cancer deaths divided by the total population. These rates did not represent

an accurate count of cancer deaths relative to age since some states had older people in their

population compared to other states (ACS, 2002). Since breast cancer risk increases with

increasing age, age adjusting provides a more comparable age measure across states. The

projected 2000 population is now the standard used to by the NCI to estimate breast cancer

mortality data. Prior to this, the 1940 and 1970 population was used as the standard (ACS,

2002). Since Americans are living longer, the 2000 population estimate reflects how breast

cancer mortality rates increased since the 1970's (ACS, 2002).

As previously noted in Chapter 2, the National Cancer Institute is a division under the

National Institute of Health. This division was created as the agency responsible for monitoring

and evaluating cancer research, training and clinical practices (National Cancer Institute, 2006).

The National Cancer Institute oversees the National Cancer Program, which was a program

designed in 1971 to disseminate information about cancer to the public, to support cancer

centers, to invest in cancer research in hospitals or universities and support education through

grants and fellowships. The overall mission of the program is to facilitate program delivery. The institute functions to prevent or reduce cancer incidence or mortality, eliminate disparities, provide aid towards new developments in detecting or treating cancer and to improve the quality of life for cancer patients.

2) Independent Variables

The independent variables selected for this study are guided by the empirical literature. The variables are drawn from a compilation of databases that makeup the Health Care Safety Net's Data Book II for States and Counties. The databases that feed into the Safety Net's Data Book II include the U.S. Census 2000 data, 2001 Claritas, 1999-2001 Current Population Survey – 3 year average, Health Resources and Services Administration-Uniform Data System Data, local governments and state hospital association, 1999 American Hospital Association Annual Survey, UCLA Center for Health Policy Research, the Centers for Disease Control, Centers for Medicare and Medicaid Services – HCFA-2082 Reports, patient discharge data from 1999 and other sources, the 1999 InterStudy, 2001 Area Resource file (1999 data), the Federal Bureau of Investigations Uniform Crime Reports and from the 1999 Vital Statistics Data. The Safety Net's data book also consists of data from health care providers in public, private and teaching hospitals as well as community health centers. These health care providers have policies that enable the Medicaid and uninsured populations to access health care in their facilities, regardless of their ability to pay for these services (Agency for Healthcare Research and Quality, 2003). Currently, the Safety Net data set contains political, economic and demographic data on 31 states and 1,818 counties (Agency for Healthcare Research and Quality, 2003). These states include: Arizona, Arkansas, California, Colorado, Connecticut, District of Columbia, Florida, Georgia, Hawaii, Illinois, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota,

Missouri, Nevada, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, Virginia, Washington and Wisconsin. The states excluded from this dataset did not generate complete data. The data are collected at the state and county level, but when some of the county data are absent, the state measure is used as a proxy. For instance, there were uninsured rates at the county level absent from this dataset. This occurred in 25 states. In such cases, state level uninsured rates were substituted.

The Data book on States and Counties will provide a measure of the primary or focal independent variables, which include the gini coefficient, the economic dissimilarity index and the racial dissimilarity index for the counties in 30 states. The gini coefficient provides measurements on income inequality. The other two indexes are added measures of inequality according to race and income. These focal variables were selected to inform the theoretical framework presented on the political economy perspective. They also represent three different measures of economic inequality as this was described as a side effect of globalization. Based on prior research, black women experienced disproportionate rates of breast cancer mortality. Given this, the racial dissimilarity index (Blacks) represented an appropriate measure of racial inequality. The Data Book is also the source of measures for the other independent variables in the model. A description of the explanatory variables that are included in this analysis is listed below:

Table 4.1

Key Demographic Study Variables

VARIABLE	VARIABLE LEVEL OF MEASUREMENT	VARIABLE DESCRIPTION
Racial Dissimilarity index – Black	Ratio	Percent of the black population in an area that would have to move for all area zip codes to have an equal proportion of the area's black population
Race – White, Non-Hispanic	Proportion	Number of individuals reporting white race divided by the total population reporting race
Race – Black, Non-Hispanic	Proportion	Number of individuals reporting black race divided by the total population reporting race

From Billings J, Weinick RM. Monitoring the Health Care Safety Net—Book II: A Data
Book for States and Counties. Rockville, MD: Agency for Healthcare Research
and Quality; 2003. AHRQ Publication No. 03-0026.

Table 4.2
Key Economic Study Variables

VARIABLE CODE	VARIABLE MEASURE	DEFINITION
% Ages 16+ that are Unemployed	Proportion	Number of individuals age 16 and older who are unemployed, divided by the total population age 16 and older reporting employment status
<65 Uninsured	Proportion	Number of uninsured individuals under age 65 divided by the total population under age 65.
% Ages 16 + not in the labor force	Proportion	Number of individuals age 16 and older who are not in the labor force, divided by the total population age 16 and older reporting employment status. The labor force includes people age 16 and older who are either employed, actively seeking work, or awaiting recall from layoff
%of total population ages 18-64 below 100 percent of poverty	Proportion	Number of individual ages 18-64 with family income less than 100 percent of the Federal poverty level, divided by the total population ages 18-64 for whom poverty status is reported
Economic Dissimilarity Index	Ratio	Percent of the population with family incomes less than $15,000 per year in an area that would have to move for all area zip codes to have an equal proportion of the population with family incomes less than $15,000 per years
High School or less	Proportion	Number of individuals age 25 years and older with educational attainment of a high school degree for equivalent or less, divided by the total population age 25 years and older reporting educational attainment.
Median Household Income	Whole dollars – Ordinal level of measurement	Median Household Income
Gini Coefficient[a]	Ratio	The proportion of income that would have to be redistributed to equalize the income of all residents of an area

Note: [a] The primary independent variables are the gini coefficient, the economic dissimilarity index and the racial dissimilarity index, which all provide measures of income inequality.
From Billings J, Weinick RM. Monitoring the Health Care Safety Net—Book II: A Data
Book for States and Counties. Rockville, MD: Agency for Healthcare Research
and Quality; 2003. AHRQ Publication No. 03-0026.

Table 4.3

Key Political/Policy Study Variables

Presence of a Community Health Center	1=yes; 0 = no Dummy Variable	Presence of absence of a federally funded Community Health Center in the area.
Uncompensated care pool	1 = yes; 0 = no Dummy Variable	Presence or absence of an uncompensated care pool in the state. An uncompensated care pool helps finance hospital-based care for uninsured patients by providing financial support to hospitals and other providers to help defray the expenses of uncompensated care.
Mean amount of Public Assistance	Mean in dollars	Mean public assistance income of households receiving public assistance.
Hospital Admissions by teaching status – "major teaching"	Proportion	Number of admissions to hospitals with medical residents, divided by the total number of admissions to all area hospitals (limited to non-Federal general medical/surgical facilities
Medicaid expenditures per person under the age 65 with family incomes below 200 percent of the Federal poverty line (excludes long term expenditures	Ratio	Total State and Federal Medicaid Expenditures for services other than long-term care, divided by the number of individuals under age 65 with family incomes less than 200 percent of the poverty line

From: Monitoring the Health Care Safety Net Book II: A Data Book for States and Counties, 2003

As mentioned in prior chapters, disparities in breast cancer mortality were commonly measured

according to race. Therefore, race variables were chosen for this research. A literature review on

socioeconomic status as an indicator of mortality was also described in previous chapters.

Therefore, median household income was selected to capture this effect. From the literature

review describing wage inequality as one of globalization's tenets (chapter 3), three other

economic variables were selected. The variables implicated in causing wage inequalities were: Having a High School education or less, being unemployed and being older than 16 and not in the labor force. Having access to higher education was considered as an investment in human capital. A higher education was favored in the SWPR era. Hence, those who lacked this resource were most likely to be unemployed and endured poverty. The variables associated with being unemployed was ascribed as a cause of wage inequality due to technological advancements that evolved during the SWPR era. The SWPR era required a demand for skilled workers. Unskilled workers were replaced, thus increasing the unemployment rate. In the absence of governments that did not offer sufficient unemployment benefits, this led to rising poverty levels.

The poverty variable was another economic variable chosen for this research study. This variable was selected because it is single-handedly an indicator for ill-health and disease. Another reason it was selected was because researchers suggested that poverty was a side effect of the current globalization era (chapter 3). The uninsured variable was also included in this research. This research found it critical to add this variable since many states in the U.S. currently have high uninsured rates. Also, scientific researchers often linked being uninsured to poor health outcomes.

The redistribution of income towards social welfare programs (instead of capital) has been a recurrent theme in the preceding chapters. In order to test if such programs could be critical to breast cancer mortality, specific political variables were selected. This research is concerned with government investments in two different types of programs. These include investments in health care safety net systems and investments in programs that provide income supplements. As noted in chapter three, there were two things that positively associated globalization with health inequities. These consist of domestic policies that do not increase

health care access and through diminished expenditures on health care safety net programs. In order to capture these potential effects, the political variables selected were presence of an uncompensated care pool, Hospital with a major teaching status and the presence of a community health center. In order to test the value of social welfare programs that provide income supplements, the variables, Mean amount of public assistance and Medicaid expenditures for persons under the age of 65 with incomes below 200 percent of the Federal poverty line were selected. According to the literature review, programs that provide income supplements were central to reducing income inequality and poverty levels. Therefore, these variables were considered appropriate political indicators for this research.

3) Data Case Selections

    Breast cancer mortality rates were not available for all the counties in those 31 states included in the analysis. Given this, only counties with values for mortality rates were included in the regressions. This could bias the results of the forthcoming regressions. Since this represents a non-random sample, there may be statistical differences between the breast cancer mortality cases that were included and excluded from these analyses. There were a total of 1,818 counties in the dataset. There were 735 counties that were missing breast cancer mortality rates. Overall, a total of 1083 cases were included in the multivariate models.

    A few of the variables in the Health Care Safety Net data set contained error codes, therefore, the data needed to be cleaned. For instance, the percentage of Hospitals with a major teaching status contained the error code -444, which meant that there were no hospitals in the county classified as a major teaching facility. There were 357 such cases. Therefore, the data for these counties was coded 0. The error code -222 also appeared throughout the data for this

variable. This meant that this teaching status was not recognized at the county level. There were two cases with this error code. These cases were also coded as system missing.

The variable, percentage of the population less than 65 years old that is uninsured, also had cases with the error code -222. This meant that data for uninsured rates was not available at the county level. There were only few cases where the county level uninsured rates were actually listed. As such, the state level uninsured rates served as a proxy in these cases. This meant that the state's value repeats for the counties where the uninsured rates were not available. Data on state level uninsured rates was retrieved from the Bureau of the Census.

The race variables, (Black, White and Hispanic) had cases with the error code -111 in the data. This means that these counties did not collect data on race. There were only two counties with no race data. These cases were coded as system missing. This error code also appeared in cases for the Racial and Economic Dissimilarity Indexes. There were 11 cases in each index that had this error code. These cases were also coded as system missing.

Finally, Presence of a Community Health Center also had cases with the error code -222. There were two cases where this error code appeared. This meant that data on these variables was not available in 2 cases. These cases were coded as system missing.

4) <u>Comparative Analysis: Included vs. Excluded States</u>

A comparative analysis was made between the states that were included (N = 31, which include 30 states and the District of Columbia) and excluded (N = 20) from the Health Care Safety Nets' data source. This analysis also provides a preliminary idea on the degree of selection bias that may be caused by the inclusion of a non-random sample of states in the analysis. This was performed to demonstrate the differences and similarities of both groups in

their political, economic and demographic characteristics. Data from the Bureau of the Census was used in the forthcoming analysis to draw comparisons on such characteristics.

A descriptive analysis was performed on some demographic, economic and political variables of the states that were included and excluded from the data set in order to compare the two sets of states. The null hypothesis here is that there is no difference in the dependent or explanatory variables between the set of states that were included in the Safety Net's data set and states that were excluded from it. The probability (p) values, t-tests and chi square tests were ascertained to assess if the null hypothesis should be accepted or rejected. The table below presents a summary of the comparisons between the two sets of states on available measures.

Table 4.4

Means and p-values on demographic, political, economic and mortality variables for states

that were included and excluded from the data set

Characteristic	States Included	States Excluded	p-value
Number of States	31	20	
Demographic			
Female (%)	50.9	50.6	(.25)
Population (Mean)	6,927,286	2,633,423	(.012)
Age group (%)			
< 18	24.7	26.1	(.08)
18-64	62.6	61.4	(.12)
65+	12.6	12.3	(.63)
Race/ethnicity (%)			
White	73.8	79.1	(.20)
Black	12.9	8.8	(.23)
Asian	4.0	1.2	(.09)
American Indian/ Native American	1.2	3.1	(.03)
Latino	8.6	5.1	(.10)
Reporting other Race[a]	6.5	4.9	(.28)
Economic			
Median Household Income	$43,561.39	$37,927.55	(.001)
Below Poverty (%)	40.2	13.2	(.04)
Unemployment rate (%)	5.7	5.4	(.23)
<=High School (%)	82.0	81.6	(.73)
=>Bachelors degree (%)	25.4	21.8	(.006)
Income Inequality[b]	.451	.443	(.30)
Party Affiliation (%)			
Democratic	51	15	(.03)
Republican	48	85	(.04)
Breast Cancer Mortality Rates			
Age Adjusted, per 100,000 (%)	24.9	25.1	(.86)

From: US Census Bureau, State and County Quick Facts, Data derived from Population Estimates, Census and Population and Housing, Small Area Income and Poverty Estimates, State and county housing unit estimates, Non-employer statistics, Economic Census, Survey of Business Owners, Building Permits, Consolidated Federal Funds Report
[a]Reporting other race
[b]Gini Coefficient serves as the Income Inequality measure. Income inequality measure derived from US Census Bureau Income Table S.4: Gini Ratios by State: 1969, 1979, 1989, 1999.

Party Affiliations by state retrieved from 2000 election from www.geocities.com/dtmcbride/politics/2000-results.htm
Age Adjusted breast cancer mortality rates derived from National Cancer Institute, Death rate report by State, death rates through 2003.

There were statistically significant differences with respect to some compositional, demographic and economic variables between the two sets of states. For instance, states that were included in the dataset had a higher average population size than states not included in the dataset (6,927,286 and 2,633,423 respectively; p<.05). Overall, 61% of the U.S. population was included in this data set. The American Indian/Native American racial and ethnic group in the included states had a lower average population size than the states that were excluded from the data set (3.1 and 1.2 respectively; p<.05). The included states had a higher average number of people with a Bachelors degree than the states that were excluded (25% and 22% respectively, p<.05). The median household income for the included states, on average, was much higher than the median household income for the excluded states ($43,561.39 and $37, 927.55 respectively, p<.05). The included states had a higher average number of people who lived below poverty than those who lived in the excluded states (40% and 13%, respectively, p<.05). Finally, there are drastic differences in the proportion of democrats and republicans between the included and excluded states (51% and 15%, respectively, p<.05).

There could be a potential bias in the data given the various differences among the states that were included and excluded from the data set. The median household incomes were not approximately equal among the two groups. The included states had a larger population, higher median household incomes and higher poverty rates than the states that were excluded from the data set. Also, the included states had higher educational attainment rates compared to the excluded states. Given these differences, this may cause theoretically relevant variables to be

insignificant. In spite of these differences, this data set still represents a large part of the U.S. population.

5) Methods

Chapter 5 will include descriptive statistics on all the variables – independent and dependent –and also results from inferential analyses. The unit of analysis will be the counties. Ordinary least squares regression technique will be used to estimate the effect of the explanatory variables on breast cancer mortality rate. Ordinary least squares regression is a statistical technique used to find a line (in two dimensions and planes/hyperplanes in three or more higher dimensions) that best fits the data points in a given sample. Statistical tests of significance will also be performed on the independent variables in the multivariate models. A bivariate correlation analysis will be performed to test the association among the independent and dependent variables presented in the model.

6) Model Specification

Below is a specification of the linear regression equation that will be used in this dissertation:

$$Y = B_0 + B_1 X + u$$

where Y = the county breast cancer mortality rate, B_0 is the intercept, X represents a vector of explanatory variables, B_1 represents the associated coefficients, and u is the random error term. This equation implies that the dependent variable Y is linearly related to the independent variables contained in the vector X.

Due to concerns of multicollinearity in the final regression models, two methods will be employed. First, a correlation matrix will assess any high bi-variate correlations. Next, diagnostics such as the variance inflation factor (vif) and the tolerance statistics will test for

multicollinearity. The correlation matrix performs a pair wise assessment on the extent in which

the independent variables are correlated. Pearson's r values are obtained to test the degree of

association. The degree of association is then determined by how close Pearson's r approaches 1.

The closer the value is to 1, the greater the possibility for collinearity in a given model (Gujarati,

2003).

The variance inflation factor (VIF) is the final test of multicollinearity. The VIF is a

collinearity statistic that tests the presence of multicollinearity among regressors. As collinearity

increases, the variance in a given regressor's estimate also increases or is inflated. The VIF is

defined as:

$$VIF = \frac{1}{(1 - r_{23}^2)}$$

where r_{23} represents the coefficient of correlation in the regression between variables. As
r_{23}^2 approaches 1, collinearity increases and the VIF value approaches infinity. The higher

the VIF, the more collinear the variable. If the VIF exceeds 5 in a given variable, then this

is considered highly collinear. As such, this variable will be omitted from the final

regression equations.

