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Changing Profiles of Poverty: Policy Implications of a Multi-dimensional Measure for the  
United States

By

Anupama Jacob

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

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in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Neil Gilbert, Chair

Professor Jill Duerr Berrick

Professor Malo Hutson

Fall 2013

Changing Profiles of Poverty: Policy Implications of a Multi-dimensional Measure for the  
United States

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By

Anupama Jacob

## **Abstract**

### **Changing Profiles of Poverty: Policy Implications of a Multi-dimensional Measure for the United States**

by

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Doctor of Philosophy in Social Welfare

University of California, Berkeley

Professor Neil Gilbert, Chair

The U.S. Census reports that around 46 million or one in seven residents live in poverty today. However, the very term “poverty” continues to evoke debates on what it means to be poor. Ideological, political, and methodological tensions make it extremely challenging to reach a consensus on the most appropriate way to measure poverty in a given society. Although poverty is commonly described in uni-dimensional or monetary terms, many scholars have argued that poverty is more aptly understood as a constellation of deprivations -- a multi-dimensional concept. Different measures unavoidably generate different results, and the extent of poverty is, thus, dependent on the measure used to quantify the number of poor in a given society. In order to explore trends in poverty and inequality, one must be clear about how poverty is defined, and what indicators might best help capture the dimensions within the definitional framework. A careful consideration of various approaches to conceptualizing and measuring poverty can also provide a clearer understanding of the extent of poverty and the characteristics of households experiencing poverty, without which we have little guidance on how to design effective and targeted policy interventions.

A looming question today is whether the official federal poverty measure, developed in the 1960s, still provides an accurate picture of the poor in America. The measure has in fact long been considered outdated and imperfect. Critics argue that the measure lacks both reliability and validity. The reliability of the federal measure is questioned because of its anachronistic nature given the number of social, demographic, political, and economic changes in society since it was first introduced. The validity of the measure is challenged because it does not reflect the multifaceted nature of poverty or the resources a household has at its disposal after accounting for taxes and in-kind or near-cash transfers.

In the early 1990s, Congress commissioned a panel of experts from the National Academy of Sciences (NAS) to address key shortcomings of the official measure. For example, the Panel recommended that the new poverty measure better reflect the expenditures of families; account for regional differences in the cost of living; include resources such as tax credits and food stamps available to families to meet needs; and exclude expenses such as child care and work-related expenses from a family’s available resources. In early 2010, the Obama administration

adopted the Supplemental Poverty Measure (SPM) that largely follows the methods recommended by the NAS Panel.

Although the NAS-based measure may provide a better picture of the poor in the U.S. compared to the official measure that originated nearly a half century ago, it is still criticized for taking a “reductionist” approach to understanding a complex, socially constructed, and dynamic concept like poverty. To counter the limitations of income-based measures of poverty, there has been a push to advance the field by employing multi-dimensional poverty measures that include indicators of multiple deprivation such as health, education, and housing. Amartya Sen laid the groundwork for a paradigm shift in the way poverty is conceptualized. Although income and wealth play a major role, Sen argues that what is more important is a person’s capability to function in society and therefore defines poverty as the lack of capability to generate or obtain the required resources to meet one’s basic needs.

Based on Sen’s capability approach, the United Nations Development Program’s (UNDP) Human Development Index (HDI) and the Human Poverty Index (HPI) rank countries on three dimensions of well-being: longevity, literacy, and standard of living. In 2010, the UNDP introduced the Multi-dimensional Poverty Index (MPI), developed by Sabina Alkire and James Foster at the University of Oxford. Replacing the HPI, the MPI complements income poverty by measuring the number of deprivations a poor person faces simultaneously with regard to education, health, and living standard. Although the MPI was developed primarily for developing countries, there is discussion on what such a measure might look like in developed nations.

Multi-dimensional measures have not significantly influenced policy or research related to poverty measurement in the U.S. even though international poverty research has highlighted the need to embrace a multi-dimensional approach to measuring poverty. This study contributes to the field by exploring what a multi-dimensional measure such as the UN’s MPI might look like for an advanced nation like the U.S. Further, it addresses a gap in the literature by taking a comparative approach to poverty measurement in the U.S. Specifically, this study explores how uni-dimensional measures (based on the official measure and the NAS measure) and a multi-dimensional measure (based on the UN’s MPI) change the profile of poor adults aged 18 years or older by gender, marital status, and race/ethnicity in America in the period 2005-2010. Finally, this study adds to the literature by using the comparative framework to examine if national poverty rates vary among demographic groups pre- and post-recession.

This study draws on data from the Experimental Poverty Measures Public - Use Research Files from the U. S. Census Bureau website for the years 2005-2010. These years are divided into three main time periods (2005-2006, 2007-2008, and 2009-2010) to explore if there are any significant differences in poverty rates pre- and post-recession. Additional detail is added to the Census data files by matching with the Minnesota Population Center’s Integrated Public Use Microdata Series-Current Population Survey (IPUMS-CPS). The IPUMS-CPS is a respected data resource that provides harmonized data on people in the March Current Population Survey from 1962 to the present. The IPUMS data supplements the Census data files by including information on education and health variables at the individual level that is used to compare variations in poverty rates by poverty measure and demographic characteristics. The merged data includes a

sample of all adults aged 18 years or older with a total sample size (N) of 879,298. Population weights available with IPUMS data inflate the sample up to actual population size. These weights were divided in each year by mean weight to deflate back to actual sample size.

The merged data allows for an examination of poverty based on the uni-dimensional measures (official and NAS) as well as the creation of a multi-dimensional poverty measure that mimics the UNDP's MPI. This research is exploratory by nature, and the indicators for each of these dimensions of the proposed multi-dimensional measure are meant to provide a starting point for a discussion on what a multi-dimensional measure in the U.S. context might look like. The proposed MPI has three dimensions: education (measured as having at least a high school diploma or not), health (measured as having access to any private or public health insurance), and standard of living (measured as poverty status based on the NAS poverty measure). Together, these three dimensions are generally considered three building blocks for overall human well-being universally. In this study, a person is identified as multi-dimensionally poor if he/she is deprived in two or more of the three indicators.

Descriptive analyses first explore the prevalence of poverty in the U.S. by gender, marital status, and race/ethnicity based on the official poverty measure, the NAS-based measure, and the multi-dimensional measure. Logistic regressions then examine the odds of being poor based on each of the three poverty measures by gender, marital status, and race/ethnicity.

Findings reveal that the odds of being poor for women are highest based on the official measure compared to the odds of poverty for men. However, these odds fall based on the NAS-measure and the multi-dimensional measure. Men are thus more likely to be captured in poverty by the NAS measure and the multi-dimensional measure. Descriptive analyses revealed that lack of adequate income and access to any form of health insurance appear to be the leading deprivations among men and women identified as multi-dimensionally poor. No significant differences were noted pre- and post-recession.

Examining poverty by marital status revealed that the odds of single people being in poverty fell when based on the NAS measure compared to the official measure. Married people were thus more likely to be captured in poverty by the NAS measure. The percent of single individuals identified as multi-dimensionally poor in the descriptive analyses was about double (15%) that of the percent of multi-dimensionally poor married individuals (almost 7%). Lack of access to health insurance coverage was a key overlapping deprivation between single and married individuals when examining percent deprived in the three individual dimensions of the multi-dimensional poverty measure. Again, no significant differences were noted pre- and post-recession.

Finally, significant differences in poverty rates were noted by race/ethnicity based on the underlying poverty measure. Blacks and Hispanics had the highest odds of being poor based on the official measure compared to Whites, Asians, and other/mixed groups. However, the odds of poverty for Blacks decreased based on the NAS-measure, while the odds of poverty for Hispanics and Asians increased in this model compared to the other racial/ethnic groups. The odds of poverty were around seven times greater among Hispanics compared to all other racial/ethnic groups in the multi-dimensional model. Descriptive analyses revealed that lack of

access to health insurance appeared to be the biggest problem among all the racial/ethnic groups. Lack of at least a high school degree was a closely related problem among Hispanics. Further, while all other racial/ethnic groups were most likely to be income poor and lack health insurance, Hispanics were most likely to lack a high school degree or have access to health insurance coverage. No significant differences in poverty rates emerged pre- and post-recession.

The findings of this study can help identify the types of programs and services needed among different population groups as well as types of federal investments that could help build individual capabilities and also boost the U.S. economy overall. A multi-dimensional framework may further help determine policies related to, for example, how different sectors (such as workforce, education, or access to health care) should be linked to address poverty, and how funds for different types of social programs should be allocated to have greatest impact in a post-recession environment with limited resources. Ultimately, different interpretations of what constitutes poverty reflect differences in underlying values and views on what a society considers to be a good or decent life.

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## **Chapter 1: Introduction**

In 2010, the United States Census Bureau reported that around 46 million or one in seven residents were living in poverty compared to the nearly 44 million people the year before. Reflecting the nation's struggle with one of the worst economic recessions since the Great Depression of the 1930s, the official poverty rate rose to 15.1 percent in 2010, the highest rate since 1993. The poverty rate remained at 15 percent in 2011 and 2012 (United States [U.S.] Census Bureau, n.d.). Although poverty rates have fluctuated over time, the persistent nature of poverty highlights the need to critically examine the wide range of ways in which we approach and measure poverty, and how the methodologies shape policy responses to issues of poverty and inequality.

The first step is to distinguish between the poor and the non-poor. However, value judgments, political ideologies, and differing social scientific approaches in addition to the social, cultural, and historical context of any given society make it hard to make an unambiguous distinction between the poor and non-poor (Lister, 2004). So who are the poor? Are the poor those who lack resources for basic survival? Are the poor those who have lower standards of living compared with the more well-off members of society? Or are the poor those who have unequal access to opportunities to improve their economic positions?

Competing definitions of poverty focus on different “spheres of concern” that are difficult to measure (Laderchi, Saith, & Stewart, 2003). Poverty is commonly measured in terms of a single dimension, income. However, there has been a growing recognition that poverty cannot be defined in economic terms alone and that non-monetary, political, and social aspects of poverty should be taken into account as well; thus, calling for multi-dimensional measures of poverty (Townsend, 1974, 1979; Sen, 1983; Alkire & Santos, 2009; Nolan & Whelan, 2010). Different measures unavoidably generate different results, and the extent of poverty is, thus, dependent on the measure used to quantify the number of poor in a given society. In order to explore trends in poverty and inequality, one must be clear about how poverty is defined and what indicators might best help capture the dimensions within the definitional framework. A careful consideration of various approaches to conceptualizing and measuring poverty can also provide a clearer understanding of the extent of poverty and the characteristics of households experiencing poverty, without which we have little guidance on how to design effective and targeted policy interventions.

In 1963, Mollie Orshansky, an economist at the U.S. Social Security Administration, developed a series of poverty thresholds to measure income adequacy among families of different compositions in the United States. In 1964, when President Johnson declared his “War on Poverty,” Orshansky's thresholds came to be used as an official yardstick to measure the extent of the problem as well as progress on the declared war (Besharov & Couch, 2009). There was no generally accepted standard to measure adequacy of basic needs at this time except for food. Orshansky therefore used the 1955 Household Food Consumption Survey to determine that the average family spent around one-third of the family budget on food. She then multiplied the United States Department of Agriculture's (USDA) second-lowest cost food plan for a nutritionally adequate diet (the “low-cost food budget”) by a factor of three to determine a cost-

of-living estimate for families of different sizes and composition (Orshansky, 1965; Brady, 2009).

Having developed the poverty thresholds as a research tool, Orshansky did not intend for her measure to be adopted as the official poverty measure. However, in 1969, President Johnson's Office of Economic Opportunity officially designated the "absolute poverty line" as the threshold below which families or individuals lacked the resources, measured as pre-tax cash income, to meet their basic needs for healthy living. The underlying premise of the War on Poverty was that there was a minimum "decent" level of economic well-being that members of any just society are entitled to (Ruggles, 1990). However, the poverty threshold was based on the "Economy Food Plan," which was about 25 percent lower than the low-cost food budget that Orshansky used for her calculations, and designed to be used only for temporary or emergency situations when funds were low (Citro & Michael, 1995). Historians such as Alice O'Connor and Michael Katz believe that the selection of a lower poverty threshold was a political maneuver by the Johnson administration to more easily claim victory in their War on Poverty (Brady, 2009).

A looming question today is whether the official federal poverty measure provides an accurate picture of the poor in America. The measure has long been considered outdated and imperfect (Citro & Michael, 1995; Blank, 1997; Blank & Greenberg, 2008; Besharov & Couch, 2009). The poverty thresholds, for example, do not take into account regional differences in the cost of living and are only adjusted annually to reflect price changes based on the Consumer Price Index. Compared to the median income of a family of four, the poverty threshold for a family of similar size has in fact gradually fallen from close to 50% in 1963 to 28% in 2005 (Blank, 2008). The official measure has further been criticized for not considering the significant demographic, economic, and welfare policy changes over the past four decades (Citro & Michael, 1995). Ultimately, in the early 1990s, a panel of experts from the National Academy of Sciences (NAS) was authorized by Congress to address many of the key shortcomings of the poverty measure developed by Orshansky. For example, the Panel recommended that the new poverty measure better reflect the expenditures of families; account for regional differences in the cost of living; include resources such as tax credits and food stamps available to families to meet needs; and exclude expenses such as child care and work-related expenses from a family's available resources (Greenberg, 2009).

In March 2010, the U.S. government adopted the NAS-based Supplemental Poverty Measure (SPM). The new measure does not replace the official poverty measure, but is instead to be published as a "supplementary" measure of poverty (U.S. Department of Commerce, 2010). While the official poverty measure defines poverty in "absolute" terms, the new measure is said to be "quasi-relative" because it contains both absolute and relative elements. The new measure is "absolute" because its thresholds account for expenditures on basic needs such as food, shelter (including utilities) as well as a small amount for additional needs. In contrast to the official thresholds that are adjusted only for inflation, the new measure is quasi-relative because the thresholds will be updated for real changes in the median expenditures on basic needs such as food, clothing, and shelter (Citro & Michael, 1995).

According to Department of Commerce Under Secretary for Economic Affairs, Rebecca Blank, "the new supplemental poverty measure will provide an alternative lens to understand poverty

and measure the effects of anti-poverty policies. Moreover, it will be dynamic and will benefit from improvements over time based on new data and new methodologies” (U.S. Department of Commerce, 2010). Although the SPM may provide a better picture of the poor in the U.S. compared to the now over four-decade old official measure, it is still criticized for taking a “reductionist” approach to understanding a complex, socially constructed, and dynamic concept like poverty (Wagle, 2002).

Arguing that “subsistence” measures of poverty are not meaningful in affluent societies, British sociologist, Peter Townsend (1974, 1979, 2006) promoted the concept of relative poverty, in which poverty is defined in relation to the society in which an individual lives. Townsend contends that a definition of poverty must consider social needs in addition to physical needs. Human beings, maintains Townsend, are not just individual organisms, but social beings that operate within social relationships. As such, people may be able to survive physically, but still be unable to participate in society in an adequate manner. Townsend (1979) thus defines poverty in terms of objective “conditions of deprivation relative to others” (p. 48).

Amartya Sen (1983, 1992, 1999, 2006) laid the groundwork for a paradigm shift in the way poverty is conceptualized. Sen criticizes the framing of poverty in seemingly oppositional “absolute” versus “relative” terms, arguing that the concept of poverty includes both absolute and relative dimensions. What is more important, according to Sen, is rather a person’s capability to function in society. Although income and wealth play an important role, Sen’s (1999) capability approach advances a deeper understanding of the roots of poverty by integrating income “into a broader and fuller picture of success and deprivation” (p. 20). Poverty then is conceptualized as the lack of capability to generate or obtain the required resources to meet one’s basic needs.

Although Sen does not endorse any fixed set of capabilities, he does suggest examples of intrinsically valuable ones such as longevity, good health, and literacy. The United Nations Development Program (UNDP) developed the Human Development Index (HDI) and the Human Poverty Index (HPI) based on Sen’s capability approach. Both the HDI and HPI rank countries based on three dimensions of well-being: longevity, literacy, and standard of living (measured as purchasing-power adjusted real GDP per capita). In 2010, the UNDP introduced the Multi-dimensional Poverty Index (MPI), developed by Sabina Alkire and James Foster at the University of Oxford. Replacing the HPI, the MPI complements income poverty by measuring the number of deprivations a poor person faces simultaneously with regard to education, health, and living standard (Human Development Report [HDR], 1990, 1997, 2010).

To counter the limitations of income-based measures of poverty, there has been a push to advance the field by employing multi-dimensional poverty measures that include indicators of multiple deprivation such as health, education, and housing (Alkire & Foster, 2009; Brady, 2003; Laderchi, Saith, & Stewart, 2003; Sen, 1981, 1983, 2000, 2006). Multi-dimensional measures have, by and large, been embraced in Europe in an attempt to better inform policy design by providing a more comprehensive picture of factors associated with poverty (Gilbert, 2009; Wagle, 2008). Multi-dimensional measures have, however, not significantly influenced policy or research related to poverty measurement in the U.S. (Wagle, 2008).

This study seeks to contribute to the literature by exploring what a multi-dimensional measure for the U.S. might look like and how such a measure can help us better understand the profile of poverty in America today. Furthermore, there is a gap in the literature in terms of research that uses a critical, comparative framework to examine poverty in the U.S based on uni-dimensional and multi-dimensional measures of poverty.

Given the current economic climate, it is also vital to get a more accurate picture of poverty in the nation and particularly to what extent the Great Recession affected individuals' abilities to sustain a minimally adequate standard of living. People have mostly thought about the recession's impact in terms of individuals' incomes and financial resources, that is, its impact on poverty as traditionally defined and measured. But thinking about the recession's impact just in those terms ignores many other dimensions of well-being that are also important as measures of a minimally adequate living standard.

By expanding the conceptualization of poverty to include multiple dimensions and examining the impact of the recession through this multi-dimensional lens, this study contributes to the field by more fully assessing if and how the recession changed the distribution and character of poverty in the U.S. An improved understanding of the nature of poverty across various population groups can enable policymakers and researchers to focus on areas that require targeted policy actions. A multi-dimensional approach can help inform the debate on the political, social, and economic framework that helps individuals develop the capacity to function and promotes their overall well-being in a society (Gilbert, 2009).

Different interpretations of what constitutes poverty reflect differences in underlying values and views on what a society considers to be a good or decent life. As such, it is essential to have a clear understanding of what poverty is in order to effectively address poverty in a society. This study centers on developing a comparative framework for measuring poverty in the United States. The main purpose of this research is to explore variations in poverty rates by gender, marital status, and race/ethnicity in the United States using uni-dimensional (income-based) measures and a multi-dimensional measure in the period 2005-2010.

This study draws on data from the Experimental Poverty Measures Public - Use Research Files from the U. S. Census Bureau website for the years 2005-2010. These years are divided into three main time periods (2005-2006, 2007-2008, and 2009-2010) to explore if there are any significant differences in poverty rates pre- and post-recession. Additional detail is added to the Census data files by matching with the Minnesota Population Center's Integrated Public Use Microdata Series-Current Population Survey (IPUMS-CPS). The IPUMS-CPS is a respected data resource that provides harmonized data on people in the March Current Population Survey from 1962 to the present (Integrated Public Use Microdata Series [IPUMS], n.d.).

The official poverty measure and the NAS-based poverty measure are used to examine poverty through a uni-dimensional lens. To further a more comprehensive understanding of poverty, this study also examines poverty by gender, marital status, and race/ethnicity through a more multi-dimensional lens by drawing on Sen's capability approach. To address this objective, this study creates a multi-dimensional measure for the U.S. that mimics the UNDP's MPI. This research is exploratory by nature, and the indicators for each of these dimensions of the proposed multi-



dimensional measure are meant to provide a starting point for a discussion on what a multi-dimensional measure in the U.S. context might look like. The proposed MPI has three dimensions: education (measured as having at least a high school diploma or not), health (measured as having access to any private or public health insurance), and standard of living (measured as poverty status based on the NAS poverty measure). Together, these three dimensions are generally considered three building blocks for overall human well-being universally.

Education is symbolic of access to or level of knowledge. A person who does not possess even a high school diploma is considered capability deprived in terms of educational attainment. Research has shown the link between lack of adequate education and poverty. The U. S. Census Bureau data finds that, on average, adults aged 18 years and older with a bachelor's degree earn \$22,909 more annually than adults with only a high school diploma. Additionally, adults with advanced degrees earn, on average, \$26,530 more than adults with a four-year degree and \$49,448 more than adults with only a high school diploma (Bergman, 2006). Schiller (2008) notes that individuals investing in education are more likely to get out of poverty because of the strong influence education has on the distribution of poverty. Individuals with low levels of educational achievement thus often find themselves stuck on a path of continued poverty.

Health insurance is taken as a proxy for access to adequate health care that in turn is assumed to provide opportunities to attain best possible physical and mental health. In 2011, nearly 50 million people or 15.7 percent of the U.S. population lacked health insurance. The rate of uninsured people was higher among low-income households compared to those with higher incomes. The uninsured rate was 25.4 percent among households with annual incomes of less than \$25,000 and 21.5 percent among households with annual incomes ranging from \$25,000 to \$49,999. In contrast, the uninsured rate was only 7.8 percent among households earning annual incomes of over \$75,000 (DeNavas-Walt, Proctor, & Smith, 2012). Further, low-income families go without health care including preventive care because they lack health insurance or because they cannot afford the large medical out-of-pocket expenses that their health plan may require (Wolfe, 2011). An individual that does not have any form of health insurance is thus assumed to be capability deprived in terms of access to medical care and consequently in terms of the capability to lead a healthy life.

The NAS measure is used in place of the typical indicator of standard of living, namely GDP. The NAS measure is used to determine whether an individual or household can meet a minimum standard of living based on net income that includes public transfers (near cash and cash) and taxes. As such, this measure can be assumed to capture those individuals who are unable to meet even this minimum level of economic sufficiency. This measure, thus, essentially represents the minimum standard of living we consider "acceptable" as a society.

This study is important because a multi-dimensional perspective can help identify the types of programs and services needed among different population groups as well as types of federal investments that could help build individual capabilities and also boost the U.S. economy overall. A multi-dimensional framework may further help determine policies related to, for example, how different sectors (such as workforce, education, or access to health care) should be linked to address poverty, and how funds for different types of social programs should be

allocated to have greatest impact in a post-recession environment with limited resources. As Ravallion (1998) notes, “a credible measure of poverty can be a powerful instrument for focusing the attention of policy makers on the living conditions of the poor” (p. 1).

### **Main Objectives of Current Study**

This study addresses the following main research questions:

1. How does the prevalence rate of poverty affect various groups in the population (by gender, marital status, and race/ethnicity) in the U.S., in the period 2005-2010, based on uni-dimensional measures (official measure and NAS measure) and the proposed MPI?
2. What are the odds of being poor under the uni-dimensional measures compared to the multi-dimensional measure in the period 2005-2010 by gender, marital status, and race/ethnicity?
3. How does our understanding of poverty change based on the underlying definition and measure of poverty, and what are the policy implications?

### **Overview of Chapters**

To answer these questions, this dissertation is structured as follows. The second chapter discusses three key ways in which poverty is conceptualized: the absolute vs. relative dichotomy, the quality of life debate, and capability deprivation and social exclusion. The third chapter presents some of the key issues in measuring poverty. The fourth chapter provides an overview of poverty measurement in the U.S. and includes a literature review of research on poverty in the U.S. based on uni-dimensional and multi-dimensional measures of poverty. The fifth chapter describes the methods used for the data analysis. The sixth chapter presents the findings of this research and the key limitations of this research. Finally, the concluding chapter summarizes and discusses the key findings of this study before discussing the ensuing implications for research and policy.

## Chapter 2: Issues in Defining Poverty

People have always had differing views on what it means to be poor. Ideologies, the economy, and social conditions have influenced how poverty has been defined over the centuries. The codification of the Elizabethan Poor Law of 1601 in England illustrates some of the earliest perceptions of poverty (Maxwell, 1999). The Poor Law reflected the dominant view of poverty as the consequence of a personal or moral flaw and was intended to deter able-bodied men from not working and contributing to the community (Axinn & Levin, 1997). Initial attempts to develop methodical definitions and measures of poverty first began in the nineteenth century with both qualitative and quantitative studies. For example, in 1851, Henry Mayhew conducted one of the first major qualitative studies that focused on depicting the life of the poor in London (Hall & Midgley, 2004). Seebom Rowntree (1901), a British sociologist, is believed to be the first person to develop a poverty standard using estimates of nutritional and other requirements, adjusted for family size in the city of York (Maxwell, 1999).

Quantitative studies have typically defined poverty as lack of adequate income. The underlying belief is that individuals need a minimum level of food, clothing, and shelter in order to survive. This belief formed the premise of the first poverty surveys conducted by Charles Booth in London at the end of the nineteenth century (Hall & Midgley, 2004). Over time the concept of poverty has been extended to include ideas of standard of living, relative deprivation, individual functioning, and social exclusion. This has, however, made the term ‘poverty’ murky and controversial.

There is much debate on what a “true” definition of poverty would look like because no single definition can capture all the different aspects of poverty. Hagenaars and de Vos (1988) state that all definitions of poverty can be included in one of the following three categories:

- “A. Poverty is having less than an objectively defined, absolute minimum.
- B. Poverty is having less than others in society.
- C. Poverty is feeling you do not have enough to get along.” (p. 212)

According to Hagenaars and de Vos, the first category refers to absolute definitions of poverty, while the second refers to relative definitions of poverty. Definitions in the third category can lie anywhere on the absolute vs. relative continuum. While the first two categories may define poverty objectively, the third takes a more subjective interpretation. The measurement of the extent of poverty is, as a result, dependent on the underlying definition.

The way we understand and measure poverty has implications for how we respond to it. Hence, it is important to identify and understand some of the key approaches in defining poverty. Although the three broad categories proposed by Hagenaars and de Vos (1988) do not capture all the nuances of various poverty definitions, this chapter follows their categorization and focuses on the following key approaches to defining poverty: the absolute vs. relative dichotomy; social indicators and the quality of life; and, social exclusion and capability deprivation.

## **Income or Relative Deprivation: The Absolute vs. Relative Dichotomy**

Although a tricky concept in itself, income has remained at the heart of the concept of poverty. The underlying premise of definitions of poverty that focus on income is that people need a certain minimum level of food, water, clothing, and shelter in order to survive. These minimum needs are linked to prices to create an “absolute” poverty line. People are considered to be poor if their incomes fall below the specified poverty line. The notion of an “objective” minimum level of income or consumption forms the earliest and most extensive class of poverty measures (Ruggles, 1990).

