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Conceptualization and Measurement of Poverty: A Comparative Analysis

Moses Kwadzo

Indiana University of Pennsylvania

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CONCEPTUALIZATION AND MEASUREMENT OF POVERTY: A
COMPARATIVE ANALYSIS

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Philosophy

Moses Kwadzo

Indiana University of Pennsylvania

December 2010

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Indiana University of Pennsylvania
The School of Graduate Studies and Research
Department of Sociology
Leadership and Administration Studies in the Nonprofit and Public Sector

We hereby approve the Dissertation of

Moses Kwadzo

Candidate for the degree of Doctor of Philosophy

October 12, 2010

David Yerger, Ph.D.
Associate Professor of Economics, Advisor

October 12, 2010

Daniel Alex Heckert, Ph.D.
Professor of Sociology

October 12, 2010

John A. Anderson, Ph. D
Professor of Sociology

ACCEPTED

Timothy P. Mack, Ph.D.
Dean
The School of Graduate Studies and Research

Title: Conceptualization and Measurement of Poverty: A Comparative Analysis

Author: Moses Kwadzo

Dissertation Chair: Dr. David Yerger

Dissertation Committee Members: Dr. Daniel Alex Heckert
Dr. John K. Anderson

Many poverty authors point out that the various ways poverty is conceptualized and measured are very crucial because different poverty measures tend to capture different people as poor. The main focus of this research is to compare and examine how different poverty measures estimate poverty outcomes in the United States. The data for the study are from the 2004 of National Longitudinal Study of Youth, 1979 (US Department of Labor, 2006). Using frequency curves and cross tabulations, the distribution of the sample in poverty was computed. Logit models were used to estimate the likelihood of the effects of demographic characteristics on individuals to fall below the thresholds of three poverty measures that include the monetary, social exclusion, and capability poverty measures.

All the three poverty measures have been found to estimate varied levels of poverty outcomes. Both the monetary and social exclusion poverty measures are found to exhibit consistent patterns in the distribution of sample in poverty. On the contrary, poverty incident is found to be highly sensitive to the capability poverty lines. In addition, the research findings also indicate that the poverty measures do overlap to capture a percent of the sample as poor. The result indicates a moderate agreement between the monetary and social exclusion poverty measures. However, the consistency between the capability and monetary or social exclusion poverty shows a weak agreement. The findings that the capability poverty measure exhibits inconsistent patterns

of poverty distribution as well as a weak agreement with the other two poverty measures suggests that the capability poverty measure is not a good poverty measure.

The logit analyses have also shown that gender (being female), race (other than White), place of residence (rural or inner city dwellers), and marital status (never married, separated, divorced, widowed) had statistically significant positive effects on the likelihood of individuals falling into poverty. Of these, marital status is the strongest predictor in determining the likelihood of persons falling into poverty.

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CHAPTER ONE

INTRODUCTION

According to the World Development Report (2001) and World Bank (2002), poverty policies have utilized a broad conceptualization of poverty associated with different dimensions of poverty. Schiller (2008), Laderchi, Saith and Stewart (2003), and Jordan (1996) pointed out that the way we conceptualize and measure poverty influences the fundamentals of poverty policies and programs. While different poverty measures have been utilized, little attention has been paid to their comparative outcomes and implications (Bell, 1995; Blank, 2007; Schiller, 2008).

United States' Welfare Policies and Poverty Reduction

Poverty is one of the major social problems in the United States (Hurst, 2004; Rank, 2004). As of 2008, there are approximately 39.1 million, or 13.2%, of Americans in poverty (US Bureau of Census, 2008). Since the advent of industrialization, economic changes led to low earnings, increased social inequality, and increased inability of breadwinners to support their families in many parts of the world, including the USA (Abramowitz, 1996; Trattner, 1994). In order to reduce poverty social institutions and policies are instituted to address the needs of the disadvantaged. Due to differential perspectives regarding causes of poverty, the Federal government's social policy expanded and contracted government welfare responsibilities toward poverty since 1935 to the early 1980s (Abramowitz, 1996; Trattner, 1994; Woodside & McClaim, 2006).

The great historians, Schlesinger (1986) and Schlesinger (1949) postulated that since the civil war the United States experienced spiral swing in social policy between liberalism and conservatism. According to the Schlesingers and Stone (2002), the

conservative perspective supports capitalism, private properties, free market and individual initiatives. The liberal perspective is more concerned about collective national effort towards equality, social responsibility and general welfare to ensure decent quality of life. For instance, the periods of Conservative Rule (1869-1901), Republican Restoration (1919-1931), The Eisenhower Era (1952-1960) and Reagan Era (1980-1992) were more absorbed in conservatism (Mandell & Schram, 2003; Schlesinger, 1986; Schlesinger, 1949). These eras concentrated on private property, profit, free market and a reduction in welfare budgets. The Progressive Era (1901-1919), the New Deal (1931-1947), the Fair Deal (1947-1952), the Great Society (1960), and the Culture of Narcissism (1968-1980) were characterized by liberalism (Mandell & Schram, 2003; Schlesinger, 1986; Schlesinger, 1949).

Since the mid-1960s, anti-poverty policies and programs have been implemented in the United States. The Great Depression in the 1930s affected a large number of Americans. Many people were unemployed, a situation that created a difficult time for millions of citizens (Abramowitz, 1996; Mandell Schram, 2003; Trattner, 1994). At the time of the Great Depression the Roosevelt administration implemented several emergency relief programs to address the problems of poverty. The Social Security Act was created in 1935 to meet the general welfare needs of United States citizens. The Social Security Act placed responsibility on the Federal government to take care of the aged, the unemployed, and the disabled. Early Social Security Act programs included Old Age Assistance, Old Age Insurance, Unemployment Compensation, Unemployed Insurance, Public Assistance, Aids to the Blind, and Aid to Dependent Children (Abramowitz, 1996; Trattner, 1994; Woodside & McClaim, 2006). In the mid-20th

century President Kennedy and Johnson's administrations were committed to the eradication of poverty in the United States.

Orshansky developed the official United States poverty measure in 1965. This measure has been used to measure poverty trends and the economic needs of the disadvantaged over the years. The 1960s saw a rapid decline in the poverty rate, while subsequent years indicated fluctuations in poverty rates between 11%-15% with changes in macroeconomic conditions. In 1959, the United States poverty rate was 22.4%. In the 1960s the poverty rate fell steadily and reached as low as 11% in 1973. Since 1973 the United States poverty rate fluctuated between 11%-15% (US Bureau of Census, 2000; Rank, 2001). Piven and Cloward's (1993) analysis of the poverty in the United States revealed that poverty often decreased during economic expansion and increased during recession. In the early 1980s and 1990s the poverty rate increased as the country experienced economic recession. In the mid-1980s and 1990s, which were periods of economic expansion, the poverty rate decreased (US Bureau of Census, 2000; Rank, 2001). Poverty rate trends in the United States over the past 35 years suggest lack of progress against poverty. Haskins (2006), Hays (2005), Piven and Cloward (1993) and Murray (1994) argued that previous government welfare programs did little or failed to reduce poverty.

Murray (1994) and some conservatives noted that welfare encourages poverty and that welfare should be discontinued (Murray, 1994). Charles Murray (1994) presented a historical account and policy analysis of government social programs during the period from 1950 to 1980 and argued that American social policy seemed to advance social problems. He advocated for the dismantling of social programs. Murray believed that

government orientation toward capitalism has the tendency to reduce social problems, including poverty. According to Murray, the United States economy that embraced the free market system with minimal government interference from 1950 to 1965 was marked with a high level of poverty reduction from one-third of the population to just over one-tenth. From 1965 to 1980 a number of welfare programs including Aids to families with Dependent Children (AFDC), food stamps, subsidized housing, job programs, and unemployment insurance were instituted to reduce poverty. In his analysis of welfare programs, Murray found positive association between welfare and social problems. He concluded that an increase in welfare programs can result to increased rates of social problems including poverty, marriage breakdown, child illegitimacy and crime. For example, Murray believed the AFDC paid more money to mothers to have illegitimate children and to remain unwed.