The models below will assess the impact of political, economic and demographic

variables on breast cancer mortality. The principal independent variable construct, inequality,

will be operationalized using three different measures. These measures include the Gini

coefficient, Economic dissimilarity index and the Racial dissimilarity index. In addition to

demographic, economic and political variables, dummy variables will be created for each state to

capture state fixed effects. The purpose of these fixed effects is to control for factors that are

invariant within a state over time, but differ across states. A sequential modeling approach will

be used, which starts with the principal inequality measure and incrementally adds political,

demographic, economical and state fixed effects variables. These models are outlined below in

Figure 4.1:

Figure 4.1

Model specifications for three principal inequality measures (Gini, Economic and Racial

Dissimilarity Indices

MODEL 1 (inequality measure: Gini)

Equation 1
$Y = B_0 + B_1 (Gini) + e$

Equation II:
$Y = B_0 + B_1(Gini) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200\% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + e$

Equation III:
$Y = B_0 + B_1(Gini) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200\% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + e$

Equation IV:
$Y = B_0 + B_1(Gini) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200\% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + B_8(Median HH Income) + B_9(\%Pop Age 25+ <HS education) + B_{10}(\%Pop<65 Uninsured) + B_{11}(\%Pop<100\% Poverty) + B_{12}(\% Pop Age 16+ not in Labor Force) + e$

Equation V:
$B_0 + B_1(Gini) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200\% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + B_8(Median HH Income) + B_9(\%Pop Age 25+ <HS education) + B_{10}(\%Pop<65 Uninsured) + B_{11}(\%Pop<100\% Poverty) + B_{12}(\% Pop Age 16+ not in Labor Force) + State fixed effects$

MODEL 2 (inequality measure: Economic Dissimilarity Index)

Equation 1
$Y = B_0 + B_1$ (Economic Dissimilarity Index) + e

Equation II:
$Y = B_0 + B_1$(Economic Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + e

Equation III:
$Y = B_0 + B_1$(Economic Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + e

Equation IV:
$Y = B_0 + B_1$(Economic Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + B_8(Median HH Income) + B_9(%Pop Age 25+ <HS education) + B_{10}(%Pop<65 Uninsured) + B_{11}(%Pop<100% Poverty) + B_{12}(% Pop Age 16+ not in Labor Force) + e

Equation V:
$B_0 + B_1$(Economic Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + B_8(Median HH Income) + B_9(%Pop Age 25+ <HS education) + B_{10}(%Pop<65 Uninsured) + B_{11}(%Pop<100% Poverty) + B_{12}(% Pop Age 16+ not in Labor Force) + State fixed effects

MODEL 3 (inequality measure: Racial Dissimilarity Index)

Equation 1
$Y = B_0 + B_1$ (Racial Dissimilarity Index) + e

Equation II:
$Y = B_0 + B_1$(Racial Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + e

Equation III:
$Y = B_0 + B_1$(Racial Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + e

Equation IV:
$Y = B_0 + B_1$(Racial Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + B_8(Median HH Income) + B_9(%Pop Age 25+ <HS education) + B_{10}(%Pop<65 Uninsured) + B_{11}(%Pop<100% Poverty) + B_{12}(% Pop Age 16+ not in Labor Force) + e

> **Equation V:**
> $B_0 + B_1$(Racial Dissimilarity Index) + B_2(Community Health Center) + B_3(Hosp Major teaching status) + B_4 (Medicaid Expend<200% poverty) + B_5 (Presence of Uncomp Care Pool) + B_6 (Mean Amount of Public Assistance) + B_7(Black) + B_8(Median HH Income) + B_9(%Pop Age 25+ <HS education) + B_{10}(%Pop<65 Uninsured) + B_{11}(%Pop<100% Poverty) + B_{12}(% Pop Age 16+ not in Labor Force) + State fixed effects

This research study is founded on the premise that a social justice approach can be used to understand disparities in breast cancer mortality. Therefore, the models above were set up using political and economic variables to determine if such variables were associated with mortality. In each regression set, a measure on inequality serves as the primary independent variable in model 1. Based on the previous literature review on income inequality, this research expects to find that this variable would be a significant predictor of mortality. In model 2, political variables are added to determine if these variables, in the presence of inequality, would predict breast cancer mortality. This model was framed according to prior research studies which indicated the importance of investing in health care safety net programs. Model 3 takes into account the literature review on racial disparities and breast cancer deaths. Hence, race (being black) is added to this equation and is expected to demonstrate a positive association to mortality. In model 4, variables associated with economic inequality and socioeconomic status is acknowledged. As such, economic variables such as median household income, education status, being uninsured, poverty status and being unemployed, are added to model 4. If theories on the effects of globalization on economic inequality are true, then we can expect that these variables would be positive predictors of mortality. Model 5 includes all of the variables in model 4, but also adds state fixed effects.

III. STATE-LEVEL ANALYSIS

<u>1) Case Study Analysis</u>

The purpose of this case study analysis is to determine if the appropriate resources to support a social welfare program could offset disparities in breast cancer mortality. To reiterate, the NBCCEDP is the social welfare program of interest. This program provides free breast and cervical cancer screening services to low-income and underinsured women. Funding for this program is necessary to:

1) Increase salience about the program

2) Increase awareness about the importance of breast cancer screening in the target population

3) Provide screening services

4) Operate the program (administrative support)

This research explores the strategies that four different NBCCEDPs employ to achieve their programmatic goals. This will be achieved mainly through interviews. By doing this, differences in program delivery are revealed. In order to compare variations in program delivery in each state, interviews with key program stakeholders are performed. These interviews will assess if stakeholders believe they have sufficient resources to operate the program. It will also assess if there are any limitations on recruitment efforts and examine any differences in outreach strategies. Appendix 1 consists of the instrument that will be used to conduct interviews of program stakeholders.

These case studies are performed only in states with high income inequality levels. This analysis presumes that there is an association between income inequality and breast cancer mortality. It also considers income inequality levels in the U.S. as a national phenomenon that

cannot be altered. Therefore, these case studies tests if funding for a crucial public program in specific areas could offset disparities in breast cancer death rates.

2) Case Selection and Recruitment

Four states will be selected for case study analysis. Two states with high income inequality and high breast cancer death rates will be selected. Also, case studies will be performed on two additional states that have high income inequality and low breast cancer mortality rates. States are selected based on these criteria to explore if any differences in program delivery can mitigate the effects of income inequality on breast cancer mortality.

Primary data sources include information collected from the Center for Budget and Public Priorities (CBPP) and the NCI. These sources will determine the states selected for the case studies. As mentioned previously, NCI provides data for breast cancer mortality for the year 2003. CBPP provides a ranking of states with low and high income inequality measures for the early 2000s (Bernstein, et al., 2006). CBPP ranks income inequality levels according to the gap in income between the top and bottom fifth income quintiles (Bernstein, et al, 2006). For purposes of this research, only stated ranked from 1 to 10 are considered:

Table 4.5

Top ten states for selected income inequality measures, early 2000s and Breast

Cancer Mortality Rates, 2003

STATE	INCOME INEQUALITY MEASURE (RANK)	BREAST CANCER MORTALITY RATES
New York	1	25.8
Texas	2	24.5
Tennessee	3	27.7
Arizona	4	22.4
Florida	5	22.7
California	6	23.5
Louisiana	7	30.8
Kentucky	8	25.2
New Jersey	9	28.5
North Carolina	10	25.3

From: Pulling Apart: State by State Analysis of Income Trends, Center on Budget and Policy Priorities and the Economic Policy Institute, Table A, January 2006; and the National Cancer Institute, Surveillance of Epidemiology and End Results: SEER Stat 6.2. Retrieved November 2006 from http://www.cancer.gov/seerstat

Based on the above table, the states selected for case studies included New York, New Jersey, Louisiana and Texas. Coupled with high income inequality levels, New Jersey and Louisiana had the highest breast cancer mortality rates when compared to the other states. Texas and New York were selected because they were the top two states with highest income inequality measures, but with much lower breast cancer mortality rates.

3) Methods

There were four telephone interviews, one per state, with key program stakeholders in the NBCCEDP. Stakeholders were well informed about the structure of their program, which include information on the program's target group, outreach strategies to recruit low-income women, any programmatic challenges and funding sources.

In addition to conducting qualitative inquiries with key informants, demographic and economic data were collected from secondary sources. The purpose of utilizing additional data sources is to verify research findings. The Centers for Disease Control's websites were used to ascertain state funding for NBCCEDP and screening statistics. Demographic and breast cancer screening data were also collected from the Henry J. Kaiser Family Foundation. The Center for Budget and Policy Priorities and the Economic Policy Institute and the U.S. Census Bureau provides measures on income inequality. The NBCCEDP websites for selected states also provided breast cancer screening statistics.

4) Limitations

This chapter provided a description of data sources and methods that were used to test the hypotheses in this dissertation. However, both the quantitative and qualitative methods proposed have limitations. For instance, the qualitative case studies in this research include only four states. Given this, results from this research may not be representative of all states with high income inequality levels and high or low mortality. The economic policies or NBCCED programs may vary across states. Another limitation to the qualitative methods in this research is that income inequality levels and breast cancer mortality rates were measured only for the early 2000's. Longitudinal data is not used in this analysis. Changes in the political climate in the past decades could contribute to income inequality levels or breast cancer deaths over time. Also, the

criteria used to select the states for these case studies could be challenged. Further research studies could enhance this study by evaluating all states with high income inequality levels.

The quantitative methods used in this research also present some challenges. For instance, this research utilizes cross sectional data, which makes it difficult to determine causality. A state's income inequality level and breast cancer death rate is measured at a single point in time in this research study. This does not provide adequate information on what an individual person may have been exposed to during the time these variables were measured. Another limitation is among the explanatory variables that were used in the quantitative models. The explanatory variables may be highly correlated such that issues of multicollinearity could arise. This could therefore lead to underestimated values in the relationship between the independent and dependent variable, although methods are employed to address this. Selection bias may also occur since the data was drawn from a non-random sample. Omitted variable bias could also play a role, resulting in biased estimates. These could potentially cause crucial variables to be non-significant in the forthcoming regression analyses.

Chapter 5

County Level Analysis of Income Inequality and Breast Cancer Mortality

Introduction

This dissertation explores if there is an association between income inequality and breast cancer mortality at the county level. It also examines if other economic and political variables have a causal effect on breast cancer mortality.

To begin this investigation, a descriptive analysis on the distribution of breast cancer mortality rates in the U.S. counties for 31 states is shown. These rates are per 100,000 women for year 2003 and are plotted in the figure below.
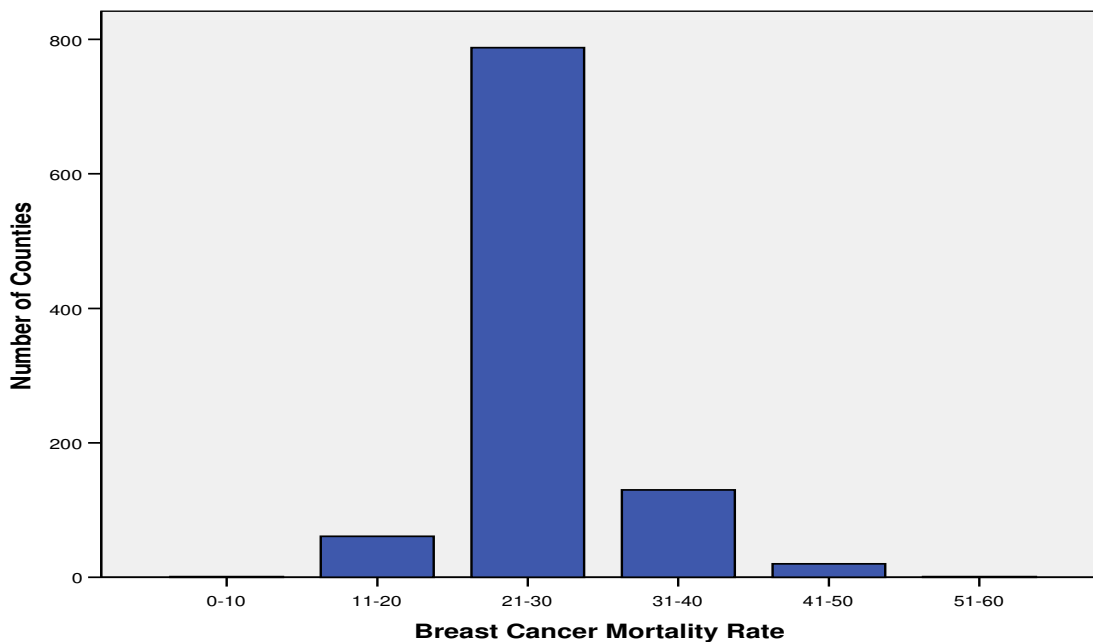

Figure 5.1 The Distribution of Breast Cancer Deaths in U.S. Counties
From National Cancer Institute, Breast cancer death rates, death rate report by
County, death years through 2003, Retrieved July 10, 2006 from http:// www.statecancerprofiles.gov/cgi-bin/deathrates

According to figure 5.1, most of the counties in the dataset had breast cancer mortality rates within the range of 21-30 per 100,000 women. There were very few counties with death rates that fell below this range.

Figures 5.2, 5.3 and 5.4 show the distribution of the gini coefficient, and the racial and economic dissimilarity indices across U.S. counties. These variables serve as the primary independent variables in the multivariate analyses that follow in this chapter.
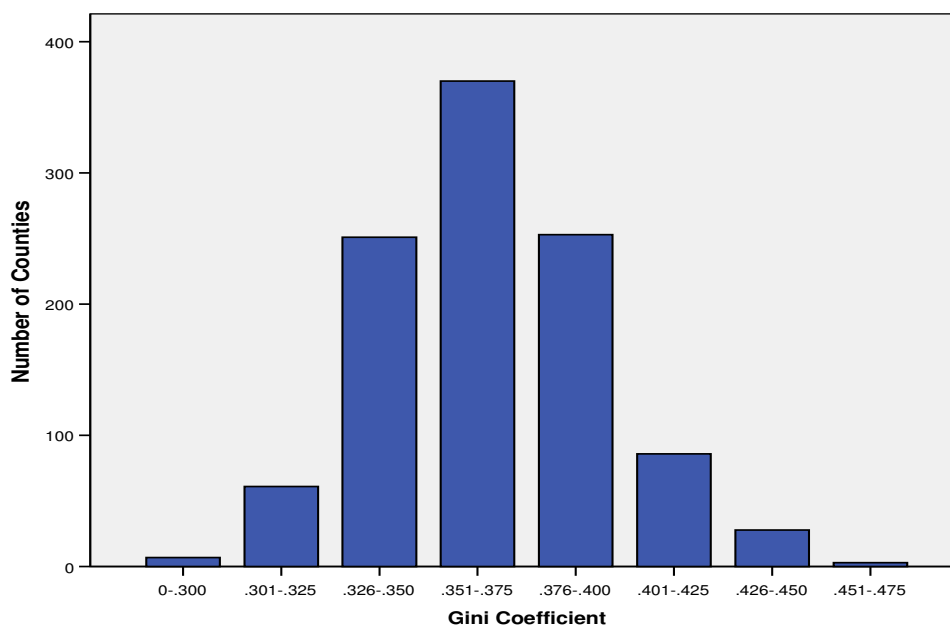

Figure 5.2 Distribution of the Gini Coefficient by U.S. Counties
From Billings J, Weinick RM. Monitoring the Health Care Safety Net—Book II: A Data
Book for States and Counties. Rockville, MD: Agency for Healthcare Research
and Quality; 2003. AHRQ Publication No. 03-0026.

Figure 5.3 Distribution of Racial Dissimilarity Index (Blacks) in U.S. Counties
From Billings J, Weinick RM. Monitoring the Health Care Safety Net—Book II: A Data
Book for States and Counties. Rockville, MD: Agency for Healthcare Research
and Quality; 2003. AHRQ Publication No. 03-0026.

Figure 5.4 Distribution of the Economic Dissimilarity Index in U.S. Counties
From Billings J, Weinick RM. Monitoring the Health Care Safety Net—Book II: A Data
Book for States and Counties. Rockville, MD: Agency for Healthcare Research
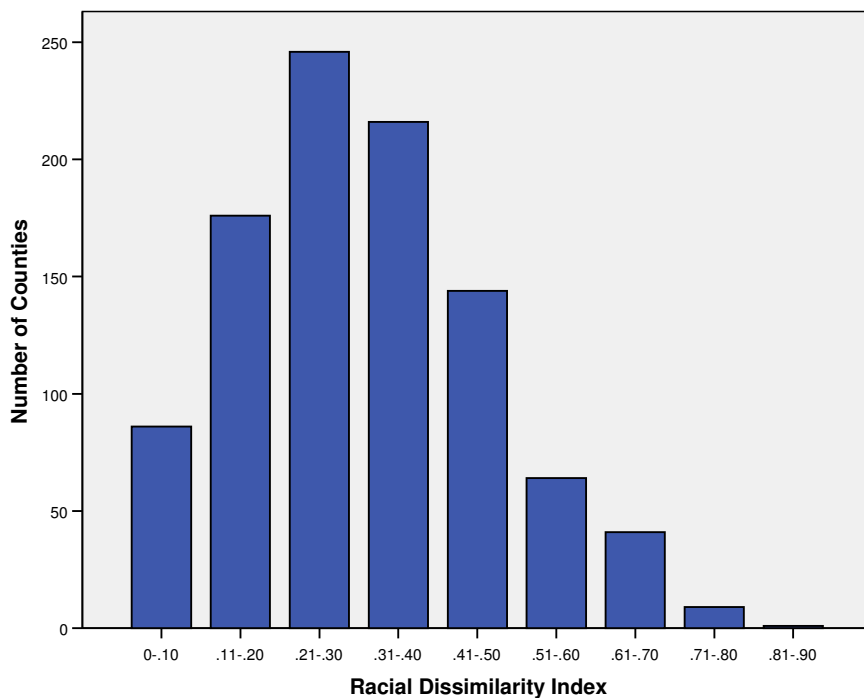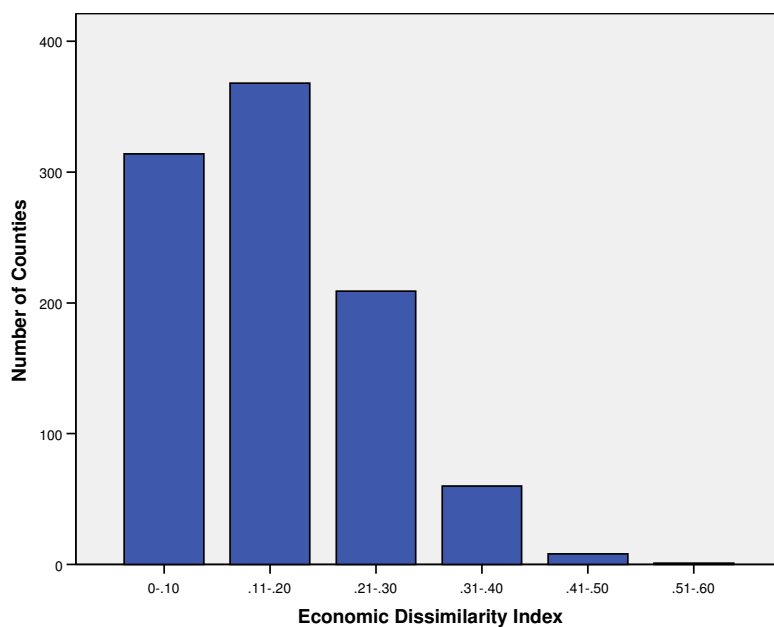and Quality; 2003. AHRQ Publication No. 03-0026.