Charles Booth (1889) and Seebohm Rowntree (1901), considered to be the pioneers of modern poverty research, defined poverty in “absolute” terms in the late nineteenth and early twentieth century. According to Booth and Rowntree, people were poor if they did not have adequate income to meet their basic needs. Rowntree (1901) defined people as poor when their “total earnings are insufficient to obtain the minimum necessities for the maintenance of merely physical efficiency” (p. 86). At a basic level, absolute poverty refers to the idea of “subsistence” or a minimum standard of physical capacity needed for survival, production (paid employment), and reproduction (bearing and raising of children) (Lister, 2004).

Absolute measures of poverty set historically constant thresholds that make it possible to study the extent of poverty over periods of time, providing a comparability advantage. For example, the U. S. poverty measure is deemed to be absolute over time, geographical regions, and family types. Another example of an absolute measure is the \$1/day poverty line used by international organizations like the World Bank and United Nations to identify the number of poor living on less than \$1/day in developing countries. Such measures are also known as “headcount” measures because they reveal the percentage of population that lives below a specific poverty threshold at a given point of time. Although the headcount does not provide any information on the depth of poverty, advocates of absolute measures argue that it is still useful to understand if basic physiological needs for survival are being met. Individuals or families who cannot meet their basic subsistence needs must clearly be living in poverty (Brady, 2009).

Critics of absolute measures contend that a fixed basket of goods representing minimum subsistence requirements cannot embody the complex nature of poverty. Further, in theory, absolute needs should not vary over time (Schiller, 2008). In practice, however, this condition does not hold. Ruggles (1990) argues that it is “difficult to establish an ‘objective’ minimum that really is applicable over a long period or even across very divergent population groups” (p. 17). For example, in their book, *Myths of Rich and Poor*, Cox and Alm (1999) show that the poor in the United States now have access to refrigerators, televisions, and indoor plumbing; things that were enjoyed only by the middle- and upper-classes in previous generations. If the focus is on basic needs, then one could argue that the poverty is no longer a serious issue in contemporary U. S. society (Brady, 2009).

Another critique is that absolute measures assume that the idea of minimum needs has culturally and historically uniform meaning. Ruggles (1990) explains that the striking changes in consumption patterns in the United States over the past 40-50 years make it challenging to reach

an agreement on what constitutes “basic needs” in American society. Perceptions of “need” are thus dependent on the available goods and services as well as the general living conditions of a given society (Schiller, 2008). As Ravallion (1998) notes, “there is an inherent subjectivity and social specificity to any notion of ‘basic needs,’ including nutritional requirements” (p. 21).

Townsend (1974, 1979) vehemently opposed the idea of absolute poverty, arguing that “subsistence” measures were not meaningful in affluent societies, and that poverty should instead be defined in terms of relative criteria. Townsend (2006) maintains that poverty cannot be defined in terms of physical needs alone, but must include social needs as well. Human beings are not just individual organisms, but social beings that must operate in society within various social relationships. People may be able to survive physically, but still be unable to participate in society in an adequate manner.

Defining poverty in terms of “economic and social distance” consequently changes the focus of relative measures to the concept of relative deprivation from one on absolute deprivation (Haveman, 2009, p. 8). According to Townsend (1987), “material deprivation” refers to material goods and services, while “social deprivation” refers to “ordinary social customs, activities, and relationships” (p. 127). Further, in contrast to Runciman (1966) who defined deprivation in terms of subjective “feelings of deprivation relative to others” (Townsend, 1979, p. 47, emphasis in original), Townsend defines deprivation in terms of objective “conditions of deprivation relative to others” (p. 48).

It follows that the core idea behind definitions of relative poverty is that the level of poverty can be determined only in relation to the overall standard of living in a society at a given point of time (Lister, 2004). The European Union, for example, defines poverty as 60 percent of a country’s median income (Gilbert, 2009), and in so doing, overtly links poverty to the distribution of incomes in a country. Relative measures compare the level of material and social deprivation to income, allowing a way to update the poverty line with economic changes in the society as a whole (Citro & Michael, 1995). Consequently, the relativist approach defines poverty as a multi-dimensional concept, in which the poor are believed to have less than others in a given society. Adam Smith understood this concept in 1776 when he wrote, “by necessities I understand not only the commodities which are indispensably necessary for the support of life but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without. A linen shirt, for e.g., is strictly speaking not a necessity of life...But in the present times...a creditable day-labourer would be ashamed to appear in public without a linen shirt” (p. 691, in Lister, 2004).

Relative thresholds have a number of strengths. First, they are easy to calculate and comprehend. Second, they merely represent a point in the distribution of income or expenditure in a society, and do not represent any sort of budget. Third, relative thresholds are self-adjusting, getting around the need for regular, and often contentious, budget re-evaluations (Citro & Michael, 1995). Finally, the relative approach situates poverty within a specific national and historical context. Poverty is viewed in relation to a society’s general norms and standards. Schiller (2008) notes that policymakers in the U.S. have acknowledged that as the standard of living increases in a society, more expensive consumption patterns are thrust on the poor in order for them to remain integrated in society. Interestingly, even Orshansky (1976) wanted to develop a measure

that considered the “relative well-being of both individuals and the society in which they live” as well as what poor families need for “keeping up with American consumption patterns” (p. 233). Critics argue that relative measures of poverty make policy evaluation unduly challenging because unless the income or consumption levels of the poor rise in relation to the median level of a given society, the poor will not be considered better off even in periods of economic growth. Similarly, relative thresholds may show a lower poverty rate in a period of recession or fail to show the effects of a policy response that does improve the conditions of the poor (Citro & Michael, 1995). Consequently, as Sen (1983) notes, the use of rigid relative measures means that poverty can never be completely eliminated, and poverty alleviation strategies can only be moderately successful. A poverty measure that does not account for changes in relative income and consumption levels, therefore, is in danger of becoming progressively more impractical over time (Ruggles, 1990).

### **Income or Basic Needs: The Quality of Life Debate**

Definitions of poverty that primarily focus on income provide insufficient information on how negative social conditions associated with poverty such as poor health, low levels of educational achievement, and inadequate shelter influence an individual’s overall quality of life. The term “quality of life” goes beyond the “standard of living,” which is generally measured in terms of income per capita. Quality of life instead refers to the general “well-being” of individuals and the communities of which they are part (Human Development Report [HDR], 1997).

In the 1960s, the United Nations endorsed the use of social indicators to better typify the social conditions or the quality of life of the poor in addition to their economic conditions. The use of social indicators was expected to offer valuable insight into the social well-being of individuals living in poverty (Hall & Midgley, 2004). In the 1970s, the International Labor Organization (ILO) introduced the concept of “basic needs,” which consisted of two main aspects. The first focused on minimum subsistence requirements (food, shelter, and clothing). The second aspect focused on vital services made available by and for the larger community, and included, for example, health care, education, and sanitation (International Labor Organization [ILO], 1977).

Large differences between measures of well-being among individuals living in poverty and those of the average individual or household in a given society can be related to Townsend’s (1974, 1979, 2006) argument for relative measures of poverty. The quality of life concept also reflects a shift from a uni-dimensional definition of poverty based solely on income or consumption to a more multi-dimensional one that incorporates non-monetary aspects of poverty as well. Governments now regularly gather data about housing conditions, infant mortality rates, life expectancy, literacy, and other indicators that are indicative of the broader social conditions of a given society.

The quality of life approach has been further characterized by the development of a single “index” based on “aggregate” or “composite” sets of indicators. The United Nations Institute of Social Development (UNRISD) developed the first aggregate set of indicators in the 1970s (Baster, 1972). In 1976, the Organisation for Economic Co-operation and Development (OECD) created a development index that integrated 100 distinct indicators. The Human Development Index (HDI) and the Human Poverty Index (HPI), developed by the United Nations

Development Program (UNDP) in 1990, are conceivably the most well-known aggregate sets of indicators today (Hall & Midgley, 2004; HDR, 1990, 1997). Ranking countries based on three dimensions of social well-being: longevity, literacy, and standard of living measured as purchasing-power adjusted real GDP per capita, the HDI is said to take a “conglomerative perspective” that concentrates on the improvements made by all groups of a society. The HPI, on the other hand, takes a “deprivational perspective” that assesses advances made by the poor and deprived in a given society (HDR, 1990, 1997).

The HPI also distinguishes between the quality of life in developing (HPI-1) and developed (HPI-2) countries. In terms of the three dimensions of well-being, the two measures of deprivation differ as follows: longevity (percentage of people expected to die before age 40 in developing countries compared to age 60 in developed ones); literacy (percentage of illiterate adults); and standard of living (percentage of population with access to health services and safe water, and percentage of malnourished children under age five in developing countries compared to percentage of population below 50% of the median household disposable income) (UNDP, n.d.).

One drawback of composite measures such as the HPI is that they are used to rank countries around the world, but do not provide a picture of the poor or clearly distinguish the poor and the non-poor (Kanbur & Squire, 1999). Further, unlike headcount measures, it cannot be used to link the incidence of poverty with any specific group or number of people (e.g. gender, socioeconomic status, or ethnicity). In the process of aggregation, the distinctions or overlaps in the individual dimensions are not considered. As a result, the scope and depth of each dimension are not isolated (HDR, 1997). Critics of the social indicator approach argue that while the use of social indicators has advanced the measurement of poverty by including essential dimensions such as health and education, this approach still fails to account for the various social processes the poor are excluded from or in other words, the aspects of “economic, political, and civic or cultural exclusion” (Wagley, 2002, p. 162). These other dimensions need to be considered because they affect an individual’s ability to lead a more wholesome, higher quality of life (Hall & Midgley, 2004).

### **Income or Functioning: Capability Deprivation and Social Exclusion**

Amartya Sen (1983, 1992, 1999, 2006) laid the groundwork for a paradigm shift in the way poverty is conceptualized. Criticizing the framing of poverty in seemingly oppositional “absolute” versus “relative” terms, Sen maintains that poverty has both absolute and relative dimensions. Sen further contends that income and standards of living matter only because they are the means to what is truly important; namely, a person’s capability to function in society. According to Sen, poverty is better conceptualized as the lack of capability to generate or obtain the required resources to meet one’s basic needs. Sen (1993) employs the terms functionings and capabilities to articulate his concept of poverty. The former refers to what an individual manages to be or do as part of daily living. Functionings vary from basic nourishment and good health to attaining self-respect and social integration. Individuals differ in the value they place on each type of functioning. The term “capabilities” refers to what individuals can achieve (“doing” or “being”) based on the choices available to them.

Individuals are said to differ in their ability to convert commodities and income into valuable achievements. In other words, a person's quality of life is determined by the "capability to achieve valuable functionings" (p. 31) and the freedom to choose between different ways of life. For example, having an education provides individuals with the freedom to achieve what they want, including receiving an income that allows them to sustain a lifestyle of their choice. Income or lifestyle is then the outcome or "functioning" that the "capability"-education- allows them to achieve. Education, however, may also be considered intrinsically valuable because of its relative importance to an individual or society in terms of the opportunities that education offers for individual or societal well-being (Wagle, 2008). Capabilities are thus dependent on individual characteristics, social and economic arrangements, and political and civil liberties (Sen, 1999).

Income, in this perspective, is just one of many possible influences on capability deprivation. Further, the effect of income on capabilities will likely vary among individuals, households, and communities (Kanbur & Squire, 1999). It is not enough to look at the commodities any individual can effectively command. It is more important to examine how well individuals can function based on the goods and services available to them (Clark, 2005). Absolute deprivation in terms of capabilities can therefore be a result of relative deprivation in terms of income. Being relatively poor in an advanced industrial nation can prove to be a "capability handicap" even if an individual has a high absolute income in terms of global standards because more income is required to purchase the commodities needed to maintain the same level "social functioning" (Sen, 2006, p. 36).

Sen (1983) combines elements of the absolute and relative approaches to poverty by noting that a poverty line based on the capability perspective would represent a level below which an individual cannot meet basic nutritional requirements (absolute approach), attain "adequate participation in communal activities (as characterised by Townsend) and be free from public shame from failure to satisfy conventions (as discussed by Adam Smith)" (p. 167). Sen does not endorse any fixed or pre-determined set of capabilities, although he does suggest examples of intrinsically valuable capabilities such as longevity, good health, and literacy, which form the basis of the HDI discussed in the previous section. According to Sen, personal values determine the selection and weighting of capabilities. Sen has been praised for bringing the focus back on individuals as the "ends" themselves and recognizing that different individuals and societies are likely to have different values and goals (Clark, 2005). At a fundamental level, the capability approach views human beings as individuals with agency who should have the freedom to make choices about what they want to be or do, and how to utilize the resources they have access to (Lister, 2004).

Nussbaum (2000) criticizes Sen for not delineating a set of core capabilities. She therefore elaborates on Sen's capability approach and identifies the following list of ten key capabilities that would function as a litmus test of well-being: life; bodily health (including nutrition and shelter); bodily integrity (freedom of movement and freedom from assault); senses, imagination, and thought (ability to search for meaning of life, express one's imagination, and avoid unnecessary pain); emotions (opportunity for emotional development); practical reason (critical self-reflection; meaningful choices in planning one's life); affiliation (social interaction); other species (relationship with nature); play; and material and political control over one's



environment (political and property rights; equal employment opportunities). According to Nussbaum, these capabilities “can be convincingly argued to be of central importance in any human life, whatever else the person pursues or chooses” (p. 74).

Sen and Nussbaum have connected the capability approach with the notions of “well-being” and “quality of life” by focusing on the kind of life every individual should be able to achieve in order to “flourish.” However, linking poverty with the broader conditions of capability, quality of life, or well-being conflates these issues with one resulting aspect of these conditions, namely whether a person is poor or not. If poverty and capability are treated as synonymous terms, it becomes challenging to differentiate conventional understandings of poverty from other conditions that erode an individual’s capabilities, well-being, or quality of life (Lister, 2004). Sen (1999) too recognizes that the “lack of income can be a principal reason for a person’s capability deprivation” (p. 87), making low income a major cause of poverty. Lister (2004) argues that a capability approach should, therefore, complement rather than replace the traditional resource-based understanding of poverty.

The capability approach uses terms such as freedom, choice, values, and opportunities. A more systematic approach to measuring capability deprivation would likely require a broad list of indicators that include an individual’s own inner strength and his or her relationships to society. It is not easy to develop appropriate and operational measures for these terms, particularly if they are to be more widely applicable (Wagle, 2008). The selection of key dimensions, weighting, and development of data sets make it particularly challenging to define and measure poverty in terms of capability deprivation. Developing suitable indicators to measure capability deprivation is further complicated because the concepts of capabilities and functionings are shaped by the structural limitations and opportunities that an individual faces. For example, structural factors such as welfare policies and programs that determine collective provisions may influence an individual’s ability to transform material resources into functionings (Lister, 2004). Moreover, capabilities exhibit instrumental and inherent values that make it difficult to clearly distinguish between the notions of capability and functioning. The focus must remain on measuring capability as a means to achieve functioning, with quality of life as the ultimate outcome (Wagle, 2008).

The UNDP’s 2010 Human Development Report introduces the Multi-dimensional Poverty Index (MPI), a new international measure of poverty, developed by Sabina Alkire and James Foster at the University of Oxford. The MPI is to replace the HPI discussed in the previous section. Grounded in the capability approach to poverty, the MPI complements income poverty measures by directly measuring the number of deprivations a poor person faces simultaneously with respect to education, health, and living standard. While most appropriate for developing countries, the MPI makes it possible to get a clear picture of people living in poverty, both across countries, regions, and the world and within countries by ethnic group, urban/rural location, and other key household characteristics (HDR, 2010).

The term capability has been linked to another key conceptualization of poverty, namely the idea of social exclusion. Capability was earlier defined as the ability to function and participate on an equal basis with the mainstream society. An individual who is socially excluded thus has limited capability to successfully function in society. The concept of social exclusion challenges the

narrow conceptualizations of poverty that may underestimate the true scale and severity of poverty. Poverty is instead defined as a broader concept that encompasses multiple, complex, and interrelated dimensions (Schiller, 2008).

Early thinking about the concept of social exclusion began in the late 1970s in France, where French Republicans defined social exclusion as a “rupture of the social bond” (Silver & Miller, 2002, p. 2). The idea of social exclusion has since become more broadly accepted. In Europe, social exclusion is considered to be different from income poverty. Poverty is seen as a distributional outcome, while social exclusion is seen as “a relational process of declining participation, solidarity, and access” (Silver & Miller, 2002, p.2). For example, the European Union (EU) regularly publishes the so-called “Laeken indicators,” a core set of 18 statistical measures of poverty and social exclusion for its member countries (Haveman, 2009). The Laeken indicators are grouped into ten primary indicators identified as the most important elements leading to poverty and social exclusion (e.g., long term unemployment rate, at risk of poverty rate after social transfers, and life expectancy at birth), and eight secondary indicators that illustrate other dimensions of the problem (e.g., low educational attainment by age and gender, and inequality of income distribution Gini coefficient). All EU member states collect information on primary and secondary indicators. Member states are encouraged to collect a third level of indicators that reflect national circumstances and help better understand the primary and secondary indicators. The last level of indicators is not necessarily coordinated at the EU level (Atkinson, Marlier, & Nolan, 2004).

The United Kingdom government established a social exclusion unit in 1997 that focuses on the multi-dimensional nature of deprivation including low income, low quality housing, and inadequate access to education and health as well as the ways in which multiple deprivation arise (Maxwell, 1999). Tony Blair, former British Prime Minister, described people facing such multiple deprivations as being “shut out of society” (Blair, November 23, 1997, cited in Atkinson, 1998).

Atkinson (1998) identifies the following three key aspects of social exclusion: relativity, agency, and dynamics. Atkinson argues that relativity refers to the context (time and place) that an individual in a particular society is excluded from. Agency refers to an act of exclusion, by the individual who is excluded or by others. Lastly, dynamics refers to exclusion as a lack of long-term prospects and not just current conditions. Silver and Miller (2002) further note that social exclusion is “multi-dimensional or socio-economic, encompassing collective as well as individual resources,” and “relational, in that exclusion entails social distance or isolation, rejection, humiliation, lack of social support networks and denial of participation” (p. 4). Thus, an individual who faces long-term unemployment because of inadequate skills to keep up with changing technology may experience a sense of powerlessness that could be described as social exclusion. Another example of social exclusion might be the type of housing, credit, or insurance an individual has access to because of discriminatory lending practices of property owners, banks, and credit agencies.

Brady (2009) states that social exclusion combines the ideas of poverty scholars such as Michael Harrington, William J. Wilson, and John Galbraith. Social exclusion reflects Harrington’s (1981/1962) concern that “the poor are losing their links with the greater world” (p. 11). It is also compatible with Wilson’s (1991) idea of social dislocation, which creates disparities in economic

opportunities, political privilege, and organizational power. Further, social exclusion is consistent with Galbraith's (1998) definition of poverty that underscores poverty as being more than having enough to physically survive, and rather as falling short of what a "community regards as the minimum necessary for decency" (p. 235/323[1958]). As a result, Galbraith argues that the poor "are degraded for, in the literal sense, they live outside the grades or categories which the community regards as acceptable" (p. 323). These ideas summarize social exclusion as unequal citizenship and access to the status, advantages, and experiences of average citizens in a particular society (Gore, 1995).

Although the notion of social exclusion attempts to capture the multi-dimensional nature of poverty, there is no clear consensus on what dimensions ought to be operationalized. The development of any working measure of poverty or social exclusion is also challenging because it necessitates a relational measure that must be grounded in a specific social context (Silver, 1994 in Schiller, 2008). A further issue involves who decides what aspects to include in a measure of social exclusion, and whether there are systematic criteria to help policymakers decide which indicators to include in any measure. For example, if access to health care is included as an aspect of social exclusion, should the quality of care be considered as well (Gilbert, 2009)?

Further, the strong link between the economic market and social exclusion cannot be overlooked. Although social exclusion is a multi-dimensional concept, the economic market remains one of the key triggers for social exclusion (Barry, 1998). Returning to the capability perspective, Sen (1992) too states that "poverty is not a matter of low well-being, but of the inability to pursue well-being precisely because of the lack of economic means" (p. 110). A minimum level of economic resources continues to be seen as fundamental to breaking out of poverty. Although this might suggest that poverty should be defined in absolute terms, it can still be considered in terms of relative economic positions. At the heart of social exclusion then individuals confront the dual marginalization by society's institutions and the economic market (Gore 1995; Rodgers 1995). By building knowledge on the nature of economic and social needs, the capability and social exclusion approach to poverty can help inform the debate on the political, social, and economic framework that helps individuals develop the capacity to function and promotes their overall well-being in a particular society.

### **Summary Table**

Each of the approaches discussed in this chapter reflect different perceptions of poverty in a society. Each approach relies on a different set of methodological assumptions that are not always apparent. As a result, the number and characteristics of the poor in any given society can vary depending on how the various approaches are operationalized, resulting in perhaps equally different policy implications (Laderchi, Saith, & Stewart, 2003). The following table summarizes the different approaches to defining and measuring poverty presented in this chapter as well as their main strengths and limitations.

Table 1. *Comparing Approaches to Poverty: A Summary*

Definition	Unit of Analysis	Measurement	Strengths	Weaknesses
<b>Absolute poverty</b>	Ideally individual, de facto family / household	<ul style="list-style-type: none"> <li>• Poverty threshold/poverty line</li> </ul>	<ul style="list-style-type: none"> <li>• Historically constant thresholds.</li> <li>• Comparability advantage.</li> </ul>	<ul style="list-style-type: none"> <li>• Assumes historically and culturally uniform meaning of poverty.</li> <li>• No information on depth of poverty.</li> <li>• Primary focus on economic poverty.</li> </ul>
<b>Relative poverty</b>	Individual compared to community or society	<ul style="list-style-type: none"> <li>• % of median income</li> <li>• Material deprivation indicators</li> </ul>	<ul style="list-style-type: none"> <li>• Represents point in distribution of income and expenditures in a society.</li> <li>• Situates poverty in given national and historical context.</li> </ul>	<ul style="list-style-type: none"> <li>• Poverty never eliminated.</li> <li>• Measure such as % of income may not account for changes in relative income and consumption levels, complicating policy evaluations.</li> </ul>
<b>Quality of life</b>	Individual or groups relative to community or society	<ul style="list-style-type: none"> <li>• Social indicators (e.g. HDI or HPI)</li> </ul>	<ul style="list-style-type: none"> <li>• Inclusion of non-monetary aspects of poverty.</li> <li>• Indicative of broad social conditions of a society.</li> </ul>	<ul style="list-style-type: none"> <li>• Composite measures can rank countries, but do not clearly distinguish poor from non-poor in a given society.</li> <li>• Cannot be used to link incidence of poverty with a given group.</li> <li>• Scope and depth</li> </ul>

				of overlapping dimensions not isolated.
<b>Capability Deprivation</b>	Individual	<ul style="list-style-type: none"> <li>• List of dimensions (e.g., health, education, shelter, freedom of expression, political rights).</li> <li>• Multi-dimensional Poverty Index</li> </ul>	<ul style="list-style-type: none"> <li>• Links idea of poverty with notions of “well-being” and “quality of life.”</li> <li>• Focus on freedom, choice, and opportunities available to individuals to flourish.</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to differentiate poverty with conditions that lead to poverty.</li> <li>• Operationalization of measures challenging.</li> <li>• Measures may be applicable only in a given setting.</li> </ul>
<b>Social Exclusion</b>	Individual or groups relative to community / society	<ul style="list-style-type: none"> <li>• EU’s Laeken indicators</li> <li>• Multi-dimensional deprivation indicators</li> </ul>	<ul style="list-style-type: none"> <li>• Examines structural factors of poverty.</li> <li>• Focus on long-term prospects of individuals.</li> <li>• Focus on effects of social exclusion.</li> </ul>	<ul style="list-style-type: none"> <li>• Relational measures grounded in a specific social context.</li> <li>• No consensus on what measures ought to be operationalized.</li> <li>• Who decides what dimensions to include?</li> </ul>

### **Chapter 3: Issues in Measuring Poverty**

Once the poor have been identified, the next step is to measure the extent of poverty by operationalizing definitions. Good measures make it possible to compare poverty and inequality across time and between groups, and influence policy goals. Sen (1976), in his seminal work on poverty measurement, notes that any measure of poverty must address two key issues: identification and aggregation. The former focuses on determining the poverty line, threshold, or indicator that distinguishes the poor from the non-poor (e.g., income/consumption level, median income, education, employment). The latter focuses on identifying how data can be aggregated across individuals to arrive at an overall measure or index of poverty.

Reaching a consensus on an appropriate measure of poverty is as challenging as reaching a consensus on the definition of poverty. While some view the measurement of poverty as a subjective and arbitrary process, others see it as a methodical and careful agreement reached by analysts (Ruggles, 1990). To the extent value judgments affect the design of poverty measures, Laderchi, Saith, & Stewart (2003) argue that it is important to be clear on who is making those judgments (e.g., researcher, policymakers); if those judgments are explicitly stated and easily assessable; and whether the value judgments are clearly understood or shared by other stakeholders in a society, possibly including the poor themselves.

Sen (1987) notes that the design of poverty measures also involves two somewhat competing challenges: relevance and usability. Relevance focuses on the aspects of poverty that are considered important to include in a measure in a given society. These aspects can range from simple, uni-dimensional ones to multifaceted ones. A related question is whether poverty measures should “capture what may be achieved, given the resources available and the prevailing environment – that is the ability to be and do a variety of things - or what is actually achieved by individuals?” (Laderchi, Saith, & Stewart, 2003, p. 244). Usability, on the other hand, focuses on how to avoid the creation of overly complex measures that may in fact make it difficult to assess poverty practically. The resulting measure consequently not only plays a role in effective policy design and analysis, but also in determining the beneficiaries of policy responses to poverty (Alkire & Santos, 2009).

Johnson (2009) states that in order to get a full overview of the extent of poverty, one must address the “Who, What, Where, When, Why, and How of poverty measurement” (p. 726). The “who” focuses on the unit of analysis and the equivalence scale to be applied in measuring poverty. The “what” considers the income or resource measure to be employed. The “where” looks at the geographic basis for comparison. The “when” takes into consideration the time period involved. The “why” reflects on the objective of poverty measurement, and finally, the “how” focuses on the development and use of the poverty threshold. In addition to these questions, Weinberg (2005) adds that one must consider the data sources available and used to measure poverty.

This chapter briefly reviews the following key issues in designing a poverty measure: Unit of analysis/equivalence scale, resources included for identification of poor, geographic basis for comparison, and the time period involved.

## **Unit of Analysis/Equivalence Scale**

Poverty can be measured at the individual, household, or family level. Typically, poverty measures use the household or family level as the unit of analysis. This is because households or families are believed to pool their income or resources (economies of scale), and because individual level data on income and expenditure is generally not available (Mowafi & Khawaja, 2005). By focusing on the family or household level, differences among the individual members in terms of need, resources, consumption, and income are not explicitly addressed. Instead equivalence scales are used to account for inter-household differences in size and composition.