Proponents of welfare such as Haskins (2006), Hays (2005), Piven and Cloward (1993) point out that those social programs are necessary to reduce social problems such as poverty, yet welfare policy is not effectively crafted. Downs (1998) and Stone (2002) also argued that social policies are sometimes ill-prepared to address real social problems. Anthony Downs (1998) suggested that major social problems go through the issue attention cycle in the policy arena if they possess three specific characteristics. The first characteristic is an association with a minority. Here, the term minority refers to a relatively small number of a population that experiences a given social problem.

Although the proportion of population suffering from a social problem is relatively small (e.g.15% of the population), the number of people that suffer from the social problem is large. Secondly, According to Downs, a social problem that impacts minorities is given

little policy consideration because the majority of the population does not suffer from that particular social problem. Furthermore, a social problem is often caused by a large social structure or arrangement that benefits a large proportion or a powerful minority of the population. Finally, such a social problem lacks an intrinsically exciting quality which makes it difficult to compete with other issues on public agenda.

According to Downs (1998), American public attention or policy does not focus on crucial social problems when they possess the above three features. Downs noted these social problems receive strong public concern in their early stage for a short period and then gradually lose their vitality and finally fade away because such problems are unable to assume enough political momentum in the policy arena. The five stages of Downs' issue attention cycle are: pre- problem stage, alarm discovery and euphoric enthusiasm stage, cost realization state, gradual decline of public interest, and post problem stage.

The pre-problem stage is when some interest groups or experts become alarmed about a highly undesirable social problem. At this point the general public may not be aware of the issue or the problem. The alarm discovery stage may be associated with a series of dramatic events such as riot and social movements that trigger sudden public awareness. According to Downs (1998), the alarm discovery stage tends to move the problem to the second phase, euphoric enthusiasm. At this phase policy makers and society think the problem can be addressed in a relatively short time without giving thought to restructuring the social structure that caused the problem. The third stage of Downs' issue attention cycle is the cost realization stage. At this stage policy makers, as well as the public, attempt to solve the social problem and gradually come to the

realization that the cost of solving the problem is very high. The cost often requires large financial inputs, as well as sacrifice by the large population. Social and structure rearrangement is also needed to solve the problem. Due to the fact that politicians and larger beneficial groups do not want to lose the benefits they enjoy as a result of the existing social structure or arrangement, their interest in solving the problem tends to decline (Downs, 1998).

The fourth stage of Downs' cycle is the gradual decline of intense public interest. At this stage policy makers or other people get discouraged about the cost of solving the social problem following the cost realization. The last stage of Downs' cycle, the post problem stage, is when the social problem fades away and the problem is replaced by a fresh public issue that is about to move to its crisis or policy agenda stage. The social problem may experience a prolonged limbo of less public attention or recurrence of interest. In order to shift public or policy attention from the social problem, policy makers tend to institute policy programs that do not address the root cause of the social problem (Downs, 1998).

Stone (2002) argued that rationality has characterized much of public policy formulation and analysis. As noted by Stone, Allison (1999) and Kingdom (1995), the most commonly used models for policy creation and analysis are the rational actor model and the incremental (instrumentalism) model. The incremental model involves a continuation of an existing government policy program with a minimal changes made to the existing policy. In this case, a systematic periodic review of existing policy based on feedback from the current policy program is often applied. According to Stone, these policy analytical models are based on the assumption of rational choice theory. The

concept of rationality emphasizes that an individual tends to be logical, and dispassionate to maximize benefit and to reduce cost (Kahler, 2001).

In general, rational decision making occurs in stages that include identification and prioritization of goals, searching for alternatives, predicting the consequences of each alternative, and evaluating each alternative in terms of the set goal and selecting the best alternative with maximum benefit (Allison, 1999; Kahler, 2001; Kingdom; Stone, 2002). The basic assumption of rational decision making is that policy makers have access to all available information on the problem, including alternatives and the consequences of any given policy. Both the rational actor and incremental models rely heavily on the rational decision making process.

Policy analysis often rests on rational analysis by which a single criterion is used to measure and judge the policy existence and effectiveness. Stone (2002) pointed out that models that rely on rational decisional making process are unproductive and irresponsive to social problems. Stone argued that policy analysis is an art, given that policy formulation and implementation is a complex task, and that policy makers and analysts do not always have full knowledge of the social problems and their alternative solutions. Moreover, all the actors are not involved in the policy making process.

Stone (2002) also argued that the rational actor model fails to capture vital subjective elements that are important in policy analysis and evaluation. Stone underscored those clusters of subjective characteristics that include the conceptualization of social problems, use of metaphors and symbols, the use of language and information distortion, the issue of social cost versus individual cost to resolve social problems, the use of numbers to define and evaluate social problems, and the role of values in policy

formulation and analysis. The need to give great consideration to these clusters of subjective features during policy formulation, analysis and evaluation was emphasized. The use of numbers to conceptualize complex social problems can be problematic. For instance, the United States uses headcount measure of poverty to determine the number of people that fall below the poverty line (Bell, 1995; US Department of Health and Human Services, 2007).

In this introductory chapter, I first discuss the policy analytical frameworks and historical account of poverty thresholds. I then present the statement of the problem, purpose of the study, and research questions. In the last section of the chapter, the significance of the study, definition of terms, and the organization of the next chapters are presented.

History of Poverty Thresholds

The United States poverty measure utilizes an income-based approach that defines poverty as a minimum amount of household income below the poverty line. There are two slightly different versions of the United States federal poverty measure, the Poverty Thresholds and Poverty Guidelines (US Department of Health and Human Services, 2009 & 2007). The poverty threshold is a set of money income thresholds that vary by family size and composition (based on ages and number of family members). Any family or individual whose total income falls short of the poverty threshold is regarded poor. The Census Bureau uses the same poverty threshold throughout the USA to determine poverty status. (US Department of Health and Human Services, 2009 & 2007).

The poverty guidelines are the second version of the federal poverty measure, which are released each year by the Department of Health and Human Services (HHS).

They are a simplified version (percentage multiples such as 150% or 1.5) of poverty thresholds that is used for administrative purposes by many government aid programs to determine the individuals' eligibility for certain federal programs (US Department of Health and Human Services, 2009 & 2007). The poverty guidelines do not vary geographically and they tend to be the same nationwide. Government aid programs do not usually use the poverty thresholds to determine their client's eligibility for public assistance. While the poverty thresholds are used to calculate the number of people in poverty, the poverty guidelines are used to determine people's eligibility for certain programs. Different percentage multiples of the poverty guidelines may be used to determine individuals' eligibility for programs. Some of the government aid programs use the simplified version of poverty thresholds, poverty guidelines, to determine individuals' eligibility for certain Federal programs including Head Start, the Food Stamp Program, the National School Lunch Program, the Low-Income Home Energy Assistance Program and Children's Health Insurance Program (US Department of Health and Human Services, 2007). On the other hand, the poverty guideline is adjusted to reflect the price of the calendar year (US Department of Health and Human Services, 2009 & 2007).

The history of this poverty measure can be traced to the work of Orshansky in the early 1960s (Bell, 1995; Fisher, 1992; Schiller, 2008; US Department of Health and Human Services, 2007; Weinberg, 1994). Mollie Orshansky first formulated the United States' poverty thresholds. Before Orshansky developed the poverty measure, the United States did not have any single officially acceptable definition and/or measurement of poverty. From 1899 up to 1946, the United States' measurement was based on "standard budgets", goods and services; a family of a certain size would need to live at a certain

level of well-being. In the early 1900s, the poverty line was below \$460 for a five-person family in the North and below \$300 for the same size family in the South. In 1949, a study commission by the Congressional Joint Committee on the Economic Report recommended the poverty line be \$1,000 for farm families and \$2,000 for nonfarm families. In the later years, the official poverty line was estimated and published from the 1960's US Bureau of Census and Current Population Survey based on the assumption that both small and large families had the same income level (Bell, 1995; Fisher, 1992; Weinberg, 1994).

Orshansky developed the United State's official poverty threshold at the time President Johnson declared war on poverty in the country. Orshansky, an economist who worked for the Social Security Administration (SSA), was initially interested in a project that became "Children of the Poor." Orshansky wanted to assess the relative risks of low income families with children (Bell, 1995; 1994; Fisher, 1992; Weinberg, 1994).