According to Figure 5.2, the majority of the counties in the dataset had gini coefficient ranges between .351-.375. That is, the proportion of income in these counties' population that would have to be redistributed to equalize the incomes of all residents in that county. The distribution of the gini coefficient is almost normal. There were also many counties that had gini coefficients within the ranges of .326-.350 and .376-.400. Fewer counties had income inequality measures that were less than .300 or greater than .450. In Figure 5.3, the majority of the counties included in the dataset had Racial Dissimilarity Indexes (Blacks) that were between the ranges of .21-.30 and .31-.40. This means that 21-30% (or 31-40%) of the black population in these counties would have to move for all area zip codes to have an equal percentage of the county's black population. Fewer counties had indexes greater than .70. In Figure 5.4, most of the counties had an Economic Dissimilarity Index less than .20, while fewer counties had economic dissimilarity indexes greater than .40. This shows that less than 20% of the population with family incomes less than $15,000 per year in a county area would have to move so that all area zip codes could have an equal percentage of the population in this income range.

According to prior research, high income inequality increased mortality. Low income inequality levels were associated with lower mortality. Therefore, scatter plots were created in Figures 5.5, 5.6 and 5.7 to assess if there was a bivariate relationship between each of the primary independent variables, the Gini Coefficient, the Racial and Economic Dissimilarity

Indexes, and the dependent variable, breast cancer mortality.

Breast Cancer Mortality Rate
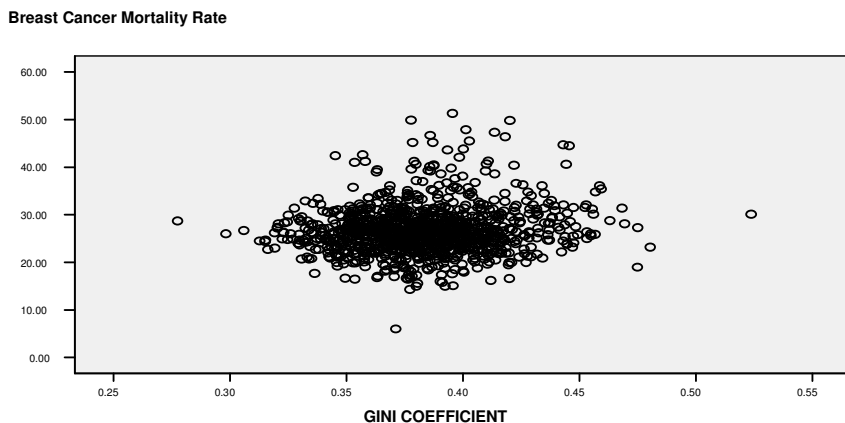
Figure 5.5 Scatter plot showing the relationship between Age and Sex Adjusted Breast Cancer Mortality Rates and the Gini Coefficient at the county level
From Monitoring the Health Care Safety Net: Book II: Data Book for States and Counties, 2003.

Based on the scatter plot above, the Gini coefficient does not show a strong positive correlation

to indicate that breast cancer mortality increases when the gini coefficient increases. The

correlation coefficient of .097 was, however, statistically significant.

The relationship among the Racial and Economic Dissimilarity indexes and the breast

cancer mortality rates are shown below:
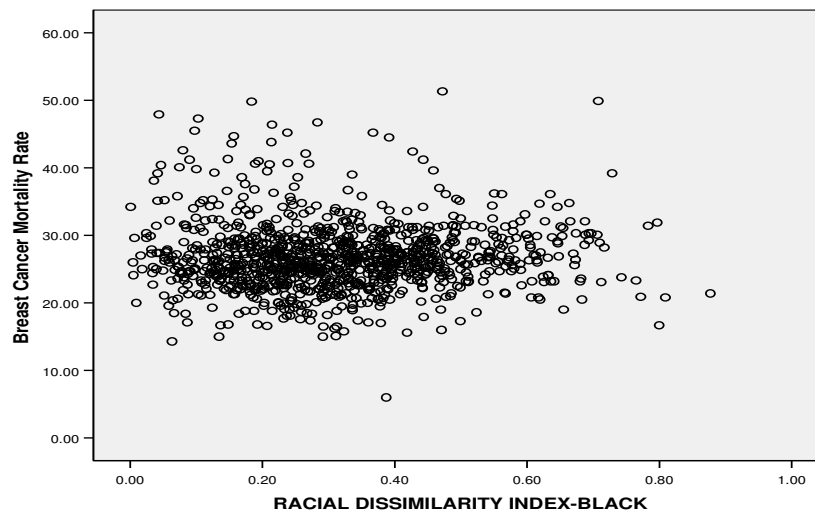
Figure 5.6 Age and Sex Adjusted Breast Cancer Mortality Rates by the Racial Dissimilarity Index
From Monitoring the Health Care Safety Net: Book II: Data Book for States and Counties, 2003.
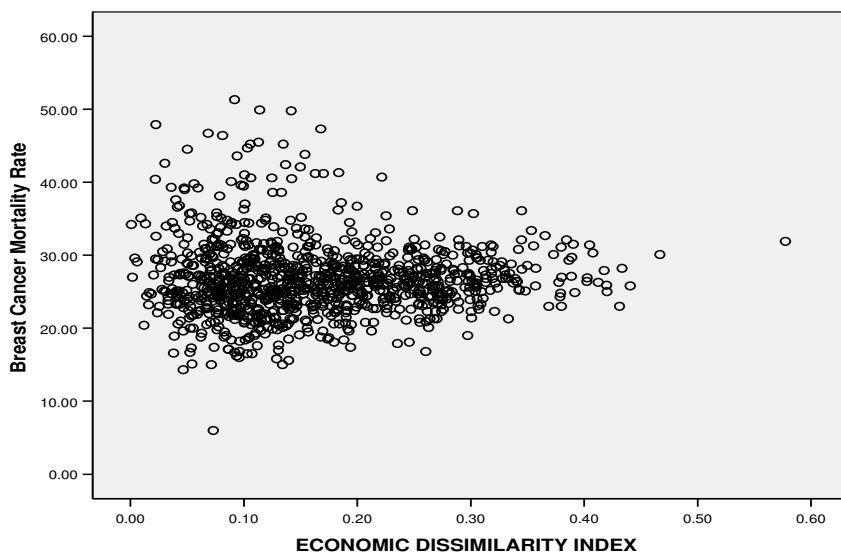
Figure 5.7 Age and Sex Adjusted Breast Cancer Mortality Rates by the Economic Dissimilarity Index
Source: Monitoring the Health Care Safety Net: Book II: Data Book for States and Counties, 2003.

The results from scatter plots constructed for the racial and economic dissimilarity indexes were

not consistent with theory. Both indexes did not demonstrate a strong positive correlation to

breast cancer mortality. The correlation between breast cancer mortality and the racial

dissimilarity index was .011 and was not significant. The correlation coefficient for the economic

dissimilarity index was -.004 and was also not significant.

RESULTS

Descriptive Analysis – Table 5.1 provides a description of the variables used in the

multivariate models that follow.

Table 5.1: Means and standard deviations on demographic, political, economic and

variables

Variable	Mean	Standard Deviation
Dependent Variable		
Breast Cancer Mortality Rate per 100,000 Women	26.76	4.99
Demographic		
Race/ethnicity (%)		
White	80.2	16.8
Black	10.5	13.5
Hispanic	8.4	12.3
Racial Dissimilarity Index-(Black)	.31	.16
Economic		
Median Household Income ($)	41,251.41	10,894.75
Uninsured(%)	17.5	4.0
25+, <=High School (%)	51.3	11.8
Economic Dissimilarity Index	.16	.09
Pop 16+ not in labor force (%)	36.6	6.3
Pop with income <100% poverty(%)	12.1	5.5
Gini Coefficient	.37	.03
Political & Policy		
Mean ($) Amt of Public Assistance	2,742.34	935.35
Presence of Uncompensated Care Pool	.34	.473
Medicaid Expenditures Age < 65<200% Poverty	1,237.30	230.38
Presence of a Community Health Center	.27	.446
% Hosp Major Teaching status	3.8	15.4

From Billings J, Weinick RM. Monitoring the Health Care Safety Net—Book II: A Data
Book for States and Counties. Rockville, MD: Agency for Healthcare Research

and Quality; 2003. AHRQ Publication No. 03-0026 and National Cancer Institute, Breast cancer death rates, death rate report by County, death years through 2003, Retrieved July 10, 2006 from http:// www.statecancerprofiles.gov/cgi-bin/deathrates

The average breast cancer mortality rate was 26.75. The counties in the analysis were predominantly White (80.27%), while 10.5 percent were Blacks and 8.5 percent Hispanics. The racial dissimilarity index implies that approximately 31% of the black population would have to move so that all zip codes would have an equal proportion of the black population.

The Median Household Income was $41,251.41 and 17% of the sample was uninsured. More than half of the population 25 years of age or older had less than a high school education (51.3%). The economic dissimilarity index indicates that approximately 16% of the population had annual incomes less than $15,000 and that this percentage of the population would have to move so that all area zip codes would have an equal proportion of low income individuals. Approximately 37% of the population 16 years of age or older was not in the labor force. The dataset consisted of 12% of the population with incomes less than 100% of the poverty level. The mean gini ratio was .37, i.e., the proportion of income that would have to be redistributed to equalize incomes across all residents.

The average amount of income received from public assistance was $2,742.33 per year. Nearly 4% of the included counties had Hospitals with a major teaching status. The average dollar amount spent on Medicaid expenditures for individuals age 65 years or older and those who live at less than 200% of poverty level was $1,237.30. A quarter of the counties had a community health center (.27) and one-third of the counties had an uncompensated care pool (.34).

Correlation Matrix – Table 5.2 shows correlation statistics between the dependent variable, breast cancer mortality and the explanatory variables. Some of the explanatory variables showed a positive correlation with the dependent variable. The variables that were

positively correlated with breast cancer mortality included: the percentage of the Black

population (r=.286; p<0.01), the percentage of the population age 25 years or older with less than

a high school education (r=.166; p<0.01); the percentage of the population age 16 years or older

that is not in the labor force (r=.064; p<.05); the percentage of the population with income

<100% poverty (r=.106; p<0.01); income inequality (r=.097; p<0.01) and the presence of an

uncompensated care pool (r=.082; p<0.01).

The explanatory variables that showed an inverse correlation to the dependent variable

included: the percentage of the population identifying as White (r= -151; p<0.01); the percentage

of the population identifying as Hispanic (r= -122; p<0.01); Median household income (r= -117;

p<0.01); and mean amount of public assistance (r= -.139; p<0.01).

Table 5.2 also shows bivariate correlations among the explanatory variables. Among the

economic variables, the percentage of the population age 16 years or older who is not in the labor

force and the percentage of the population with income less than 100% poverty were strongly

correlated (r=.622; p<0.01), as were the percentage of the population age 16 years or older who

is not in the labor force and the percentage of the population age 25 years or older with a high

school education or less (r=.597; p<0.01). The percentage of the population 25 and older with a

high school education or less and the percentage of the population with income <100% poverty

were correlated at .482 (p<0.01). The economic variables that were negatively correlated

included the median household income and the percentage of the population with income less

than 100% poverty (r=-.707; p<0.01) and the percentage of the population age 16 years or older

who is not in the labor force and median household income (r=-.650; p<0.01).

Some economic variables correlated with income inequality. Income inequality and the

percentage of the population with income <100% poverty were strongly and positively correlated

(r=.777; p<0.01) as were income inequality and the percentage of the population not in the labor

force (r=.522; p<0.01) and income inequality and the percentage of the population age 25 years

or older with a less than high school education (r=.330; p<0.01). The economic variables that

had a strong inverse association included income inequality and median household income (r=-

.566; p<0.01).

Some political and demographic explanatory variables were positively correlated. Income

Inequality and the percentage of the population that identified as black (r=.487; p<0.01) and the

mean amount of public assistance and the percentage of the population that identified as

Hispanic/Latino were positively correlated (r=.442; p=0.01). Income inequality and the

percentage of the population that identified as white had a strong inverse association (r=-.411;

p<0.01).

Among the economic and demographic variables, the Economic Dissimilarity index and

the racial dissimilarity index for blacks were strongly and positively correlated (r=.783; p<0.01)

as well as income inequality and the percentage of the population that identified as black (r=.487;

p<0.01). The percentage of the population with income less than 100% poverty and the

percentage of the population that identified as white had a strong inverse association (r=-.457;

p<0.01) as well as the presence of a Community Health Center and the percentage of the

population that identified as Hispanic/Latino (r=-.317; p<0.01).

Table 5.2 Bivariate Correlation Matrix among dependent and independent variables, Pearson's r values, (n=1083)

Variable	Breast Cancer Mortality Rate	% of pop identify as Black	Racial Dissimilarity Index	Income	Economic Dissimilarity Index
1.Breast Cancer Mortality rate	1				
2.% Pop Blk	.286**	1			
3. Racial Diss Index	.011	-.156**	1		
4. Income	-.117**	-.192**	.023	1	
5. Economic Diss Index	.004	.141**	.354*	.417**	1
6. % Pop 25+ HS or <	.166**	.203**	-.044*	-.657**	-.476
7. % Pop 16+ not In labor force	.064*	.234**	.038	-.650**	-.277**
8. % Pop Income <100 Poverty	.106**	.490**	-.118**	-.707**	-.173**
9. Gini Coefficient	.097**	.490**	-.024	-.566**	-.030
10. % Pop <65 Uninsured	.057	.035	.162**	.149**	.280**
11. Mean Amt of Public Assistance	-.139**	-.108**	.024	.351**	.290**
12. Presence of Uncomp Care Pool	.082**	.004	.026	.236**	.148**
13. %Pop<65<200% With Medicaid	.057	.028	.181**	.156**	.306**
14. Pres of Commun Health Ctr	.009	.133**	.127**	.008	.239**
15. Hosp, Major, tchg	.045	.098**	.201**	.146**	.333**

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

Table 5.2 Correlation matrix, continued

Variable	% of Pop 25+ HS or less Educ	% of pop age 16+ not in the labor force	% of pop with income <100% Pov	Gini Coefficient	% of Pop < 65 Uninsured
1.Breast Cancer Mortality rate	.166**	.064*	.106**	.097**	.057
2. % Pop Blk	.203**	.234**	.490**	.490**	.035
3. Racial Diss Index	-.044*	.038	-.118**	-.024	.162**
4. Income	-.657**	-.650**	-.707**	-.566**	.149**
5. Economic Diss Index	-.476**	-.277**	-.173**	-.030	.280**
6. % Pop 25+ HS or <	1				
7. % Pop 16+ not In labor force	.597**	1			
8. % Pop Income <100 Poverty	.482**	.622**	1		
9. Gini Coefficient	.330**	.522**	.777**	1	
10. % Pop <65 Uninsured	-.154**	-.066**	-.047*	.040	1
11. Mean Amt of Public Assistance	-.358**	-.123**	-.076**	-.105**	.132**
12. Presence of Uncomp Care Pool	-.159**	-.070**	-.100**	-.149**	.045*
13. %Pop<65<200% With Medicaid	-.166**	-.095**	-.067**	.020	.938**
14. Pres of Commun Health Ctr	-.029	.072**	.121**	.164**	.336**
15. Hosp, Major, tchg	-.184**	-.107**	-.022	-.051*	.260**

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

Table 5.2 Correlation matrix, continued

Variable	Mean Amt of Public Assistance	Presence of Uncompensated Care Pool	% Pop <65, <200% Pov With Medicaid	Presence of Commun Health Ctr	Hosp Major teach
1.Breast Cancer Mortality rate	-.139**	.082**	.057	.009	.045
2. % Pop Blk	-.108**	.004	.028	.133**	.098**
3. Racial Diss Index	.024	.026	.181**	.127**	.201**
4. Income	.351**	.236**	.156**	.008	.146**
5. Economic Diss Index	.290**	.148**	.306**	.239**	.333**
6. % Pop 25+ HS or <	-.358**	-.159**	-.166**	-.029**	-.184**
7. % Pop 16+ not In labor force	-.123**	-.070**	-.095**	.072**	-.107**
8. % Pop Income <100 Poverty	-.076**	-.100**	-.067**	.121**	-.022
9. Gini Coefficient	-.105**	-.149**	.020	.164**	.051*
10. % Pop <65 Uninsured	.132**	.045*	.938**	.336**	.260**
11. Mean Amt of Public Assistance	1				
12. Presence of Uncomp Care Pool	.389**	1			
13. %Pop<65<200% With Medicaid	.134**	.042*	1		
14. Pres of Commun Health Ctr	.087**	-.001	.357**	1	
15. Hosp, Major, tchg	.135**	.088**	.310**	.276**	1

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

Multivariate analysis (Dependent variable –Breast Cancer Mortality) **–** The focal

independent variable– inequality, was operationalized in three different ways. Three sets of

regression models were estimated in a sequential fashion. The first set of regressions (Models 1-

5) use the gini coefficient as the first measure of inequality and serves as the primary focal

independent variable in these models. Model 1 regresses breast cancer mortality on just the gini

coefficient. Models 2, 3 and 4 sequentially add political, demographic and economic variables.