An equivalence scale is an index that accounts for differences in relative costs of living for households of varying size and demographic composition, compared to the “average” or “benchmark” household (Laderchi, Saith, & Stewart, 2003). Thus, if a “two adult household” spends two-thirds as much as a benchmark “two adult, two children household” and still lives just as well, then compared to the benchmark family, the equivalence scale value for the two adult household is two-thirds. For example, the poverty threshold for a family of four (two adults and two children under age 18) in the U.S, for the year 2009, was \$21,756 compared to the threshold of \$14,366 for a family of two adults under the age of 65 (U.S. Census Bureau, n.d.). An equivalence scale, thus, makes it possible to scale the threshold up or down for the benchmark household to provide comparable thresholds for other household types, or in other words, the scale allows for equalization of incomes across household types for poverty analysis.

The choice of an equivalence scale is based on “technical assumptions about economies of scale in consumption as well as on value judgements about the priority assigned to the needs of different individuals such as children or the elderly” (OECD, n.d., p. 2). Equivalence scales implicitly assume that individual members of a family or household share the same poverty status, making an evaluation of poverty at the individual level practically unfeasible. Further, the scales hide gender or demographic inequalities within a family unit because they do not capture intra-household disparities in terms of needs, resources, or consumption (Rio Group, 2006). Since equivalence scales are based on consumption patterns of the “average” household in a society, they also do not take into consideration any power or bargaining issues related to how resources are allocated within different households (Laderchi, Saith, & Stewart, 2003). The underlying assumptions thus naturally affect the development of a scale. As such, the choice of equivalence scale plays an important role in poverty measurement. The extent and distribution of poverty in a given society is dependent on the scale used by researchers and analysts; thereby also shaping policy responses to the problem of poverty.

## **Income/Resource Measure**

What resources should be included to determine whether individuals can be classified as poor or non-poor? There is no general consensus on what resource indicators are most appropriate for measuring poverty levels. However, the monetary approach, in which poverty is defined as a shortfall in income or consumption compared to a poverty line, is most commonly used to measure poverty because of its relative “simplicity.” Income data are usually more easily

accessible for analysis and are believed to provide a picture of the capacity to realize at least a certain minimum standard of living (Laderchi, Saith, & Stewart, 2003; Ravallion, 1996).

Income-based poverty measures focus primarily on pre-tax monetary incomes that include wages from employment or self-employment, public transfers (public assistance income), pension or retirement income, educational assistance, income from assets (e.g. interest, dividends, rents, and royalties), child support, alimony, and other sources. The current poverty measure in the U.S., for example, uses this approach to identify the disposable income or resources available to a household. European income measures, however, provide a more accurate picture of one's ability to acquire commodities in the market because they consider net disposable income after accounting for taxes and social security contributions (Gilbert, 2009). To address this shortcoming in the current U.S. poverty measure, the NAS supplemental measure includes non-cash benefits (e.g. rent subsidies, EITC refunds, Medicaid) and excludes taxes, child care, out-of-pocket medical expenses, and other work-related expenses in the definition of "money or near-money disposable income" (Citro & Michael, 1995, p.4). Gilbert (2009) suggests that non-cash compensation or benefits from employers could also be included in determining income measures of poverty.

Critics of monetary measures argue that the data assumes the existence of markets (and hence prices) for all goods, overlooking access to, for example, public goods and non-market services such as education and health. Monetary measures also ignore differences in "conversion factors between income and functionings" (Alkire & Santos, 2009, p. 125). For instance, moving beyond the standard incorporation of adult equivalent scales, based simply on nutritional aspects according to age and gender, Foster and Sen (1997) note that an older or sick person may need more income to attain the same functionings, assuming attainment is possible. Notwithstanding these drawbacks, Alkire and Santos (2009) maintain that "money-metric measures of inequality and poverty have proved to be useful in practice, satisfying Sen's 'usability' requirement" (p. 125).

An alternative resource measure focuses on a household's consumption of goods and services relative to either an absolute or a relative poverty threshold. Households with low consumption of basic needs (e.g. food) are assumed to be materially deprived (Iceland, 2006). Blank (2008) notes that consumption is an outcome measure, while income reflects the economic resources available to a family or household. Meyer and Sullivan (2006) state that consumption measures better accommodate relative price changes and the value of private and government transfers. Empirically, consumption measures are believed to be less subject to short-term or seasonal fluctuations, making consumption a better measure than income when data collection periods are shorter (Deaton & Zaidi, 2002). Further, if current consumption determines an individual's utility level, then a consumption measure is an appropriate indicator of welfare. Income in this case would only be a proxy for the standard of living. Consumption measures have an advantage in that when a household is saving and not using all income for consumption, an income measure could overstate the actual standard of living. Conversely, when a household uses their savings or borrows in order to meet consumption needs, an income measure could understate the actual standard of living (Atkinson, 1991).



One of the disadvantages of using a consumption measure lies in the difficulty in obtaining relevant data on actual consumption patterns in households. Further, consumption patterns need not provide a fully accurate depiction of deprivation as these patterns may merely point toward differences in the choices individuals make in terms of resource allocation and consumption, irrespective of their incomes (Mowafi & Khawaja, 2005). Income, on the other hand, is indicative of access to resources and opportunities and not just actual outcomes or actual use. If poverty is conceptualized as minimum rights to resources, then “people are seen as entitled, as citizens, to a minimum income, the disposal of which is a matter for them” (Atkinson, 1991, p. 8). Other challenges in using consumption measures include quantifying out-of-household expenditures, effects of durable goods purchases (e.g. television or car), and errors or omissions by respondents with regard to consumption expenditures, and lack of instruments to assess the consistency of household consumption across different contexts/countries (Rio Group, 2006).

The choice of income or consumption ultimately is highly dependent on the availability of information and frequency of data collection for poverty measurement. These factors might play a more significant role in determining the measure to be used compared to conceptual issues in any given country (UN System of National Accounts, 1993)

### **Geographic Basis of Comparison**

Laderchi, Saith, and Stewart (2003) assert that the geographic unit of comparison is important for three reasons: “first, for identifying the society with respect to which the relative poverty lines are drawn; secondly, for defining the boundaries of the relevant market, for example, to obtain prices for valuations; and thirdly, in terms of targeting since when geographic areas are used for targeting, how the areas are defined will affect the efficiency of targeting” (pp. 6-7). In terms of the geographic basis of comparison (local, state, national, or international), Rainwater, Smeeding, and Coder (2001) argue that people typically tend to compare living standards with local reference groups rather than with national or even international reference groups. Hence, it may make more sense to use a local geographic unit (e.g. individual states in the U.S.) for poverty comparison.

Poverty measures must consider geographic boundaries to assess differences in cost of living for different household types. For example, the Basic Needs Calculator developed by the National Center for Child Poverty in the U.S. estimates the annual income required to meet one’s basic needs after accounting for expenses such as rent, utilities, food, child care, health insurance premiums, and taxes (allowing for geographic differences). Using this tool, a family of 2 adults with 2 children under age 6 living in San Francisco county, California would require an estimated annual budget of \$67,330 to meet their basic needs, while a similar family living in rural Mississippi would require an estimated budget of \$39,137 (National Center for Children in Poverty, n.d.). The U.S. poverty measure has been criticized for not allowing for such regional differences in cost-of-living.

Some analysts argue that income differences make up for geographic differences in prices, and there is therefore no need for geographic adjustments because there are no real differences in quality of life. There is some evidence to support economic theory that predicts an equalization of prices and wage levels over time and across areas as migration to more popular areas causes

prices to increase and wages to decrease (Citro & Michael, 1995). Ruggles (1990) believes that poverty measurement should be more concerned about minimum levels of need rather than the broad idea of “quality of life.” Therefore, poverty thresholds in areas with higher costs-of-living should be higher than areas with lower costs-of living, irrespective of higher average incomes in the more expensive areas. Accounting for geographic differences is important because families may not be easily able to compensate for loss of income (even if temporary) by moving to a less expensive location.

It is difficult to collect reliable data to develop an appropriate cost-of-living index that takes into account regional differences in housing costs, income, economy, government benefits, and other factors (Weinberg, 2006). The supplemental poverty measure addresses this issue and will be discussed in more detail in the next chapter. Laderchi, Saith, and Stewart (2003) question whether the measures developed are transferable between different societies without any type of adjustments. For instance, the monetary and social exclusion approaches to poverty were initially crafted for developed countries. Using these measures in developing countries requires “heroic imputations of values for subsistence production” for the monetary approach (p. 3). Identifying the poor based on the social exclusion approach would also differ significantly based on societal norms. As a result, methods of identifying the poor are context-dependent to a certain degree, complicating the operationalization of poverty definitions and comparisons of the extent and distribution of poverty across different contexts.

### **Time Period**

The time horizon over which poverty is measured affects the number of people considered poor at any given point of time. Technically, the time horizon could refer to a period ranging from a month to a year or longer. Many people also cycle in and out of poverty based on the economic circumstances they face. Using a variety of national data sets, Rank (2005) estimates that 58.5% of the American population between the ages of 20 and 75 will experience at least one year of poverty at some point during their life with incomes at or below 100% of the official poverty line, and around 30% will experience poverty for five years or more.

Rank’s estimates are, however, vastly different from other research that finds the duration of poverty is fairly short for most individuals. For example, using data from the Panel Study of Income Dynamics for the period 1969 to 1978, Duncan (1984) finds that only 2.6 percent of the sample can be considered more long-term poor (at least 8 of 10 years) compared to 24.4 percent that was poor only in one or more years of the ten years. In more recent research, Anderson (2011) draws on data from the Survey of Income and Program Participation to examine the duration of poverty among the poor in the period 2004 to 2006. Anderson finds that only about three percent of individuals was poor in all 36 months compared to 29 percent that was poor for two or more months of the study period.

Debates continue on the appropriate unit of time to measure income (Blank, 2008). If the poor avail of income or consumption smoothing strategies (i.e., adjusting spending and saving patterns to account for different phases of life), using longer time periods may reduce some of the short-term variations in poverty rates. Fluctuations in poverty rates may nevertheless be of interest to differentiate between transitory (short-term) and chronic (long-term) poverty. While

transitory poverty reflects temporary shortfalls in income (e.g., job loss), chronic poverty reflects permanent shortfalls due to, for instance, lack of sufficient human capital (e.g., education or job training) or access to financial capital (e.g., credit, insurance) to overcome poverty (Morduch, 1994, 1995). Typically the transient and chronic poor are differentiated based on the number of individuals below a certain poverty threshold for a given period of time (e.g., less than 5 years vs. more than 5 years). Another issue is how to address the effects of changes in costs-of-living over time on poverty thresholds used to determine poverty rates (Citro & Michael, 1995).

The capability deprivation and social exclusion approaches to poverty reflect long-term deprivation even though they may be observed at a given point of time because they produce long-term consequences (e.g. childhood poverty may affect health and educational attainment) or because they indicate underlying structural factors influencing poverty (e.g., race and social exclusion). Another concept related to time horizon is that of “lifetime poverty.” Poverty, in this case, can be defined as the number and characteristics of individuals that are chronically poor throughout their lives. Alternatively, poverty could be defined as the crucial decisions or events at various points in a person’s life that either led to or prevented lifetime poverty. This approach may be particularly useful to explore causal factors of poverty and policy analysis (Laderchi, Saith, & Stewart, 2003).

Citro and Michael (1995) observe that there may not be a single accounting period that works for all purposes. Selection of the length of the time period matters to the extent it results in different trends of poverty over time or different rates of poverty among various socio-economic groups in the population. Some scholars advocate for the calculation of both long-term measures of poverty as well as short-term and annual measures of poverty (Duncan, 1992; Duncan, Smeeding, & Rodgers, 1992). Their core argument is that the objective of a poverty measure should determine the choice of period. Policies and programs designed to address transient poverty (e.g., unemployment insurance, AFDC, food stamps) may rely on shorter time periods (one year or less) to measure poverty compared to policies targeted at chronic poverty (e.g., investments in education, health care, microenterprise) that require a more long-term perspective (two years or longer).

### **Concluding Thoughts**

In summary, a number of advances have been made in understanding the issues in measuring poverty. The most appropriate poverty measure may change depending on the societal context and policy goals. As Blank (2008) notes, “there is no ‘right’ way to develop poverty thresholds” because “‘poverty’ is an inherently vague concept, and developing a poverty measure requires a number of relatively arbitrary assumptions” (p. 243). Citro and Michael (1995) assert that “science alone cannot determine whether a person is or is not poor” (p. 37). They instead recommend three guiding principles in the choice of a poverty measure: “public acceptability, statistical defensibility, and operational feasibility” (p. 38).

According to Citro and Michael, the public may be less interested in the exact methods used to calculate poverty and more interested in what Blank (2008) refers to as “acceptable public definitions of poverty” (p. 243). Statistical defensibility calls for measures that are logically consistent, meet the standards of analysts and researchers of poverty, and allow for at least

moderate comparisons across time, place, and different population groups. Finally, operational feasibility requires that the data collected actually measure the pervasiveness of the circumstances that appear to form the basis of the notion of poverty. Ultimately, the selection of a poverty measure may be based on competing policy goals and the need to effectively target limited public funds within a society's political and social structures.

## **Chapter 4: Poverty Measurement in the United States**

The official measure of poverty in the U.S. was developed in the 1960s in conjunction with President Johnson's War on Poverty. As discussed in the introduction, the measure was developed by the Social Security Administration economist, Mollie Orshansky, who based it on USDA's minimally adequate food plan. Having determined that the average family spent around one-third of the after-tax family income on food using the 1955 Household Food Consumption Survey, Orshansky (1963, 1965) multiplied the food plan by a factor of three in order to obtain poverty thresholds for families of different sizes and composition. Since 1969, the Orshansky measure has only been updated to account for inflation based on the Consumer Price Index (Fisher, 1992).

Responding to the many criticisms raised against the Orshansky measure, the Congress-authorized NAS panel sought to present an alternative template that would more accurately measure the extent and nature of poverty (Citro & Michael, 1995). In developing an alternative measure, the Panel focused on the following key issues: resource definition (what is to be included), poverty thresholds (how the measure is to be constructed), equivalence scale (who forms the unit of analysis), geographic adjustments for differences in costs-of-living (where of poverty measurement), and the time period (when poverty is measured). The section below describes how these issues were addressed by the NAS Panel.

### **The NAS Measure**

To determine an individual's or a family's poverty status, the resource definition used by the Census Bureau (n.d.) to develop the official poverty measure is pre-tax money income that includes "earnings, unemployment compensation, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources." The unit of analysis underlying the official measure is family, defined as two or more individuals residing together and related through birth, marriage, or adoption. Money income of all family members residing together is included in the calculations and "non-cash benefits (such as food stamps and housing subsidies)" are not considered. When establishing poverty thresholds based on food budgets, Orshansky implicitly defined an equivalence scale to account for families of various sizes and composition. Lower thresholds were used for individuals aged 65 or older because they were assumed to need less food (Citro & Michael, 1995).

Blank (2008) notes that the official measure no longer adequately captures the expenditures or needs of families today. Food no longer constitutes a significant portion of family budgets. The thresholds therefore are left insensitive to other expenditures such as housing, health care, and child care that now make up a larger percentage of a typical family budget. Low-income households, for instance, tend to spend close to half their income on housing (Dreier, 2007). Food, on the other hand, now only comprises around one-seventh of the average family's budget. In terms of resources, only a minority of low-income households in the 1960s paid federal taxes,

and benefits such as food stamps (now called Supplemental Nutrition Assistance Program or SNAP), housing subsidies, and Medicaid were minimally provided. Poverty statistics also do not account for the increasing use of payments or transfers through the tax system such as payroll taxes or the Earned Income Tax Credit (Besharov & Couch, 2009; Blank, 1997, 2008). Blank (2008) notes that there was thus little difference between cash income and disposal income among low-income households at the time the official poverty measure was adopted.

To address these criticisms, the NAS Panel chose to define poverty as “economic deprivation” or the “lack of economic resources (e.g., money or near money income) for consumption of economic goods and services (e.g., food, housing, clothing, transportation)” (Citro & Michael, 1995, p. 19). The Panel recommended that poverty thresholds be based on a percentage of median expenditures on food, clothing, and shelter (including utilities) using actual data from the Consumer Expenditure Survey (CEX) with a small allowance for other household and personal expenses. The thresholds were to be updated annually based on average expenditures for the last three years using CEX data. The rationale behind using average expenditures was that the poverty level would be less sensitive to fluctuations in the economy.

To determine available resources, the Panel suggested that gross money income of an individual or a family from private and public sources be supplemented with “near-money nonmedical in-kind benefits, such as food stamps, subsidized housing, school lunches, and home energy assistance.” The following should then be deducted from available family resources: out-of-pocket medical expenses including health insurance premiums; income and Social Security payroll taxes; child support payments; inflation-adjusted flat amount for work-related and other expenses; and finally, in the case of working families, child care costs that are “not to exceed the earnings of the parent with the lower earnings” or an inflation-adjusted annual cap (Citro & Michael, p. 209).

The Panel recognized that the composition of families has greatly changed since the 1960s. One-person households have increased from 13% in 1960 to 27% in 2010. Compared to all households with children, single-parent families have, for example, increased from 11% in 1970 to close to 30% in 2008. The number of cohabiting couples has seen a fifteen fold increase between 1960 and 2009. In fact, the 2010 Census found that traditional married couple households now represent only 48% of all households (U.S. Census Bureau, 2010). To account for these demographic changes, the Panel recommended that two cohabiting adults be treated as one family rather than two. A family of two adults and two children forms the base poverty threshold. An equivalence scale is then used to adjust for families of different sizes and compositions. The scale also takes into account the fact that children consume less than adults and that larger families enjoy greater economies of scale. Unlike the Orshansky measure, the Panel does not assume that older individuals need less food and therefore does not make distinctions by age for individuals aged 18 or older (Citro & Michael, 1995; Iceland, 2005).

The Orshansky measure has also been criticized for ignoring geographic differences in costs-of-living (Besharov & Couch, 2009; Blank, 1997; Citro & Michael, 1995). As mentioned earlier, housing costs now constitute a much a larger portion of family budgets. The Panel recognized that housing prices tend to vary across different regions. Since regional price indexes were not available and only limited data was available to calculate price indices for various regions, the

Panel recommended that poverty thresholds be adjusted for variations in housing costs including utilities by the nine census regions and size of metropolitan area within each region based on data from the decennial census. However, they urged further research by appropriate agencies to explore methods that could improve the assessment of cost-of-living differences in housing and other parts of the poverty budget (Citro & Michael, 1995).

### The NAS Measure: Effects on Poverty Rates

To understand the possible consequences of implementing the proposed measure, the NAS Panel estimated poverty rates using data from the March 1993 Current Population Survey (CPS), the Survey of Income and Program Participation (SIPP), and additional sources. Based on their analysis, the Panel found higher poverty rates among working families (with one or more workers) lacking health insurance coverage and lower poverty rates among families receiving public aid. They also found regional differences in the composition of poverty with “higher poverty rates in the Northeast and West and lower rates in the South and, to a lesser extent, in the Midwest” (Citro & Michael, 1995, p. 11). Since the publication of the NAS report, the U.S. Census Bureau, federal agencies, and researchers have continued to examine how the NAS measure might change the extent of poverty compared to the official poverty measure. Table 2 compares differences in poverty rates, from 2006-2011, between the official measure and a geographically-adjusted NAS measure using CEX data and CPI data.

Table 2. *Poverty Rates Using the Orshansky Measure and the NAS Measure, 2006-2011*

Measurement method	Year					
	2006	2007 <sup>1</sup>	2008 <sup>2</sup>	2009	2010	2011
Official measure	12.3	12.5	13.2	14.3	15.1	15.0
MSI-GA-CPI*	12.2	12.6	12.8	12.9	13.4	13.6
MSI-GA-CE**	13.6	15.3	15.8	15.7	15.5	15.2

*Source: U.S. Census Bureau, Current Population Survey, 2000 to 2012 Annual Social and Economic Supplements.*

\*MSI-GA-CPI refers to medical out-of-pocket expenses (MOOP) subtracted from income; geographic adjustment (of poverty thresholds); thresholds adjusted since 1999 using the CPI-U.

\*\* MSI-GA-CE refers to medical out-of-pocket expenses (MOOP) subtracted from income; geographic adjustment (of poverty thresholds); thresholds recalculated since 1999 using data from the Consumer Expenditure Survey.

<sup>1</sup>The Bureau of Labor Statistics introduced questionnaire improvements about expenditures on food away from home and type of mortgage in the Consumer Expenditure Interview Survey (CE) starting in the second quarter of 2007. Consequently, comparisons with earlier years for the measures using the CE may be affected.

<sup>2</sup>The income measures for 2008 through 2011 do not include capital gains and losses, affecting comparisons with previous years.

Table 2 shows that the poverty rate using the NAS measure of MSI-GA-CE has been somewhat higher than the official measure between 2006 and 2011. The difference is particularly notable for the year 2007 (NAS rate of 15.3% compared to the official rate of 12.5%). This may,

however, partly be due to the changes implemented by the Bureau of Labor Statistics to the consumer expenditure questionnaire that raised the 2007 threshold considerably. The figures also highlight the significance of the time period used to measure poverty. Compared to the official measure, the NAS measure relies on a quasi-relative method to update poverty rates.

Blank and Greenberg (2008) compared differences in poverty thresholds and poverty rates based on the current official measure and the NAS measure for the year 2006. Using Census Bureau data, the authors noted an official poverty threshold of \$20,444 for a family of four (2 adults and 2 children). On the other hand, the threshold based on the NAS measure is \$21,818 (geographically adjusted after tax income, with addition of in-kind benefits and subtraction of out-of-pocket medical and other expenses). The net effect on the poverty rate is a 1.3% increase from 12.3% under the official measure to 13.6% under the NAS measure (also seen in table 2). The authors also examine the effects of the NAS measure on different population groups and find, for example, that there is a significant increase in the poverty rate for the elderly (9.4% to 16.5%). This is explained by the subtraction of medical expenses and the use of similar thresholds for elderly and non-elderly. They also note a slight increase in poverty among the White and Hispanic families, and a slight decrease among Black families.

Smith (2009) compares state poverty rates based on the official measure and the NAS measure using the Current Population Survey (CPS) Table Creator II web tool released by the Census Bureau in 2009. She finds that poverty rates increase between 1-2% in 23 states using the NAS measure. When housing costs are added, poverty rates fall in states where housing costs are low and increase in states with higher housing costs. Further, the ranking of states changes significantly when poverty rates are estimated using the NAS measure adjusted for housing costs compared to the rankings using the official measure.

In 2006, New York City (NYC) Mayor, Michael Bloomberg, commissioned a task force, the Center for Economic Opportunity (CEO), to suggest new ways of tackling the problem of poverty. One of their recommendations was to focus on the issue of poverty measurement. Based on the NAS recommendations, the CEO determined the poverty threshold for a family of four (2 adults and 2 children) living in NYC to be \$26,138 compared to the official threshold of \$20,444. The poverty rate in NYC was estimated to be 23% compared to 18% using the official measure. The CEO also found higher poverty rates among the elderly and racial/ethnic groups compared to non-Hispanic Whites (Levitan, 2008). Most recent findings suggest that poverty rates based on the CEO measure was 21.3 percent in 2011 compared to the official rate of 19.3 percent. Further, poverty rates for non-Hispanic Whites (15.4%), Asians (26.5%), and Hispanics (25.3) in 2011, having increased by 2.2 percent, 4.1 percent, and 1.8 percent respectively compared to the year 2008. The poverty rate remained relatively stable for non-Hispanic Blacks (around 21%). Hispanics and Asians thus had the highest poverty rates in the City (Levitan, 2013).

To get a better picture of poverty in the state of Wisconsin, researchers at the Institute for Research on Poverty, University of Wisconsin-Madison, developed a poverty measure based partly on the NAS recommendations (Marks, Isaacs, & Smeeding, 2010). The researchers employ a broad measure of resources that account for the “effects of taxes, tax credits, non-cash benefits, medical expenses, work and child care expenses, homeownership costs, and geographic



differences in the cost of living” (p. 3). Using data from the American Community Survey (ACS) and state administrative data, the researchers estimate the poverty rate for the state in 2008 to be 11.2% compared to the official rate of 10.2%. They further find higher poverty rates for children and the elderly. The Wisconsin poverty measure is believed to reflect a more comprehensive picture of the extent of poverty in the state and the effect of poverty alleviation programs. The researchers hope the measure will function as a model for other states wishing to develop their own poverty measures.

Although Orshansky developed her measure of poverty based on the best data available at that time, it no longer provides a clear picture of how economic, social, and policy changes affect economic need in the United States today. The poverty rates listed in table 2 may in fact lead us to believe that “in a very fundamental way, our poverty statistics failed us and made it easy to claim that public spending on the poor had little effect” (Blank, 2008, p. 238). Although conceptually similar to the Orshansky measure, the recommendations made by the NAS Panel address many of its shortcomings in their proposal for an alternative template for poverty measurement. The NAS measure, in particular, provides a clearer picture of economic need by including the value of public benefits and policies that have been introduced over the years and subtracting expenses related to health care (out-of-pocket), work, and childcare. Further, by linking poverty thresholds to average expenditures rather than a pre-determined income level, the NAS measure makes a move toward a more relative view of poverty.

The concept of poverty, however, remains subject to value judgments, assumptions, and political compromises. As noted earlier, there are no easy answers to debates centered on issues such as appropriate poverty thresholds, resource measures, and expenses in the development of a poverty measure. Any changes to poverty statistics is bound to have consequences for poverty alleviation programs, federal allocation of funds, and eligibility determinations, making it even more difficult to implement changes. Unlike the Orshansky measure, the NAS measure will not be used to determine eligibility for government programs, thus circumventing political controversy, at least temporarily. Researchers have, however, pointed out that different programs can decide if and what modifications should be made to correspond with a new poverty measure. Grandfather clauses could, for example, ensure continued eligibility for certain programs. Policymakers may find that it is also more politically astute to hold off on changes for a period of time to allow for refinements of a new measure, particularly considering the continuing debates surrounding the unresolved issues mentioned earlier (Blank, 2008; Greenberg, 2009).

Although the NAS measure is criticized for continuing to take a “reductionist” approach to understanding a complex and dynamic concept like poverty, Blank and Greenberg (2008) argue that ultimately it is the “responsiveness of the NAS measure to key social, economic, and policy changes that makes it a much more attractive measure than the current poverty measure” (p. 30). The measure can help policymakers better identify which groups are being helped by public assistance and which groups are not, or which groups remain in poverty despite government assistance. Obtaining this information can be useful in policy evaluation and the development of alternative poverty alleviation strategies.