Orshansky used data from a 1955 Household Food Consumption Survey. She initially developed two sets of poverty thresholds. One threshold was developed based on the Agriculture Department's economic food plan, and the second poverty threshold was developed using the Agriculture Department's low-cost food plan. The low-cost food plan related to food patterns of families in the lowest third of the income range while the economy food plan cost about 75%-80% as much as the low-cost food plan. By computing food-cost to total expenditure, Orshansky estimated that food expenditure represented about one-third of total family income. Orshansky's poverty threshold is a combination of both absolute and relative definitions of poverty. She therefore described poverty as a "relative absolute" measure of poverty (Bell, 1995; Fisher, 1992; Weinberg,

1994). The absolute poverty thresholds are fixed at a point in time and are updated solely for price changes. On the other hand the relative poverty thresholds are developed by reference to the actual expenditures (or income) of the population. Orshansky defined poverty as more than one-third of total family income spent on food (Bell, 1995; Fisher, 1992; Weinberg, 1994).

The Office of Economic Planning adopted Orshansky's poverty thresholds in 1965 as a working definition of poverty for statistical, planning and budget purposes. The official poverty thresholds vary by family size and composition, but it does not vary geographically (Bell, 1995; Fisher, 1992; Weinberg, 1994). It is used to estimate the number of Americans in poverty annually (US Census Bureau, n.d.; US Department of Health and Human Services, 2007). Thus, the poverty threshold is a set of income indicators that varies by family composition (based on ages and number of family members), and any family or individual whose total income falls short of the poverty threshold is regarded poor (US Census Bureau, n.d.; US Department of Health and Human Services, 2007). For example, the 2006 poverty threshold indicated the following poverty thresholds: for one person under 65 years the poverty line was \$10,488, for a two-person family (person under 65 years with a child under 18) poverty line was \$13,500 and for a three-person family (two persons under 65 with a child under 18) poverty line was \$16,227 (US Department of Health and Human Services, 2007).

Statement of the Problem

Poverty and social policy research utilize a diversity of poverty definitions and measurements. A general examination of poverty policy and program evaluation studies reveals different conceptualizations and measurements of poverty and well-being. The use of different poverty measurements has been associated with different and/or contradictory outcomes (Bell, 1995; Laderchi et al., 2003). However, the choice of a particular definition and measurement of poverty has important consequences for the poor. According to Laderchi et al.(2003), the various conceptualizations and measurements of poverty may not point to same people as being poor, and this could lead to a particular policy consideration for poverty reduction. Laderchi et al (2003). and Hagenaars and Vos (1988) emphasized that the choice of a specific definition and measurement of poverty may result in different estimates of the determinants of poverty and evaluation outcomes for poverty programs. However, researchers and policymakers often prefer to adopt a particular definition of poverty based on the availability of data, political interest or historical justification (Behn, 1995, 2003). While the choice of a specific poverty indicator may have major consequences for poverty reduction, some indicators may be a better measure for a specific poverty situation (Hagenaars & Vos, 1988; Laderchi et al, 2003).

In particular, United States poverty policy and program evaluation outcomes are associated with different estimates of the poor and/or contradictory outcomes. This could be attributed to differences in the conceptualization and measurement of poverty and well-being. While some evaluation studies mainly focus on indicators of monetary poverty, other studies utilize either capability or social exclusion indicators to support

their findings (Hagenaars & Vos 1988; Laderchi et al., 2003). The rate of poverty is not only an important social indicator of well-being of the poor, it provides a useful tool that can shape social policy and target programs that benefit the poor.

While the American dream emphasizes a wide range of economic outcomes including educational achievement, good health, proper housing and material possessions, the United States official poverty measure focuses on the use of an absolute poverty line (Blank, 2007; Merton, 1968, 1938). Although Orshansky's 1965 poverty definition is fundamental to identifying poverty in the United States, it has been criticized as being far from the reality of the phenomenon and experience of poverty in contemporary society. Many socioeconomic changes have occurred over the years and the United States official poverty thresholds fail to capture those factors that affect families' poverty and well-being (Fisher, 1992; U.S. Bureau of Census, 2004).

The official poverty measure is noted to have both methodological and resource definition flaws (Blank, 2007; Dalaker, 2005). Methodologically, Orshansky estimated that food expenditure represented about one-third of total family income. Thus, the official poverty measure was calculated as three times subsistence food budget. In today's economy, less than one-third of total income is spent on food. A poverty threshold based on a simple commodity is inappropriate because it makes the threshold numbers more sensitive to the price of that food than the price of any other expenditure for low-income families. Blank argued that an increase in income or change in behavioral expectation will require changes in those things needed for an individual or families to fully participate in society. Blank also noted that the United States official poverty measure fails to fully capture low-income families' material deprivation.

While many poverty studies utilize the United States official poverty threshold, other evaluative studies tend to focus on indicators of capability and social exclusion poverty (Blank, 2007; Rank, 2004). The different dimensions of poverty add to the problem of choosing the appropriate poverty measure and indicators. What is the appropriate measure to estimate the incidence of poverty? In other words, what criteria of poverty should be used to define and measure poverty? Whereas the choice of a specific poverty measure may have major consequences for poverty reduction, some measures may better identify specific poverty situations than others (Hagenaars & Vos 1988; Laderchi et al., 2003). What is missing from previous studies is a comparative analysis of different poverty measures in the United States. Because there is no comparative study of the various poverty measures, it is difficult to tell which poverty measure is more appropriate for a given poverty situation. It is important to compare the different definitions and measurements of poverty and their policy implications for poverty alleviation.

Significance of the Study

As previously discussed, the conceptualization and measurement of poverty has important implications for targeting particular poverty situations for policy consideration. The choice of a particular poverty measure tends to capture people with different socioeconomic backgrounds as poor (Hagenaars & Vos 1988; Laderchi et al., 2003). While Orshansky's 1965 poverty definition is fundamental to identify poverty in the United States, it is far from the reality of the phenomenon and experience of poverty. Over the years many socioeconomic changes have occurred such that the United States official poverty threshold may not capture those factors that affect families' poverty and

well-being (Fisher, 1992; U.S. Bureau of Census, 2004). Current evaluative studies employ different poverty measures, but no comparative study on major poverty measures has been undertaken. This lack of research has created gap in the literature. This study will help to bridge this gap.

The findings from this research will have both academic and practical implications. As mentioned earlier, different poverty measures have different outcomes and policy implications. For this reasons, a comparative analysis of the different poverty measures will help to understand their outcomes and how demographic characteristics correlate with the different poverty measures. The study results will also serve as a reference for students and researchers. This study will be a valuable source of information for policy makers and institutions in the United States that seek to improve the lot of the poor. In regard to practical implications, answering the research questions to understand how different poverty measures influence poverty outcomes will help policy makers better design effective policies and programs.

Definition of Terms

The concept of poverty offers a broad spectrum of definitions and measurements. The perception of what constitutes poverty varies from society to society, and from time to time (Hagenaars & Vos, 1988; Jordan, 1996). Rank (2004) and Laderchi et al. (2003) also pointed out that poverty is dynamic such that its definition is shaped by different perceptions at different times. Laderchi et al (2003) provided four major poverty measures: the monetary poverty, the capability poverty, the social exclusion poverty, and the participatory poverty.

Monetary Poverty

Monetary poverty is a short fall of a family or personal income (consumption) below some minimum level of resources, a poverty line. Poverty is having less than an objectively defined (absolute minimum) resources in society. In this study monetary poverty is defined as total family or individual income before tax that is below a poverty line. The monetary poverty is measured at two levels. First, any individual in a household whose total income falls below the official U.S. federal poverty threshold is considered poor. Second, a person household whose total incomes falls below 1.5 times the poverty line is considered poor (US Department of Health and Human Services, 2007).

Capability Poverty

Capability poverty is a deprivation of or failure of a person to achieve or develop certain basic functioning (or capability), where basic functionings (capabilities) are considered a person's achieved abilities to adequately fulfill certain crucial roles at a minimal level (Laderchi et al., 2003). Nussbaum (2000) and Streeten et al (1981) underscored basic capabilities as basic needs for decent life that include health, nutrition, education, sanitation, water supply, and housing. In this study, capability poverty is operationalized in term of how well an individual is educated. Individuals who are not well educated are considered to be capability poor. I propose two levels of measure of capability poverty. First, individuals whose education attainments are 11 years or less of schooling (grade 11) are considered poor. Second, individuals whose education attainments are 12 years or less of schooling (grade 12) are considered poor.