Model 5 adds state fixed effects to capture unmeasured variables shared by all residents of the

same state which are time invariant.

The second and third set of regressions follow the same modeling strategy described

above. The second set of regressions use the economic dissimilarity index as the primary

independent variable and the last set uses the racial dissimilarity index as the focal independent

variable. The following analyses are based on 1,082 of the counties in the study states for which

complete data were available for all study variables.

Regression set 1 – As mentioned above, the gini coefficient serves as the focal

independent variable in this model set. Table 5.3 shows that the magnitude, direction and

statistical significance of the gini effect changes across the models. For instance, in the first

model, the gini coefficient as the sole explanatory variable is a positive and significant predictor

of breast cancer mortality. In this model, each point increase in the gini increases deaths from

breast cancer by 16.73 per 100,000 women in the county, showing that mortality increases with

increasing income inequality. When political variables are added in model 2, the regression

coefficient on the gini becomes stronger and shows that each point increase in the gini now

increases deaths from breast cancer by 18.41 per 100,000 women. In model 3, the gini effect

reverses direction when the race variable is added and now implies that each point increase in the

gini decreases deaths from breast cancer by 1.28 per 100,000 women in the county, although this effect is not statistically significant. When economic variables are added in model 4, the direction of the gini effect turns positive once again. Income inequality now increases breast cancer mortality by 5.269 per 100,000 women in the county. This effect is not significant. As state fixed variables are added in the model 5, the gini coefficient continues to remain positive, indicating that a point increase in it increases breast cancer mortality by 3.096 per 100,000 women in the county. This effect is also not statistically significant. The model fit through R^2 from 1-17%.

Regression set 2 – The Economic dissimilarity index is the focal independent variable in this model set. Table 5.4 demonstrates that the direction of this variable across the models remains negative. The magnitude of the Economic dissimilarity index changes slightly across all models. However, neither the sign nor the magnitude is reliably estimated, given the statistical insignificance of the effect across all the five models. There are two variables that are statistically significant in the final model. These variables include hospital with a major teaching status and the percentage of black population. An additional hospital with a major teaching status decreases deaths from breast cancer by .003 per 100,000 women in the county. Also, an increase of one percent in the black population increases breast cancer mortality by .095 per 100,000 women in the county. The model fit through R^2 from .3-17%.

Regression set 3 – The Racial dissimilarity index is the focal independent variable in this model. Table 5.5 shows that this variable also remains negative and is not statistically significant across all model sets. As is the case in regression set 2, the only two variables that are statistically significant in the final model include hospitals with a major teaching status and the percentage of the black population. An addition of one more hospital with a major teaching status decreases deaths from breast cancer by .003 per 100,000 women in the county. Also, a one percent increase in the black population increases breast cancer mortality by .095 per 100,000 women in the county. The effect of these two variables (hospital with a major teaching status and percentage black) across the 3 regression sets remain the same, indicating that regardless of which measure of inequality you use, the effect of these two variables are quite robust to model specification. The model fit through R^2 from .3-17%.

Conclusion

The hypothesis of this research stated that income inequality would be a significant predictor of breast cancer mortality. This research also examined if other political and economic variables had an effect on mortality. The final models (5) in each regression set did not vigorously confirm this hypothesis. The empirical analysis did not strongly predict that the political economy perspective can explain breast cancer mortality. However, a political variable did show promise as a predictor. Hospitals with a major teaching status had a significant and consistent effect on breast cancer mortality. The significance of the political variable across each regression set shows that investing in a social welfare program could somewhat offset breast cancer deaths. Also, counties with a high percentage of the black population significantly predicted mortality from breast cancer. The effects of race were minuscule in the presence of other political and economic variables.

Although these crucial variables had a small effect, a causal relationship can not be established. However, these findings can add to the discourse on disparities in breast cancer mortality by suggesting that having hospitals with a major teaching status can be a critical factor. The presence or scarcity of major teaching hospitals in communities could to some extent influence survival rates for black women. Therefore, investing in health care safety net resources at the community level may prove to be a practical health policy solution to reduce or eliminate disparities in breast cancer deaths.

LIMITATIONS

There are two major limitations to these quantitative findings that threaten internal validity. These include selection bias and omitted variable bias. Selection bias is an error or

misrepresentation of statistical evidence according to how data is collected. There is a selection bias in this research because the county level data was drawn from a non-random sample. A random assignment prevents selection bias. Hence, there may be statistically significant differences between the counties that were included and excluded from the dataset. Presence of such selection bias could potentially account for the non-significance of inequality measures or other theoretical relevant variables. For instance, income inequality and being uninsured were not significant in the final analysis. Based on prior theories described in the preceding literature review, these variables should have demonstrated a causal relationship to the dependent variable. There were differences in the degrees of income inequality and uninsured rates in a few of the states that were excluded from the data set. For example, Texas, Louisiana and Kentucky were among the states omitted from the dataset. These states were among the top ten states with the highest income inequality levels in the nation since the early 2000s. New Mexico and West Virginia were also excluded. These states, including Texas and Louisiana, had extremely high uninsured rates. These four states were among the top six states in the country with the highest uninsured rates.

Omitted variable bias poses yet another threat to internal validity. Omitted variable bias occurs when the models specified in the regressions exclude a theoretically relevant predictor of breast cancer mortality, one that is also correlated with one or more variables that is included in the model. Omitted variable bias can cause biased estimates on variables included in the model and the bias can be positive or negative. The models do not include variables such as percentage of households with incomes less than $15,000, the presence of a community access program and the number of individuals ages 25 years or older with some education beyond a high school degree. Therefore omitted variables bias could be at play, contributing to the statistical

insignificance of focal independent variables, such as income inequality, being uninsured or presence of an uncompensated care pool. It could also explain why the direction of their coefficient estimates was not accurate.

The omitted economic variables, number of persons ages 25 years or older with some education beyond a high school degree and the percentage of households with incomes less than $15,000 are crucial because they consist of groups of women with low incomes. According to prior research theories, there is a causal relationship between having a low income and disparities in breast cancer mortality. The political variable, presence or absence of community access programs, is also important. Prior research indicates that investments in such programs are critical to survival rates. The community access program gives health care providers the resources to develop community-wide systems that serve the uninsured and underinsured. Hence, the political-economy approach suggests that investments in social welfare programs could offset disparities in mortality. This research could be strengthened by including all relevant economic and political independent variables. Nevertheless, this research contends that the variables that showed a causal effect are to some extent valid, especially to the population included in the dataset.

Table 5.3: Regression Set 1: Gini Coefficient. Ordinary Least Squares Regressions of breast cancer mortality on the Gini coefficient and political variables. Model 5 shows state fixed effects; In Model 6 (final model), Population < 100% poverty and Medicaid expenditures <200% poverty is omitted.

Variables/t-statistic	Model 1	Model 2	Model 3	Model 4	Model 5
Gini Coefficients	16.73	18.419	-1.285	4.269	3.096
t-stat	3.18**	3.577**	-.226	.458	.327
Presence of Comm Health Center		.002	.003	.002	.001
t-stat		1.120	1.588	.859	.643
Hospital Major Teaching Status		-.004	-.003	-.003	-.003
t-stat		-3.183**	-2.988*	-2.682*	-2.617*
Medicaid Expend <200% Poverty[1]		.000	.000	-.001	-.007
t-stat		.037	-.461	-.803	-.852
Presence of Uncomp Care Pool[2]		2.133	1.723	1.857	
t-stat		5.378**	4.408**	4.630**	
Mean Amt Public Assistance		-.001	-.001	-.001	-.001
t-stat		-5.967**	-4.716**	3.262**	-1.683
% Pop Black			.085	.085	.095
t-stat			7.403**	7.079**	6.841**
Median Household Inc				-.458	-.322
t-stat				-1.202	-.816
% Pop Age 25+ HS or less				.047	.030
t-stat				2.666*	1.567
% Pop <65 Uninsured				.041	.011
t-stat				2.069*	.413
% Pop < 100% Pov[3]				-.072	-.055
t-stat				-1.236	-.928
% Pop Age 16+ Not in Labor force				-.058	-.005
t-stat				-1.717	-.120
Intercept	20.64	26.66	28.68	38.502	37.653
t-stat	10.72**	70.56**	12.186**	6.077**	3.297**
N	1083	1083	1083	1083	1083
R²	.009	.072	.117	.129	.166

*p<.05
**P<.001

[1] VIF Exceeds 5 for Medicaid Expenditures for persons < age 65 and < 200% poverty, California, Arkansas, Connecticut, Maryland, Minnesota, New York, North Carolina in model 5

[2] Presence of Uncompensated care pool is omitted from model 5 due to collinearity with some state fixed effects.

Note [3]VIF exceeds 5 for % Population < 100% Poverty in model 4, are excluded and the model is fit again, the results do not change very much either substantively or statistically

[4]When the variables that exhibit multicollinearity (Medicaid Expenditures for persons < age 65 and < 200% poverty, California, Arkansas, Connecticut, Maryland, Minnesota, New York and North Carolina) are excluded and the model is fit again, the results do not change very much either substantively or statistically

Table 5.4: Regression Set 2: Economic Dissimilarity Index. Ordinary Least Squares Regressions of breast cancer mortality on the Economic Dissimilarity Index and political variables. Model 5 shows state fixed effects. In Model 6 Medicaid expenditures <200% poverty is omitted.

Variables/t-statistic	Model 1	Model 2	Model 3	Model 4	Model 5
Economic Diss Index	-.024	-.010	-.009	-.008	-.009
t-stat	-1.768	-.726	-.704	-.628	-.718
Presence of Comm Health Center		.002	.003	.002	.001
t-stat		.935	1.583	.849	.660
Hospital Major Teaching Status		-.003	-.003	-.003	-.003
t-stat		-2.865*	-2.955*	-2.603*	-2.570*
Medicaid Expend <200% Poverty$_1$		.000	.000	-.001	-.007
t-stat		-.234	-.386	-.773	-.875
Presence of Uncomp Care Pool$_2$		2.061	1.696	1.796	
t-stat		5.127**	4.321**	4.491**	
Mean Amt Public Assistance		-.001	-.001	-.001	-.001
t-stat		-6.071**	-4.665	-3.252**	-1.710
% Pop Black			.083	.087	.096
t-stat			8.255**	7.352**	7.029**
Median Household Inc				-.456	-.321
t-stat				-1.196	-.816
% Pop Age 25+ HS or less				.046	.029
t-stat				2.639*	1.547
% Pop <65 Uninsured				.041	.011
t-stat				2.059*	.397
% Pop <100% Poverty				.058	-.046
t-stat				-1.195	-.922
% Pop Age 16+ Not in the Labor Force				-.054	-.002
t-stat				-1.642	-.057
Intercept	26.732	29.539	28.139	39.741	38.75
t-stat	175.702**	27.988**	27.113**	7.159**	3.532**
N	1083	1083	1083	1083	1083
R^2	.003	.061	.117	.129	.166

*p<.05
**P<.001

Note [1]VIF Exceeds 5 for Medicaid Expenditures for persons < age 65 and < 200% poverty, California, Arkansas, Connecticut, Florida, Maryland, Massachusetts,
 Minnesota, New Jersey, New York, North Carolina, Washington
[2]Presence of Uncompensated care pool is omitted from model 5 due to collinearity with some state fixed effects.
[3]When the variables that exhibit multicollinearity (Medicaid Expenditures for persons < age 65 and < 200% poverty, California, Arkansas, Connecticut, Florida, Maryland, Massachusetts, Minnesota, New Jersey, New York, North Carolina, Washington) are excluded and the model is fit again, the results do not change very much either substantively or statistically

Table 5.5: Regression Set 3: Racial Dissimilarity Index. Ordinary Least Squares Regressions of breast cancer mortality on the Racial Dissimilarity Index and political variables. Model 5 shows state fixed effects

Variables/t-statistic	Model 1	Model 2	Model 3	Model 4	Model 5
Racial Diss Index	-.024	-.010	-.009	-.008	-.009
t-stat	-1.762	-.724	-.689	-.605	-.723
Presence of Community Health Center		.002	.003	.002	.001
t-stat		.936	1.584	1.058	.660
Hospital Major Teaching Status		-.003	-.003	-.003	-.003
t-stat		-2.865*	-2.956*	-2.681*	-2.570*
Medicaid Expenditures <200% Poverty[1]		.000	.000	-.001	-.007
t-stat		-.234	-.386	-.784	-.874
Presence of Uncompensated Care Pool[2]		2.061	1.697	1.824	
t-stat		5.126**	4.322**	4.506**	
Mean Amount Public Assistance		-.001	-.001	-.001	-.001
t-stat		-6.072**	-4.667**	-3.796**	-1.710
% Pop Black			.083	.078	.096
t-stat			8.254**	6.386**	7.029**
Median Household Income				-.134	-.321
t-stat				-.434	-.816
% Pop Age 25+ HS or less				.044	.029
t-stat				2.280*	1.548
% Pop<65 Uninsured				.041	.011
t-stat				2.063*	.396
% Pop<100% Poverty				.018	-.046
t-stat				.343	-.922
% Pop Age 16+ Not in Labor Force				-.061	-.002
t-stat				-1.888*	-.055
Intercept	26.76	29.54	28.142	37.721	38.75
t-stat	175.914**	27.933**	27.119**	7.047**	3.532**
N	1083	1083	1083	1083	1083
R^2	.003	.061	.117	.128	.166

*p<.05

**P<.001

Note [1]VIF Exceeds 5 for Medicaid Expenditures for persons < age 65 and < 200% poverty, California, Arkansas, Connecticut, Florida, Maryland, Massachusetts, Minnesota, New Jersey, New York, North Carolina, Washington

[2]Presence of Uncompensated care pool is omitted from model 5 due to collinearity with some state fixed effects.
[3]When the variables that exhibit multicollinearity (Medicaid Expenditures for persons < age 65 and < 200% poverty, California, Arkansas, Connecticut, Florida, Maryland, Massachusetts, Minnesota, New Jersey, New York, North Carolina, Washington) are excluded and the model is fit again, the results do not change very much either substantively or statistically

Chapter 6

Breast Cancer Mortality: The Role of Robust Social Programs

This chapter was written to test hypothesis 1B, which states that:

Among states with high income inequality, those with a stronger social welfare program are more likely to have lower breast cancer mortality rates.

To test this hypothesis, this chapter applied a case study methodology of four different states that had high income inequality levels combined with comparatively high and low breast cancer mortality rates. These four states, as noted in Chapter 4, included New York, Texas, New Jersey and Louisiana. The Center for Budget and Public Priorities ranked these states as 4 of the top ten states with the highest income inequality in the U.S. in the early 2000s, see table 6.1 below:

Table 6.1

Income Inequality Ranks with Corresponding Breast Cancer Mortality Rates

State	Income Inequality Rank	Breast Cancer Mortality Rate
New York	1	25.8
Texas	2	24.5
Louisiana	7	30.8
New Jersey	9	28.5

Note: From Pulling Apart: State by State Analysis of Income Trends, Center on Budget And Policy Priorities and the Economic Policy Institute, Table A, January 2006; and National Cancer Institute, State Cancer Profiles, table "Death Rate Report by State, death years through 2003: Breast. Retrieved July 10, 2006 from http://statecancerprofiles.gov

New York and Texas represented the top two states in the nation with the highest income inequality levels, while New Jersey and Louisiana had inequality levels lower than the former two states. Louisiana and New Jersey had higher breast cancer mortality rates when compared to

New York and Texas. Based on these assessments, these four states were selected for case study analysis.

This chapter examines the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) in each of the aforementioned states. This research investigates program delivery in each state by evaluating three components: 1) criteria to recruit women (income only or income and race); 2) strength of outreach efforts and 3) adequacy of funding source(s). The assumption is that states that have lower mortality recruit women based only on income criteria, engage in aggressive outreach strategies and seek multiple sources to fund their program. It is expected that states that do not meet the aforementioned criteria would have higher mortality and therefore considered less robust. Each state's program will be analyzed using government websites, state program websites, scientific articles and in-depth interviews with key program stakeholders.

National Breast and Cervical Cancer Early Detection Program (NBCCEDP)

Congress passed the Breast and Cervical Cancer Mortality Prevention Act in 1990 (US House of Representatives, 2001). This was a national program aimed to decrease breast and cervical cancer mortality rates among underserved women (Ryerson, et al., 2002). Mammography and Papanicolaou (Pap) tests were crucial in saving lives. These screening tests were underutilized by underinsured and low-income women (Ryerson, et al., 2002). Congress also recognized that these populations were more vulnerable to cancer mortality. The NBCCEDP was created in response to the Mortality Act of 1990 (Ryerson, et al., 2002). The NBCCEDP allocated federal funding to states to: provide breast and cervical cancer screening tests to low-income women between the ages 18-64 as a preventative health measure; provide the appropriate referral services to women who require additional follow-up and or medical

treatment; to distribute education to the public related to the criteria for breast and cervical cancer early detection; to increase knowledge of health care and allied health professionals about early detection and management of breast and cervical cancer and to conduct ongoing monitoring and evaluation of states that have implemented the program (US House of Representatives, 2001; Ryerson, et al., 2002).

The Cancer Mortality Act of 1990 required Public Health Service and other federal agencies to institute a committee to ensure that appropriate activities were executed (US House of Representatives, 2001). This committee is in compliance with the Director of the Centers of Disease Control and Prevention (CDC) to assure that states utilize quality screening procedures (US House of Representatives, 2001). The Mortality Act also stipulates that if any woman is charged for services, these fees should be based on her income (US House of Representatives, 2001). The CDC is the authorized funding source (US House of Representatives, 2001). The CDC allocates funds to the federal government. These funds are then disseminated to state agencies (grantees) to administer the program (US House of Representatives, 2001). When this policy was initially enacted, only six states adopted the program. By 1997, all fifty states implemented the program, including the District of Columbia, five U.S. territories, and 13 American Indian/Alaskan Native tribal organizations (NBCCEDP, 2006). In the program's first year (1991), funds were appropriated in the amount of $30 million for programmatic services. By 2002, the program received approximately $192 million in funding (Ryerson, et al., 2002). Initially, sixty percent of the funding for the program was directed towards services, while forty percent was used for program support (Ryerson, et al., 2002). By 1998, the NBCCEDP mandated that seventy five percent of funding for services be directed towards women who are 50 years of age or older (Ryerson, et al., 2002).