## Multi-dimensional Poverty Measurement in the United States

Although international poverty research has highlighted the need to embrace a multi-dimensional approach to measuring poverty, there has been little research on alternative ways to measure poverty in the U.S. beyond the work of the NAS. Alkire and Foster (2009) use data from the 2004 U.S. National Health Interview Survey to assess multi-dimensional poverty based on Sen's capability approach across the following racial/ethnic groups: Hispanic/Latino, White, African American, and other. The authors explore differences in poverty rates based on the following variables: income grouped into 15 categories using poverty line increments, self-reported health, health insurance, and years of schooling. They find that while the traditional poverty measure suggests that 37.5% of Hispanic/Latino participants were poor, the multi-dimensional measure suggests that 46.6% of this population is poor. In contrast, they find that while the traditional poverty measure suggests that 39.1% of the African American participants are poor, the poverty rate fell to 34.4% using the multi-dimensional measure. The findings are similar for "White" and "Other" participants.

To explain these differences in poverty rates, Alkire and Foster examine the contribution of each of the four dimensions of poverty noted above. They find that, for Hispanics, health insurance (30%) and schooling (35.5%) contributed more to poverty compared to income (21.8%). On the other hand, for African Americans, income has a higher contribution (29.1%) compared to health insurance (19.5%) and schooling (28.4%). The authors argue that this "explains why, in comparison to traditional income based poverty, the percentage of overall multi-dimensional poverty originating in the Hispanic/Latino population rises, while the contribution for African Americans is lower" (p. 32).

Wagle (2008) uses data from the 2004 General Social Survey to develop a comprehensive, multi-dimensional framework to assess poverty in the U.S that includes economic well-being (e.g., respondent's income, equivalized family income, and satisfaction with financial situation), capability (e.g., educational attainment, condition of health, employment industry), and social inclusion (e.g., voting in 2000 presidential election, group membership). The author finds that the three dimensions are highly interrelated. Further, Wagle finds that gender and marital status significantly increase the likelihood of being poor, and that Blacks, Hispanics, and American Indians are more likely to be severely poor. Wagle argues that although the outcomes are consistent with those found using the traditional income or consumption-based approaches, these findings are more accurate because they are based on a more comprehensive set of data.

Adapting the UN's HDI, in 2008, the Social Science Research Council developed the American Human Development Index. Indicators include education (educational degree enrollment and school enrollment), health (life expectancy at birth), and income (median earnings). States are ranked based on their human development or well-being scores. Human development is further assessed through the lenses of geography, gender, and race/ethnicity. Some of the key findings in the 2013-14 Measure of America at the national level are that the top five states based on the Index are in the Northeast (Connecticut, Massachusetts, New Jersey, the District of Columbia, and Maryland), while the bottom five are primarily in the South (Alabama, Kentucky, West Virginia, Arkansas, and Mississippi). Further, among races/ethnicities, African Americans have

the lowest life expectancy, but exceed the educational outcomes and earnings of Latinos and Native Americans (Lewis & Burd-Sharps, 2013).

Research highlighting multiple dimensions of poverty including income enables policymakers and researchers to focus on areas that require targeted policy actions. By building knowledge on the nature of economic and social needs, a multi-dimensional approach to poverty can help inform the debate on the political, social, and economic framework that helps individuals develop the capacity to function and promotes their overall well-being in a particular society (Gilbert, 2009).

## Chapter 5: Methods

### Study Design

This study uses a cross-sectional design to examine changes in profiles of the poor at the national level pre- and post the Great Recession, in the period 2005-2010, using three main measures of poverty: the federal poverty measure, the NAS-based poverty measure, and a multi-dimensional poverty measure. To explore how poverty rates may have changed pre- and post-recession, this study divides the five years into the following three time periods: 2005-2006, 2007-2008, and 2009-2010. The years 2005 and 2006 are considered as pre-recession years. The years 2007 and 2008 are considered the recession years, and the years 2009-2010 are considered the post-recession years. Drawing on publicly available secondary data, the study first uses descriptive analyses to create poverty profiles by gender, marital status, and race/ethnicity. Next, the study conducts logistic regressions on the odds of being poor based on the three poverty measures noted above.

### Data Collection

The data for this study is obtained from the U.S. Census Bureau website and the Minnesota Population Center's census micro data, the Integrated Public Use Microdata Series-Current Population Survey (IPUMS-CPS). This study utilizes the Experimental Poverty Measures Public Use Research Files for the NAS-based poverty measure made available by the U.S. Census Bureau. These data files are utilized because they allow researchers to replicate the NAS-based poverty measures from the year 1997 onwards. Income levels are top coded in public use data, so the findings of this study will differ from official published poverty statistics. Additional detail is added to the Census data files by matching with the IPUMS-CPS data.

IPUMS is a respected data resource that provides both access and harmonization over time. It also builds on existing scholarly resources and knowledge. The IPUMS-CPS data provides harmonized data on people in the March Current Population Survey from 1962 to the present (Integrated Public Use Microdata Series [IPUMS], n.d.). The CPS sample is a probability sample that represents the civilian, non-institutionalized population of the United States aged 16 years or older. The sample uses a rotating panel in which households from all 50 states and the District of Columbia are included in the survey for 4 consecutive months, excluded for the next 8 months, and then included again for 4 months before finally retiring from the sample. This 4-8-4 rotation scheme ensures a high degree of continuity without unnecessary burden on the respondents. The CPS questionnaire is a computerized document administered by Census Bureau field representatives through personal and phone interviews. A "reference person" is generally asked to respond on behalf of all the members of the household (U.S. Census Bureau, 2006).

A crosswalk is created between the NAS and IPUMS identifiers, and the match is verified by ages of respondents. Population weights available with IPUMS data inflate the sample up to actual population size. These weights are divided in each year by mean weight to deflate back to actual sample size. The merged data file forms the basis for the data analysis of this research by providing additional information not contained in the original NAS datasets at the individual

level. Only cases appearing in the original NAS datasets are retained after the match. The merged data file further allows for an examination of poverty based on the uni-dimensional federal poverty measure and the NAS-based measure as well as the creation of a multi-dimensional poverty measure described later in this chapter.

## **Data Analysis**

Descriptive analyses are conducted to explore the first main research question of this study, namely, the prevalence of poverty in the U.S. among various groups in the population (by gender, marital status, and race/ethnicity) based on the official poverty measure, the NAS-based poverty measure, and the multi-dimensional measure. To address the second main research question of this study, logistic regressions are run to identify the odds of being poor by each of the underlying definitions of poverty, controlling for gender, marital status, race/ethnicity, and time period.

## **Operationalization of Measures**

### **Uni-dimensional poverty measures.**

#### ***Dependent variables***

##### *Poverty status*

- Dichotomous variable that identifies a person as poor (1) or not poor (0) based on the current official federal poverty measure.
- Dichotomous variable that identifies a person as poor (1) or not poor (0) based on NAS-based poverty measure coded as a dichotomous variable in the public use data file.

#### ***Independent variables***

The following describes how data was collected and coded for gender, marital status, and race/ethnicity in the merged data file.

##### *Gender*

The gender variable is a dichotomous variable and coded as male (0) or female (1).

##### *Marital Status*

The original marital status variable in the Census data file is recoded into a new dichotomous variable as married (0) or single (1). The recoded married category includes respondents listed as “married, spouse present” and “married, spouse absent.” The recoded single category includes respondents listed as “separated, divorced, widowed, or never married/single.”

*Race/Ethnicity.*

Data on race in the Census data file is available in the form of two variables. The first race/ethnicity variable allows respondents to identify as “Not Hispanic” or “Hispanic.” The Hispanic group includes respondents who identified themselves as Mexican, Mexican American, Mexicano/Mexicana, Chicano/Chicana, Puerto Rican, Cuban, Central/South American, or Other Spanish. The second race/ethnicity variable allows respondents to identify as one of the following:

- White
- Black/Negro
- American Indian/Aleut/Eskimo
- Asian or Pacific Islander
- Asian only
- Hawaiian/Pacific Islander only
- Other (single) race
- White-Black
- White-American Indian
- White-Asian
- White-Hawaiian/Pacific Islander
- Black-American Indian
- Black-Asian
- Black-Hawaiian/Pacific Islander
- American Indian-Asian
- Asian-Hawaiian/Pacific Islander
- White-Black-American Indian
- White-Black-Asian
- White-American Indian-Asian
- White-Asian-Hawaiian/Pacific Islander
- White-Black-American Indian-Asian
- Two or three races, unspecified
- Four or five races, unspecified

The Census uses two separate variables for race and Hispanic origin in order to adhere to the standards issued by the Office of Management and Budget (OMB) in October 1997. The OMB mandated that race and Hispanic origin (also referred to as ethnicity) be treated as two independent and distinct categories. These classifications were not intended to be scientific in nature, but instead conceived to aid in consistency in federal record keeping and data presentation. The Census Bureau notes that “these standards generally reflect a social definition of race and ethnicity recognized in this country, and they do not conform to any biological, anthropological, or genetic criteria. The standards include five minimum categories for data on race: "American Indian or Alaska Native," "Asian," "Black or African American," "Native Hawaiian or Other Pacific Islander," and "White." There are two minimum categories for data on ethnicity: "Hispanic or Latino" and "Not Hispanic or Latino." The concept of race reflects self-

identification by people according to the race or races with which they most closely identify. Persons who report themselves as Hispanic can be of any race” (U.S. Census Bureau, n.d.).

The two original race/ethnicity variables are combined for the data analysis in this study and recoded to a new variable that included the following five main categories: White, Black/Negro, Asian Only, Hispanic, and Other/Mixed Races. These categories are chosen to focus on how different poverty measures affect poverty profiles among the broader racial/ethnic population groups. The extremely small proportion of respondents in the various mixed racial/ethnic groups also allows them to be placed in one single category (other/mixed races).

### *Time Period*

To explore the odds of poverty pre- and post-recession, the three time periods are included as a categorical variable in the regression models. The time period 2005-2006 is treated as the base year (0) and compared to the other two time periods, 2007-2008 and 2009-2010. Regression analysis then reveals if the odds of being poor in the recession years (2007-2008) or post-recession (2009-2010) are significantly different than the odds of being poor in the pre-recession period (2005-2006).

### **Multi-dimensional poverty measure.**

The multi-dimensional poverty measure created for this study includes three main dimensions: education, health, and standard of living. Each of these three dimensions is made up of an indicator variable described as follows:

- For the education dimension, the indicator variable is a dichotomous variable indicating whether the person, aged 18 years or older, has at least a high school diploma or more (0) or not (1).
- For the health dimension, the indicator variable is a dichotomous variable indicating whether the person has access to any public or private health insurance (0) or not (1).
- For the standard of living dimension, the indicator variable is a dichotomous variable based on poverty status (poor (1) or not poor (0)) using the NAS-based poverty measure.

Details on how data was collected and coded for the education and health dimensions are described below.

### ***Educational Attainment***

Data on educational level is obtained from IPUMS-CPS and matched with the Census data file. The original variable includes respondents in the following categories: no schooling; pre-school to grade 12; grade 12, but no diploma or diploma unclear; high school diploma or equivalent; some college, but no degree; one to 6 or more years of college; associate’s degree, occupational/vocational program; associate’s degree, academic program; bachelor’s degree, master’s degree; professional school degree, or doctorate degree. This variable is then recoded

into a dichotomous variable indicating whether a person, aged 18 years or older, has at least a high school diploma or more (0) or not (1). The variable is coded to exclude all cases below the age of 18 years in order to focus on the adult population.

### *Health Insurance Status*

Data on health insurance status is obtained from IPUMS-CPS and matched with the Census data file. The original variable is dichotomous and includes respondents covered by any private or public health insurance (2) or not (1). This variable is then recoded as a dichotomous variable indicating whether the adult has access to any public or private health insurance (0) or not (1). Information on access to any private or public health insurance is based on variables created by the State Health Access Data Assistance Center (SHADAC) at the University of Minnesota. The private insurance variable asks respondents whether they were covered by employer-sponsored or private insurance during the previous year. The public insurance variable asks respondents whether they were covered by any public insurance such as SCHIP, Medicaid, Medicare, military insurance, or other state-sponsored program during the previous year (IPUMS-CPS, n.d.).

### *Creating the multi-dimensional measure.*

The three dimensions and indicators are equally weighted with each receiving a one-third weight. The measure takes the form of an index to determine the extent and profile of the poor based on a multi-dimensional concept of poverty. The steps to create the index follow the methodology outlined by Alkire and Foster (2009) and in the training material by Santos and Alkire (2011) to replicate the MPI in various national and sub-national contexts.

Having identified the dimensions and the indicator variables, the first step is to determine the deprivation cut-off for each indicator variable. The deprivation cut-offs for each variable are set as follows:

- Does not have at least a high school diploma.
- Does not have access to any form of private or public health insurance.
- Is identified as poor using the NAS-based poverty measure.

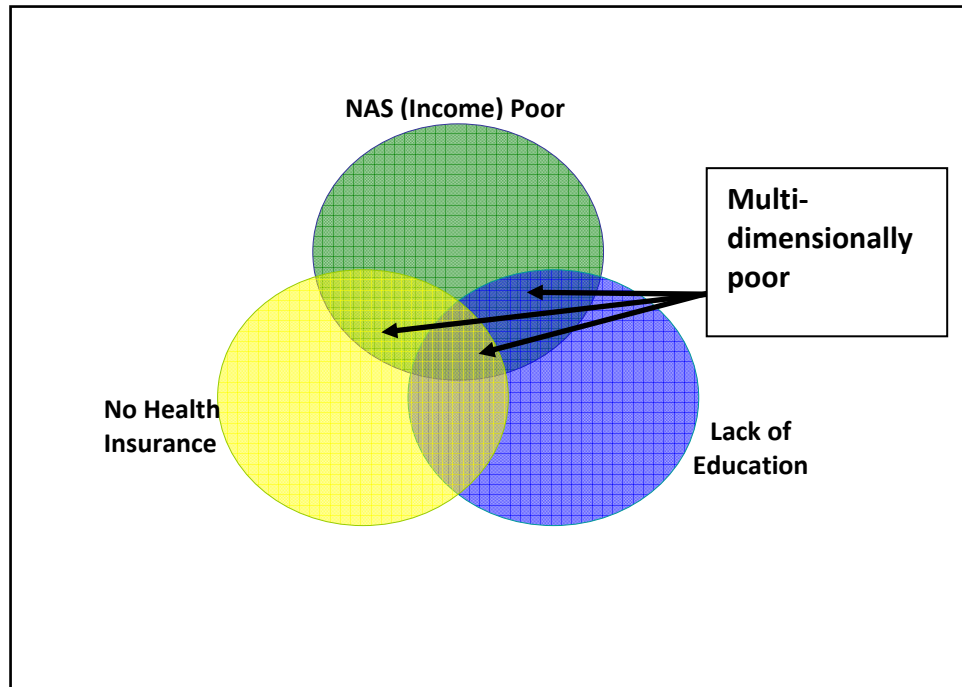
A person that falls below the cut-off is considered deprived in that particular indicator variable (and dimension). A person who is not deprived in a particular indicator variable is coded as 0 and a person who is deprived is coded as 1. To calculate a person's deprivation score, a weighted sum of the number of deprivations is taken. This ensures that the deprivation score for each person lies between 0 and 1.

After calculating the deprivation score, the second step is to determine when a person can be considered multi-dimensionally poor (poverty cut-off). In this study, a person is identified as multi-dimensionally poor if the sum of weighted deprivations is greater than one-third of the weighted indicator variables, or in other words, if a person is deprived in two or more dimensions. A person whose deprivation score is one-third or less is coded as 0 while a person whose deprivation score is greater than one-third is coded as 1. Determining this poverty cut-off



is known as censoring in poverty measurement. Figure 1 below provides a pictorial overview of how multi-dimensionally poor are identified.

Figure 1. Determining Multi-Dimensional Poverty



The MPI thus merges two pieces of information. The first is “the proportion (or incidence) of people (within a given population) who experience multiple deprivations” and the second is “the intensity of their deprivation: the average proportion of (weighted) deprivations they experience” (Santos & Alkire, 2011, p. 12). The first piece of information is referred to as the *multi-dimensional headcount ratio*, and the second piece of information is referred to as the *intensity* of poverty. The MPI is calculated as a product of the headcount ratio and the intensity of poverty. So, for example, if the headcount ratio was 0.7, then 70 percent of people in a given population would be considered multi-dimensionally poor. These individuals are considered deprived in at least one dimension. If the intensity of poverty was, say, 0.6 or 60 percent, then the average poor person would be considered deprived in 60 percent of the weighted indicators included in the index. Finally the MPI would be  $0.7 \times 0.6$  or 0.42. The MPI for a society in which everyone is considered deprived in all of the included deprivation indicators would be 100 percent. In this example, the MPI, thus, tells us that the average poor person is deprived in 42 percent of the total possible deprivations he/she could face on the whole.

***Dependent variable.***

*Poverty status.*

The dependent variable using the MPI is a dichotomous variable that identifies a person as poor (1) or not poor (0) based on the multi-dimensional poverty cut-off described above.

***Independent variables.***

The independent variables to determine the odds of poverty based on the MPI are gender, marital status, race/ethnicity, and time period.

**Human Subjects**

The proposed research does not qualify as human subject research as stipulated in Federal Regulations at 45 CFR 46.102(f). The secondary data to be used for the analysis is obtained from publicly available datasets. Specifically, the data for this research was not collected through interaction with living individuals, and the researcher has no access to the identities of the individuals to whom the data pertain. The research therefore does not require approval from the Office for Human Research Protection.

## Chapter 6: Findings

This chapter presents findings that address the first two research questions of this study, namely:

1. How does the prevalence rate of poverty affect poverty rates among various groups in the population (by gender, marital status, and race/ethnicity) in the U.S., in the period 2005-2010, based on uni-dimensional measures (official measure and the NAS measure) and the proposed MPI?
2. What are the odds of being poor under the uni-dimensional measures compared to the multi-dimensional measure in the period 2005-2010 by gender, marital status, and race/ethnicity?

Descriptive findings that speak to the first question are first presented followed by findings from the logistic regression models that address the second question. A discussion of the findings is reserved for the last chapter.

Before presenting the findings of the study, table 3 below provides an overview of some of the key sample characteristics.

Table 3. *Sample Characteristics*

SAMPLE	YEAR			TOTAL
	2005-2006	2007-2008	2009-2010	
<b>N (weighted)</b>	290670	292772	295856	879298
<b>Gender (%)</b>				
<i>Male</i>	48.4	48.5	48.5	48.5
<i>Female</i>	51.6	51.5	51.5	51.5
<b>Race/Ethnicity (%)</b>				
<i>White</i>	69.3	68.7	68.0	68.7
<i>Hispanic</i>	13.1	13.6	14.0	13.5
<i>Black</i>	11.3	11.4	11.5	11.4
<i>Asian Only</i>	4.4	4.5	4.6	4.5
<i>Other/Mixed Races</i>	1.8	1.9	1.9	1.9
<b>Marital Status</b>				
<i>Married</i>	55.9	55.0	53.9	54.9
<i>Single</i>	44.1	45.0	46.1	45.1
<b>Educational Attainment</b>				
<i>No High School</i>	15.3	14.2	13.5	14.3
<i>High School Degree or more</i>	84.7	85.8	86.5	85.7

<b>Health Insurance</b>				
<i>Has no coverage</i>	16.3	16.4	18.3	17.0
<i>Has some private or public coverage</i>	83.7	83.6	81.7	83.0

As shown in the table above, the total sample size (N) of adults aged 18 years or older was close to 900,000, ensuring a higher precision of estimates. There was an almost even distribution of males (48.5%) and females (51.5%) in the sample. Whites made up the largest proportion (68.7%) of the racial/ethnic groups followed by Hispanics (13.5%), Blacks (11.4%), Asians (4.5%), and other/mixed races (1.9%). Around 55 percent of the sample fell into the married category. In terms of educational attainment, 14.3 percent of the sample did not have at least a high school degree. Seventeen percent of the sample was not covered by any form of private or public health insurance.

### **Descriptive Findings**

Changes in poverty rates and poverty profiles are examined using the two uni-dimensional measures (official poverty measure and NAS-based poverty measure) and the created multi-dimensional poverty measure by gender, marital status, and race/ethnicity. These descriptive findings are presented in the following.

#### **Uni-dimensional measures.**

The findings in this section describe poverty trends across the three time periods (2005-2006, 2007-2008, and 2009-2010) by poverty measure and by gender, marital status, and race/ethnicity. Poverty rates are examined using a poverty overlap variable that classifies individuals as poor in one of four categories: Poor based on official measure alone, poor based on NAS measure alone, poor based on both the official and NAS measures, or not poor by either measure.

Figure 2 below provides a pictorial overview of how the poverty overlap between the measures is determined. The diagram is not drawn to scale and is intended only to graphically describe how the poverty overlap variable captures the poor using the official measure and the NAS measure. The circle on the left represents those identified as poor by the official measure alone, while the circle on the right represents those identified as poor by the NAS measure alone. The intersection of these two circles represents the poverty overlap or those identified as poor by both measures. The total percent poor based on the official measure and the NAS measure then includes those identified as poor by each measure alone plus those identified as poor by both measures.

Figure 2. Venn Diagram Depicting Poverty Overlap Based on Poverty Measures

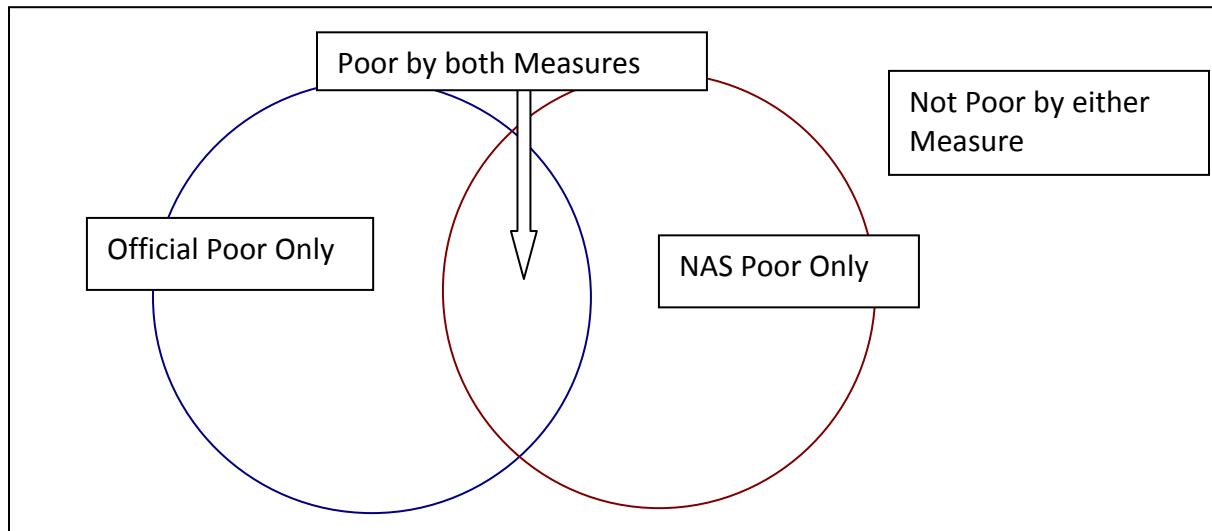
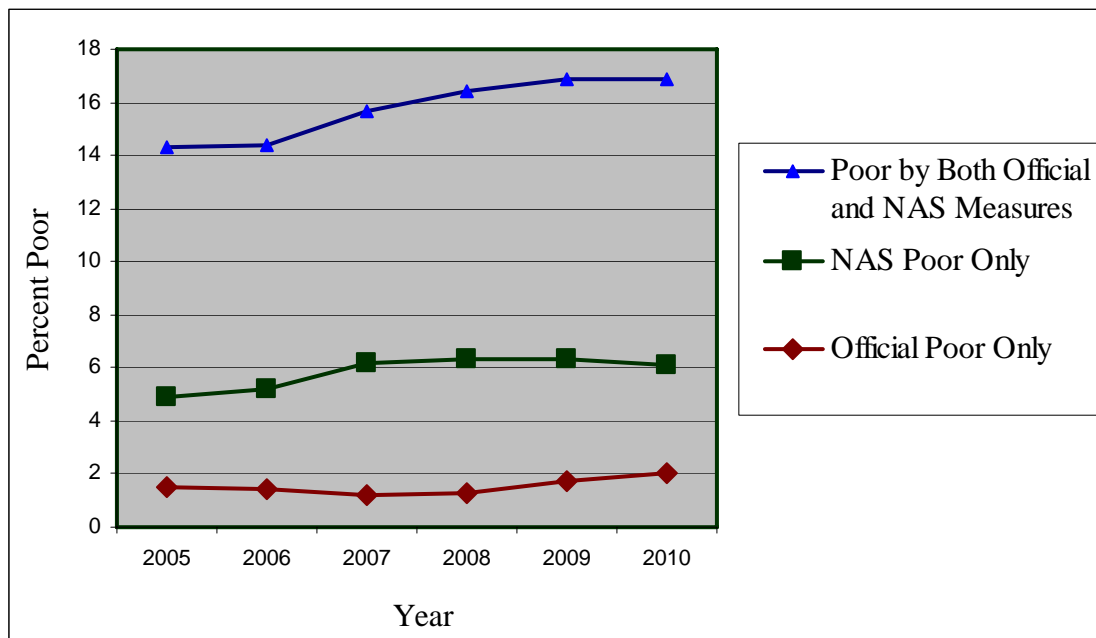


Figure 3 below starts by illustrating the general trend in poverty rates among the sample population based on the official measure and the NAS-based measure from 2005 to 2010. The figure focuses on the percent of individuals classified as poor based on either the official measure or the NAS measure, or by both measures.

Figure 3. Poverty Trends based on Official Measure and NAS Measure in period 2005-2010



It is clear from figure 3 that the percent of individuals identified as poor using the NAS poverty measure is higher than the percent identified as poor based on the official measure alone. The higher percent of poor based on the NAS measure may be based on several factors such as regional adjustments for cost-of living, childcare expenses, and all of the other adjustments for

expenses that the official measure does not consider. Furthermore, the percent identified as poor by both poverty measures is also higher than the percent poor based on either the official measure or NAS measure alone and includes the group that the official and NAS measures both agree are poor.

*Poverty by poverty measure.*

Figure 4 presents an overview of the percent poor based on the official measure alone, the NAS-based measure alone, and by both the official measure and the NAS-based measure (poverty overlap) for the three time periods.