Social Exclusion Poverty

Social exclusion is a situation whereby an individual who is geographically resident in society is discriminated against or excluded from participating in the normal activities of citizens in society, whether he desires to participate or not. Social exclusion poverty is the relative deprivation of a person or having less than others in society, as well as lack of certain commodities or services common to others in society. An individual may be discriminated against or excluded from the social, political or economic activity of society (Laderchi et al., 2003). The Luxembourg Income Study (LIS) defines and measures poverty internationally as half the real income of the median household. A person or family is considered poor when his income is below 50% of the median income of his country. The EU utilizes one-half (50% of) or less of the national disposable median income as an indicator of social exclusion poverty (Atkinson, 2002). An individual or family whose income is less than 50% of the national median income is considered poor.

In this study, social exclusion poverty is operationalized in term of median household income. Social exclusion poverty is measured at two levels. Using a narrow poverty level, households whose total income is below 50% of the household median national income (\$60,023.00) of the population aged between 39 and 48 are considered poor (US Bureau of Census Statistics, 2007). And using a broader poverty level, households whose total income is below 60% of the household median income of the population aged between 39 and 48 are considered poor.

Participatory Poverty

Participatory poverty is an experience of poverty defined by the poor themselves. The participatory approach to poverty does not provide a specific definition of poverty, rather it utilizes a Participatory Poverty Assessment (PPA), a form of participatory appraisal to assess and define poverty. It involves internal assessment of poverty by involving the poor to participate in decisions regarding their situations (Laderchi et al., 2003).

For the purpose of this study, only three of the poverty measures shall be considered: the monetary, the capability, and the social exclusion poverty. The participatory poverty is excluded from this study because it is defined and measured qualitatively. The current research employs quantitative methodology.

Purpose of the Study

While evaluative works on poverty policies and programs utilize different poverty measures (monetary, capability, and social exclusion poverty), there have been no studies comparing the different poverty measures in the United States. The purpose of the current study is to compare the different poverty measures to examine their outcomes and implications for poverty reduction.

Research Questions

The current study will examine how different poverty measures estimate poverty (target the poor) in the United States. This research aims to fill the gaps in the literature by answering the following four research questions:

Research question 1: Is there any relationship between the distribution of people in poverty and different poverty measures (monetary, capability, and social exclusion

poverty)? In other words, does the distribution of people in poverty depend on the poverty measures used?

Research question 2: Are the different poverty measures explained by the same predictor (explanatory) variables?

Research question 3: How differently do the predictor variables (demographic characteristics) predict a poverty measure?

Research question 4: Apart from the predictor variables (demographic characteristics), does region influence the outcomes of poverty measures?

Organization of the Study

In chapter 2, I review the theoretical and empirical research on theories of poverty and different poverty definitions and measures. I also discuss conceptual models and my research hypotheses. In chapter three, I review the research paradigm and discuss my research design, data source, the predictor and criterion variables, and the analytical methods.

Chapter 4 presents the results of the data analyses in two sections. In the first section, I report on the distribution of sample in poverty. The third section reports on the binary logistic regression analyses that identify the predictors associated with the different poverty measures. In chapter 5, I summarize and discuss the findings in relation to the stated research questions. Finally, I examine the limitations of the study and the implications for future research.

CHAPTER TWO

LITERATURE REVIEW

In this section, I review the theoretical and empirical research on theories of poverty, poverty measures and outcomes. Subsequently, I discuss conceptual framework of the different poverty measures, and the research hypotheses.

Theories of Poverty

Over the years, different perspectives regarding poverty influenced government welfare policy toward poverty reduction. Rank (2001) noted that understanding the real causes of poverty is important to enlighten our perspectives on the causes of poverty. According to Rank, our understanding of the causes of poverty could be grouped under three major factors: (a) individual factors, (b) cultural and neighborhood factors, and (c) structural factors.

Individual Factors

The individual factors that fuel poverty include individual attitude, human capital, and welfare participation (Gans, 1995; Rank, 1994; Schwartz, 2000). The theory of individualism is rooted in American values and belief in the free market system, a system thought to provide opportunity for all. The belief in individualism places much emphasis on individual hard work and responsibility to acquire basic needs including food, shelter and health care services (Rank, 2004). Generally, the United States is seen as the land of opportunity, where individuals are provided with vast opportunities to achieve the American dream of material prospect and success. The premise of the American dream stresses that talent, virtue and hard work can lead to success and that individual poverty is an individual failing due to lack of motivation (Rank, 2004). However, some studies

found little evidence to support this claim (Rank, 2004; Merton, 1957). These studies found that the poor tend to emphasize hard work, dislike for welfare system, and personal responsibility to refute a societal belief in the negative individual attitudinal cause of poverty (Rank, 2004; Schwartz, 2000).

The welfare programs have also been thought to cause work and marriage disincentives and dependence on government. The concept of welfare refers to a range of services that are provided to protect people in certain conditions that may include child poverty, sickness, and old age. In the United States, welfare refers to financial assistance to the poor. Some people, especially the Republicans, think that welfare is a re-distributive arrangement that violate individual rights. Welfare is therefore seen as forced taxation and theft (Rank, 2004). However, many studies carried out over the last 20 years have shown little evidence of welfare's association with work disincentive and family formation (Blank, 1997).

The theory of Social Darwinism also justifies people's experience with success or poverty on the basis of an individual's ability to survive. Social Darwinism is the extension of Darwin's ideas of natural selection and biological evolution to humans. Both Spencer and William Sumner employed Charles Darwin's theory of natural selection to argue for the primary cause of poverty in society (Hurst. 2004; James, 2006). According to Spencer and Sumner, social existence is a competitive experience among individuals who possess different natural abilities and traits (Hurst. 2004; James, 2006). They believe that those with better abilities are capable of being productive to survive while the weak will die off. Spencer and Sumner argued that the state and government should not intervene on the behalf of the poor because their poverty status is naturally ordained.

Lester Ward, who argues against social Darwinism notes factors other than individual abilities tend to promote poverty.

Spencer believed that natural selection through the process of social competition promotes purification of the social system (Calhoun et al, 2002; Wallace & Wolf, 1999). He argued that evolution serves a cleansing function that makes society more adaptable to its environment. The weakest die off while society's best and strongest survive. Spencer emphasized that society would get better as long as the individual, state and organization do not interfere with the natural course of social improvement. He pointed out that the social system is weakened when the weak are kept in society. However, Spencer overlooked the social structure that would develop from a free market economy and how this would affect individual's development in society (Calhoun et al, 2002; Hurst, 2004).

There is a contemporary application of Spencer ideology. Spencer's ideology is reflected in beliefs about poverty and welfare policies (Hurst, 2004). Conservatism embraces Spencer ideas. Spencer's idea determines national policies, funding and beneficiaries of welfare programs. Conservatism does not occupy itself with public issues of equality, freedom, social responsibility and general welfare. It is pulled towards private properties, profit, free market and survival of the fittest. Conservatives believe that social welfare should be provided to the disadvantages only when other sources of help have been exhausted, and even this in residual form. Welfare expenditures and programs are therefore kept at the minimum (Hurst, 2004; Schlesinger, 1949; Stone, 2002).

For instance, the periods of Conservative Rule (1869-1901), Republican Restoration (1919-1931), the Eisenhower Era (1952-1960) and the Reagan Era (1980-1992) were more absorbed in private affairs (Mandell & Schram, 2003; Schlesinger, 1949). They were characterized with conservatism that concentrated on private property, profit, and free market. There have been cutbacks in welfare program budgets. This is based on the assumption that welfare encourages the breakup of families while it discourages working. Many citizens of the United States who need support to develop their talents and skills do not have welfare support because of limited budget for welfare programs (Allard, 2007; Hays, 2005; Rainwater & Smeeding, 2003; Jansson, 2001). The failure of the society and government to assist and integrate the less privileged compelled some of the disadvantaged to resort to deviant behaviors. Such people tend to be social deviants, and they get involved in drug abuse, murder and armed robbery. The society is threatened with the practices of these deviant behaviors (Hurst, 2004; Schlesinger, 1949; Stone, 2002).