To supplement funding for the NBCCEDP, former President Clinton passed the Breast and Cervical Cancer Prevention and Treatment Act in the year 2000. This law provided aid for cancer treatment to women diagnosed with breast or cervical cancer through the NBCCEDP (French, et al., 2004). If eligible, these women would automatically receive Medicaid coverage to pay for their cancer treatment (French, et al., 2004).

NBCCEDP quantified its screening success and found that since 1991: 6.5 million screening examinations were performed, 26,000 breast cancers and 1,700 cervical cancers were diagnosed and 88,000 cervical lesions were detected (NBCCEDP, 2006). Figure 6.1 demonstrates the number of women who received screening services, as well as specific mammogram and pap tests from 1999 to 2004, see below:
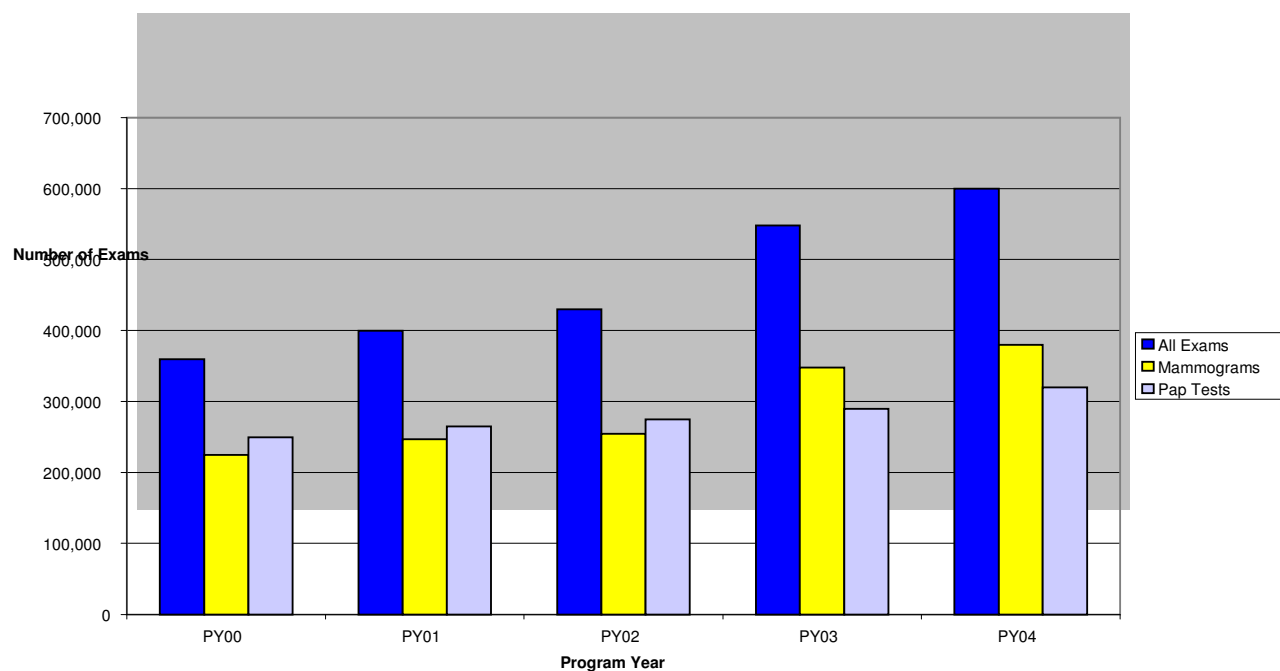
Figure 6.1. Women Screened Through the National Breast and Cervical Cancer Early Detection Program by Year, July 1999 – June 2004. All numbers are approximate values.

From National Breast and Cervical Cancer Early Detection, NBCCEDP Screening Program Summaries. Retrieved February 1, 2006 from http://cdc.gov/cancer/nbccedp/sps/index.htm.

By the program's tenth anniversary, it had successfully increased the number of women

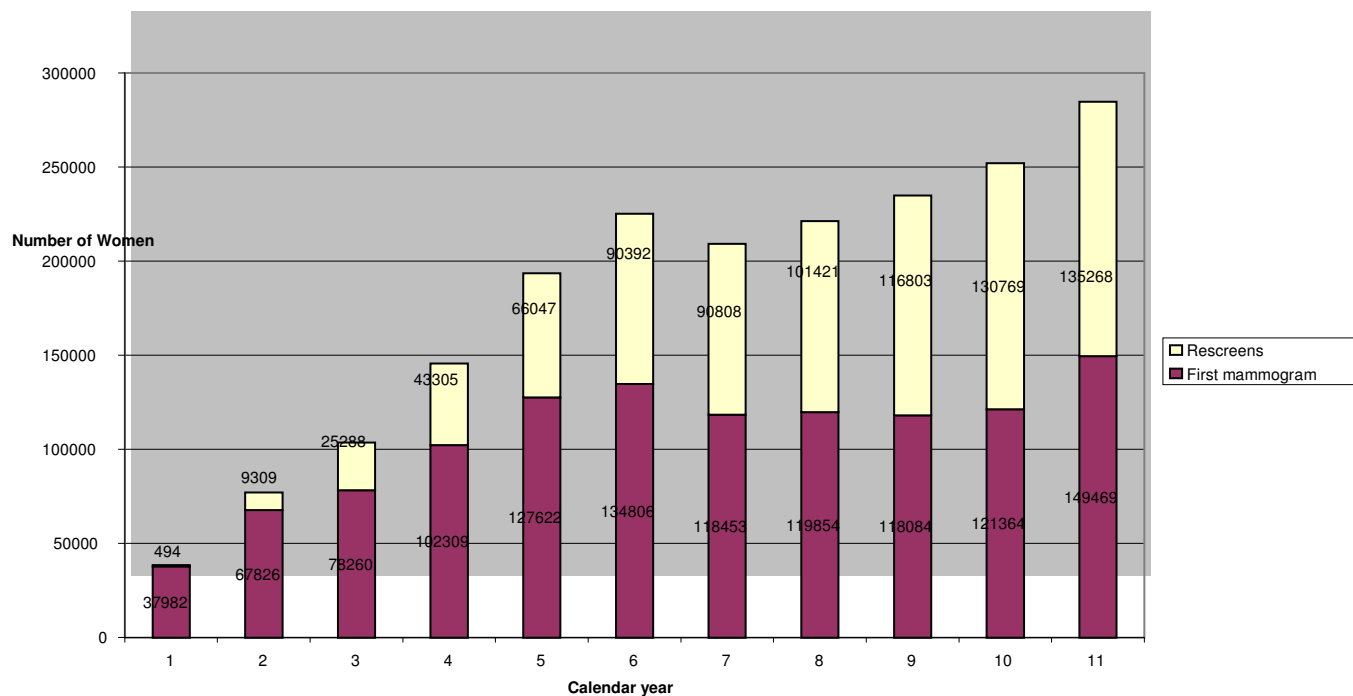receiving initial and subsequent mammograms, see Figure 6.2:

Figure 6.2. Number of Women Receiving Mammograms Through the National Breast and
Cervical Cancer Early Detection Program, 1991-2002. Number of women receiving a first
program mammogram and women returning for at least one subsequent program mammogram
from the period 1991-2002.

From National Breast and Cervical Cancer Early Detection Program: Summarizing the First 12 Years of
Partnerships and Progress Against Breast and Cervical Cancer, 1991-2002 National Report. Retrieved March 6,
2007 from www.cdc.gov/cancer/nbccedp/bccpdfs/national_report.pdf.

According to the graph above, the number of women who received at least one mammogram

increased. The number of women who returned for subsequent mammograms also increased

over the ten year period. The racial and ethnic distribution of women who received services under NBCCEDP from 1991-2002 is shown in Figure 6.3:
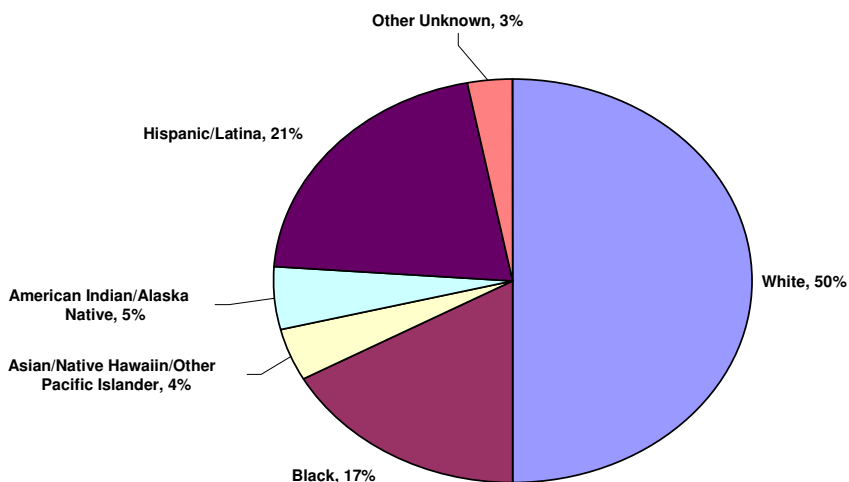

Figure 6.3. Racial/Ethnic Distribution of Women Receiving Mammograms Through the National Breast and Cervical Cancer Early Detection Program

From NBCCEDP: Summarizing the First 12 Years of Partnerships and Progress Against Breast and Cervical Cancer, 1991-2002 National Report. Retrieved March 6, 2007 from www.cdc.gov/cancer/nbccedp/bccpdfs/national_report.pdf.

The figure above shows that more White women were screened through the program, followed by Hispanics, Blacks, American Indian/Alaskan Native and Asian/Native Hawaiian/Other Pacific Islander.

NBCCEDP also collected statistics on women diagnosed with breast cancer, based on their racial and ethnic group from the period of 1991-2002, see Figure 6.4:
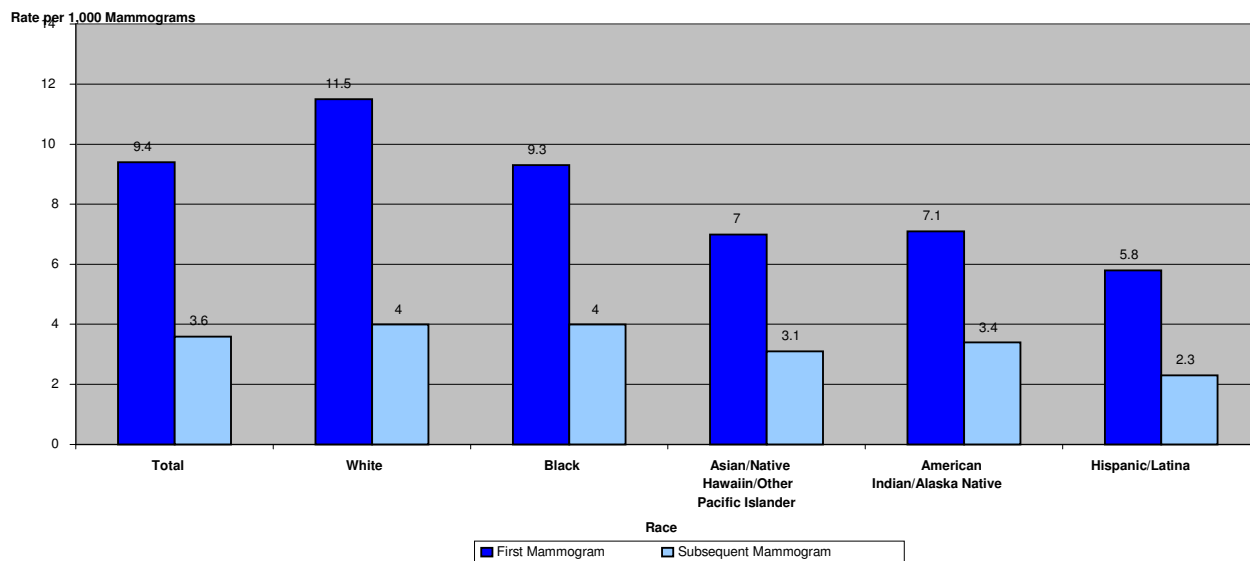
Rate per 1,000 Mammograms

Figure 6.4. Age-Adjusted Rates of Breast Cancer Among Women in the National Breast and Cervical Cancer Early Detection Program, by Race/Ethnicity and Screening Round, 1991 - 2002

From NBCCEDP: Summarizing the First 12 Years of Partnerships and Progress Against Breast and Cervical Cancer, 1991-2002 National Report. Retrieved March 6, 2007 from www.cdc.gov/cancer/nbccedp/bccpdfs/national_report.pdf.

The bar chart in Figure 6.4 shows that 9.4% of breast cancer cases were detected through the program. White women had the highest rates compared to other racial and ethnic groups in their initial mammography screening. In subsequent screening, both Blacks and Whites had similar breast cancer rates.

NBCCEDP's future initiatives included increasing screening services and implementing significant changes to improve program efficiency. Also, program costs will be evaluated and compared to other federally funded programs to determine if funds are utilized effectively. NBCCEDP also intends to link its programmatic data to cancer registry data. As such, demographics as well as treatment patterns could be analyzed (Ryerson, et al., 2002).

Results: Applied Case Studies

The table below illustrates a summary of the breadth of data obtained from case study analyses performed for New York, Texas, New Jersey and Louisiana. Some demographic and economic data on these four states are presented below:

Table 6.2

Demographic and Economic Data on Comparative Case Studies for New Jersey, Texas, New York, and Louisiana

Demographic/Economic Category	New Jersey	Texas	New York	Louisiana
Demographic Data				
Population Size	8,724,560	23,507,783	19,306,183	4,287,768
Race[1]	Black- 14.5%	Black- 11.7%	Black- 17.4%	Black- 33.1%
	White-76.6%	White- 83.2%	White-73.8%	White-64.1%
Economic Data				
Gini Coefficient (2000 Census Bureau)	.460	.470	.499	.483
Income gap/Annual dollar differences in income between the rich and the poor. (Early 2000s, Center for Budget and Public Priorities)	Rich - $7,280 Poor - $190	Rich - $3,830 Poor - $70	Rich - $5,000 Poor - $90	Rich - $1,220 Poor - $70
Poverty levels by race	Black – 25%	Black- 31%	Black- 34%	Black- 40%
	White – 7%	White-12%	White-12%	White-15%

Note: [1] Hispanics excluded under Black and White population. From *U.S. Census Bureau: State and County Quick Facts* derived from population estimates, Census of Population Housing, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployment Statistics, Economic Census, Survey of Business owners, Building permits, Consolidated Federal Funds Report, quickfacts.census.gov/qfd/states, and U.S. Census Bureau Housing and Household Economic Statistics Division, *Gini Ratios by State: 1969, 1979, 1989, 1999*. Retrieved May 13, 2005 from www.census.gov/hhes/www/income/histinc/state/state4.html.

According to table 6.2, Texas had the highest population followed by New York, New Jersey, and Louisiana. Whites comprised the highest percentage of racial and ethnic groups in each state. The highest percentage of blacks was in Louisiana. Among the economic data, the Gini coefficient, measured according to the 2000 decennial census, showed that New York had the highest income inequality levels in the nation followed by Louisiana, Texas and New Jersey. New Jersey had among the highest dollar change in income among the rich in the early 2000's relative to the poor when compared to the other three states, followed by New York, Texas and Louisiana. The Center for Budget and Public Priorities defined the rich population as individuals in the top 5% income quintile. The poor population is defined as individuals in the lowest income quintile. The top 5% in NJ experienced a 131.9% growth in income relative to the bottom quintile group, which only experienced a 24.4% increase over the same time period. The dollar and percentage change in income among all quintile groups in each state is shown in Figures 6.5, 6.6, 6.7 and 6.8.
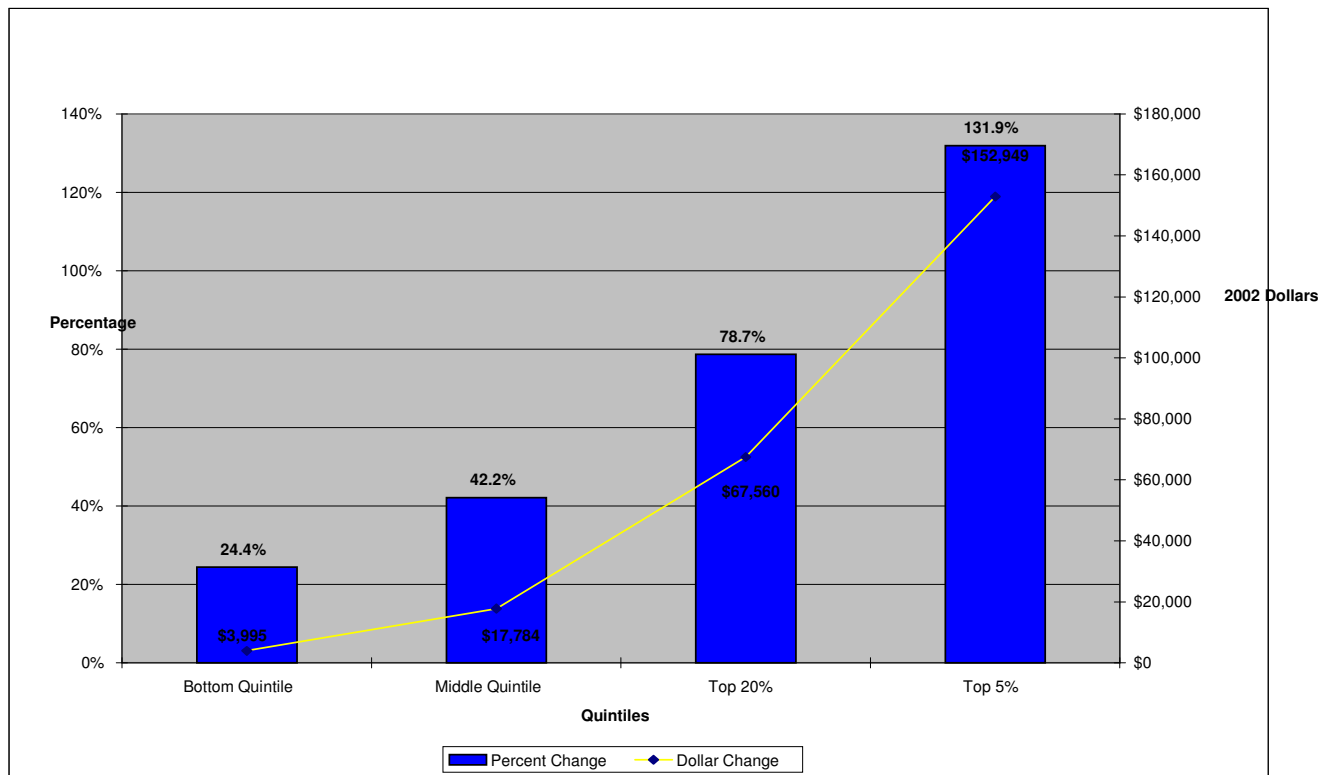
Figure 6.5. Dollar and Percent Change in Income in New Jersey, Early 1980s to Early 2000s