Figure 4. Percent Poor by Time Period based on Official Measure and NAS Measure

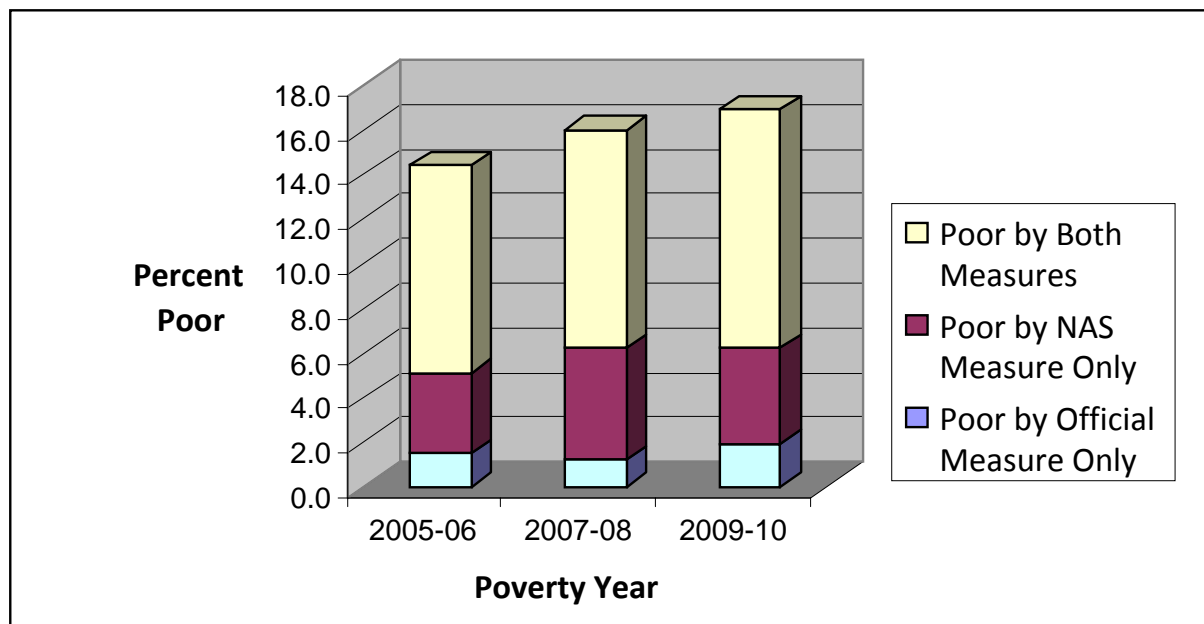


Figure 4 shows that in the pre-recession period of 2005-2006, 1.5 percent of the sample adult population was identified as poor based on the official measure only compared to 3.6 percent based on the NAS measure alone. The percent considered poor by both measures is 9.3 percent. The total percent poor based on official measure accounting for the overlap is then 10.8 percent ( $1.5 + 9.3 = 10.8$ ), while the total percent poor based on the NAS measure accounting for the overlap is 12.9 percent ( $3.6 + 9.3 = 12.9$ ). In terms of numbers of poor by measure, the number of poor jumped from 4,275 based on the official measure alone to 10,456 based on the NAS measure alone, while the number of poor by both measures totaled 27,045 in this period. The total number of poor based on the official measure in this sample was thus 31,320 ( $4,275 + 27,045 = 31,320$ ), while the total number of poor based on the NAS measure was 37,501 ( $10,456 + 27,045 = 37,501$ ). (Please see Appendix A for detailed table).

In what is defined as the recession period of 2007-2008 in this study, the percent poor based on the official measure fell slightly from 1.5 percent to 1.2 percent, while the percent poor based on the NAS measure increased from 3.6 percent to 5 percent. The percent considered poor based on both measures increased somewhat from 9.3 percent to 9.8 percent. The total percent poor in this

time period based on official measure accounting for the overlap is then 11 percent ( $1.2 + 9.8 = 11$ ), while the total percent poor based on the NAS measure accounting for the overlap is 14.8 percent ( $5.0 + 9.8 = 14.8$ ). In terms of numbers, the number of poor rose from 3,609 based on the official measure to 14,560 based on the NAS measure, and the number poor by both measures was 28,609. The total number of poor based on the official measure in this sample was thus 32,218 ( $3,609 + 28,609 = 32,218$ ), while the total number of poor based on the NAS measure was 43,169 ( $14,560 + 28,609 = 43,169$ ). (Please see Appendix A).

Finally, compared to the 2007-2008 recession period, the percent poor based on the official measure rose from 1.2 percent to 1.9 percent, while the percent poor based on the NAS measure fell from 5 percent to 4.3 percent in the post-recession period (2009-2010). The percent considered poor based on both measures increased almost a percentage point from 9.8 percent to 10.7 percent. The total percent poor in the post-recession period based on official measure accounting for the overlap is then 12.6 percent ( $1.9 + 10.7 = 12.6$ ), while the total percent poor based on the NAS measure accounting for the overlap is 15 percent ( $4.3 + 10.7 = 15$ ). In terms of numbers, the number of poor was 5,501 based on the official measure compared to 12,802 based on the NAS measure, while the total number by both measures was 31,687. The total number of poor based on the official measure in this sample was thus 37,188 ( $5,501 + 31,687 = 37,188$ ), while the total number of poor based on the NAS measure was 44,489 ( $12,802 + 31,687 = 44,489$ ). (Please see Appendix A).

### *Poverty by gender.*

Figure 5 next shows changes in poverty rates across the three time periods by gender.

Figure 5. Percent Poor by Gender, Poverty Measure, and Time Period

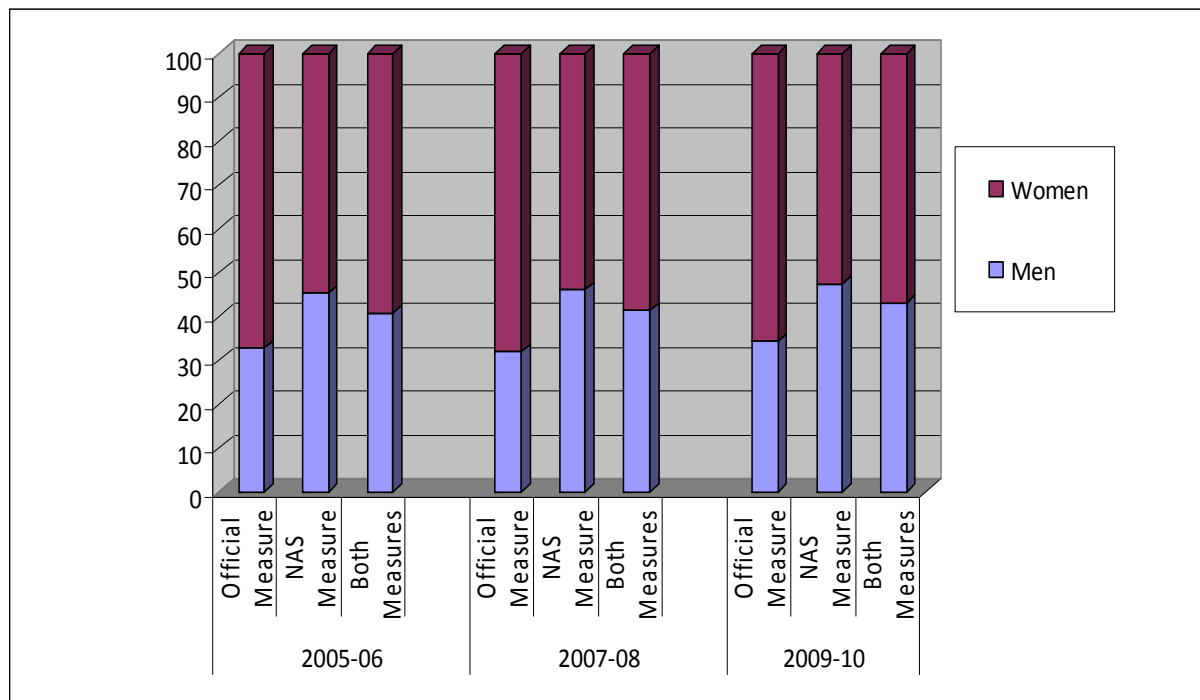


Figure 5 shows that in the period 2005-2006, around two-thirds of individuals in poverty were female and around one-third were male based on the official measure only. Based on the NAS measure alone, of all individuals in poverty, around 45 percent of men and 55 percent of women were identified as poor. Men were thus more likely to be captured as being in poverty based on the NAS measure (45.2% compared to 32.7% based on the official measure). The percent of women identified as poor was lower based on the NAS measure alone (54.8%) compared to the official measure (67.3%).

Poverty patterns by gender in the years 2007-2008 remained similar to those in 2005-2006. Of all individuals classified as poor by the official measure alone, around two-thirds were female and one-third was male. Based on the NAS measure, about 46 percent of poor individuals were male and 54 percent were female. Again, men were more likely to be captured as poor based on the NAS measure. Finally, in the post-recession period 2009-2010, poverty trends again remained more or less identical to the previous time periods. Of all individuals in poverty, men were more likely to be classified as poor based on the NAS measure (47.4%) compared to the official measure (34.2%). A greater proportion of poor individuals were women based on the official measure (65.8%) compared to men (34.2%). Of individuals classified as poor by both measures, 43.2 percent were male and 56.8 percent were female.

In terms of numbers, a far greater number of individuals (10,456) were classified as poor based on the NAS measure compared to the official measure (4,275) in 2005-2006. The total number of people classified as poor by both measures in this period was around 27,000. In 2007-2008, numbers again reveal that a greater number of individuals (14,560) were classified as poor based on the NAS measure compared to the official measure (3,609). The total number of people classified as poor by both measures rose to 28,610 in this time period. Finally, in 2009-2010, the total number of poor individuals remained higher based on the NAS measure (12,802) compared to the official measure (5,501). However, compared to 2007-2008, the count based on the NAS measure fell from 14,560 poor individuals, while the number based on the official measure increased from 3,609 individuals to just about 5,500 individuals in this time period. The total number of people classified as poor by both measures, however, rose by around another 3,000 individuals to 31,686 in this time period (please see Appendix B for tables).

#### *Poverty by marital status.*

Figure 6 below summarizes the trends in poverty rates by marital status for individuals classified as poor by either or both of the poverty measures across the three time periods.



Figure 6. Percent Poor by Marital Status, Poverty Measure, and Time Period

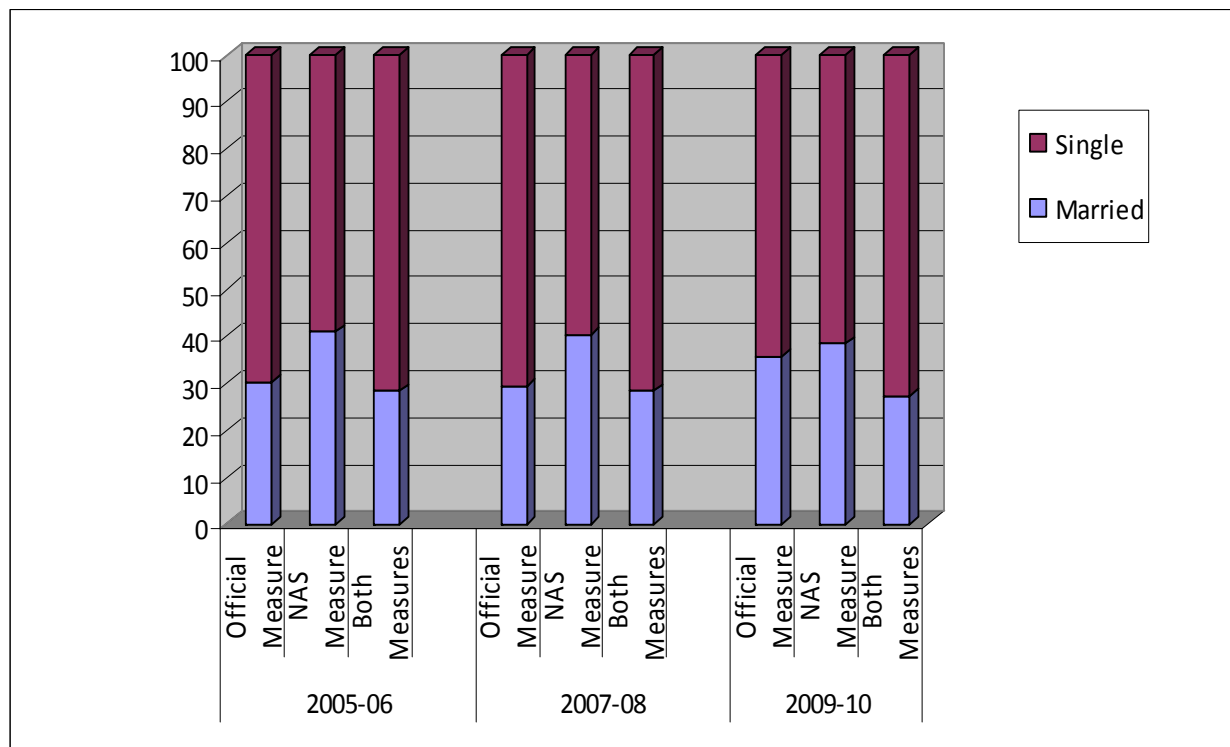


Figure 6 shows that in the period 2005-2006, around 70 percent of individuals in poverty were in the single category and around 30 percent were in the married category based on the official measure only. Based on the NAS measure alone, around 41 percent of all individuals in poverty were married and 59 percent were single. Married individuals were thus more likely to be captured as being in poverty based on the NAS measure (40.9% compared to 30.2% based on the official measure). The percent of single individuals identified as poor was lower based on the NAS measure alone (59.1%) compared to the official measure (69.8%).

Poverty patterns by marital status in the years 2007-2008 remained fairly similar to those in 2005-2006. Of all individuals classified as poor by the official measure alone, around 70 percent were single individuals and 30 percent were married. Based on the NAS measure, about 40 percent of poor individuals were married and almost 60 percent were single. Again, married individuals were more likely to be captured as poor based on the NAS measure. Finally, in the post-recession period 2009-2010, poverty trends remained more or less identical to the previous time periods. Of all individuals in poverty, married individuals were more likely to be classified as poor based on the NAS measure (38.5%) compared to the official measure (35.6%). A greater proportion of poor individuals were single based on the official measure (64.4%) compared to married individuals (35.6%). Of individuals classified as poor by both measures, about 27 percent were married and 73 percent were single.

In terms of numbers, a far greater number of individuals (10,457) were classified as poor based on the NAS measure compared to the official measure (4,276) in 2005-2006. The total number of people classified as poor by both measures in this period was 27,045. In 2007-2008, the total number once more reveals that a greater number of individuals (14,560) were classified as poor

based on the NAS measure compared to the official measure (3,609). The total number of people classified as poor by both measures rose by around 1,500 individuals to 28,609 in this time period. Finally, in 2009-2010, the total number of poor individuals remained higher based on the NAS measure (12,802) compared to the official measure (5,502). However, the number based on the NAS measure fell in this time period from 14,560 poor individuals in the 2007-2008 period, while the number based on the official measure increased from 3,609 individuals to around 5,500 individuals. The total number of people classified as poor by both measures rose by little over 3,000 individuals to 31,686 in this time period compared to 2007-2008 (please see Appendix C for tables).

***Poverty by race/ethnicity.***

Figures 7- 9 below summarize the trends in poverty rates by race/ethnicity for individuals classified as poor by either or both of the poverty measures in each of three time periods.

Figure 7. Percent Poor by Race/Ethnicity and Poverty Measure in 2005-2006

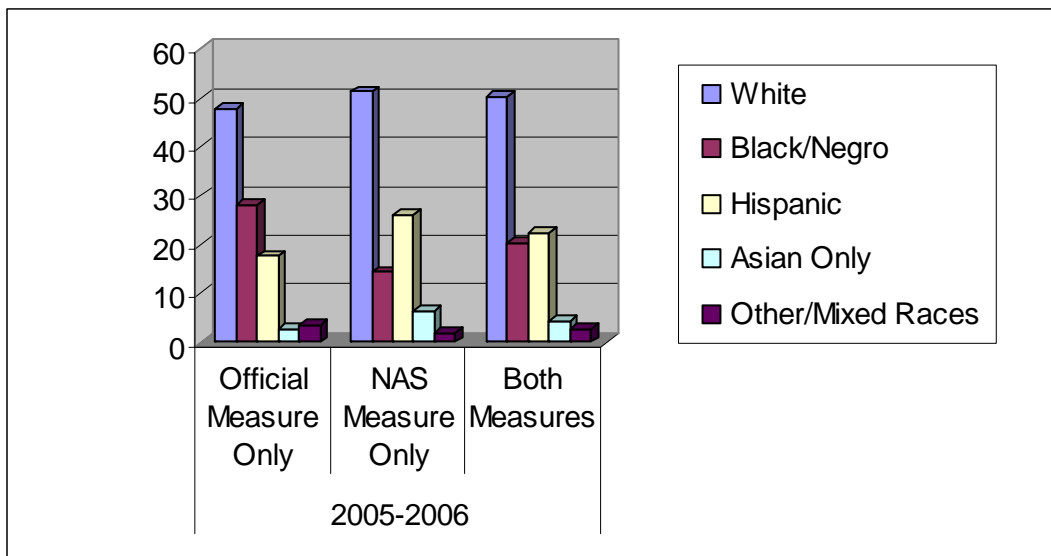
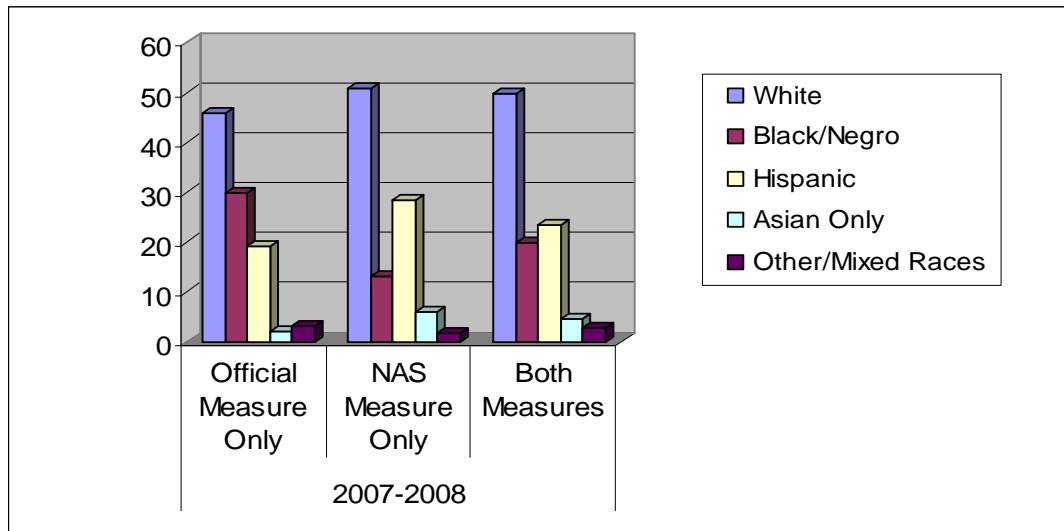


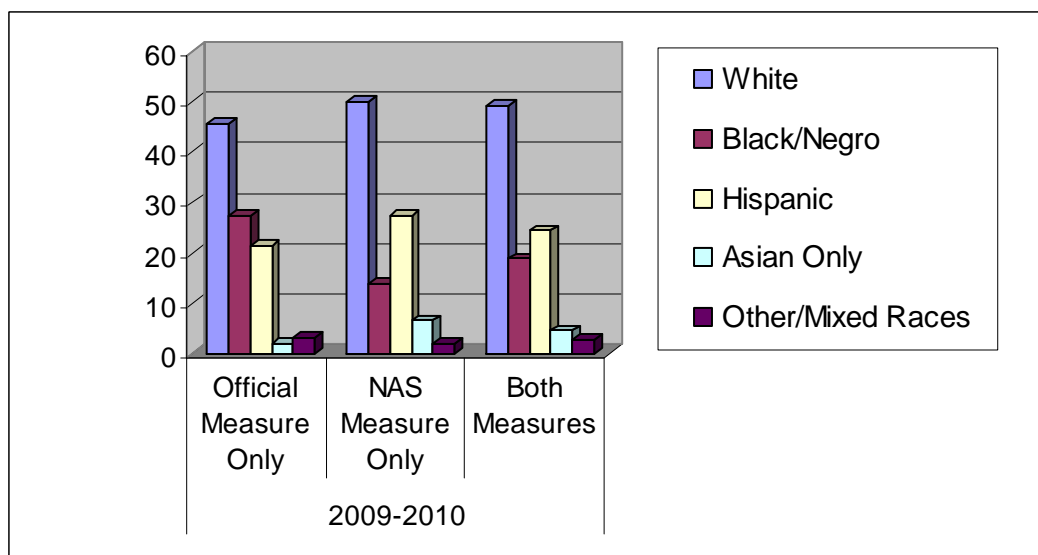
Figure 7 shows that in the period 2005-2006, according to the official measure, of all the poor individuals, the largest percent of poor individuals was White (47.8%) followed by Blacks (28.2%), Hispanics (17.7%), other/mixed races (3.6%), and finally Asians (2.7%). Whites remained the largest percentage of poor individuals based on the NAS measure. However, the percent of Hispanics rose to around 26 percent while the percent of Blacks was halved to about 14 percent. Among the non-White racial/ethnic groups, Hispanics and Asians appeared more likely to be captured as poor based on the NAS measure.

Figure 8. Percent Poor by Race/Ethnicity and Poverty Measure in 2007-2008



Poverty patterns by race/ethnicity in the years 2007-2008 remained roughly similar to those in 2005-2006. Based on the official measure, the largest percent of poor individuals remained White (45.7%) followed by Blacks (29.8%), Hispanics (19.3%), other/mixed races (3.2%), and finally Asians (1.9%). Whites remained the largest percentage of poor individuals (50.9%) based on the NAS measure. However, the percent of Hispanics rose to around 28 percent while the percent of Blacks was little less than half at about 13 percent. Among the non-White racial/ethnic groups, Hispanics and Asians once again appeared more likely to be captured as poor based on the NAS measure.

Figure 9. Percent Poor by Race/Ethnicity and Poverty Measure in 2009-2010



Finally, in the post-recession period 2009-2010, poverty trends remained more or less identical to the previous time periods. Based on the official measure, the largest percent of poor

individuals was still White (45.6%) followed by Blacks (27.5%), Hispanics (21.6%), other/mixed races (3.2%), and finally Asians (2.1%). Whites remained the largest percentage of poor individuals (50.1%) based on the NAS measure. The percent of poor individuals who were Hispanics rose to around 28 percent, while the percent of Blacks was nearly halved at 14 percent. The percent poor who were Asians also increased (6.6%) based on the NAS measure, while the percent other/mixed races fell by little over one percent. Among the non-White racial/ethnic groups, Hispanics and Asians yet again appeared more likely to be captured as poor based on the NAS measure.

In terms of numbers, in 2005-2006, the number of poor individuals who were Hispanic increased from 758 based on the official measure to 2,727 based on the NAS measure, an almost 260 percent increase in the poverty count. The number of poor individuals who were Asian grew from 114 based on the official measure to 679 based on the NAS measure, an approximately a 500 percent increase in the poverty count. Among the non-White racial/ethnic groups, Hispanics and Asians thus appeared more likely to be captured as poor based on the NAS measure. The total count reveals that a far greater number of individuals (10,457) were classified as poor based on the NAS measure compared to the official measure (4,276). The total number of people classified as poor by both measures was 27,045 (please see Appendix D for tables).

In 2007-2008, numbers revealed that the number of poor individuals who were Hispanic jumped from 698 based on the official measure to 4,145 based on the NAS measure, close to a 500 percent increase in the poverty count. The number of poor individuals who were Asian rose dramatically from 70 based on the official measure to 872 based on the NAS measure, a slightly over 12 times increase in numbers. Among the non-White racial/ethnic groups, Hispanics and Asians once again appeared more likely to be captured as poor based on the NAS measure. The total count reveals that a far greater number of individuals (14,560) were classified as poor based on the NAS measure compared to the official measure (3,609). The total number of people classified as poor by both measures was 28,610 (please see Appendix D for tables).

Finally, in 2009-2010, the number of poor individuals who were Hispanic jumped from 1188 based on the official measure to 3,518 based on the NAS measure, and the number that was Asian increased from 113 to 846. Among the non-White racial/ethnic groups, Hispanics and Asians yet again appeared more likely to be captured as poor based on the NAS measure. The total count reveals that a far greater number of individuals (12,802) were classified as poor based on the NAS measure compared to the official measure (5,501). The total number of people classified as poor by both measures was 31,687 (please see Appendix D for tables).

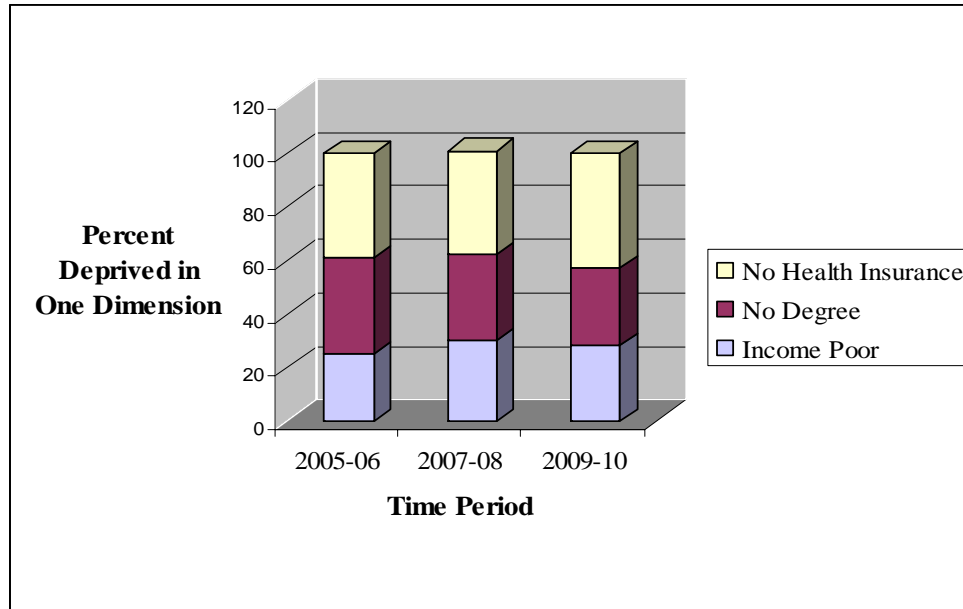
### **Multi-Dimensional Measures.**

As described in the previous chapter, the percent poor individuals identified as multi-dimensionally poor in this study were individuals who were deprived in two or more of the three dimensions: income, education, and/or access to health insurance. Findings revealed that around 10 percent of poor individuals were classified as multi-dimensionally poor in 2005-2006. This percentage increased slightly in 2007-2008 to 10.6 and then to almost 11 percent in 2009-2010. Further, of the individuals who were identified as multi-dimensionally poor, around 22 percent

were deprived only in one dimension, close to nine percent were deprived in two dimensions, and almost two percent were deprived in all three dimensions across all three time periods.