Cultural and Neighborhood Factors

The concepts of culture of poverty and social isolation provide frameworks that explain how poverty is created and maintained in some neighborhoods or among some groups. The cultural and neighborhood factors relate to the influence of people's residential environment that tends to shape poverty or success. Oscar Lewis first coined the term culture of poverty when he carried out a study on poverty in Mexico and Puerto Rico in 1961 and 1966 (Mandell & Schram, 2003; McIntyre, 2002; Lewis, 1966). The theory of culture of poverty is built on the assumption that both the poor and the rich have different pattern of values, beliefs, and behavioral norms. This theory argues that the

poor become poor because they learn certain psychological behaviors associated with poverty. Lewis mentions that the poor learn not to study hard, not to plan the future, to have unprotected sex, and to spend money unwisely. Lewis pointed out that poverty is transmitted from generation to generation because children are socialized with values and goals associated with poverty. The culture of poverty holds that the poor could fight and break away from poverty (Mandell & Schram, 2003; McIntyre, 2002; Oscar, 1966).

The culture of poverty significantly influenced social policy in the 1960s until empirical verification of the theory failed to hold (Rankin & Quane, 2000; Anderson, 1999; Wilson, 1987 & 1996). Wilson's (1987 & 1996) studies on the role of culture and social isolation led to the concept of ghetto-specific culture. The ghetto-specific culture explains the effect of social isolation and the concentration of deviant behavior among the underclass in inner cities. According to Wilson, the underclass in inner cities is socially isolated from mainstream behavior, and in the absence of economic opportunity tends to accept negative behaviors such as out-of wedlock birth, welfare dependence, and crime. These deviant behaviors make it difficult for the inner city underclass to get out of poverty.

The opportunity theory is a reaction to the culture of poverty. The opportunity theory of poverty argues that people are poor because they have limited human capital, as well as limited access to opportunities compared to the wealthy. According to opportunity theory of poverty, the social system is structured such that it favors some group to succeed. Merton (1957) pointed out that the American social system is structured to limit certain groups' access to resources. He argued that even though the United States social structure provides opportunities for people to achieve the American dream, disadvantaged and marginalized groups have limited access to economic

resources to achieve these goals. Gans (1971), Rank (2004), Mandell and Schram (2003) also argued against the theory of cultural of poverty. They criticized the culture of poverty for holding the poor responsible for their lots rather than social forces associated with poverty. According to Gans (1971) and Rank (2004), the blaming-the-victim ideology used by politicians often focuses on character defects of the poor rather than the primary cause of poverty. People use judgmental and behavioral labels to justify their accusation of the poor.

Darling (2002) and Rank (2004) noted that human capital can have major effects on an individual's risk of poverty or success. The literature indicates that human capital significantly affects people's earning, and consequently lack of human capital can place an individual at risk for poverty. According to Rank (2004) and Darling (2002), individuals with greater human capital are more likely to be competitive in the labor market than those who lack human capital.

Structural Factors

Larger economic and social structures have been found to account for poverty. Perspectives regarding structural factors argue that capitalism creates conditions that promote poverty. Beeghley (2000) noted the effect of economic structure stating that irrespective of individual effort (hard work, skill); the structure of the United States economy ensures that millions of people are poor. Specifically, the Davis and Moores' functionalist theory, labor market theories, and the social exclusion perspective threw more light on the structural causes of poverty.

The functionalist theory of social stratification argues that poverty is an important social, economic and political function for society in general, and for the middle and

wealthy classes in particular (Davis & Moores, 1945; Gans, 1972, 1995). On the basis of labor wages, functionalist theory accounts for the causes of poverty among certain people and groups in society. In their thesis, Davis and Moore emphasized the functional importance of some category of skills and knowledge in society. According to Davis and Moore, there are certain positions and functions in society that need special skills and knowledge for effective handling. They argued that conversion of one's talent into skills and knowledge requires a training period during which the individuals undergoing such training must sacrifice in some manner. Davis and Moore suggested that people should be motivated with higher wages and privileges to undergo this sacrifice and training, otherwise society will suffer. Thus, the wage of labor is proportional to the cost of training and individuals' sacrifice. Davis and Moore also argued that the existence of economic inequality and poverty as a result of labor-wage differential is justified (Davis & Moore, 1945; Grusky, 2001; Hurst, 2004). One major criticism of Davis and Moore's functionalist theory is the problem of how to establish the functional necessity of a task for a society. Although it is important to motivate people to develop their talent and skills, the wide labor wage differential between chief executive officers and ordinary worker has been condemned (Grusky, 2001; Hurst, 2004).

The labor-market theories focus on income and earning disparities to explain the major causes of poverty (Calhoun et al., 2002; Grusky, 2001; Hurst, 2004). Marx (1932) pointed out that every good (including labor) has an exchange value and that the value of a good is the proportion of human labor invested in its production. The same general law that regulates the price of commodities governs the wage or price of labor-power. One weakness of Marx's thesis is that he treats labor as a homogeneous abstract in the labor

market. However, in money economy the capitalist controls the distribution of reward system and they take more rewards themselves (Calhoun et al, 2002).

Neoclassical labor-market theory and Dual-labor-market theory are the main labor-market theories used to account for causes of inequality and poverty (Grusky, 2001; Hurst, 2004). The neoclassical labor-market theory assumes that there is a relatively free and open market in which the individual can compete for positions and those positions depend on individual's ability, effort and training. According to Hurst and Gruskly, the neoclassical labor-market theorists argue that people are rewarded in proportion to what they contribute in society. In addition, they argued that one's education, training, skill and intelligence are very crucial components of productivity in free market society, and that the more a person offers in the free market the greater he will be rewarded. They conclude that the differential supply of and demand for positions in free market society accounts for earnings inequality, and for that matter the experience of poverty by some people.

The neoclassical labor-market theory has been criticized by the dual labor-market theory. The dual labor-market theorists argued that the free market does not work perfectly as proposed by the neoclassical theorists. The dual-market theorists pointed out that other factors in a competitive society tend to determine individual positions and earnings in society. They point out that education and training programs often fail to reduce inequality and for that matter poverty. Furthermore, they argued that discrimination against minorities in the labor market works against the effective operation of the free market. The dual-market-theorists also added that extensive alienation among workers suggests that the free market model does not work.

Figart and Power (2002), and Blau and Kahn (2000) pointed out that certain features have been identified in the labor market that account for deviation from the general law of labor price determination. One important consideration is the influence of gender and race on labor price. Hurst (2004) documented variations in individual earnings and these differences being due to social factors such as gender and race.

Darling (2002) and Alkire (2007) noted that differences in human capital accounts partly in the earning gap. However, the differential earnings are due to some social factors such as gender and race. We see the connection between labor wage and gender or race, and it is socially constructed. Social constructionist such as Fischer (2001) stated that inequality is the result of an intentional construct, created and maintained by social institutions and policies. Grusky (2001) also articulated that “the human condition has so far been a fundamentally unequal one, indeed, all known society has been characterized by inequality of some kind” (p. 3).

Furthermore, certain demographic characteristics including race, gender, work disability, family size and structure, residence, and age are importance factors that can increase or decrease the risk of poverty. Generally, poverty rates are higher among single parent household, women, minority, household with large number of children, and families (Rank, 2004).

Marx (1932) pointed out that the growth of industrialization has led to a significant economic vulnerability of labors in the capitalist system. The concepts of exploitation and social exclusion are two phases of work-related experience used to explain the primary causes of poverty in industrialized countries (Bessie, 1995). While the concept of exploitation was used during the Industrial Revolution, the theory of social

exclusion replaced exploitation as the principal cause of poverty during the past few decades in the industrialized nations. Bessie (1995) pointed out that the practice and experience of exploitation interacts with social exclusion to promote poverty. However, Bessie noted that exploitation and exclusion are not completely independent of each other and that an increase in the experience of exclusion may reinforce exploitation of workers in the labor markets.