From *Pulling Apart: A State by State Analysis of Income Trends, State Fact Sheets, New Jersey,* by J. Bernstein, E. McNichol, and S.K. Lyons, January 2006, Retrieved February 2007 from www.cbpp.org/1-26-06sfp-fact-nj.pdf. Place of Publication: Center for Budget and Public Priorities and Economic Policy Institute.
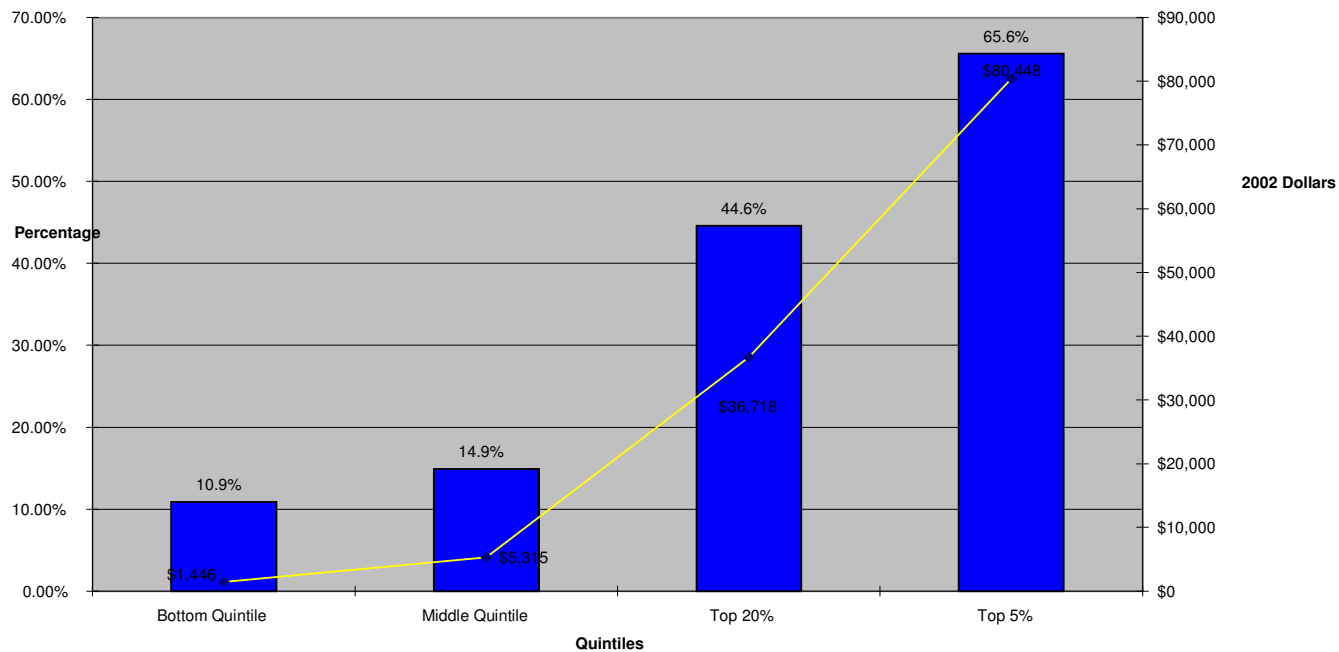
Figure 6.6. Dollar and Percent Change in Income in Texas, Early 1980s to Early 2000s

From *Pulling Apart: A State by State Analysis of Income Trends, State Fact Sheets, New Jersey,* by J. Bernstein, E. McNichol, and S.K. Lyons, January 2006, Retrieved February 2007 from www.cbpp.org/1-26-06sfp-fact-tx.pdf. Place of Publication: Center for Budget and Public Priorities and Economic Policy Institute.
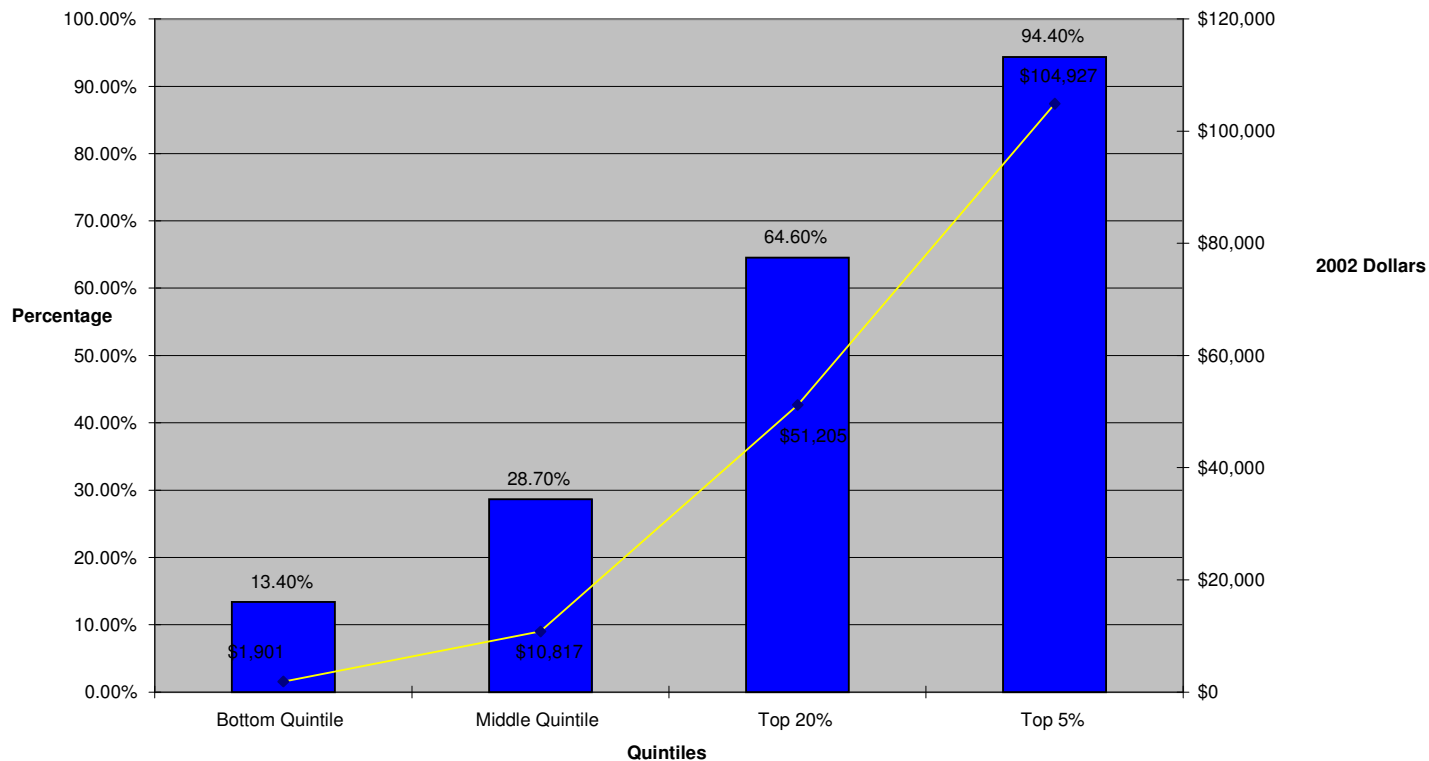
Figure 6.7. Dollar and Percent Change in Income in New York, Early 1980s to Early 2000s

From *Pulling Apart: A State by State Analysis of Income Trends, State Fact Sheets, New Jersey,* by J. Bernstein, E. McNichol, and S.K. Lyons, January 2006, Retrieved February 2007 from www.cbpp.org/1-26-06sfp-fact-ny.pdf. Place of Publication: Center for Budget and Public Priorities and Economic Policy Institute.

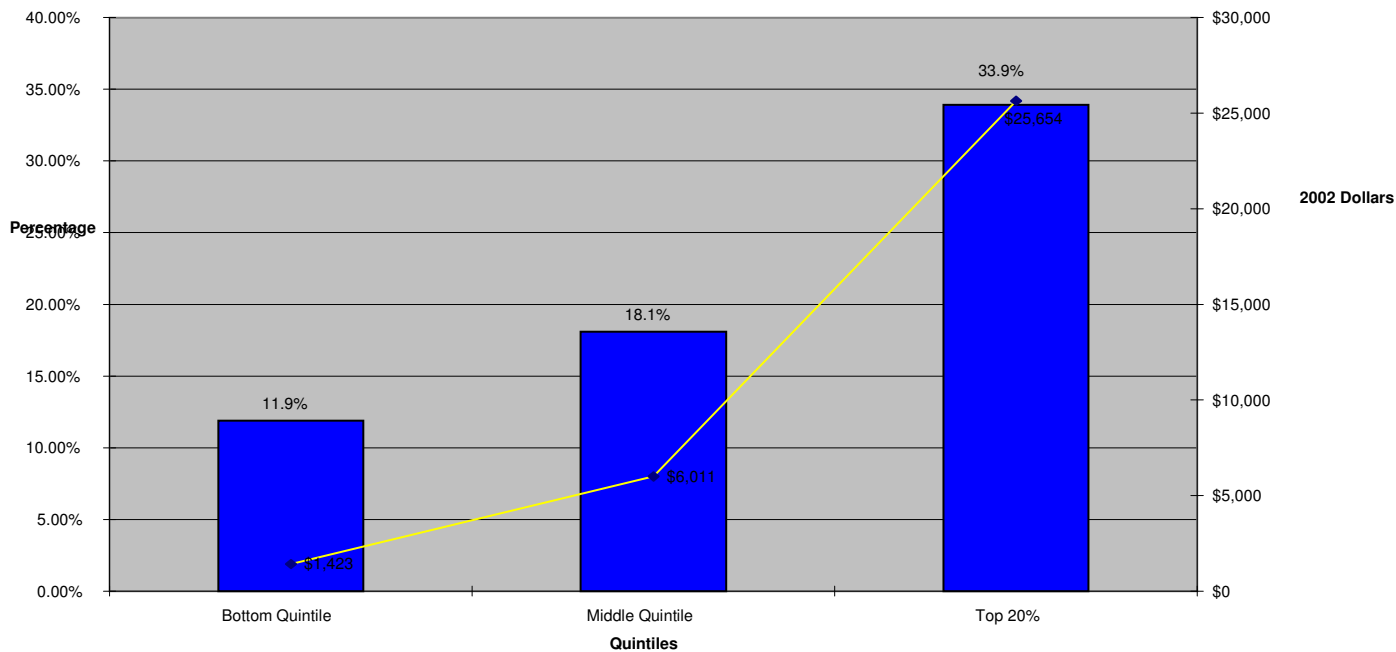Figure 6.8. Dollar and Percent Change in Income in Louisiana, Early 1980s to Early 2000s

The economic statistics in table 6.2 show that Blacks had the highest poverty rates in the state of

Louisiana followed by New York, Texas and New Jersey. Louisiana also had the highest

population of Whites living in poverty followed by Texas, New York and New Jersey.

The table below provides breast cancer statistics for the aforementioned states:

Table 6.3

Breast Cancer Statistics on Mortality and Incidence and National Breast and Cervical Cancer Early Detection Program Data from New York, New Jersey, Texas, and Louisiana on screening mammograms by race, ethnicity and age.

Breast Cancer Statistics	New Jersey	Texas	New York	Louisiana
Breast Cancer Statistical data				
Breast Cancer Mortality Rate	28.5	24.5	25.8	30.8
Breast Cancer death rates by race[1] (Non-Hispanic)	Black 34.3 White 28.5	Black 38.0 White 23.4	Black 28.1 White 26.1	Black 42.9 White 26.3
State Breast Cancer Incidence rates	126.4	111.5	122.3	118.9
State Breast Cancer Incidence rates by race	Black 105.9 White 129.8	Black 118.0 White 110.4	Black 96.2 White 126.1	Black 119.6 White 119.0
Women, 50+ years reporting having had a mammogram in the past two years	79.9%	75.1%	82.6%	78.9%
Women, 50+ years reporting having had a mammogram in the past	Black 86% White 79%	Black 76% White 76%	Black 82% White 83%	Black 79% White 79%

two years, by race

(Non-Hispanic)

NBCCEDP data	New Jersey	Texas	New York	Louisiana
Mammograms provided	26,402	69,940	88,115	12,751
Breast cancer screening distribution by race/ethnicity, 5 – year summary, 7/2001-6/2006	Black 15.8 White 26.3	Black 9.8% White 20.7%	Black 21.2% White 33.2%	Black 60.3% White 31.5%
Age adjusted rate of breast cancer detected per 1,000 mammograms	8.3	14.0	5.9	10.7

Note: [1] Hispanics excluded under Black and White population. Death rates are per 100,000 females and are age adjusted to the 2000 U.S. standard population. Incidence rates are per 100,000 females and are age adjusted to the 2000 U.S. standard population. Incidence data reported for period 1999-2003 for Louisiana; New York 2000-2002; Texas 2000-2002; New Jersey 1999-2003. Percent of women age 50 and older who report having a mammogram within the last two years (and by race), 2006; Percent are weighted to population characteristics From National Cancer Institute, State Cancer Profiles, Death Rates. Retrieved July 10, 2006 from www.statecancerprofiles.gov/cgi-bin/deathrates, National Cancer Institute, State Cancer Profiles, Incidence Rates Report. Retrieved July 10, 2006 from www.statecancerprofiles.cancer.gov/incidencerates, Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Behavioral Risk Factor Surveillance System, Prevalence Data for Louisiana, New York, New Jersey and Texas, 2006. http://www.statehealthfacts.org, and Centers for Disease Control and Prevention, National Breast and Cervical Cancer Early Detection Program, Screening Program Summaries. Retrieved February 1, 2006 from http://cdc.gov/cancer/nbccedp/sps/index.htm.

According to the breast cancer statistics in table 6.3, Louisiana had the highest breast cancer

mortality rate (30.8) followed by New Jersey (28.5) New York (25.8) and Texas (24.5). Blacks

in Louisiana had significantly higher breast cancer death rates (42.9) compared to the other three

states. Overall, black   women held the highest death rates compared to White women in all four

states.

New Jersey had the highest breast cancer incidence rates (126.4) followed by New York

(122.3), Louisiana (118.9) and Texas (111.5). White women had higher breast cancer incidence

rates in New Jersey (129.8) and New York (126.1). The mammography survey data showed that

women in New York who were 50 years of age and older reported higher screening rates within the past two years compared to the other three states. Overall, these screening rates were similar among black and white women except in New Jersey, where screening rates were much higher for black women.

NBCCEDP statistics were also reported in table 6.3. New York had the highest number of mammograms (88,115) followed by Texas (69,940), New Jersey (26,402) and Louisiana (12,751). Black women had the highest percentage of screening rates in Louisiana (60.3) compared to New York (21.2), New Jersey (15.8) and Texas (9.8). Overall, Texas (14.0) discovered more breast cancers through the program than Louisiana (10.7), New Jersey (8.3) and New York (5.9).

Although screening rates for NBCCEDP state programs were presented, we cannot make inferences on how robust the programs are based on these statistics. For instance, Louisiana's NBCCEDP screened almost doubled the number of blacks compared to white women relative to the other three states. We can deduce that Louisiana's program is race targeted based on these statistics. The higher screening rates for black women may correspond to the disproportionate rate of low income black women (40%) in the state compared to white women (15%). Likewise, we cannot make the assumption that Texas, New York and Louisiana did not target race since their mammography screening results for blacks and whites older than 50 years of age were comparable. New Jersey's program may be race-targeted since their mammography screening rates for blacks older than 50 years of age were higher than whites. As a result, it was necessary to conduct interviews on state programs. These interviews would provide insight on each state's programmatic goals and recruitment strategies. They could also inform us if state programs were

targeted towards income criteria only or both income and race. This could aid in determining if differences in program delivery impact breast cancer mortality rates.

Table 6.4 presents a summary of data collected from interviews with key program stakeholders in New Jersey, Texas, New York and Louisiana:

Table 6.4

Programmatic Data Characteristics on Case Study States

Programmatic data	New Jersey	Texas	New York	Louisiana
Program name	The New Jersey Cancer Education and Early Detection Program	Department of State Health Services, Breast and Cervical Cancer Control Services	Manhattan Breast Health Partnership	Louisiana State University Health Sciences Center, School of Public Health
Outreach Strategy	Race and Income targeted	Income/not race targeted	Income/not race targeted	Income/not race targeted
Funding Amount ($)	$2,962,215	$6,242,251	$6,784,816	$1,076,140
Programmatic Challenges	Insufficient funding, is considering decreasing the poverty line so that less women are eligible for the program	Insufficient funding needed to increase screening rates Lack of provider access to cover crucial regions	Desires more funding for program infrastructure Program is not responsive to all client needs	Funding is too low based on need and compared to other states with similar population size Can not expand efforts to cover crucial areas due to funding

Note: Qualitative interviews on programmatic focus on individual states based on National Breast and Cervical Cancer Early Detection Program funding, Outreach Strategies and program challenges.