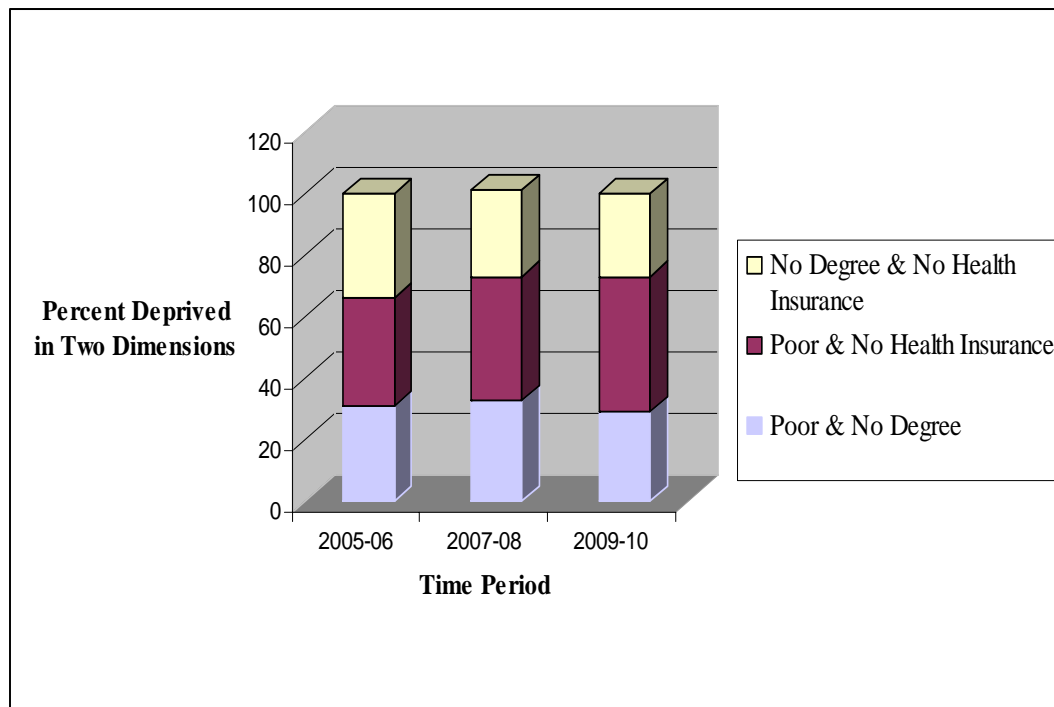
Going further, figure 10 and figure 11 below highlight the percent deprived by dimension type for each of the three time periods.

Figure 10. Percent Deprived in One Dimension by Type and Time Period



In 2005-2006, of the nearly 23 percent of the poor population that was deprived only in one dimension, around 25 percent was income poor only, about 36 percent lacked at least a high school degree, and 39 percent did not have any form of health insurance coverage. In 2007-2008, of the approximately 22 percent of the poor population that was deprived only in one dimension, around 30 percent was income poor only, increasing from 25 percent in 2005-2006. Further, 32 percent lacked at least a high school degree, a slight decrease from 36 percent in the previous time period. Finally, similar to 2005-2006, nearly 39 percent did not have any form of health insurance coverage. In 2009-2010, of the around 23 percent of the poor population that was deprived only in one dimension, about 28 percent was income poor only, an almost one percent decrease from 2007-2008, but still three percent higher than 2005-2006. Further, approximately 29 percent lacked at least a high school degree, a decrease of 8 percent and 3 percent from 2005-2006 and 2007-2008 respectively. Lastly, 43 percent did not have any form of health insurance coverage, an increase of four percent compared to the previous two time periods.

Figure 11. Percent Deprived in Two Dimensions by Type and Time Period



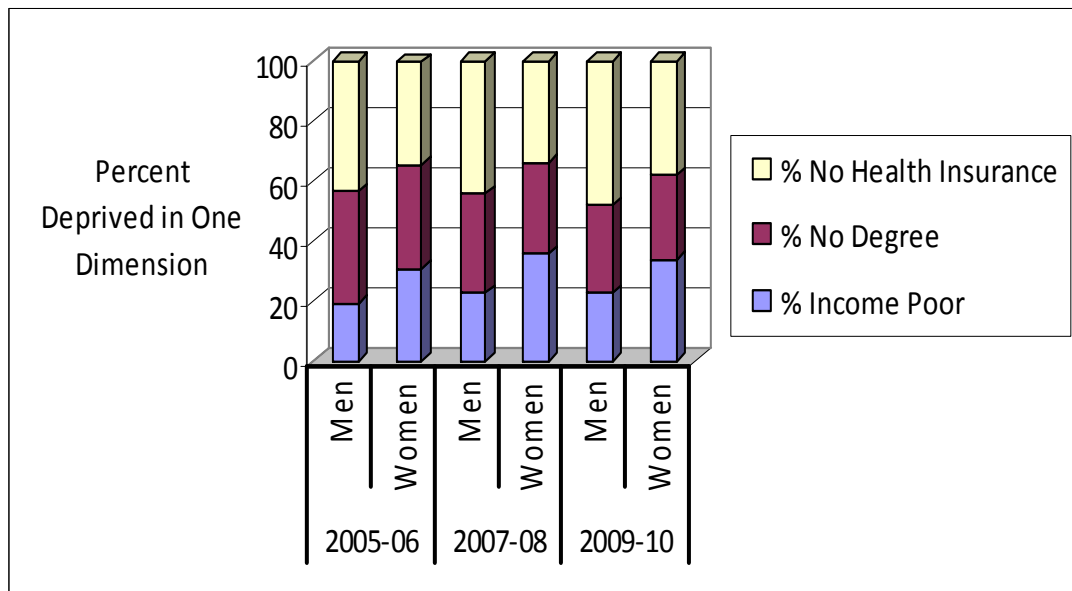
Of the 8.5 percent of the poor population that was deprived in two dimensions in 2005-2006, 31 percent were income poor and lacked a degree; 35 percent were income poor and lacked access to health insurance; and around 34 percent lacked a degree and access to health insurance. In 2007-2008, of the 8.7 percent of the poor population that was deprived in two dimensions, the percent income poor and lacking a degree rose slightly to almost 33 percent compared to 31 percent in 2005-2006. The percent income poor and lacking access to health insurance also increased somewhat to close to 40 percent compared to 35 percent in 2005-2006. Finally, the percent lacking a degree and access to health insurance fell from 34 percent in 2005-2006 to around 28 percent. Of the nine percent of the poor population that was deprived in two dimensions in 2009-2010, the percent income poor and lacking a degree fell about two to three percent to 29 percent compared to the previous two time periods. The percent income poor and lacking access to health insurance increased somewhat to around 44 percent compared to 35 percent in 2005-2006 and about 40 percent in 2007-2008. Lastly, the percent lacking a degree and access to health insurance fell from 34 percent in 2005-2006 to around 27 percent. There was only around a one percent decrease in this group compared to 2007-2008.

### ***Multi-dimensional poverty by gender.***

This section describes changes in multi-dimensional poverty across the three time periods by gender. Descriptive analysis revealed that the percent of adult men identified as multi-dimensionally poor was slightly higher (around 11%) than the percent of multi-dimensionally poor women (around 10%) over the three time periods. The percent of multi-dimensionally poor men rose somewhat from 10.5 percent in 2005-2006 to 11.4 percent in 2009-2010. There was also a slight increase in the percent of women classified as multi-dimensionally poor from 9.8 percent in 2005-2006 to 10.3 percent in 2009-2010.

When looking at the percent deprived in one or more dimensions by gender, this study found that across time, about 24 percent of men were deprived only in one dimension compared to around 22 percent women; the percent men and women deprived in two dimensions remained fairly close around nine percent; and finally, the percent men and women deprived in all three dimensions were also quite comparable around two percent. Going further, figure 12 below first highlights the percent men and women deprived in one dimension for each of the three time periods and then figure 13 presents the percent deprived in two dimensions by time period.

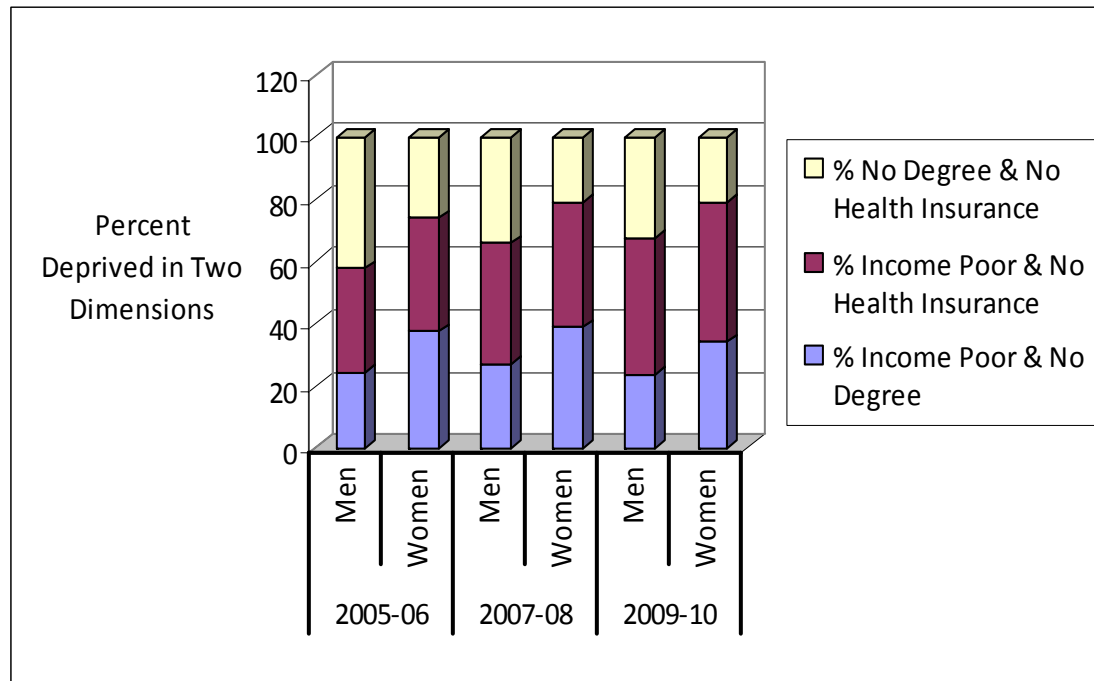
Figure 12. Percent Deprived in One Dimension by Gender and Time Period



In 2005-2006, of those deprived in one dimension, around 19 percent were income poor men while almost 31 percent were income poor women. In terms of education, 37 percent men and about 35 percent women were without at least a high school degree. Finally, close to 44 percent men had no health insurance coverage compared to around 35 percent of women. In 2007-2008, the percent income poor men increase by nearly four percent to 23 percent, while the percent of income poor women rose by five percent to 36 percent. The percent men and percent women without at least a high school degree fell by four percent in this period to 33 percent and 30 percent respectively. The percent men and percent women without any health insurance coverage remained almost similar to the previous time period.

In 2009-2010, the percent income poor men remained around 23 percent, while the percent poor women fell slightly to 34 percent. The percent men without at least a high school degree decreased by about 4 percent to 29 percent. The percent women without a degree saw a small decrease of two percent to 28 percent. Compared to 2005-2006, the percent men and percent women without a degree fell by almost eight and seven percent respectively. Finally, the percent men and percent women without any health insurance coverage rose by four and three percent to 48 percent and 38 percent respectively. Of those deprived in only one dimension, for men, the percent without health insurance coverage appeared to be the largest across the three time periods compared to the percent

Figure 13. Percent Deprived in Two Dimensions by Gender and Time Period



Of those deprived in two dimensions, in 2005-2006, about 24 percent were income poor men with no degree, while 37 percent were income poor women with no degree. Of those who were income poor and lacked health insurance coverage, around 33 percent were men and 37 percent were women. Lastly, of those who lacked health insurance coverage and a degree, about 42 percent was men and 26 percent was women. In 2007-2008, the percent men who were income poor and lacked a degree increased by approximately three percent to 27 percent, while the percent women in this category increased by two percent to 39 percent. The percent men who were income poor and lacked health insurance rose by six percent to 39 percent in this time period, while the percent women in this category rose by about three percent to 40 percent.

Finally, the percent of men who lacked health insurance and a degree fell by eight percent to 34 percent compared to the previous time period, while the percent women in this category fell by five percent to 21 percent. In 2009-2010, the percent income poor men without a degree fell to around 24 percent or roughly the same percent as in 2005-2006. The percent women in this category also fell by 5 percent to 34 percent in this time period with this percent being the lowest across the three time periods. Of those deprived in income and health insurance, 44 percent were men and 48 percent were women. These numbers are larger than the previous two time periods. Lastly, of those who lacked health insurance and a degree, 32 percent were men and 21 percent were women. This translates to an almost ten percent decrease among men from 2005-2006 and a roughly five percent decrease among women.

#### ***Multi-dimensional poverty by marital status.***

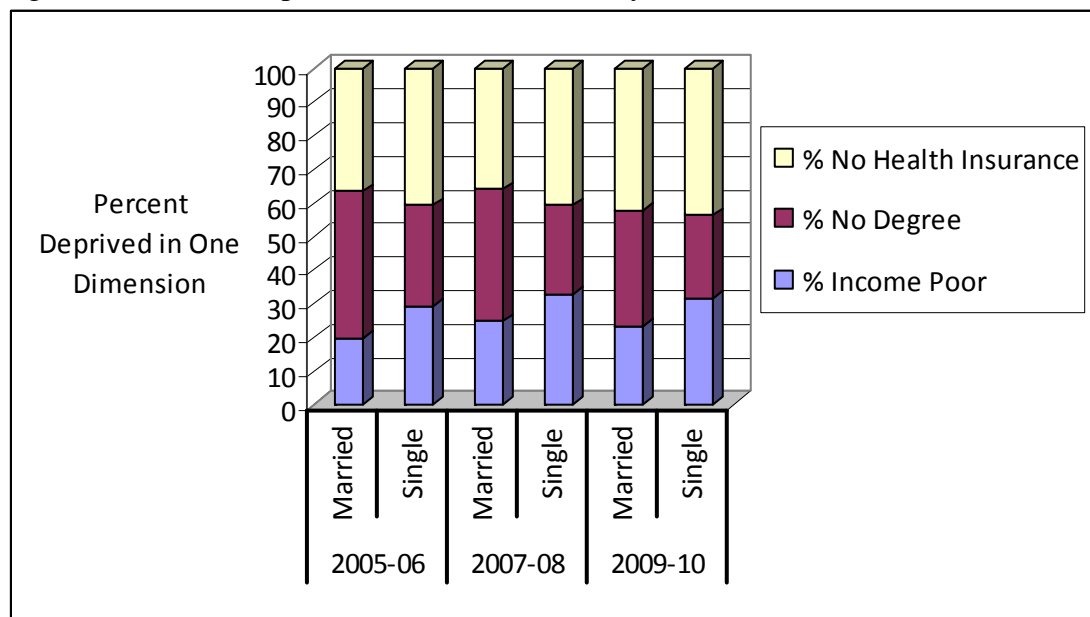
Findings based on descriptive analysis showed that the percent married adults that were classified as multi-dimensionally poor remained close to seven percent in all three time periods.



The percent multi-dimensionally poor single adults, on the other hand, was little over twice as much as that of married adults at around 15 percent across the three time periods. Further, the percent single individuals deprived in only one dimension was very nearly double (around 30%) that of married individuals (around 17%). The percent single individuals deprived in two dimensions was twice as high (about 12%) as that of married individuals (about 6%). Finally, the percent single individuals deprived in all three dimensions was slightly over one percent higher (2.6%) than that of married individuals (1.3%) across time. There were no significant differences in the percent married or single individuals deprived in one or more dimensions across the three time periods.

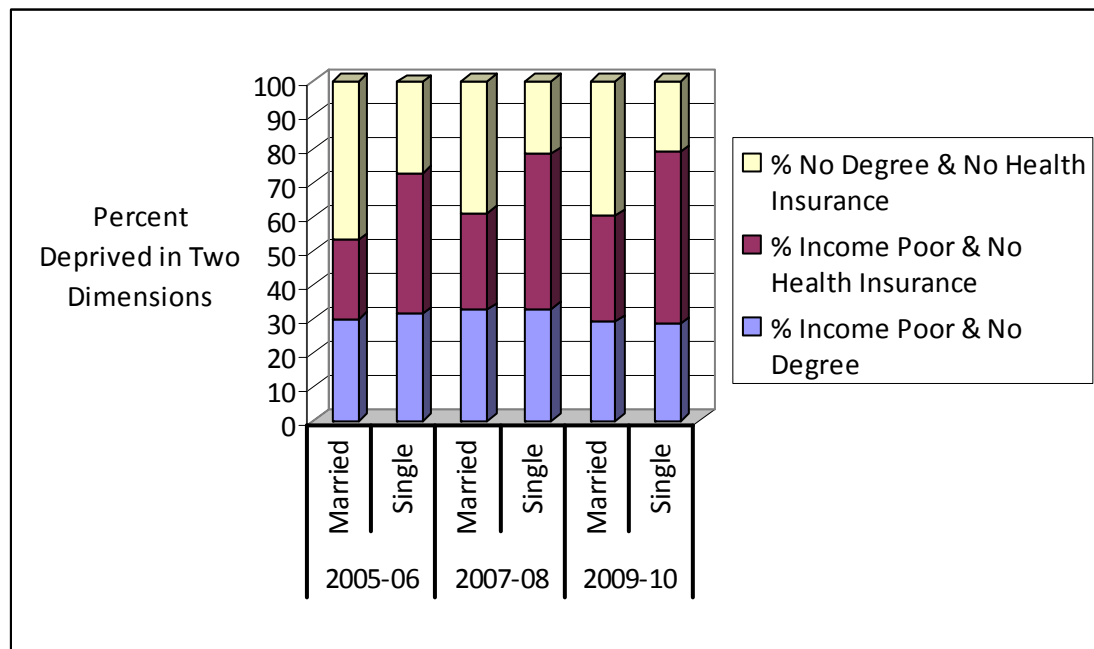
Figure 14 below provides additional information by first highlighting the percent married and single individuals deprived in one dimension for each of the three time periods and then figure 15 presents the percent deprived in two dimensions by time period.

Figure 14. Percent Deprived in One Dimension by Marital Status and Time Period



Of those deprived in only one dimension, there was a higher percentage of married individuals without at least a high school degree in the time periods 2005-2006 and 2007-2008 (43.8% and 39.2% respectively) compared to married individuals that were income poor (19.5% and 24.8% respectively) or without any health insurance coverage (36.7% and 36% respectively). In 2009-2010, married individuals without health insurance coverage formed the largest group (42.1%) compared to those that were income poor (23.2%) or without at least a high school degree (34.7%). Among single individuals, the largest percent was those without access to any health insurance across all three time periods compared to the other two dimensions of education and income poverty. Of the three dimensions, only the percent married and single individuals without a degree fell from around 44 percent and 30 percent respectively in 2005-2006 to about 35% for married individuals and 25 percent for single individuals in 2009-2010.

Figure 15. Percent Deprived in Two Dimensions by Marital Status and Time Period



Of those deprived in two dimensions, the percent of married individuals without at least a high school degree or health insurance coverage was higher than married individuals that were income poor and without health insurance or those that were income poor and without a degree across all three time periods. The percent without a degree and health insurance, however, fell from 47 percent in 2005-2006 to around 40 percent in 2009-2010. Among single individuals, the largest percent were those that were income poor and without any health insurance coverage across all three time periods, going from around 42 percent in 2005-2006 to 46 percent in 2007-2008 to 51 percent in 2009-2010. The next largest group were single individuals that were income poor and without a degree (between 29-33 percent) in all three time periods. The percent single individuals without a degree or health insurance fell from 27 percent in 2005-2006 to 21 percent in 2009-2010.

#### ***Multi-dimensional poverty by race.***

Descriptive analysis found that Hispanics make up the largest percent (around 30%) of the multi-dimensionally poor among the different races/ethnicities across time followed by Blacks (around 15%), other/mixed races (around 12%), Asians (around 10%), and finally Whites (around 6%). The percent multi-dimensionally poor did not significantly vary across time for any racial/ethnic group. Further, of those deprived in one dimension alone, Hispanics formed the largest percent among all the racial/ethnic groups (around 32%) in all three time periods followed closely by Blacks and other/mixed races (about 29%), while the percent Asians remained around 25 percent. The percent White in this category remained around 19 percent over time, around ten percent lower than Blacks, Hispanics, and other/mixed races/ethnicities.

Of those deprived in two dimensions, Hispanics again were the largest percent at around 23 percent or about four times the percent Whites over the three time periods. The next largest

group was Blacks (13%) followed by other/mixed race/ethnicities (around 10%) and Asians (around 9%). Finally of those deprived in all three dimensions, the percent Hispanics was little over seven to eight times that of the percent Whites (0.6%) across time. The percent Blacks in this category remained around two percent and the percent other/mixed races/ethnicities was nearly two percent, while the percent Asians was around one percent over the three time periods.

Going further, table 4 below first highlights the percent among the five different racial/ethnic groups deprived in one dimension for each of the three time periods and then table 5 presents the percent deprived in two dimensions.

Table 4. *Percent Deprived in One Dimension by Race and Time Period*

<b>Time Period</b>	<b>Race/Ethnicity</b>	<b>% Income Poor</b>	<b>% No Degree</b>	<b>% No Health Insurance</b>
<b>2005-2006</b>	<i>White</i>	26.8	35.1	38.1
	<i>Black</i>	29.9	31.6	38.4
	<i>Hispanic</i>	15.3	43.3	41.4
	<i>Asian</i>	29.5	30.7	39.8
	<i>Mixed/Other</i>	23.9	30.0	46.1
<b>2007-2008</b>	<i>White</i>	31.5	30.9	37.5
	<i>Black</i>	33.1	27.7	39.2
	<i>Hispanic</i>	19.6	39.2	41.2
	<i>Asian</i>	33.7	24.0	42.2
	<i>Mixed/Other</i>	29.9	27.5	42.6
<b>2009-2010</b>	<i>White</i>	30.3	27.4	42.2
	<i>Black</i>	31.4	25.6	43.0
	<i>Hispanic</i>	18.7	36.3	45.0
	<i>Asian</i>	31.9	23.5	44.6
	<i>Mixed/Other</i>	31.5	24.6	43.8

Of all those deprived only in one dimension, the percent without health insurance coverage was the largest among all racial/ethnic groups and across all three time periods. The percent without at least a high school degree decreased over the three time periods among all races/ethnicities. The percent income poor among all races/ethnicities increased by around three percent from 2005-2006 to 2007-2008 and then decreased slightly in 2009-2010.

Table 5. *Percent Deprived in Two Dimensions by Race and Time Period*

<b>Time Period</b>	<b>Race/Ethnicity</b>	<b>% Income Poor &amp; No Degree</b>	<b>% Income Poor &amp; No Health Insurance</b>	<b>% No Degree &amp; No Health Insurance</b>
<b>2005-2006</b>	<i>White</i>	33.1	41.1	25.9
	<i>Black</i>	37.8	42.5	19.7
	<i>Hispanic</i>	25.3	21.7	53.0
	<i>Asian</i>	29.6	49.9	20.5
	<i>Mixed/Other</i>	29.5	47.2	23.3
<b>2007-2008</b>	<i>White</i>	33.7	46.6	19.7
	<i>Black</i>	38.9	44.4	16.7
	<i>Hispanic</i>	29.2	27.4	43.3
	<i>Asian</i>	28.1	50.6	21.3
	<i>Mixed/Other</i>	34.2	44.7	21
<b>2009-2010</b>	<i>White</i>	28.5	51.7	19.8
	<i>Black</i>	33.8	50.3	15.9
	<i>Hispanic</i>	27.0	31.4	41.6
	<i>Asian</i>	25.5	55.2	19.3
	<i>Mixed/Other</i>	29.8	48.1	22.1

Of those deprived in two dimensions, the percent income poor with no health insurance was largest for all races/ethnicities except Hispanics in all three time periods. The percent income poor White and Hispanic with no health insurance increased by around ten percent from 2005-2006 to 2009-2010 (41.1% to 51.7% and 21.7% to 31.4% respectively). For Hispanics, the largest percent was those with not even a high school degree or health insurance irrespective of the time period. However, the percent in this group fell from 53 percent in 2005-2006 to around 42 percent in 2009-2010. The largest percent in the income poor with no degree group across the time periods was among Blacks.

### **Logistic Regression Findings**

After looking at descriptive variations in poverty rates across the three time periods by demographic groups, this study next examines the odds of being poor by gender, marital status, and race/ethnicity. Binary logistic regression was run to predict the odds of poverty since the dependent variable, poverty status, was a dichotomous variable (poor/not poor) for all three underlying poverty measures. The first three regression models were run with the following dependent variables for the uni-dimensional poverty measures:

*Dependent Variable 1* = Poor/Not Poor based on official poverty measure.

*Dependent Variable 2* = Poor/Not Poor based on NAS poverty measure.

*Dependent Variable 3* = Poor/Not Poor based on Poverty Overlap Variable.

The fourth regression model was run with the following dependent variable for the multi-dimensional poverty measure:

*Dependent Variable 4* = Poor/Not Poor based on MPI (Poor if deprived in 2 or more dimensions).

The independent variables included for all four regression models are noted below along with the reference category for each of the categorical variables:

- Gender (reference category: men).
- Marital status (reference category: married individuals).
- Race/ethnicity (reference category: White).
- Time period (reference category: 2005-2006).

Table 6 below presents the findings from the binary logistic regressions for the odds of poverty based on the uni-dimensional poverty measures and the multi-dimensional poverty index, controlling for gender, marital status, race/ethnicity, and time period.