Marx utilized the concept of exploitation to explain the fundamental cause of poverty among workers during the Industrial Revolution (Calhoun et al, 2002; Grusky, 2001; Hurst, 2004). The Industrial Revolution was characterized by what Karl Marx termed exploitation of labor. During Industrial Revolution there was a great demand for the labor power of the poor. According to Marx, capitalists own the factors of production while proletarians hire their labor to capitalists. Marx (1932), however, emphasized that the poverty status of the worker is due to capitalist exploitation of the worker. Marx believed that although the worker is the center of production in any industrial setting yet the worker receives very little or no rewards. According to Marx, the profit that the capitalist makes is a derivative of the accumulated surplus of the workers' production, and the extent of the capitalist's profit is directly proportional to the surplus products created by the worker (Calhoun et al, 2002; Grusky, 2001; Hurst, 2004).. Marx argued that the capitalist accumulates more wealth and surplus through exploitation or dehumanization of the worker. Marx (1932) described the extent to which workers have been dehumanized by stating that "the worker sinks to the level of a commodity.....and that the wretchedness of the worker is in inverse proportion to the power and magnitude of his production", (as cited in Calhoun et al, 2002; p. 34). According to Marx, the

worker's poor quality of life is due to the capitalist's exploitation or alienation of the worker.

Marx underscored four main dimensions of exploitation or alienation. According to Marx a worker is alienated from his product, alienated from himself, from his fellow human beings and from the process of production. Marx emphasized that a worker's labor is external to him because it is not part of his nature. He suggested there is a constant struggle between the bourgeoisie (the capitalist) and the worker (the proletarian) in a capitalist society (Calhoun et al, 2002; Grusky, 2001; Hurst, 2004).

For the past few decades, the technological development of the Industrial Revolution caused workers' experience of exploitation to be replaced with the experience of social exclusion. The theory of exclusion explains the experience of marginalization of some groups in the United Kingdom and United States at the time of technological revolution (Jordan, 1996; Moulaert, Swyngedouw, & Rodriguez, 2003). The technological revolution placed more emphasis on knowledge as an essential element for employment over labor power. Less demand and dependence on labor power by industries caused polarization and marginalization of the disadvantaged in contemporary economy, especially in the capitalist economy (Bessie, 1995; Calhoun et al, 2002; Grusky, 2001; Hurst, 2004). According to Bessie, the concept of social exclusion is alienation or marginalization of certain group within a society, where the majority of the population has substantial economic or political or social opportunities. In the sphere of salary employment, people become excluded when they become unemployed, and this form of economic exclusion is the direct precursor of poverty. For instance, unemployment occurs when a person is excluded or discriminated against from

the labor market. Once a person is excluded from the labor market he is deprived of access to regular or good income. In the same way, when a person is denied equal access to property or credit or class status, or education, or standard of living or employment, his economic status is weakened toward becoming poor. A person's experience of unemployment can lead to loss of one's social class (Bessis, 1995).

Although, criticisms have been leveled against each of the theories of poverty, the varied ideologies put forth by the theorists evoke different clarification that enlightens our understanding of the causes of poverty. It seems the theory of social exclusion best captures the phenomenon of poverty. Unlike the other perspectives, the social exclusion perspective covers the processes, forms, causes, and effects of poverty.

Defining and Measuring Poverty

Poverty is a worldwide concern. Although there is a global concern towards poverty reduction, there is a little agreement on a single definition and measurement of poverty (Kotler, Roberto, & Leisner, 2006; Laderchi et al., 2003). According to Kotler et al. (2006) and Laderchi et al (2003), the problem of arriving at one single definition of poverty has been compounded by a number of factors. Poverty affects heterogeneous groups such that the concept of poverty is relative depending on different interest groups and individuals experiencing it (Kotler et al., 2006; Rank, 2004). The difficulty surrounding the definition and measurement of poverty has often led poverty researchers and policy makers to relate poverty to the concepts of impoverishment, deprivation, the disadvantaged, inequality, the underprivileged and the needy (Kotler et al, 2006; Hurst, 2004; Laderchi et al, 2003) underscored four main approaches to poverty definition and measurement.

Monetary Poverty

According to Laderchi et al. (2003), the monetary approach defines poverty in terms of how much a person's income (or consumption) falls short of some minimum level of resources. The monetary approach to poverty measurement involves methodologies that emphasize monetary indicators and an objective derivation of the poverty line. The monetary approach is based on the assumption that a uniform monetary metric can be used to control for the heterogeneity of all the individuals and their situations (Laderchi et al, 2003). Laderchi et al (2003) pointed out that determining poverty based on a monetary metric entails the choice of an indicator, a unit of analysis, and a poverty line.

A monetary indicator provides a common denominator of measurement for comparability (Laderchi et al, 2003). The dominant use of the monetary indicators to measure poverty is justified on the grounds that it can approximate aspects of poverty or well-being that are difficult to measure in the same unit. In addition, a monetary approach serves as a standard homogenous platform of poverty measurement that eases the tension between theoretical complexity and diversity of poverty definitions and measurements. The monetary approach emphasizes on the choice of income or expenditure indicator as a proxy for consumption as a proxy for permanent income. Laderchi et al (2003) suggested a weakness of the monetary approach is its focus on the physical or moral character of the poor rather than the real causes of poverty.

Traditionally, poverty is viewed as an individual problem, even though many of the causes of poverty can be traced to the household level. Laderchi et al (2003)

suggested poverty analysis should consider the household as a unit of observation and the results of the analysis can be presented either at the household or individual level.

The choice of a poverty line is crucial to poverty measurement. A poverty line may be identified either with respect to a list of basic needs (absolute) or some characteristics of the distribution of the welfare indicators chosen (relative) (Laderchi, 2003; Ravallion, 1998). Ravallion's Food Energy Intake method underscores the level of income or expenditure at which food energy requirements are met. The lack of economic theory to determine minimal level of needs caused the estimation of the poverty line to be influenced by political debates and policy agenda. Because the choice of poverty line has political influence and a lack of economic theory, the poverty line tends to be problematic and misleading (Laderchi et al., 2003).

Determinants of Monetary Poverty

Monetary poverty is measured as the total income or consumption proxy by either expenditure or income. In most developing countries and the United States, the absolute poverty line is used and food energy requirements are taken into account for the development of the poverty line (Laderchi et al., 2003; Ravallion, 1998). The United States uses a poverty threshold that considers only cash income before tax.

The poverty threshold is computed by putting a monetary value on the minimum amount of food a family or individual needs to survive. When a family or an individual's total income falls below the poverty threshold, then the family or individual is considered poor. The family or an individual's monetary poverty level is associated with family size, age, gender, race, place of residence, and marital status (Schiller, 2008; Hurst, 2004).

Rank (2001) underscored certain individual and household characteristics that are likely to make people susceptible to poverty. Rank's analysis of the patterns and dynamics of poverty in the United States, using data from the Panel of Income Dynamics (PSID), National Longitudinal Survey of Youth, and Survey of Income and Program Participation, revealed that typical households are usually poor for one or two years and then manage to get out of poverty for a while. Because these typical households are not far from the poverty thresholds, unfavorable economic conditions often throw these families back into poverty. According to Rank (2005), these households share certain characteristics that make them susceptible to and/or have difficulty to get out of poverty. Specifically, racial minorities in inner cities and families with large number of children experience chronic and periodic poverty for years (Rank, 2005 & 2001).

Schiller (2008) pointed out that an increase in family size has an important implication for family financial need and security. An increase in family size requires more demand for household services and goods such as an increase in family laundry and health care services. According to Schiller (2008), an increase in family size can be associated with an increased level of poverty. For instance, an increase in the number of children from one to five can triple the family poverty level. On the contrary, total family income is likely to increase with family size as more members of the family take up employment in the labor market.

A report on the 2003 poverty rate, using data from the Current Population Survey of the United States, revealed that a greater percent of nonmarried families fell below the federal poverty line than married families (US Census Bureau, 2004). For race, 10.5 % of Whites, 11.8% of Asians, 22.5 of Hispanics and 24.4% of Blacks fell below the federal

poverty level. With respect to age, 17.6% of people less than 18 years old fell below the federal poverty level, 10.8% of those 18-64 years old fell below the federal poverty level, while 10.2% of those 65 years and older were below the federal poverty level (US Census Bureau, 2004).