All four states have public agencies that manage the program except Louisiana. New Jersey's breast and cervical cancer screening operates through the New Jersey Cancer Education and Early Detection Program (NJCEED). NJCEED's priority populations include disabled persons, lesbians and racial and ethnic minorities. NJCEED's outreach initiatives target Black and Hispanic women. Currently, more than 50% of their clientele comprises of this population. Their recruitment efforts for the Native American and suburban white population have not been successful.

NJCEED's outreach strategies included culturally sensitive messages in brochures, DVDs, pamphlets and educational activities tailored to address cultural barriers. These publications were distributed to their statewide contractors and utilized at community events and health fairs.

NJCEED and The New Jersey affiliate of the Susan G. Komen Breast Cancer Foundation partnered with NJ2-1-1, to implement an outreach program that targeted black women. The program is called "Reach Out for Life: Somebody Needs You."   NJ2-1-1 is a 24 hour hotline that provides information that connects people to needed human services. These services include information on shelters, adult day care, kids care, recreation programs and employment resources (2-1-1 Fact Sheet, Accessed 2/24/07). This is a grassroots initiative to increase breast cancer awareness among black women over the age of 40 (The Susan G. Komen Breast Cancer Foundation Central & South Jersey Affiliate, 2007). The program engages black women with cultural messages such as, "We, your family friends, clergy and civic leaders are getting involved in your health. We depend on you and need you to be well; From now on your health is our concern; We are in this together" (The Susan G. Komen Breast Cancer Foundation Central & South Jersey Affiliate, 2007). This program hosts educational and social events, including

programs in beauty shops, churches, school forums, and displays kiosks in shopping malls to increase breast cancer awareness. The program provides funding in the amount of $400,000 for Black women recruited through this initiative. The program pays for screening services and allots $250.00 towards diagnosis.

New York, Louisiana and Texas did not recruit low-income women based on race/ethnicity. The breast cancer screening program in New York City is managed by the Manhattan Breast Health Partnership (MBHP). The program collaborates with community based organizations to recruit uninsured women. Their catchment areas included women who were 40 and over who resided between 125th street and lower Manhattan. The screening strategies for the MBHP included advertisements on their website and through "word of mouth". Another strategy included advertising their 800 number in various community venues. This strategy linked women to providers that offered free mammograms. Another outreach initiative is the program's collaboration with public service organizations. For instance, public health insurance carriers that recruit low income women, such as Metro Plus insurance, were a good source of client referrals. New York's program discovered that working with public service agencies that target uninsured was more successful. The program found that tables in hospital lobbies with breast cancer brochures or distributing flyers in local community health events was less robust. The latter strategy had very little impact on increasing the number of women screened into the program. By 2006, the program worked with organizations such as the Children's Aid Society and public tax services companies that assisted low income people in filing for their taxes. These organizations often encountered women who were uninsured or undocumented.

The New York program developed relationships with public service staff in local public Hospitals. The program refers to this initiative as "in-reach." They discovered this to be their

most viable source of client referrals. The New York program educated and trained financial counselors in these hospitals about the services provided through the program. They also trained administrative staff in major Obstetric, Gynecologic and other Adult clinics to ensure feasible enrollment. These staff members encountered uninsured or underinsured patients.

The Texas breast cancer screening program is managed by the State Health Department. They recruited women between the ages of 50-64 that were less than 200% of the poverty level. Their poverty threshold is lower than the federal mandated levels for the program. According to an interview with one of their stakeholders, they reduced their levels so that fewer women would be eligible. The program wants to incorporate an outreach program that specifically targets black women if their funding increases in the next cycle. Currently, the program in Texas recruits women based only on income criteria through outreach initiatives that included free media advertisements in the Newspapers or radio. The program in Texas partnered with the Susan G. Komen Breast Cancer Foundation to participate in local community awareness events. At the grassroots level, screening providers recruited women from beauty shops, churches and local community awareness events. These strategies successfully enrolled women that resided in smaller towns in Texas. The program also partners with Breast imaging centers or Breast cancer surgeons to enlist women into the program.

Louisiana's breast and cervical cancer program was not coordinated through a state agency. Their program is managed by Louisiana State University, School of Public Health program. The program has spent very little funds on outreach efforts. Louisiana's program mainly enrolls low income women based on income criteria. They mainly conduct strategies to enroll women that included partnering with physicians that provided services to low-income women with multiple health problems. The program also partnered with a women's hospital, and

a cancer center in their Lafayette area to increase their recruitment numbers. In their Baton Rouge area, the YMCA-Encore Plus program is one of their screening providers that directly target women who attend local churches. Overall, 80-90% of the women screened through the program in Louisiana were through in-reach efforts.

In some regions in Louisiana, CDC-funds were utilized to hire additional staff instead of screening services. Among the staff hired, a nurse and an administrative support person would manage the screening program. This team was responsible for screening, diagnosing and submitting the paperwork required for women serviced through the program. This aided health organizations tremendously since they did not have to utilize their own resources (staff) to participate in the program. Overall, the Louisiana program found that by hiring additional staff, more women were screened while less money was spent with CDC funds.   These screening sites were able to screen as many as 800 women annually at their facility. The Louisiana program felt that these facilities were capable of servicing even more women, if funding permitted.

According to table 6.4, NBCCEDP funding varied across the states. New York and Texas received the most funding compared to New Jersey and Louisiana. This could be related to population size. Both states received over 6 million dollars for screening services. The interviewee at the Texas breast cancer program still felt that additional funding was needed to increase their screening capacity. The New York program believed their funding was inadequate because it did not cover the costs for their administrative team. However, they felt that their grant award for breast cancer screening services met the needs of their population. Louisiana received the least amount in funding. The stakeholder at the breast cancer program in Louisiana felt that their funding was insufficient based on their population size. The interviewee in New Jersey

screening program was also dissatisfied with their grant award. They are considering decreasing their poverty line due to lack of funding.

Based on the interviews with key stakeholders in the four states, their programmatic challenges were similar. Louisiana, New Jersey and Texas reported that additional funding for screening services was their program's greatest challenge. In Louisiana, their program was successful at enrolling women, especially in sites where additional staff was funded and in regions with the greatest need. The team sites had the capacity to screen as many as 1000 women, but only screened 800 women. The Louisiana screening program did not want to exceed 800 women in these sites because they would have exceeded their grant award.

The Louisiana program staff expressed some apprehension about CDC-funding for southern states. They discovered that southern states appeared to be poorly funded compared to other U.S. states. Also, some states with similar population size received more money. This was also the case with states that had the same percentage of underserved women as Louisiana. Overall, they did not feel that they were funded fairly. Currently, Louisiana is screening the same number of women they screened prior to Katrina. The program feels that the states' breast health needs increased and that they should receive additional funding. The program wants to expand to cover other regions that do not have access to services. They also want to target women who have been harder to recruit, such as women who are disabled or women who would not normally go to the doctor. They believed that if the CDC considered these needs, they feel that their program enrollment would increase substantially.

In addition to Louisiana's challenge to secure more funding for screening services, the program experienced another crucial obstacle after the impact of Katrina. The federal government was unable to efficiently respond to this disaster situation. The government could

not provide adequate financial support to fund additional screening partnerships. There were two screening sites destroyed during Katrina. These sites have not yet reopened. The Louisiana program's in-reach providers at the Medical Center in New Orleans and the Partners in Health at the Louisiana State University Health Sciences Center, Stanley S. Scott Cancer Center was instrumental in providing services for the population of women who were serviced by the two sites destroyed during Katrina. Louisiana's program also partnered with the St. Thomas Community Health Center in New Orleans. This Center had the staffing capacity to screen the same number of women who were primarily enrolled in the New Orleans sites that were destroyed. After this partnership was finalized, the Louisiana program requested that the CDC exchange contracts such that this new Center would receive screening funds, given that one of the original New Orleans screening programs no longer existed. However, this approval process usually takes approximately three months. The program requested for such changes to occur at a faster pace, due to the crisis situation. The CDC was unable to meet this request. Hence, the program pursued funding from other foundations such as the Avon Breast Care Fund, the American Breast Cancer Foundation, The Susan G. Komen Breast Cancer Foundation, The United Way and the Lloyd A. Fry Foundation. Such sponsorships enable the purchase of screening equipment, hiring of additional staff at the center and financial support to pay for screening services.

In addition, funds from the private sector paid for services at screening facilities in other New Orleans sites. These sites were not damaged by Hurricane Katrina. These sites had displaced patients. They had an influx of both insured and uninsured patients, increased staffing needs, telecommunications and power problems and a host of more emergent patients needs.

Some of Louisiana's CDC funding was reallocated to such screening providers. Hence, the flexibility of funding from these private foundations was indeed invaluable.

In New Jersey, their programmatic challenges were primarily due to inadequate funding. Given this, the New Jersey program plans to consider decreasing the poverty line so that fewer women would be eligible for the program. Currently, the program covers only 12-14% of the women eligible for this program in their state. In Texas, the Breast Cancer program also reported that their greatest challenge to programmatic success was due to insufficient funding. The program is able to provide services to approximately 3% of women in need for such services in the state. Outreach activities have not been progressive due to a lack of funding. Also, the Texas program lacked providers to cover various regions in Texas. This has been a barrier to underserved women since clients endured some travel distance to obtain access to screening services.

New York reported that their funding challenges were primarily with financing program infrastructure and not screening capacity. While the number of women screened annually in the program increased substantially in the past four years, federal and state funding for the screening services continued to increase. This same increase was not shown in their operational expenses. The New York program did not receive authorization to spend CDC funds to increase their staffing capacity to meet the growing needs of the program. According to the Program stakeholder, this impeded programmatic success since the focus of the program's goals have been on the quantity of woman screened as opposed to the quality of services received as a performance measure. In order to ensure quality, the NY program aspires to ensure that every client receives services in a timely fashion and has access to resources. The program's stakeholder indicated that the program's major city hospital providers could have screened more

women, but such institutions also lacked the resources to operate their program. The New York program believed that they would be able to recruit more women if they could afford staff for outreach initiatives.

The New York program also felt that they have been unable to respond to all of their client's needs. They felt that a more comprehensive health policy program, such as universal health insurance would be a more appropriate resolution. As such, they believed that the Breast and Cervical Cancer Screening program to be only a palliative solution that only deals with a portion of the health needs of low income women. If one of their clients experienced other health condition, the screening program failed to address such needs.

Conclusion:

To re-iterate the hypothesis of this chapter, it was expected that among states with high income inequality, those with a stronger social welfare program would have lower breast cancer mortality. These case studies were performed to determine if appropriate investments in specific program areas could have a positive influence on breast cancer mortality rates. To assess robustness, this research evaluated recruitment criteria, outreach strategies and funding sources for each of the four states. However, these case studies could not be used to prove this hypothesis. There were considerable differences across each of the programs. New Jersey, Texas and Louisiana represented a state level analysis while New York encompassed a local level case study analysis. The level of funding for each state varied, which could be indicative of the types of outreach activities states were capable of executing. Also, given the variation in population size (large vs. smaller states), the level of outreach activities and funding may reflect such distinctions. Therefore, the differences in program outcomes across the case studies can not be

attributed to differences in program characteristics. Given this, these case studies were not comparable and hypothesis 1b could not be validated.

Despite the variability in this analysis, these case studies can be used to offer insight on the objectives and challenges that four different social programs encounter as they work to reduce breast cancer mortality. New Jersey had the second highest breast cancer death rate among the four states and they were the only state that recruited women according to race and income. Their outreach efforts were also more limited than the other three states. The program's strategies entailed tabling at community events and developing culturally sensitive materials to target Black women. Based on this interview, the programs limitations on recruitment and outreach efforts were based on a lack of resources. Alternatively, Louisiana's recruitment strategy was based only on income criteria. Louisiana also had the highest death rates compared the four other states. The program invested very little in outreach efforts that targeted any specific population. They engaged in more aggressive techniques such as partnering with physicians to screen low-income women. They also hired personnel in physician practices to provide such services. The program pursued multiple funding sources to respond to population need. Louisiana's program still desired additional funding to provide screening services to more low-income women.

Texas and New York also desired additional funding for their programs. The program in Texas wanted additional resources to screen more women, while the New York program needed more funds to support their administrative costs. Both programs recruited women based on income criteria. Each state also engaged in broader outreach activities that included partnering with small business, public service organizations and hospital staff (social workers, radiologists, etc) to recruit low-income women. They relied on CDC funding for program services.

In spite of these differences in program delivery, each state felt that additional funding was required in order to strengthen specific areas in their programs. They also expressed the desire for federal funding to provide them with such resources. Their beliefs are parallel to prior theories that appropriate investments in crucial social welfare programs are critical to health status. Based on these case studies, this research suggests that perhaps re-investing capital into a crucial health care safety net program, such as NBCCEDP, may prove to be beneficial in reducing disparities in breast cancer deaths. Further research should consider analyzing outreach strategies used on breast and cervical cancer screening programs in all states to assess if programmatic differences affect breast cancer outcomes.

<u>Limitations</u>

The case studies were conducted to complement the statistical analysis performed in previous chapters. Case studies are used to provide more depth. Such studies are limited because they do not draw rigorous conclusions. For instance, there may be other factors associated with death rates. These factors include health behaviors such that some women may choose to not seek care or engage in annual screenings. Also, population demographics may influence mortality. For example, if being black influences breast cancer mortality rates as suggested in previous chapters, then having a disproportionate number of blacks in a population would be significant. Case study methodology does not control for charity care in local hospitals, Medicaid generosity and liberal social insurance programs. In spite of these limitations, these case studies provided a descriptive analysis on how federally funded breast cancer screening programs interacts with the political and social environments to reduce breast cancer mortality.

Chapter 7

Conclusion

Introduction

Breast cancer mortality, especially among the poor, remains a public health concern. Social science researchers have documented that there are significant differences in the level of services that are available to members of different economic groups. To better identify these disparities, there have been extensive examinations of the role of race and socioeconomic status related to the health outcome of patients with breast cancer. In support of an alternative perspective, researchers have pursued the study of health inequalities, from a broader social justice perspective. They have assessed how political and economic factors account for health inequalities. A broader analysis of the changing political climate and its associated economic policies are central to this research approach. Admittedly, race and socioeconomic disparities are two (of many) major factors that are deeply rooted in political and economic realms. Of interest to this study is the formidable threat of having a globalized political climate. A globalized polity calls for profit maximization. This paradigm may diminish the welfare state's commitment to investing in crucial social welfare programs, including health care safety net systems. If health care safety net systems are endangered, then disparities across all racial and income groups may become even more pervasive.

This study seeks to examine the relationship of political-economic institutions to a single health outcome – breast cancer mortality. The political and economic factors analyzed in this include variations in income inequality, investments in social programs (e.g., Medicaid expenditures), and the manner in which health care safety net systems relate to breast cancer mortality. Such factors are theorized to be more crucial than the association of race and

socioeconomic status to this disease. Globalization, through its processes and economic policies, provides a discursive explanation as to why disparities in breast cancer deaths subsist. This research is based on the hypothesis that global changes have indirectly contributed to health disparities in particular ways. The welfare states' increased sanctioning of the pursuit of profit guide an understanding of how income is redistributed. This has created significant and increasing income disparities between the rich and the poor. This research focuses on how those income disparities and social programs, designed to reduce health disparities, are associated with one health outcome.

Given the imminent vulnerability of continued investment in our nation's health care safety net programs, the substantive role of political and economic choices are examined in two ways: (1) by testing the association between the distribution of income and breast cancer mortality, and (2) by testing whether a robust social program could reduce breast cancer mortality. Empirical models are used to test the initial hypotheses in this study. The final results of the analysis of the first hypothesis did not confirm that the main independent variables, inequality and measures of health programs, underlie variability in breast cancer mortality. Analysis of the second hypothesis involved qualitative case studies. While differences in the programs examined through the case studies did not support a rigorous test of the social program hypothesis, they were nevertheless informative (discussed below).

The conceptual model in Figure 7.1 illustrates the pathways to disparities in breast cancer mortality from a social justice perspective.
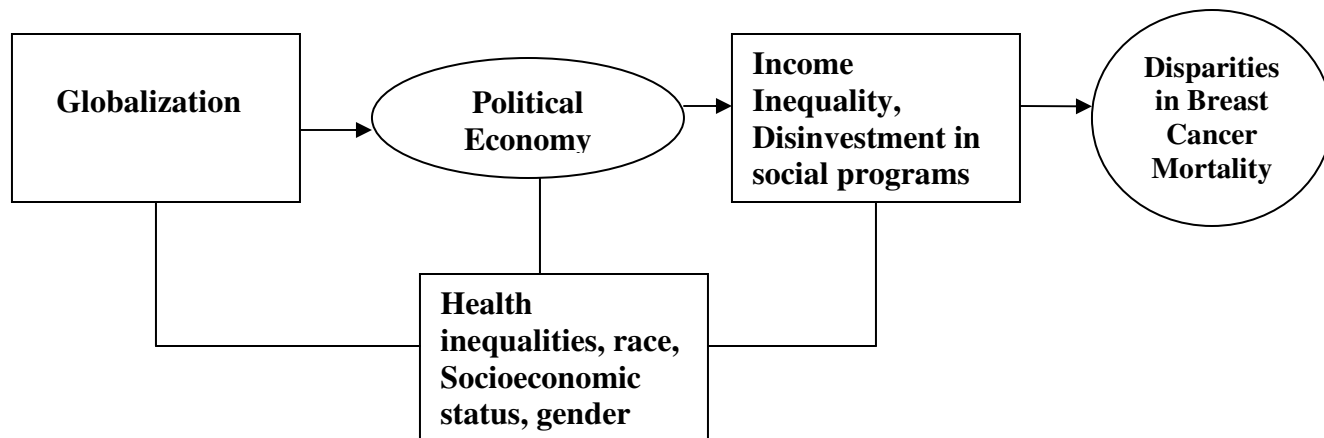
Figure 7.1 Pathways to disparities in breast cancer mortality, Social Justice perspective

Based on this conceptual model, the empirical component in this study tested if income

inequality was associated with breast cancer mortality while controlling for race and

socioeconomic status. The qualitative case studies examined whether social programs mattered

in selected states with high income inequality. Although the role of social programs was not

examined in low inequality states, the theory underlying this analysis suggest that social

investment in any state would help reduce breast cancer mortality.