Table 6. Logistic Regression Findings on Odds of Poverty Based on Poverty Measure

<i>Variables</i>		<b>POVERTY MEASURE</b>							
		<b>Uni-Dimensional Measures</b>						<b>Multi-Dimensional Measure</b>	
		<b>Official Measure</b>		<b>NAS Measure</b>		<b>Poverty Overlap</b>			
		Odds Ratio	95% C. I.	Odds Ratio	95% C. I.	Odds Ratio	95% C. I.	Odds Ratio	95% C. I.
<i>Gender (Female)</i> (Base: Male)		1.40*	(1.38, 1.42)	1.26*	(1.25, 1.28)	0.60*	(0.57, 0.63)	0.91*	(0.89, 0.92)
<i>Marital Status (Single)</i> (Base: Married)		3.20*	(3.15, 3.25)	2.91*	(2.92, 3.01)	0.89*	(0.85, 0.93)	2.33*	(2.29, 2.36)
<i>Race</i> (Base: White)	<i>Black</i>	2.34*	(2.29, 2.38)	1.99*	(1.95, 2.02)	0.46*	(0.43, 0.48)	2.49*	(2.44, 2.54)
	<i>Hispanic</i>	2.62*	(2.57, 2.66)	2.97*	(2.92, 3.01)	1.20*	(1.14, 1.23)	7.13*	(7.01, 7.25)
	<i>Asian</i>	1.45*	(1.39, 1.50)	1.79*	(1.74, 1.84)	2.53*	(2.23, 2.87)	1.94*	(1.87, 2.00)
	<i>Other/Mixed</i>	1.98*	(1.90, 2.07)	1.70*	(1.63, 1.77)	0.49*	(0.43, 0.55)	2.10*	(2.00, 2.20)
<i>Time Period</i> (Base: 2005-2006)	<i>2007-2008</i>	1.01	(0.99, 1.03)	1.16*	(1.14, 1.18)	1.63*	(1.55, 1.72)	1.03*	(1.01, 1.05)
	<i>2009-2010</i>	1.16*	(1.14, 1.18)	1.16*	(1.15, 1.18)	0.93*	(0.89, 0.98)	1.04*	(1.02, 1.05)
<i>Nagelkerke Pseudo-R<sup>2</sup></i>		11.0%		10.6%		8.5%		15.3%	
<i>Classification Accuracy</i>		88.5%		85.8%		74.7%		89.5%	

\*p &lt; 0.005

The first three models in table 6 show the odds of poverty based on the uni-dimensional poverty measures, while the last model gives the odds of poverty based on the multi-dimensional measure. The Nagelkerke  $R^2$  is somewhat similar to the  $R^2$  used in linear regression, which tells us the proportion of variance in the dependent variable that is explained by the independent variables included in the regression model.  $R^2$  thus gives us an idea of the predictive capacity of the model. In logistic regression models, the Nagelkerke  $R^2$  acts as a pseudo-  $R^2$  telling us, roughly speaking, what percent of variability in our dependent variable (poverty status) is accounted for by the independent variables (gender, marital status, and race/ethnicity). The Nagelkerke  $R^2$  in model one (official measure) tells us that 11 percent of the variance in poverty status is explained by the independent variables. The predictive capacity of model two (NAS measure) was also close to 11 percent (Pseudo-  $R^2 = 10.6\%$ ), while that of model three (poverty overlap) was only 8.5 percent. Model four (multi-dimensional measure) had the highest pseudo- $R^2$  at 15.3 percent.

The classification accuracy tells us how well the model predicts poverty status when the independent variables are taken into account. The classification accuracy of model one (official measure) was almost 89 percent compared to nearly 86 percent for model two (NAS measure), 75 percent (poverty overlap) and around 90 percent for model four (multi-dimensional measure). Finally, the Wald statistic tells us if each of the independent variables in the model is statistically significant from zero, or in other words, if the independent variable significantly contributes to the prediction of an individual's poverty status. Table 6 does not present the values of the Wald statistic, but significant covariates ( $p < 0.05$ ) are noted with a star in the table. To account for the possible effect of the time period on the odds of poverty, time period was also included as a covariate in each of the four regression models. The main findings by time period will be described after findings by gender, marital status, and race/ethnicity are described in the following.

### **Poverty by gender.**

The logistic regression models revealed statistically significant differences ( $p < 0.005$ ) in the odds of poverty by gender based on the poverty measure used. Using the official measure as the dependent variable in the first model revealed that, holding all other variables constant, the odds of women being in poverty was 1.4 times greater than the odds of men being in poverty. When examining the odds of being in poverty using the NAS measure, the odds of women being in poverty fell to 1.26 compared to men. The model using the poverty overlap variable as the dependent variable identified who gets classified as poor by one measure but not the other. In this case, the regression model tells us who is identified as poor differently as opposed to just the odds of being in poverty based on the official measure or the NAS measure. The odds of women being classified as poor in this model are 60 percent the odds of men being in poverty, holding all else constant. In other words, the odds of women being in poverty are 40 percent lower than the odds of men being in poverty. Finally, examining the odds of being in poverty based on the multi-dimensional poverty measure again reveals that the odds of women being classified as poor is nine percent lower than the odds of men being classified as poor.

Findings from the logistic regression models thus suggest that the odds of women being classified as poor are highest based on the official measure. These odds decrease when using the

NAS measure. The odds of women being in poverty in fact decrease significantly (odds ratio less than one) based on the uni-dimensional poverty overlap measure and the multi-dimensional measure.

### **Poverty by marital status.**

Examining the odds of being in poverty by marital status also revealed statistically significant differences in all four models ( $p < 0.005$ ). The odds of single individuals being poor were 3.2 times the odds of married individuals based on the official measure, controlling for the other covariates. These odds fell somewhat to 2.91 when based on the NAS measure. The odds of single persons being classified as poor also decreased based on the poverty overlap measure, indicating that their odds of being in poverty was 89 percent the odds of married individuals being in poverty, holding all else constant. Finally, the odds of single individuals being poor were 2.3 times the odds of married people being poor based on the multi-dimensional measure, holding all other variables constant.

### **Poverty by race/ethnicity.**

The regression findings revealed statistically significant variations ( $p < 0.005$ ) in poverty rates between the four main racial/ethnic groups in this study. In the model using the official measure as the dependent variable, the odds of being poor were highest for Blacks (odds ratio = 2.34) and Hispanics (odds ratio = 2.62) compared to the odds of poverty for the other groups, holding all else constant. The odds of being in poverty decreased for Blacks (odds ratio = 1.99) compared to the other racial/ethnic groups in the model with NAS measure as the dependent variable. The odds of being poor increased for Hispanics (odds ratio = 2.97) and Asians (from 1.45 in previous model to 1.79) in this model.

The odds of being poor in the model using the poverty overlap variable as the dependent variable were similar to that of the NAS-based model. The odds of being in poverty for Blacks now decreased by 54 percent compared to the other racial/ethnic groups, while the odds of being poor among Asians and Hispanics were 2.53 times and 1.2 times greater respectively than the odds of poverty among the other groups, holding all else constant. Finally, in the multi-dimensional model, the odds of poverty was highest (around 7 times greater) among Hispanics compared to all other racial/ethnic groups. The odds of being identified as poor among Blacks and Asians were 2.49 times and 1.94 times greater respectively than the odds of poverty among all other groups, all else constant.

The odds of poverty for other/mixed races were 1.98 times greater than the odds of all other races being poor based on the official measure. These odds fell somewhat in the NAS-based model with the odds of other/mixed races being poor around 1.7 times greater than the odds of poverty among all other races, while the odds of poverty decreased by 51 percent for this group in the model using the poverty overlap figure, holding all else fixed. Finally, the odds of poverty for other/mixed races were two times greater than the odds for other groups in the multi-dimensional model.



### **Poverty by time period.**

To examine if there were significant differences in the odds of poverty pre- and post-recession, time period was included in each of the four models with 2005-2006 as the baseline category. In model one (official measure), the odds of being in poverty was statistically significant for the time period 2009-2010 ( $p < 0.005$ ), but not 2007-2008, holding all else constant. The odds of being in poverty were thus around 1.2 times greater in 2009-2010 than the odds of being in poverty in 2005-2006. In model two (NAS measure), the odds of poverty were statistically significant ( $p < 0.005$ ) and similar in both 2007-2008 and 2009-2010 compared to 2005-2006, controlling for the other independent variables. The odds of being poor in both 2007-2008 and 2009-2010 were about 1.2 times greater than the odds of being poor in 2005-2006.

In model three (poverty overlap), the odds of being in poverty by time period were again statistically significant ( $p < 0.005$ ). The odds of poverty were 1.6 times greater in 2007-2008 than the odds of poverty in 2005-2006. Interestingly, the odds of being poor in 2009-2010 were seven percent lower than the odds of being in poverty in 2005-2006. This model again tells us who is identified as poor differently as opposed to just the odds of being in poverty based on the official measure or the NAS measure. Finally, in model four (multi-dimensional measure), the odds of poverty by time period were again statistically significant ( $p < 0.005$ ). The odds of being poor were little over 1 percent greater in both 2007-2008 and 2009-2010 than the odds of being poor in 2005-2006. In conclusion, these findings suggest that the odds of being in poverty were indeed different pre- and post-recession.

Some of the main limitations of this study are presented below. The key findings presented in this chapter are discussed in the last chapter (Chapter 7) along with implications for research and policy.

### **Study Limitations**

This study has a number of methodological limitations. To start with, poverty status (poor/not poor) was determined using a dichotomous variable available in the U.S. Census public-use file. Although this dichotomous variable was useful for the conducted data analysis, it did not allow the researcher to explore the effects of individual programs and welfare benefits or expenses on poverty rates. In the future, it may be useful to consider how net family income and thus poverty status is affected by the inclusion or exclusion of various anti-poverty programs and household expenses.

The indicators for income, education, and health used to create the multi-dimensional measure for this study were also intended only as a first step in discussing what a multi-dimensional framework for the U.S. might look like. Sen suggests that literacy, longevity (health), and standard of living are essential components of human well-being. These dimensions thus reflect Sen's idea of intrinsically valuable capabilities, which serve as the building blocks of the UN's HDI and MPI. Although this study offers an important initial picture of multi-dimensional poverty in America based on Sen's capability framework, future research should consider what indicators might more fully capture deprivations in human well-being. The methodology used to create this measure allows for flexibility in determining the number and types of indicators

within each dimension. For example, in addition to access to health insurance coverage, alternative indicators of deprivations in a person's health (e.g., self-reported health, disability, access to health services) may shed additional light on the health dimension in overall well-being. The three dimensions and indicators have also been weighted equally in this study. The methodology allows researchers to consider if the dimensions should be weighted differently in future research and what the rationale for such differential weighting might be.

This study did not include variables such as number of children in household since the focus of this study was on what proportion of the adult population is identified as poor based on each of the three underlying poverty measures. Variables such as marital status or gender of household head, or age of sample participants in the analysis were also not taken into consideration. Household composition and size may thus affect variations in poverty rates by demographic characteristics, but these variables are not accounted for in this study.

Finally, the time periods used in the data analysis may need to be revisited in the future. This study did explore variations in poverty rates using these alternative time periods: 2005-2007 (pre-recession), 2008 (recession), and 2009-2010 (post-recession). No significant variations were observed between these time periods and the three time periods used for the data analysis. Given the slow recovery of the economy, it may be interesting to examine poverty trends by expanding the time periods to beyond 2010. This expanded analysis may reveal what population groups remain vulnerable in the post-recession era, calling for more specific and targeted policy responses in a fiscally constrained environment.

## **Chapter 7: Conclusion: Summary and Implications**

The discussion and findings in the preceding chapters makes it clear that poverty is not a self-defining concept. As such, no one definition or measure can clearly and objectively capture the essence of poverty. The social construction of poverty ranges from relatively simple uni-dimensional measures based on income or consumption to multi-dimensional measures that include indicators of deprivation and well-being. The definition and measure chosen reflects not only underlying values on what constitutes poverty in a given society at a particular point of time, but also agreements reached by researchers, analysts, and policymakers. Perhaps one of the core challenges in operationalizing a complex concept like poverty is that, as Orshansky (1969) suggested, “poverty, like beauty, lies in the eye of the beholder” (p. 244).

The motivation for this study was to present a comparative framework for poverty measurement in the U.S. Recognizing the complex, multi-faceted, and socially constructed nature of poverty, this study also sought to propose an alternative, multi-dimensional framework to measure poverty in America. The main objectives of this study were then to take a more critical approach to how we understand poverty as well as to take a more comprehensive look at the face of poverty in America in the period from 2005 to 2010.

To achieve these objectives, this study examined changes in profiles of poverty by gender, marital status, and race/ethnicity pre- and post-recession (2005-2010) based on two uni-dimensional poverty measures (the official measure and the NAS-based measure) and a multi-dimensional measure that included education, health, and a basic standard of living as three key dimensions of well-being. To explore if there were differences pre- and post-recession, the data were divided into three time periods: 2005-2006, 2007-2008, and 2009-2010. This study started by running descriptive analyses to address the first main research question that focused on examining how the prevalence rate of poverty affects poverty rates among the various groups in the population based on the underlying measure used. Next, logistic regressions were run to address the second main research question of the study that sought to examine the odds of being poor under the uni-dimensional measure compared to the multi-dimensional measure in the period 2005-2010.

Essentially unchanged since the 1960s, the federal poverty measure determines poverty rates based on pre-tax cash income adjusted for inflation alone, not accounting for other expenses and/or benefits that might affect the net disposable income of families. In order to rectify the long-questioned adequacy and validity of the federal poverty measure, the National Academy of Sciences (NAS), authorized by Congress in 1992, recommended that a new measure better reflect the expenditures of families; account for regional differences in the cost of living; include resources such as tax credits and food stamps available to families to meet needs; and account for expenses such as child care, work-related expenses, and medical out-of-pocket expenses from a family’s available resources (Greenberg, 2009). The NAS measure thus is a more inclusive measure that is more grounded in the economic realities of low-income families.

Although the NAS-based measure may provide a better picture of the poor in the U.S. compared to the official measure that originated nearly a half century ago, it is still criticized for taking a

“reductionist” approach to understanding a complex, socially constructed, and dynamic concept like poverty (Wagle, 2002). The multi-dimensional measure in this study draws on Amartya Sen’s capability approach, in which he defines poverty as more than a lack of adequate income, but rather as the lack of capability to generate or obtain the required resources to meet one’s basic needs. Although income and wealth play an important role, the capability approach advances a deeper understanding of the roots of poverty by integrating income “into a broader and fuller picture of success and deprivation” (Sen, 1999, p. 20).

The capability approach provided the conceptual framework for the development of the Multi-dimensional Poverty Index that replaced the UN’s Human Poverty Index in 2010. Alkire and Foster, researchers at Oxford University who developed this index, note that the MPI offers a different perspective on poverty by looking at the number and combinations of deprivations that a household experiences. The MPI attempts to capture different dimensions of poverty and is primarily used to inform poverty alleviation efforts in developing countries. There is discussion around what such an index might look like for the more developed nations of the world. This study contributes to this discussion by proposing a MPI for the U.S with education, health, and a decent standard of living forming the building blocks of the index. Individuals are considered deprived if they lack at least a high school degree in the education dimension, lack access to any form of private or public health insurance in the health dimension, and/or are identified as poor based on the NAS measure in the standard of living dimension. This study defines a person as multi-dimensionally poor if he/she is deprived in two or more these dimensions.

Key findings of this study are first summarized and discussed below. Findings from the logistic regression models are first presented. Findings from the descriptive analyses are then used to help explain some of the nuances of the findings within the regression models. The chapter concludes by considering some of the research and policy implications of these findings.

## **Summary and Discussion of Key Findings**

### **Poverty by gender.**

The logistic regression models revealed differences in the odds of poverty by gender based on the poverty measure used. Using the official measure as the dependent variable in the first logistic regression model revealed that, holding all other variables constant, the odds of women being in poverty was 1.4 times greater than the odds of men being in poverty. When examining the odds of being in poverty using the NAS measure, the odds of women being in poverty fell to 1.26 compared to men. The model using the poverty overlap variable as the dependent variable identified who gets classified as poor by one measure but not the other. In this case, the regression model tells us who is identified as poor differently as opposed to just the odds of being in poverty based on the official measure or the NAS measure. The odds of women being classified as poor in this model are 60 percent the odds of men being in poverty, holding all else constant. In other words, the odds of women being in poverty are 40 percent lower than the odds of men being in poverty.

Finally, examining the odds of being in poverty based on the multi-dimensional poverty measure again reveals that the odds of women being classified as poor is nine percent lower than the odds

of men being classified as poor. Findings from the logistic regression models thus suggest that the odds of women being classified as poor are highest based on the official measure. These odds decrease when using the NAS measure. The odds of women being in poverty in fact decrease significantly (odds ratio less than one) based on the uni-dimensional poverty overlap measure and the multi-dimensional measure.

The descriptive findings reveal similar trends in poverty by gender. The uni-dimensional measures revealed that although, across time, there was a greater percent of women in poverty by both the official measure (around 67%) and the NAS measure (around 54%), the percent of men in poverty was higher based on the NAS measure (around 46%) compared to the official measure (around 33%). In other words, men were more likely to be captured in poverty by the NAS measure. On the other hand, the percent of women in poverty falls by the NAS measure. Comparing poverty estimates based on the official measure and the SPM, Short (2012) also finds a higher percent of men in poverty based on the SPM (15.3%) compared to the official poverty measure (13.7%) for the year 2011.

In terms of the multi-dimensional measure, the percent of men identified as multi-dimensionally poor (around 11%) was slightly higher than the percent of multi-dimensionally poor women (around 10%) over the three time periods. Descriptive analysis provided a picture of the percentage of men and women deprived in one, two, or all three dimensions (income, education, and health) as well as the percent deprived in each or combination of these dimensions. Findings revealed that, across all three time periods, around 23 percent of men and 22 percent of women were deprived in only one dimension; around 9 percent were men and 8 percent were women were deprived in two dimensions; and about two percent men and 1.6 percent women were deprived in all three dimensions.

Of those deprived in only one dimension, the largest percent men and women lacked access to any form of health insurance, going from 44 percent in 2005-2006 to 48 percent in 2009-2010 for men and from 35 percent in 2005-2006 to 38 percent in 2009-2010 for women. The next largest category were the income poor with the percent income deprived men rising from 19 percent in 2005-2006 to 23 percent in 2009-2010 and the percent income poor women rising from 31 percent to 34 percent between 2005-2006 and 2009-2010. In terms of educational attainment, the percent men without at least a high school diploma fell from 37 percent in 2005-2006 to 29 percent in 2009-2010, while the percent women lacking at least a high school diploma also fell from 35 percent in 2005-2006 to 28 percent in 2009-2010.

Of those deprived in two dimensions, the percent poor men and women who were income poor and lacked access to any form of health insurance was the category that saw increases from 2005-2006 to 2009-2010, going from 33 percent to 44 percent men and 37 percent to 48 percent women respectively. The percent income poor men without at least a high school diploma remained around 24 percent across time, while the percent poor women without a high school degree fell from 37 percent in 2005-2006 to 34 percent in 2009-2010. Finally, the percent men without access to any health insurance and without at least a high school degree fell from 42 percent in 2005-2006 to 32 percent in 2009-2010, while the percent women in this category fell from 26 percent in 2005-2006 to 21 percent in 2009-2010. Lack of adequate income and access

to any form of public or private insurance thus appear to be the leading deprivations among men and women identified as multi-dimensionally poor.

The relatively higher rate of poverty among men can be explained by a number of factors. Men have, in particular, been more greatly affected by the economic recession than women. The unemployment rate among men rose from around five percent in 2007 to almost 12 percent in 2010. In comparison the unemployment rate for women rose from four percent in 2007 to around eight percent in 2010 (Mattingly, Smith, & Bean, 2011). Smeeding et al. (2011) note that 20 percent of prime-aged (25-54 years) male workers were unemployed in 2011, “the highest fraction since 1948 and a full 5 percent higher than in the trough of any previous recession” (p. 2). Smeeding and colleagues also note that the employment rate among male workers ages 25-29 fell by 11 percent in the period 2000-2009. Further, most workers have experienced what researchers are calling a decade of wage stagnation with wage growth lagging behind increases in productivity. The weight of falling wages has also fallen more heavily on men in this period (Mishel, Bivens, Gould, & Shieholz, 2012). Men have also tended to receive fewer welfare benefits compared to women, which may help explain why more men are likely to be captured in poverty based on the NAS measure (Haskins, 2006).

In addition to stagnating wages and a slow labor market recovery, there has been a dramatic shift in the structure of the labor market. Technological advancements have created a growing demand for highly skilled workers that has resulted in a polarization of the labor market with high-skill, high wage jobs at one end and low-skilled, low wage, mainly service sector, jobs at the other. Jobs for those with middle-skills have significantly contracted, further contributing to more long-term unemployment and income poverty. Shrinking employment opportunities also helps explain lack of access to health insurance coverage since a majority of workers rely on employer-sponsored insurance in America (Autor, 2011; Smeeding et al, 2011). This problem is likely due to change under President Obama’s Affordable Care Act. Drawing on panel data from the Survey of Income and Program Participation for the period 2004-2010, Cawley, Moriya, and Simon (2011) examine the effect of the macro-economy on health insurance coverage. The authors find that for every percentage point increase in the state unemployment rate, the probability of men having health insurance falls by 1.67 percentage points or 2.12 percent. The authors find that health insurance coverage for women and children, on the other hand, is not significantly correlated with the unemployment rate, suggesting that this group may be protected by public health insurance that functions as a safety net.

Another possible contributing factor to poverty is lower levels of educational achievement. Autor (2011) asserts that the education attainment levels of males in particular have not kept abreast of the mounting demand for more high-skilled labor. For example, Smeeding and colleagues (2011) note that, in the period 2000-2009, employment rates fell by around 17 percent for African American males without a high school degree. Figures like this point to the noticeable vulnerability such males encounter in the face of disconnection from both the labor market as well as educational development that could provide better employment opportunities. Moreover, the earnings differential between workers with a college degree versus those with only a high school degree has been growing in the last three decades, especially for men without a college degree. The earnings differentials may be even more pronounced if one were to include non-

wage fringe benefits such as employer-sponsored health insurance, employer contributions towards retirement funds, and paid vacation and sick days (Autor, 2011).

### **Poverty by marital status.**

Examining the odds of being in poverty by marital status based on the uni-dimensional measures revealed similar patterns as for gender. The odds of single individuals being poor were 3.2 times the odds of married individuals based on the official measure. These odds fell to 2.91 when based on the NAS measure. The odds of single persons being classified as poor also decreased based on the poverty overlap measure, indicating that their odds of being in poverty was 89 percent the odds of married individuals being in poverty, holding all else constant. The odds of single individuals being poor were 2.3 times the odds of married people being poor based on the multi-dimensional measure, holding all other variables constant.

Descriptive analyses comparing poverty estimates by marital status revealed that the percent single individuals identified as poor was considerably higher than the percent married individuals based on both the official measure and the NAS measure. However, married persons were more likely to be captured in poverty based on the NAS measure than the official measure across all three time periods. This finding is similar to other research comparing poverty rate estimates based on the official measure and a NAS-based measure (Short, 2012; Iceland, 2012).

In terms of the multi-dimensional measure, the percent of single individuals identified as multi-dimensionally poor was about double (15%) that of the percent of multi-dimensionally poor married individuals (almost 7%) over the three time periods. Descriptive analysis provided a picture of the percentage of single and married individuals deprived in one, two, or all three dimensions (income, education, and health) as well as the percent deprived in each or combination of these dimensions. Findings revealed that, across all three time periods, around 16 percent of married individuals and 30 percent of single individuals were deprived in only one dimension; close to 6 percent of married individuals and around 12 percent of single individuals were deprived in two dimensions; and finally, little over one percent of married individuals and around two percent of single individuals were deprived in all three dimensions.

Of those deprived in only one dimension, the largest percent of single individuals lacked access to any health insurance across the three time periods (about 41% in 2005-2006 to 44% in 2009-2010) compared to those without at least a high school degree (30% in 2005-2006 to 25% in 2009-2010) or adequate income (29% in 2005-2006 to 32% in 2009-2010). Again, the problem of lack of access to health insurance coverage is due to change under the Affordable Care Act. Among married individuals, in 2005-2006 and 2007-2008, the percentage without at least a high school degree was higher (44% to 40% respectively) than those identified as income poor (20% to 25% respectively) or without health insurance (around 36% in both time periods). In 2009-2010, however, the percent married individuals without access to health insurance (42%) formed the largest category compared to those who were income poor (23%) or without a high school degree (35%).

Of those deprived in two dimensions, the percent married individuals without at least a high school degree or health insurance coverage was higher (going from 47% in 2005-2006 to 40% in

2009-2010) than those that were income poor without health insurance (going from 23% in 2005-2006 to 31% in 2009-2010) or those who were income poor and without a degree (around 30% from 2005-2006 to 2009-2010). Among single individuals, the largest percent were those who were income poor and without any health insurance (going from about 42% in 2005-2006 to 51% in 2009-2010). The next largest group was the income poor without at least a high school degree (going from 31% in 2005-2006 to almost 29% in 2009-2010). The percent single individuals without a degree or health insurance fell by around 27 percent in 2005-2006 to 21 percent in 2009-2010. Lack of access to health insurance coverage was an overlapping deprivation between married and single individuals deprived in two dimensions.

These trends in poverty can again be explained by the challenges of increased unemployment, low-wage jobs, and lower levels of educational attainment. Relatively higher poverty rates among married people, particularly based on the NAS measure, may also be explained by noting that married couples are more likely to have higher work-related expenses while being less likely to receive noncash welfare benefits (Iceland, 2005). Married couples with joint incomes also face marriage penalties through the tax system compared to single households, either through owing more taxes or contending with reductions of tax credits such as the EITC. Although there has been some effort to address this problem, the marriage penalty has not been completely eliminated (Center on Budget and Policy Priorities, 2013). Researchers and policymakers may want to continue to pay attention to the ways in which married people can be better supported through the tax system in the form of credits and/or incentives.

### **Poverty by race/ethnicity.**

The regression findings revealed significant variations in poverty rates among the four main racial/ethnic groups in this study. In the model using the official measure as the dependent variable, the odds of being poor were highest for Blacks (odds ratio = 2.34) and Hispanics (odds ratio = 2.62) compared to the odds of poverty for the other groups, holding all else constant. The odds of being in poverty decreased for Blacks (odds ratio = 1.99) compared to the other racial/ethnic groups in the model with NAS measure as the dependent variable. The odds of being poor increased for Hispanics (odds ratio = 2.97) and Asians (from 1.45 in previous model to 1.79) in this model. The odds of being poor in the model using the poverty overlap variable as the dependent variable were similar to that of the NAS-based model. The odds of being in poverty for Blacks now decreased by 54 percent compared to the other racial/ethnic groups, while the odds of being poor among Asians and Hispanics were 2.53 times and 1.2 times greater respectively than the odds of poverty among the other groups, holding all else constant. Finally, in the multi-dimensional model, the odds of poverty was highest (around 7 times greater) among Hispanics compared to all other racial/ethnic groups. The odds of being identified as poor among Blacks and Asians were 2.49 times and 1.94 times greater respectively than the odds of poverty among all other groups, all else constant.

The odds of poverty for other/mixed races were 1.98 times greater than the odds of all other races being poor based on the official measure. These odds fell somewhat in the NAS-based model with the odds of other/mixed races being poor around 1.7 times greater than the odds of poverty among all other races, while the odds of poverty decreased by 51 percent for this group in the model using the poverty overlap figure, holding all else fixed. Finally, the odds of poverty



for other/mixed races were two times greater than the odds for other groups in the multi-dimensional model.

Poverty rates by race/ethnicity did not show marked differences across the three time periods in the descriptive analyses. There were, however, differences in poverty rates between the racial/ethnic groups based on the underlying measure used. The percent of Whites in poverty remained the highest compared to the other racial/ethnic groups under both the official measure and the NAS-based measure (46% vs. 50% respectively). The percent African Americans was the next largest group based on the official measure (around 28%), but the percent poor in this group was halved based on the NAS measure (around 14%). The percent Hispanics, on the other hand, overtook the percent African Americans using the NAS-based measure, increasing from 18-22% under the official measure to around 28% across all three time periods. Asians were also more likely to be captured in poverty based on the NAS measure compared to the official measure (around 6.5% vs. 2%). Finally, the percent in the other/mixed group identified as poor fell slightly from around three percent based on the official measure to around two percent based on the NAS measure.