Fronczek (2005) also reported on the percent of subgroups with incomes below the federal poverty line based on data from the 2004 American Community Survey. He found 4.1% of men fall below the federal poverty line compared to 4.8% of women, 3.1% of married households fell below the federal poverty line, while 6.9% of nonmarried households fell below the federal poverty line. For race, 7.8% of Hispanics, 6.4% of Blacks, 3.6% of Asian and 3.4% of Whites fell below the federal poverty line. With respect to age, 5.4% of people who are less than 18 years old had income less the federal poverty line, 3.8% of those between 18-64 years old fell below the federal poverty line, while 5.9% of those who 65 years and older fell below the federal poverty line.

Capability Poverty

Capability poverty is the failure of a person to achieve basic capabilities to adequately fulfill certain crucial functions at minimal level (Laderchi et al., 2003; Saith, 2001; Sen, 1985).

The capability approach views monetary resource as means that that can help to enhance people's well-being. The monetary resource is viewed as a necessary, but not sufficient condition to prevent the casual chain of poverty (Laderchi et al., 2003). Therefore, the capability approach emphasizes both monetary resources and other resources to develop or achieve capabilities. Saith's (2001) literature review on capability poverty primarily focused on the work of Sen (1985). Sen argued that the monetary

approach emphasizes utility of a commodity and does not provide a good proxy to assess people's well-being.

Sen's (1985) capability approach provides a framework that can be used to assess inequality, poverty and individuals' or groups' well-being. Sen's concept of capability operates at two levels: at the level of realized well-being or outcome measured by functioning, and at the level of potential well-being or opportunity measured by capability. Functioning refers to a person's achievement while capability refers to the combination of various functions a person can achieve. Sen, as cited in Saith (2001), pointed out that a person's achievement or functioning is a better proxy for well-being. What a person successfully accomplished with a commodity is what matters, taking into consideration the characteristics of the commodity, the characteristics of the person and external circumstances. Alkire (2007) and Darling (2002) also highlighted that human capital or capability provides people with the necessary skill or ability to function well in society. Alkire (2007) and Darling (2002) noted that lack of human capability places an individual in a more economically vulnerable position when they face detrimental events such as loss of job, illness or family changes. Individuals with a high quality of human capital will do well in the labor market, according to Darling (2002).

Many empirical studies consider health, nutrition, education, sanitation, water supply, and housing as basic functions necessary for a decent life (Darling, 2002; Laderchi et al., 2003). Streeten et al (1981) underscored basic needs as shown in Table 1.

Table 1: *Basic Needs and Their Indicators*

Basic need	Indicators
Health	Life expectancy at birth
Education	Literacy Primary school enrollment at a percentage of the population aged five to fourteen
Food	Calorie supply per head or calorie supply as a percentage of requirement Infant mortality per thousand deaths
Water supply	Percentage of population with access to possible water
Sanitation	Infant mortality per thousand deaths Percentage of population with access to sanitation facilities

Determinants of Capability Poverty

According to Sen, (1985, n.d) and Gorman (1980) the development of a person's capability or achievement functioning can be expressed as

$$Q_i(X_i) = F_i[C(X), Z_i] \text{ where}$$

Q is the capability or state of being of the individual given the resource constraint

X.

F is the function that maps the characteristics of goods into the state of being.

X_i is the vector of commodities chosen by the individual C.

X is the standard budget constraint.

Z_i is the vector of personal, societal and environmental factors that affect the conversion of available resources into outcomes.

A capability model emphasizes the fact that the development of human capital or capability is influenced by availability of financial resources and other social or environmental factors (Sen, 1985, n.d; Gorman, 1980).

Schiller (2008) highlighted how personal investment in human capital such as education can operate as a strong mechanism that can influence the distribution of poverty. According to Schiller, educational achievement is a prime factor for distribution of poverty. Those who invest in education have a higher chance of getting out of poverty. The attainment of higher education can lead to greater productivity and earnings. Higher education can increase one's chance of employment and delay layoff from job. For example, during a relatively strong labor market in 2005, high school dropouts experienced 5.5% unemployment while the rate of unemployment for high school and college graduates is 4.2% and 2.2% respectively (US Bureau of Census, 2005).

In line with Sen (1985), and Darling (2002), Schiller (2008) mentioned that person capability or functioning, such as educational attainment, can be determined by a number of factors. Racial inequality, gender inequality, place of residence, and individual or family financial status influence educational achievement.

Studies show that there is association between level of family income and child developmental outcomes. According to Duncan et al. (1998), economic deprivation during the first five years of child development can lead to poor cognitive and physical development. Duncan et al. conducted a panel study of income dynamics of households in the United States to investigate the relationship between income and children completing schooling. Results of the study indicated a strong relation between family income and child's ability and achievement in early and middle childhood. A study conducted by Duncan et al. (1997) on poor and nonpoor children in the United States also revealed that children from poor families suffer 1.3 times more than nonpoor children in terms of learning disabilities and developmental delay. Results of the study also indicated

the dropped out rate of poor children high school in 1994 to be were twice that of nonpoor children. Poor children have also been noted to suffer emotional or behavioral problem 1.3 times as much as nonpoor children (Schiller, 2008).

Racial discrimination causes one-third of all minority to receive inferior education (Schiller, 2008). This observation was partly attributed to poor school facility as well as a sense of isolation and subjugation of these students. Consequentially, minority students who experience racial discrimination end-up with low educational achievement (Hurst, 2004; Schiller, 2008). Furthermore, Schiller noted that the financial constraints of poor families push their children to be enrolled in substandard schools. Even though some poor children demonstrate high level of academic achievement, they can not afford higher education due to lack of financial resources. Poor families may find it difficult to provide school clothes, lunches and supplies in order for their children to take advantage of free high school education. Thus, students from low socioeconomic backgrounds tend to drop out of school at greater rate (Schiller, 2008; Hurst, 2004).

Gender roles and expectations limit females' educational aspiration. Generally, females are encouraged to pursue Home Science courses while males are encouraged to become scientists. A person's place of residence also affects his educational achievement. A study by Jonathan Kozol on the educational facilities of the poor and the affluent discovered that minority neighborhoods in some part of the United States lack the facilities needed for a good education (as cited in McIntyre, 2002). According to Wilson (1987, 1996), the underclass in inner cities is socially isolated from the mainstream, and in the absence of educational and economic opportunities the poor accept dropping out of school, poor education and welfare dependence as normal. Lack of opportunity and

complacency make it difficult for the inner city poor to get out of poverty. Studies by Rankin and Quane (2000) also confirmed Wilson's findings.

Research shows a number of social and economic factors are associated with higher school dropout rates. Studies show a strong relationship between income, race, age, gender, and geography/region of residence and the rate of dropping out of school (Cataldi, Laird, KewalRamani, & Chapman, 2007; Kaufman et al., 2000).

Using data from the 2000 Current Population Survey, Kaufman et al. (2000) found that the high school dropout rate for Whites remained lower than the rate for Blacks, but over the past 30 years the difference between Whites and Blacks has narrowed, especially in the 1970s and 1980s. In addition, Kaufman et al. found that Whites and Asians/Pacific Islanders were more likely to complete high school than their Black and Hispanic peers. Asians/ Pacific Islander young adults had the lowest dropout rate compared to all other racial ethnic groups. Asians/Pacific Islanders had a dropout rate of 3.5% compared to 4.1% for Whites, 6.1% for Blacks, and 7.4% for Hispanics.

Social Exclusion Poverty

Social exclusion is a situation whereby an individual is denied the opportunity to participate in the normal activities of citizens whether he desires to participate or not (Silver & Miller, 2002). As a relational process, social exclusion theory view poverty as a declining participation and access to resources.

Laderchi et al. (2003) and Silver and Miller (2002) outlined the attributes of social exclusion: multidimensionality, dynamic, relational, active, relative and contextual. The multidimensionality of social exclusion refers to idea that the experience of exclusion exists in economic, social, and political forms. Olson (as cited in Jordan, 1996) noted that

people become vulnerable to poverty when they are excluded from a rent-seeking organized group within a market economy. He argued that poverty caused by mass unemployment in the 1970s was created by the collective action of special interest groups that marginalized others in the labor market. Furthermore, social exclusion occurs when a person or group is deprived of its social status. Usually individuals or groups are denied all of their social existence within mainstream society. When social exclusion occurs the individuals affected do not have an equal opportunity for jobs in the labor market (Bessis, 1995). In the political arena, social exclusion occurs when a certain groups including women and racial and religious minorities are deprived of part or all of their political rights. The multidimensional aspect of social exclusion also emphasizes to the causal connection between the different dimensions of exclusion.