This chapter revisits the objectives of this study. Each section restates the research

hypothesis, summarizes research results, and interprets the major findings. This chapter explores

why the research findings did not provide strong evidence in support of the hypotheses in this

research and offers suggestions for areas of further research.

Income Inequality and Breast Cancer Mortality

Based on the theories discussed in Chapter 3, this study posed the hypothesis that income

inequality would be a strong predictor of breast cancer mortality. This proposition was tested by

modeling the relationship between three main indicators of inequality on breast cancer mortality. The primary independent inequality measure was income inequality, using the Gini index. Alternative measures of inequality were racial and economic dissimilarity indices. Ordinary least squares regression was performed using a sequential modeling approach. The results of the final model, which included a broad set of co-variates as well as state fixed effects, suggest that income inequality is not a significant predictor of breast cancer mortality. The racial and economic dissimilarity indices were also not significant predictors of mortality. The Gini coefficient was highly significant in a simple regression (model 1) and in a model that also controlled for social programs (model 2), but it became insignificant when the percent of the county population that is African American was added to the model. This suggests that at the county level, income inequality and the percent of the black population are inter-related in ways that may make it difficult to distinguish between the effects of race and income inequality. In fact, these two variables have a highly significant correlation coefficient of nearly 0.5. It may be that the study design (i.e., cross-sectional county-level analysis) is not adequate for distinguishing the effects of these two population characteristics.

Despite significant findings of an association between income inequality and county breast cancer mortality in preliminary models, overall, the empirical findings did not support the political economy explanation for mortality differences. The results of the final regression model indicate that only two variables are associated with breast cancer death rates in the percent of the black population. The percent of the black population was the most significant predictor of breast cancer mortality. However, the effect was small (.003 deaths per 100,000 women) for each 1percent increase in the percent black of the black population. The percent of county hospitals with major teaching status was also a stronger negative predictor of mortality (a reduction of

0.095 deaths per 100,000 for each percentage increase in hospitals with a teaching designation). The signs on the coefficients for the variables for percentage of the black population and the percent major teaching hospitals show the expected direction of the effect. This result does not mean that the relationship between the percentage of the black population and breast cancer death rates will continuously demonstrate a positive relationship. Also, these results do not suggest that the association between hospitals with a major teaching status and breast cancer mortality is one-directional. Although theory implies that race and investing in health care safety net resources is correlated with mortality, these regression models do not demonstrate a substantive causal relationship. The models do not describe *how* or *why* such variables result in breast cancer mortality. The political-economy approach itself is a complex (global) phenomenon and its relationship to mortality involves influences from multiple institutions at the national, state, and local levels. As such, the regression models used in this study cannot entirely capture all of the possible associations between the political economy perspective and breast cancer deaths.

There are many possible reasons that the empirical models in this research study did not more robustly confirm the study hypotheses. Possible omitted variable bias, non-random selection of study states, and the use of cross-sectional data may explain why the empirical findings did not support the hypotheses. As previously noted, the political economy approach calls for examining breast cancer mortality from a broader perspective than that adopted by those who support the explanation of race or socioeconomic attributes as determinants of health disparities. A multitude of independent variables would need to be included in a multivariate analysis to assess all factors related to mortality. For instance, state strategies to reach out to and enroll eligible women in Medicaid or other breast cancer prevention programs can vary greatly

across states in ways that are not easily measured. It is also true that reducing such efforts can be done without legislation, and therefore, may be the first casualty as states face difficult budgets and other possible effects of globalizing economies. Measures of these concepts were not available for inclusion in the analyses. There could be other health care safety net programs that are crucial to the uninsured population for which measures were not included in the dataset of this present study.

Another variable that was omitted from the analyses is the number of low-income women who possessed more than a high school education. This characteristic can be considered as a key variable since prior research studies indicate that disparities in breast cancer mortality are linked to education status. These variables (among others) could have been correlated with the included independent variables. This could have resulted in biased or inconsistent estimates.

The states in the study dataset were not randomly selected. There was county-level data available only in thirty-one states. In a non-random selection such as the one used in this present study, there may be statistically significant differences in county data that has been included or excluded from the dataset. Based on the analyses in Chapter 4, there are states with high-income inequality levels and high-uninsured rates that were excluded from the dataset. Therefore, there is potential for selection bias. If selection bias is present, then this could cause theoretically relevant variables to be non-significant. Selection bias could explain why key variables, such as lack of health insurance, income inequality, and mean amount of public assistance were not statistically significant in the final regression models. According to theory, the results of these regressions should have demonstrated a relationship between these variables and breast cancer mortality. Pursuing future research in this area may prove to be beneficial if longitudinal data is used and if the dataset includes statistics for all 50 states. As previously mentioned, the expected

outcome might have been produced in this research study if the unit of analysis was collected at the individual-level as opposed to county-level data. The county-level analysis may mask important relationships among variables and limit the capacity to identify key relationships.

Lastly, using cross-sectional data might also have impacted the empirical findings in this present study. The health care safety net dataset used in the regressions was collected in 2003, therefore, changes in inequality and mortality could not be measured. Future research efforts should develop and analyze longitudinal data. The association of health care safety net programs, major teaching status hospitals, uncompensated care pools, and community health centers should also be monitored. These programs are often implemented at a crucial and disparate stage. The positive outcomes of such programs may become apparent over a period of time. Overall, the hypothesized relationship may be evident over time as globalization and trade agreements lead to increasing income inequality and pressures to reduce social investments.

In spite of the lack of association found between direct measures of inequality, results of the empirical model indicate that investments in social programs might be related to mortality. While not definitive, this suggestive evidence supports the theory that the political economy approach could be crucial to the discourse on breast cancer mortality. In the final regression model in Chapter 5 (model 5) one political variable, the percentage of hospitals with major teaching status, had a significant and negative effect on the dependent variable, mortality. Additional simulations were performed using this model to predict what the breast cancer mortality rate would be if all hospitals had a major teaching status, holding other variables in the model constant at their average. Using the regression coefficients in this final model, each coefficient was multiplied by its county mean. This provided a "baseline" average estimate of mortality of 29.26 per 100,000 women. This model was then modified by replacing the average

percent of hospitals with major teaching status (3.8 percent) with a 100 percent value. While

extreme, this model would predict the mortality rate if every hospital had a major teaching status.

The modified equation produced a projected breast cancer mortality rate of 28.98 per 100,000

women. This means that if all counties had average characteristics, and 100 percent of a county's

hospitals had a major teaching status, then the mortality rates would be reduced by a difference

between 29.26 and 28.98, or .29 deaths per 100,000 women. From a national perspective, there

are approximately 300 million people in the U.S. population. Approximately 47% are women in

the age range who are susceptible to breast cancer risk (age 40 and over). This means that

approximately 142 million per 100,000 women in this age group are at risk for breast cancer. If

we multiply this by .29, per 100,000 women reduction in mortality, this translates to roughly 412

lives would be saved, nationally, from breast cancer mortality if 100% of discharges in the study

counties were from major teaching hospitals**.** Since the dataset consisted of only 61% of the

population, then approximately 251 lives would be saved in the 31 study states (61% of 412).

While such a predication assumes casual relationships that have not been proven, it does

illustrate the potential magnitude of the effect of increasing investments in teaching hospitals.

    There were additional simulations performed to illustrate the effects of race and public

assistance on breast cancer mortality. Using the previously mentioned simulation strategy and an

additional regression model, the black population was reduced from an average of 10.5 percent

to 0 percent. By manipulating a decrease in the black population, the association of race and

mortality is illustrated. This simulation predicts the breast cancer mortality rate as 28.29,

compared to the baseline rate of 29.26: the mortality rate would decline by .97 deaths per

100,000. While this simulation is not intended to reflect a policy option, it suggests that by

decreasing the black population, more lives would be saved. Finally, while not significant in the

modeling, the coefficient on mean amount of public assistance signed in the expected direction. Using the same simulation methodology, increasing public assistance by an average of one third would lead to a reduction of mortality by a magnitude similar to the major teaching hospital status simulation. Again, while direct inferences from these simulations are not possible, they do illustrate the quantitative magnitude of the associations revealed in the study regression models.

Role of Stronger Social Welfare Programs

Case studies were examined on four National Breast and Cervical Cancer Early Detection (NBCCED) programs in states with high-income inequality levels. These case studies provide descriptive narratives about the operations of four different programs that are aimed at reducing breast cancer mortality. The mission and objectives of each program were assessed. Descriptions were provided on the challenges that each program encountered and on the approaches used to deal with political, economic, and social environments. The availability of appropriate resources to manage specific program areas was a primary focus of the case studies. These areas included recruitment, outreach strategies, and funding sources. The case studies consisted of information on both state and local NBCCED programs. For instance, the New York program encompassed central/southern Manhattan, while the New Jersey program represented the entire state. The screening programs varied across the states in the populations that were targeted, as well as presented differences in other program features. Given this, the substantive differences in program characteristics cannot be attributed to differences in mortality outcomes. Therefore, the results of an analysis of these case studies are not fully comparable and the study hypothesis could not be directly tested. However, some lessons were evident. The Texas and New York programs did not recruit women based on race and had more aggressive outreach strategies. Staff in both programs expressed the need for additional funding to sustain operations. In contrast,

New Jersey, which had recruited women based on race, had weaker outreach techniques, and also had higher death rates. Louisiana had the highest breast cancer mortality rates among the four states. This program did not limit its recruitment efforts based on race, had robust outreach approaches, and acquired funding from various organizations to support the program. Given the nature of case studies, definitive conclusions on the association between funding resources, outreach strategies, recruitment efforts for NBCCED programs, and death rates cannot be drawn from this analysis. As discussed previously, the regression models used in this study suggest that social investments matter. Future research should consider including additional states and a more comprehensive analysis of state program strategies.

Conclusion

Overall, only weak evidence from this research suggests that investing in health care safety net programs can offset breast cancer death rates. The hypothesized relationship between measures of inequality and outcomes was also not supported. Limitations in the methods, described above, may have limited the ability of this empirical approach to confirm the theories that strongly support the idea that a social justice approach can maximize public health improvement. Still, some of the research findings are consistent with the research hypotheses. The political variable, mean amount of public assistance, demonstrated significance except in the fixed effects model. Hospitals with a major teaching status demonstrated an effect in the expected direction (higher numbers of teaching hospitals were associated with lower mortality). In the simulations, breast cancer deaths decreased by .29 deaths per 100,000 women when the assumption was made that all county hospitals had this teaching status. This is not a definitive prediction, but it is consistent with the ideal that investing in social programs may be crucial to

reducing mortality. Unfortunately, the processes through which these programs are effective at reducing mortality cannot be determined.

Different research designs may provide stronger tests of the social justice hypothesis. Research studies where the unit of analysis is at the individual level may provide greater insight on the correlations between politics and economics on breast cancer mortality. Longitudinal studies on health outcomes can include data on key indicators of economic hardships across individuals and time. This could enhance a quantitative model that aims to explore political and economic factors on a health outcome. Additionally, broader and more comprehensive case studies are needed to more fully explore the relationship between social program strategies and mortality rates. Future research can further examine how sustaining the ideologies of the dominant classes shape health disparities, perpetuate poverty, and reinforce neo-material hardships.

Recent trend data show that the poor and middle classes did not experience financial gains over the past few decades when compared to the wealthy. There were very large income gaps between the rich and the poor. There have also been stark differences in the health status among the rich and the poor. Therefore, examining how crucial resources are allocated among the social classes is critical. Economic policies that are directed towards fractioning resources can create and intensify disparate conditions. Therefore, policy goals aimed at alleviating health disparities could begin with a redistribution of income towards health care safety net programs, rather than on maximizing profits. Although the results of this research are not conclusive, investments in a social insurance program, Medicaid eligibility, and Medicare expenditures may prove to be beneficial. NBCCED prevention initiatives could be directed to focus on factors other than reducing health-related risk behaviors. These programs could be made more

comprehensive by incorporating a multidisciplinary approach. Such programs could address structural factors that produce high poverty. Next, NBCCEDPs could examine the links between poverty and poor health in local communities, assess the availability of appropriate resources, consider the role of environmental exposures and overburdened health care systems in urban communities, and then devise a comprehensive plan. A multidisciplinary approach to eliminating health disparities considers the impact that political choices and social and economic policies have on health, especially in disadvantaged communities.

Broadening the focus of narrowly defined conventional approaches to understanding health disparities would be a worthwhile initiative. The social justice approach offers an opportunity to assess mortality from the political economy perspective. As mentioned, the political economy approach promotes the underlying goal of equalizing incomes or decreasing income disparities between the wealthy and the poor. Eliminating income disparities through economic restructuring could be beneficial in health outcomes. Economic restructuring might include redistributing profits towards income supplements for the unemployed, middle and working class, and lower income groups. Additional research on the relationship between economic change and health outcomes appears to be crucial. There are trends in world economic theory that strongly suggests the need for free-markets to be countered with aggressive redistribution efforts and social policies. Therefore, breast cancer prevention programs that do not address structural influences and remain guided by behavioral models are limited.

It would perhaps be logical to extend research efforts towards investigating the dynamics of counties that had hospitals with a major teaching status and counties that did not. On average across the study counties, only 3.8% of discharges were from major teaching hospitals. A social justice perspective seeks environments where there is equal opportunity to utilize needed

material resources. It would be fruitful to explore if counties where major teaching hospitals play larger roles were deprived of other needed material resources. Such resources could be the broader geographical dynamic which includes access to public transportation, investment in environmental health or other factors. Since race was also significant in the presence of this indicator, they may have populations that include middle to low income groups which are predominantly African American. By examining these counties, this could offer a more in-depth analysis of why the variable, share of discharges from major teaching hospitals appears significant. The complimentary case study with Louisiana, illustrates the importance of this type of investigation. There was a lack of screening facilities in Louisiana due to the damage of Hurricane Katrina. Louisiana also has a high population of blacks. Without additional funding to restore needed screening facilities, a segment of the New Orleans population would have to travel at a further distance to the nearest screening site. This specific phenomenon is in accord to the idea of social justice, illustrating a combination of persistent deprivation of neo-material resources (such as transportation and income) and a lack of investments in crucial social welfare programs.

The theme of social justice remains salient in the qualitative case studies, specifically with respect to funding. The New York program was the only program that wanted additional funding to build their program infrastructure. The other three state programs expressed the need for funding to screen additional women. Louisiana's funding did not increase, particularly after their losses during hurricane Katrina. This speaks to the matter that perhaps funding may not be distributed fairly, especially among programs that have experienced natural disasters and that do not have sufficient support to service their populations. In this case, social justice would be situated in the distribution of funding for screening services at the state level. State programs

with extremely high breast cancer mortality rates who suffered tremendous losses due to natural

disasters did not receiving sufficient financial support. Comparatively, why did other state

programs which did not suffer from a natural disaster experience financially security with respect

to providing screening services to their populations?

Further research in exploring the significance of race, beyond the conventional research

studies could also be worthwhile. As mentioned, conventional research methods assessed race

and its association to attitudes, beliefs, or biological factors. Although perhaps difficult to

measure, racism in health care practices could also be a strong indicator of breast cancer

mortality. If physicians do not offer comparable treatment regimens to blacks as they would

their other patients, this could clearly have an impact on which groups suffer disproportionately

from breast cancer mortality. If there was a county with perfect income equality and with robust

and accessible social welfare programs, the presence of racism would present a significant form

of inequality. Racism would account for disparities in the distribution of yet another crucial

resource – that is, credible *information* on appropriate clinical breast cancer care. This dynamic

is also in accordance with social justice principles, but would indeed be challenging to measure

this. According to Geroniumus (2003):

> If social, political and economic exclusion are among the distal causes of the
>
> disproportionate health burden absorbed by the urban minority poor, and if, as a result,
>
> community members own and control little, the prospects for local community initiatives
>
> to alter fundamental causes of morbidity and mortality may be modest. (p. 550)

Appendices

National Breast and Cervical Cancer Early Detection Program: Case study questions

The purpose of this inquiry is to examine how a federally funded program can have an impact on reducing breast cancer mortality rates. The program assessed is the National Breast and Cervical Cancer Early Detection Program. The states selected include New York, New Jersey, Texas and Louisiana. These inquiries were directed to state officials that oversee the National Breast and Cervical Cancer Program in the aforementioned states.

- Do you manage your (state) breast cancer screening program?

- Can you describe to me the specific strategies the program has employed to recruit women into the program?

- Do you utilize the same strategies throughout your catchement areas? Why or why not?

- Do you feel that these strategies have been effective at recruiting your targeted populations?

- Do you feel that you have adequate funding (for outreach efforts) to promote your program to your target population? Why or Why not?

- Do you believe that this program is adequately meeting the needs of *all* of the low income women in your state?

- Do you believe that you have sufficient funding to provide screening services for your target population?

- Overall, have there been any major barriers to your programs success? If so, what recommendations would you suggest to improve program outcomes?

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Curriculum vita

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Education

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1998-2000	Hunter College Urban Public Health Graduate Program Masters in Public Health Community Health Education
1991-1995	Syracuse University College of Arts and Sciences Bachelor of Arts Biology

Positions

Scientific Data Analyst
Centers for Disease Control, Coordinating Center for Infectious Diseases, National Center for
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Atlanta, GA
2008-present

Senior Researcher and Policy Analyst
Legal Services of New Jersey, Poverty Research Institute
Edison, NJ
2005-2007

Research Consultant
New York University, Robert F. Wagner School of Public Service
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2003-2004

Program Coordinator
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