The multi-dimensional poverty measure also displays notable differences among the racial/ethnic groups. The percent Hispanics identified as multi-dimensionally poor was the highest (about 30%) across the three time periods followed by Blacks (15%), Other/Mixed Races (13%), and Asians (10%). The percent Whites identified as multi-dimensionally poor was the lowest at around six percent. These patterns did not change even when examining what percent of each of the racial/ethnic groups were deprived in one, two, or all three dimensions. For example, the percent Hispanics deprived in all three dimensions was four to eight times greater at eight percent compared to Blacks (2%), Other/Mixed races (2%), Asians (1%), or Whites (0.6%).

When looking at percent deprived in one dimension only across the three time periods, lack of access to health insurance appears to be the biggest problem among all the racial/ethnic groups. The Affordable Care Act is expected to significantly eliminate this problem. Among Hispanics, a closely related problem was that of lacking at least a high school degree. Of those deprived in two dimensions, Hispanics were most likely to lack a degree or have access to health insurance across time compared to all the other racial/ethnic groups that were most likely to be income poor and lack health insurance.

Other researchers have found similar variations in poverty rates between racial/ethnic groups. Using 2012 CPS-ASEC data, Short (2012) finds that the percent poor Blacks falls from almost 28 percent based on the official poverty measure to about 26 percent based on the SPM. Poverty rates for Hispanics and Asians however increase based on the SPM measure, going from around 25 percent based on the official measure to 28 percent and from about 12 percent to 17 percent for Asians. Hutto, Waldfogel, Kaushal, and Garfinkel (2011) also use CPS data to compare differences in national poverty rates for the year 2007 using methodology similar to that of the SPM. They find that the poverty rate is about nine percent higher for Hispanics and almost 6 percent higher for Asians based on the SPM measure compared to the official measure. Based on their calculations, the authors also find a five percent increase in the poverty rate for Blacks based on the SPM measure.

Hutto and colleagues point to several factors that may help explain these differences in poverty rates. Their research, for example, shows that Hispanics and Asians typically receive far lower near-cash benefits (\$718 and \$312 respectively) compared to Blacks (\$1,305). They further find that Hispanics and Asians tend to have far greater work expenses than Blacks and that Asians tend to have the highest medical out-of-pocket expenses. Hispanics and Asians are also found to be more likely to live in cities with higher housing costs such as in the Northeast or West Coast, while also being less likely to own a mortgage-free home.

Drawing on data from the 2004 National Health Interview Survey, Alkire and Foster (2007) explore multi-dimensional poverty in the U.S. among adults aged 19 years or older. The authors examine the contribution of income (poverty line), access to health insurance, and education (person has at least a high school diploma) between four main racial groups: Hispanic, White, African American, and other. Similar to the findings of this study, Alkire and Foster found that lack of access to health insurance and low educational attainment were the main contributing factors to multi-dimensional poverty among Hispanics, while income was the main contributing factor for African Americans.

These findings are not surprising when considering that, in 2012, only 65 percent of Hispanics aged 25 years or older have completed at least four years of high school compared to 85 percent Blacks, 89 percent Asians, and 93 percent of non-Hispanic Whites (U.S. Census, 2012). Further, in 2011, 22 percent of Blacks and Hispanics were employed in the service sector compared to 14 percent of Asians and 13 percent of Whites (Bureau of Labor Statistics, 2011). Service jobs are far less likely to provide employer-sponsored health care benefits or retirement benefits, which explains the lack of access to health insurance coverage among certain racial/ethnic groups. Only 39 percent of Hispanics were likely to have employer-sponsored insurance in 2011 compared to 47 percent of Blacks and 67 percent of Whites (Gould, 2012). Citizenship status also plays an important role in determining access to health insurance with a far greater percent uninsured among non-citizens. For example, in 2011, around 60 percent of non-citizen Hispanic adult civilian workers were uninsured (U.S. Census, 2011).

A number of research and policy implications emerge from the findings discussed in this section. Some key implications and considerations are highlighted in the following.

### **Research and Policy Implications**

The preceding discussion emphasizes that the guiding definition and measure of poverty will invariably influence a nation's assessment of its progress against poverty and the resulting policy responses. When setting out to tackle a complex problem like poverty, it is crucial that policymakers are clear about the outcome they want to achieve. The measure used plays a key role in assessing how effective existing poverty alleviation strategies are and what the best use of limited resources in solving the problem would be. An implicit assumption often is that poverty measurement is an objective process that simply seeks to understand the size and composition of the poor in society. However, all measures of poverty – absolute, relative, or a combination – have an inherent element of subjectivity within them. Absolute measures focus on the portion of the “population that falls short of some minimum level, often called a poverty line (in one or several indicators) and provide a value that summarizes deprivation in that society” (Alkire &

Santos, 2009, p. 124). Such headcount measures, however, do not provide details on the depth or duration of poverty (Brady, 2009). Furthermore, although such measures are considered objective, the resources needed for “basic survival” in advanced industrial countries are determined in relation to societal standards and norms.

In contrast, the notion of relative poverty, proposed most notably by Townsend (1974, 1979), addresses the subjective element more directly by identifying the poor in relation to the relative standard of living of a society, at any given point of time. Relative measures thus shift the discourse on poverty to one on *inequality*, in which the definition of poverty is viewed in terms of the distribution of incomes in the entire society. Schiller (2008) notes that “in reality, one’s choice of a relative standard is likely to be influenced by the absolute standard of living implied, just as the choice of an absolute standard is likely to be affected by the degree of inequality and the general standards of living we observe” (p. 41).

Although income-based measures are not without flaws, some scholars argue that income should remain the foundation of poverty measurement (Lampman, 1971; Iceland, 2005). Proponents of income-based measures highlight their relative “simplicity” in terms of data availability and analysis (Laderchi, Saith, & Stewart, 2003; Ravallion, 1996); their broad understandability and acceptability, in particular what Citro & Michael (1995) refer to as the experience that “policymakers and the public have with its measurement and intuition about its interpretation and movement over time” (p. 21); and their comparability across time, family types, and population groups. In terms of policy, monetary measures focus on individual attainments and typically call for strategies to increase incomes to overcome poverty through economic growth (increased GDP/GNP and employment opportunities) or redistribution (welfare state transfers). Social interactions are considered only to scale resources based on household composition (Laderchi, Saith, & Stewart, 2003).

On the other hand, many European policy analysts believe that income-based measures alone no longer capture the various dimensions of need in affluent societies; thus reflecting the importance given to the social, cultural, and political aspects of poverty. Alkire and Santos (2009) argue that poverty measurement should not be disassociated from the underlying social structures and processes that create poverty. Europeans have preferred to focus on relative measures of poverty in order to compare an individual’s well-being (or functionings as Sen (1992) puts it) relative to the standard of living in a given society. There has thus been a move in Europe toward the development of multi-dimensional measures of poverty in order to better understand such underlying factors or processes that lead to monetary and/or capability deprivation (Laderchi, Saith, & Stewart, 2003).

This move to more multi-dimensional poverty measures and material deprivation indicators is in large part because former East European countries, that are now part of the EU, were found to have lower levels of relative poverty compared to the wealthier countries such as France and Germany when using a common poverty line such as 60 percent of the median household equivalent income. Such findings led to questions about the reliability and validity of such a relative measure in the context of EU enlargement (Marx & Van Den Bosch, n.d.). Such multi-dimensional measures are also reflective of poverty as social exclusion, whereby an individual may be deprived in one or more dimensions of well-being such as inadequate education,

employment, and income. Social exclusion exemplifies another aspect of relative poverty in that it paints a picture of the ways in which an individual is excluded from the customary norms and standards of a particular society.

Multifaceted measures of poverty are difficult to develop, and there remain questions about what aspects to include and how these ought to be operationalized (Schiller, 2008; Gilbert, 2009). On the other hand, multi-dimensional measures can provide a more detailed picture of how poverty is experienced by those living in relatively deprived conditions. By expanding the definition of poverty to include non-monetary dimensions, policymakers and researchers acknowledge the reality that all these dimensions are interconnected because individuals are situated in complex environments. The problem of poverty may be better tackled by taking a more coordinated approach that understands the links between income and other dimensions such as health, education, and housing. Multifaceted poverty measures may also enable policymakers and researchers to focus on areas that require targeted policy actions.

The calls to improve the poverty measure in the U.S face similar challenges. Although the current official measure has long been considered outdated and flawed, there is far less agreement on what an alternative measure should look like. The supplemental poverty measure, adopted by the U.S. government in 2010, is based on the recommendations made by the NAS panel in the 1990s. The NAS measure is quasi-relative and provides a more accurate picture of economic need by accounting for key economic, social, and demographic changes, the types of expenses driving household budgets today, as well as the increasing number of poverty alleviation programs that have been introduced since the 1960s. However, there remain debates on the operationalization of several aspects of even this proposed measure such as resources to be included, determination of poverty thresholds, and adjustment for geographic differences in costs-of-living.

Blank (2008) notes that “it is an heroic assumption to believe that a single poverty measure can reflect most aspects of economic need” because “economic need” in itself is an intrinsically nebulous concept (p. 246). Blank and Greenberg (2008) suggest that a new panel be commissioned to develop a “decent living standard” measure to include families that may be above the poverty line, but still have to make great efforts to say afford child care or a college education. Blank (2008) argues in favor of developing a list of key indicators of deprivation in order to have a more nuanced picture of economic need and how it changes over time. She recommends that in addition to income measures of poverty, at least the following six areas of material deprivation be focused on: “A measure of access to health insurance, some measure of actual health status, a measure of food adequacy or hunger, a measure of literacy or educational preparation, a measure of labor market access, and a measure of neighborhood or housing conditions” (p. 34). Blank maintains that these statistics should ideally be reported in conjunction with the revised poverty measure so that researchers and policymakers can gain a more complete picture of the problems related to economic deprivation as well a real sense for the progress being made to combat these problems.

The findings of this study support the need for a more holistic approach to understanding poverty in the U.S. Going forward, it is important to reflect on how researchers and policymakers can gain a clearer and deeper picture of who the poor are and what challenges they face in

overcoming poverty. The multi-dimensional index introduced in this study takes a first step in this direction. The findings have suggested the role of deprivations in education, access to health insurance, and income in determining a person's overall well-being. Future research should consider what additional indicators might be useful in order to take a more comprehensive approach to measuring poverty.

In terms of education, the next research step may be to, for example, include levels of educational attainment with at least a high school degree being the lowest level of deprivation. Doing so could shed light on the extent to which different demographic groups are able to increase their educational skills, especially in today's knowledge-based economy in which high skills are a pre-requisite for employment. Policies to encourage and support educational attainment and skill-building should remain one of the cornerstones of poverty alleviation. A first step would be to continue to explore how schools, particularly in low-income areas, can help students complete their high school education as well as prepare them for higher education. The latter should, in particular, seem like a credible option for disadvantaged students.

Finally, policymakers should consider what types of training and skill-building opportunities can enhance the earnings potential and attractiveness of even jobs in the service sector. Efforts to reduce welfare dependence and boost labor market participation hinge on policies that address some of the systemic inequalities among and between various demographic groups, particularly racial/ethnic disparities. Such policies become even more imperative when one considers the relatively poor educational training and skills that plague certain minority groups. Giddens (1998) refers to the "social investment state" that promotes opportunity through the building of human capital. He asserts that continuing education and training enables individuals to become productive members of a society through their participation in the labor force. To achieve this goal, Giddens stresses the need to include both the private and public sector as well as community organizations towards achieving a common goal, namely, the potential and well-being of members of a society.

With the Affordable Care Act now in place, researchers and policymakers may pay more attention to poverty measures such as the SPM that take welfare benefits and health care subsidies into account compared to the official measure that only includes pre-tax cash income. Further, access to health care insurance may prove to be less of an issue, particularly for low-income families. In March 2012, the Congressional Budget Office expected the ACA to provide insurance coverage to an additional 30 to 33 million people by 2016, leaving around 26 million uninsured. If people are indeed able to sign up for and receive the health insurance they need, findings of this study suggest that the Act has the potential to reduce one dimension of poverty quite significantly.

Researchers and policymakers will need to focus on who remains uninsured despite the Act's provisions and what can be done to ensure that vulnerable groups have access to at least basic health care. Researchers may also need to focus on the type of health care insurance individuals (private vs. public) are able to access in addition to whether they have coverage at all. It may well be that more attention will need to be given to the quality of care that individuals receive depending on the type of health insurance coverage they have access to. Thus deprivation

indicators might need to consider not only whether a person has insurance coverage, but also the quality of care the coverage provides.

Focusing on income, education, and health as building blocks of well-being relate back to Sen's (1993, 1999) notion of capability building. Thinking of not only what it means to be deprived in each of these dimensions, but also how to help people combat these deprivations, is at the heart of Sen's idea of helping individuals become capable of generating or obtaining the resources to meet their basic needs. Sen argues that the state can play a role in investing in human capabilities and leveling the field in terms of unequal access to opportunities, which in turn can help lower the economic and social inequalities that different population groups confront on their road to achieving a certain level of well-being. For example, Smeeding and Waldfogel (2010) note the multiple policies enacted in the UK in response to former British Prime Minister, Tony Blair's, declaration to end childhood poverty within one generation in 1999. Enacted policies include working families tax credit (not conditioned on parent's work status), national minimum wage updated regularly for inflation, child trust funds, expansion of child-care aid, and educational reforms for older children. For Sen, human capability building is essential to development, not only for individuals themselves, but for the economy and society as a whole.

As discussed in chapter 2, irrespective of how poverty is conceptualized, any measure of poverty must address what Johnson (2009) referred to as the "who, what, where, when, why, and how of poverty measurement" (p. 726). How these questions are answered will play an important role in shaping not only the measure of poverty, but also the resulting poverty statistics. Blank (2008) notes that in deciding on a poverty measure, the focus should not be on whether poverty rates will increase or decrease using a certain measure. Rather, "we want to measure progress (or regression) over time and this may be more important than the precise level of poverty at any point in time" (p. 252).

Adopting a new poverty measure is fraught with political challenges. A new measure can create political tensions depending on what population groups are identified as winners and losers compared to the official measure. Changes to the poverty measure also have implications for welfare program benefits and eligibility across the different states, adding another layer of political tension to any proposed change. Further, the supplemental NAS-based measure circumvents political controversy because it will not be used to determine federal allocation of funds or program eligibility, but serve primarily as an additional statistic to enhance understanding of economic circumstances and trends of low-income families (Citro and Michael, 1995; U.S. Department of Commerce, n.d.). However, given that poverty is increasingly being recognized as a socially constructed, complex, and multi-dimensional concept internationally, it behooves a more critical discussion of why the U.S. continues to rely primarily on economic conceptualizations and measures of poverty. The question remains as to how we can more fully explore how other economic, social, and political dimensions impact poverty.

Without a clear understanding of who are the poor, policy interventions can prove to be quite ineffective and untargeted. A clear definition and measure of poverty can be valuable in determining how many people have benefitted from a specific policy, and in turn, either provide further support for a policy or reveal the need to explore alternative poverty alleviation strategies. While the recession makes addressing poverty a key issue, our response to poverty

should not be conditional on economic conditions alone. Furthermore, adopting either a new measure or some form of a multi-dimensional measure of poverty may help determine policies related to, for example, how different sectors (workforce, education, housing, etc.) should be linked to address "poverty," and how funds for different types of social programs should be allocated to have greatest impact, particularly in a post-recession environment with limited resources.

This study hopes to contribute to reframing the national conversation and improving our understanding of poverty to include the codification of the lived experience of poverty. By proposing an alternative measure that reflects the complex and multi-dimensional nature of poverty, this study takes an initial step in the direction towards a new way of thinking about poverty in the United States and better mobilizing resources targeted at poverty alleviation in this country. As President Roosevelt said in his State of the Union Address, "we cannot be content, no matter how high that general standard of living may be, if some fraction of our people—whether it be one-third or one-fifth or one-tenth- is ill-fed, ill-clothed, ill housed, and insecure" (The American Presidency Project, n.d.). Poverty must never fall off a nation's agenda.

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## APPENDICES

## APPENDIX A: Percent Poor by Poverty Measure and Time Period

		Poverty Year			Total	
		2005-2006	2007-2008	2009-2010		
POVERTY OVERLAP	<b>Not Poor by either measure</b>	Count	248893	245993	245866	740752
		% within Poverty Overlap	85.6	84.0	83.1	84.2
	<b>Poor by official measure only</b>	Count	4275	3609	5501	13385
		% within Poverty Overlap	1.5	1.2	1.9	1.5
	<b>Poor by both official and NAS measures</b>	Count	27045	28609	31687	87341
		% within Poverty Overlap	9.3	9.8	10.7	9.9
	<b>Poor by NAS measure only</b>	Count	10456	14560	12802	37818
		% within Poverty Overlap	3.6	5.0	4.3	4.3
	Total	Count	290669	292771	295856	879296
		% within Poverty Overlap	100.0	100.0	100.0	100.0

**APPENDIX B: Poverty Rates by Gender, Poverty Measure, and Time Period**

Poverty rates by gender and poverty measure in 2005-2006.

		GENDER			
		Male	Female	Total	
POVERTY OVERLAP	<b>Not in poverty by either measure</b>	Count	123503	125390	248893
		% within Poverty Overlap	49.6	50.4	100.0
		% within Gender	87.8	83.6	85.6
	<b>In poverty only in official measure</b>	Count	1399	2876	4275
		% within Poverty Overlap	32.7	67.3	100.0
		% within Gender	1.0%	1.9%	1.5%
	<b>In poverty both official and NAS measure</b>	Count	11048	15998	27046
		% within Poverty Overlap	40.8	59.2	100.0
		% within Gender	7.9	10.7	9.3
	<b>In Poverty NAS measure only</b>	Count	4723	5733	10456
		% within Poverty Overlap	45.2	54.8	100.0
		% within Gender	3.4	3.8	3.6
Total	Count	140673	149997	290670	
	% within Poverty Overlap	48.4	51.6	100.0	
	% within Gender	100.0	100.0	100.0	

## APPENDIX B

Poverty rates by gender and poverty measure in 2007-2008.

		GENDER			
		Male	Female	Total	
POVERTY OVERLAP	<b>Not in poverty by either measure</b>	Count	122138	123855	245993
		% within Poverty Overlap	49.7	50.3	100.0
		% within Gender	86.1	82.1	84.0
	<b>In poverty only in official measure</b>	Count	1159	2450	3609
		% within Poverty Overlap	32.1	67.9	100.0
		% within Gender	0.8	1.6	1.2
	<b>In poverty both official and NAS measure</b>	Count	11869	16741	28610
		% within Poverty Overlap	41.5	58.5	100.0
		% within Gender	8.4	11.1	9.8
	<b>In Poverty NAS measure only</b>	Count	6715	7845	14560
		% within Poverty Overlap	46.1	53.9	100.0
		% within Gender	4.7	5.2	5.0
Total	Count	141881	150891	292772	
	% within Poverty Overlap	48.5	51.5	100.0	
	% within Gender	100.0	100.0	100.0	

## APPENDIX B

Poverty rates by gender and poverty measure in 2009-2010.

			GENDER		
			Male	Female	Total
POVERTY OVERLAP	<b>Not in poverty by either measure</b>	Count	121941	123926	245867
		% within Poverty Overlap	49.6	50.4	100.0
		% within Gender	84.9	81.4	83.1
	<b>In poverty only in official measure</b>	Count	1882	3619	5501
		% within Poverty Overlap	34.2	65.8	100.0
		% within Gender	1.3	2.4	1.9
	<b>In poverty both official and NAS measure</b>	Count	13702	17984	31686
		% within Poverty Overlap	43.2	56.8	100.0
		% within Gender	9.5	11.8	10.7
	<b>In Poverty NAS measure only</b>	Count	6062	6740	12802
		% within Poverty Overlap	47.4	52.6	100.0
		% within Gender	4.2	4.4	4.3
Total	Count	143587	152269	295856	
	% within Poverty Overlap	48.5	51.5	100.0	
	% within Gender	100.0	100.0	100.0	

**APPENDIX C: Poverty Rates by Marital Status, Poverty Measure, and Time Period**

Poverty rates by marital status and poverty measure in 2005-2006.

		MARITAL STATUS			
		Married	Single	Total	
POVERTY OVERLAP	<b>Not in poverty either measure</b>	Count	149360	99532	248892
		% within Poverty Overlap	60.0	40.0%	100.0
		% within Marital Status	91.8	77.7	85.6
	<b>In poverty only in official measure</b>	Count	1293	2983	4276
		% within Poverty Overlap	30.2	69.8	100.0
		% within Marital Status	0.8	2.3	1.5
	<b>In poverty both official and NAS measure</b>	Count	7693	19352	27045
		% within Poverty Overlap	28.4	71.6	100.0
		% within Marital Status	4.7	15.1	9.3
	<b>In Poverty NAS measure only</b>	Count	4279	6178	10457
		% within Poverty Overlap	40.9	59.1	100.0
		% within Marital Status	2.6	4.8	3.6
Total	Count	162625	128045	290670	
	% within Poverty Overlap	55.9	44.1	100.0	
	% within Marital Status	100.0	100.0	100.0	

## APPENDIX C

Poverty rates by marital status and poverty measure in 2007-2008.

		MARITAL STATUS			
		Married	Single	Total	
POVERTY OVERLAP	<b>Not in poverty either measure</b>	Count	146089	99905	245994
		% within Poverty Overlap	59.4	40.6	100.0
		% within Marital Status	90.7	75.9	84.0
	<b>In poverty only in official measure</b>	Count	1063	2546	3609
		% within Poverty Overlap	29.5	70.5	100.0
		% within Marital Status	0.7	1.9	1.2
	<b>In poverty both official and NAS measure</b>	Count	8104	20505	28609
		% within Poverty Overlap	28.3	71.7	100.0
		% within Marital Status	5.0	15.6	9.8
	<b>In Poverty NAS measure only</b>	Count	5884	8676	14560
		% within Poverty Overlap	40.4	59.6	100.0
		% within Marital Status	3.7	6.6	5.0
Total	Count	161140	131632	292772	
	% within Poverty Overlap	55.0	45.0	100.0	
	% within Marital Status	100.0	100.0	100.0	

## APPENDIX C

## Poverty rates by marital status and poverty measure in 2009-2010.

		MARITAL STATUS			
		Married	Single	Total	
POVERTY OVERLAP	Not in poverty either measure	Count	143808	102058	245866
		% within Poverty Overlap	58.5	41.5	100.0
		% within Marital Status	90.3	74.8	83.1
	In poverty only in official measure	Count	1961	3541	5502
		% within Poverty Overlap	35.6	64.4	100.0
		% within Marital Status	1.2	2.6	1.9
	In poverty both official and NAS measure	Count	8630	23056	31686
		% within Poverty Overlap	27.2	72.8	100.0
		% within Marital Status	5.4	16.9	10.7
	In Poverty NAS measure only	Count	4928	7874	12802
		% within Poverty Overlap	38.5	61.5	100.0
		% within Marital Status	3.1	5.8	4.3
Total	Count	159327	136529	295856	
	% within Poverty Overlap	53.7	46.1	100.0	
	% within Marital Status	100.0	100.0	100.0	



**APPENDIX D: Poverty Rates by Race/Ethnicity, Poverty Measure, and Time Period**

Poverty rates by race/ethnicity and poverty measure in 2005-2006.

			RACE/ETHNICITY					
			White	Black	Hispanic	Asian	Other/Mixed Races	Total
POVERTY OVERLAP	Not in poverty either measure	Count	180572	24561	28535	10884	4341	248893
		% within Poverty Overlap	72.6%	9.9%	11.5%	4.4%	1.7%	100.0%
		% within Race/Ethnicity	89.6%	75.0%	74.9%	84.4%	80.8%	85.6%
	In poverty only in official measure	Count	2044	1204	758	114	156	4276
		% within Poverty Overlap	47.8%	28.2%	17.7%	2.7%	3.6%	100.0%
		% within Race/Ethnicity	1.0%	3.7%	2.0%	0.9%	2.9%	1.5%
	In poverty both official and NAS measure	Count	13573	5486	6070	1223	693	27045
		% within Poverty Overlap	50.2%	20.3%	22.4%	4.5%	2.6%	100.0%
		% within Race/Ethnicity	6.7%	16.7%	15.9%	9.5%	12.9%	9.3%
	In Poverty	Count	5361	1505	2727	679	185	10457



## APPENDIX D

Poverty rates by race/ethnicity and poverty measure in 2007-2008.

			RACE/ETHNICITY					
			White	Black	Hispanic	Asian	Other/Mixed Races	Total
POVERTY OVERLAP	Not in poverty either measure	Count	177845	24668	28218	10849	4413	245993
		% within Poverty Overlap	72.3%	10.0%	11.5%	4.4%	1.8%	100.0%
		% within Race/Ethnicity	88.4%	74.1%	71.0%	83.1%	79.2%	84.0%
	In poverty only in official measure	Count	1651	1074	698	70	116	3609
		% within Poverty Overlap	45.7%	29.8%	19.3%	1.9%	3.2%	100.0%
		% within Race/Ethnicity	0.8%	3.2%	1.8%	0.5%	2.1%	1.2%
	In poverty both official and NAS measure	Count	14186	5671	6682	1266	805	28610
		% within Poverty Overlap	49.6%	19.8%	23.4%	4.4%	2.8%	100.0%
		% within Race/Ethnicity	7.1%	17.0%	16.8%	9.7%	14.4%	9.8%
	In Poverty	Count	7410	1896	4145	872	237	14560



## APPENDIX D

Poverty rates by race/ethnicity and poverty measure in 2009-2010.

			RACE/ETHNICITY					
			White	Black	Hispanic	Asian	Other/Mixed Races	Total
POVERTY OVERLAP	Not in poverty either measure	Count	176529	24768	28871	11244	4454	245866
		% within Poverty Overlap	71.8%	10.1%	11.7%	4.6%	1.8%	100.0%
		% within Race/Ethnicity	87.8%	72.8%	69.9%	82.3%	77.4%	83.1%
	In poverty only in official measure	Count	2511	1511	1188	113	178	5501
		% within Poverty Overlap	45.6%	27.5%	21.6%	2.1%	3.2%	100.0%
		% within Race/Ethnicity	1.2%	4.4%	2.9%	0.8%	3.1%	1.9%
	In poverty both official and NAS measure	Count	15649	5987	7724	1464	863	31687
		% within Poverty Overlap	49.4%	18.9%	24.4%	4.6%	2.7%	100.0%
		% within Race/Ethnicity	7.8%	17.6%	18.7%	10.7%	15.0%	10.7%
	In Poverty	Count	6409	1768	3518	846	261	12802