Unlike the monetary and capability approaches, which focus on elements of deprivation, the dynamic attributes of social exclusion focus on the process and outcomes of deprivation. The dynamic process of social exclusion explains that some exclusion can lead to other form of exclusion, which in turn can lead to more exclusion and permanent multiple disadvantages. For example, lack of monetary income arises from lack of employment and social isolation. The dynamic attribute of social exclusion implies that exclusion has both current and future impacts (Laderchi et al., 2003). The relational aspect of social exclusion recognizes that social exclusion entails social isolation, rejection, lack of support and denial of participation for certain people or groups. In the United States, race and gender relationship are critical for understanding social exclusion and policy (Schiller, 2008; Hurst, 2004; Rank, 2004).

The concept of social exclusion has been used largely in the European Union's (EU) social policies (Laderchi et al., 2003; Atkinson, 2002). The EU considers social exclusion as a process by which individuals or groups are wholly or partially excluded from full participation in society. The EU adopts one-half or less of the national disposable median income as an indicator of social exclusion poverty (Atkinson, 2002). An individual or family income which is 50% of the national median income provides evidence of near poverty. Most empirical studies of social exclusion in western European countries operationalize social exclusion poverty as relative income or level of unemployment (Saith, 2001). These studies correlated median income or unemployment with different dimensions of exclusion (Josson, 1999; Paugam, 1996; Whelan & Whelan, 1995).

The Luxembourg Income Study (LIS) provided a useful database for comparative international studies on income, demographic, inequality, labor market and expenditure. According to the LIS' definition, poverty is defined and measured internationally as half the real income of the median household. It is the income of the household at the exact middle of the income distribution, adjusted for inflation of the respective country. A person is classified to be poor when his adjusted household income is below 50% of the median income of his country. The household income is adjusted for using the Organization for Economic Corporation and Development's (OECD) procedure, where $W = H / (\text{head of household} * 1 + \# \text{ of adult} * 0.7 + \# \text{ of children} * 0.5) ^ .5$. Where W= adjusted household income and H = total household income.

The LIS' international definition of poverty has been used by many international development agencies for comparative international study on income inequality, gender

and child poverty (LIS, 2006; Maas & Wiepking, 2004). Janet (2004) noted that many researchers in the past two decades used the LIS data to analyze women's economic status, income poverty, and gender inequality in comparative international studies.

Determinants of Social Exclusion Poverty

As previously mentioned, in this research social exclusion poverty is operationalized in terms of median income. It is the relative position of the individual in society with regard to their median income. Any person or family whose income falls below a group or population median income is considered poor. Social exclusion research has emphasized median income as an appropriate proxy to analyze the experience of social exclusion poverty (Atkinson & Hills, 1998). Schiller (2008) argued that a person's participation in the labor market does not necessarily assure financial success. According to Schiller, although persons with the same educational qualifications work the same jobs, earning disparities exist. The real earning of a worker depends on a number of variables that may include nature of job, age, work experience (employment), education, race, gender and place of residence.

Josson's (1999) analysis of the experience of social exclusion in welfare states found that minority subgroups, especially women or Blacks, are likely to be socially excluded in a gendered society. Studies conducted by Atkinson in eight European countries in the late 1970s and 80s to assess the relationship between income poverty and unemployment indicated a positive association (Atkinson & Hills, 1998). Kuhn, LeBlanc and Gundersen (1997) predicted the effects of unemployment on the poverty rate using annual data from 1971 to 1995. The results of the study indicated an increased poverty rate with decreasing income of poor persons.

Recent research on labor market processes found that variations in individual earning are due to people's characteristics and job type (Schiller, 2008; Hurst, 2004). According to Schiller and Hurst, some jobs are more remunerative than others. White collar jobs, including professional and technical workers, managers and administrators, sale and clerical workers, are better paid than blue collar jobs. Blue collar jobs, including craft workers, operators, transport drivers and nonfarm workers, are also better paid than service workers. Farm workers are generally paid a low wage.

A report released by the US Bureau (2005) indicated an increase in national poverty rate from 12.5 to 12.7% between 2003 and 2004. At the same time the national unemployment rate fell from 6.0 to 5.5% (Cadena & Sallee, 2005). Nationwide, the Midwest was the only region that indicated a statistically significant increase in poverty. Cadena and Sallee analyzed the unusual increase in the poverty rate in the midst of increased employment. The findings of the study revealed that in the Midwest employment fell significantly in higher wage sectors including manufacturing, education, and health while employment increased in low wage sectors such as leisure and hospitality between the 2003 and 2004. The researchers concluded that the increase in the poverty rate could be attributed to greater increase in low paying jobs.

It is important to note that occupational disparities exist when we look at different subgroups' access to certain job categories. White workers are more likely than minority workers to hold white collar jobs. Those subgroups that have greater access to white collar jobs are more likely to have greater annual earnings (Schiller, 2008; Hurst, 2004). According to social exclusion theory, the social system is structured such that it tends to favor some groups. Merton (1957) suggested that the American social system is

structured to limit certain groups' access to resources. He argued that even though the United States' social structure provides opportunities for people to achieve the American dream, disadvantaged and marginalized groups have limited access to economic resources to achieve these goals.

A study by Schiller (2008) showed that women and Blacks are paid less than their male and White counterparts, respectively. A report by the U.S. Bureau of Census (2008) revealed women earned less than men even at the same level of education and occupation as shown in Table 2. White workers also received higher wages than their Black counterparts (see Table 3).

Table 2: *Median Earnings (12 Months) of Full-time Occupational Category and Sex*

Occupation	Men	Women
Management & professional	\$75, 500	\$47,500
Construction	\$38, 823	\$36, 593
Service occupation	\$35,504	\$26,166
Farming, forestry and fishing	\$27, 854	\$23, 621

Source: US Bureau of Census (2008). Income, earning and poverty data from 2007 American Community Survey.

Table 3: *Median Earnings (12 Months) of Full-time Wage and Salary Workers by Race and Sex*

Race	Male	Female
White	\$50,139	\$36,398
Black	\$35,652	\$31,035
Hispanic	\$29,239	\$25,454

Source: US Bureau of Census (2008). Income, earning and poverty data from 2007 American Community Survey.

Fronczek (2005) reported median earnings by sex and race. The data from the 2004 American Community Survey revealed men have a greater median income compared to women. In addition, Asians had the highest earnings followed by Whites, Blacks and then Hispanic (U.S Bureau of Census Statistics, 2007). Analysis of 2007 data from a household survey of workers' full-time wages and salary revealed that in general, men earn more than women (US Bureau of Census, 2008). Using data from the Current Population survey of the United States, Schiller (2008) reported the 2003 income at the top 5% indicates that Asian had the highest income followed by White, Hispanics and Black households, respectively.

Conclusion

Each of the three different kinds of poverty holds different assumptions regarding the definition and measurement of poverty. Some empirical evidence indicates that the three poverty measures do not identify the same people as poor (Laderchi et al, 2003).

Comparatively, a monetary poverty fundamentally considers households or individuals and their disposable resources as isolated units in a given economy (Saith, 2001). Unlike the income poverty approach, capability poverty tends to focus on people rather than on goods. Capability poverty emphasizes the need to assess individuals' level of capabilities in relation to well-being or poverty. Both the monetary and capability poverty perspectives view the individual poor as independent person in a free market system (Saith, 2001). Contrary to the monetary and capability perspectives, social exclusion perspective views individuals or households' poverty status in a relative term. Social exclusion poverty identifies the individuals' or households' vulnerability as dependent on the resources of both the individual and the larger community. Thus,

whereas monetary and capability poverty focus on individual circumstances, the social exclusion analysis examines the structural characteristics of society and the structure of groups. Of the experience and perspective of persons and households as isolated entities, or interdependent members of society, is well articulated in Stone's (2002) market model.

A contrast between the three different types of poverty is necessary for policy consideration to address particular poverty issues. Unlike the monetary and capability approaches, the social exclusion approach focuses on the fundamentals, causes, processes, forms, and outcomes of poverty (Laderchi et al., 2003). Specifically, social exclusion poverty is more concerned with group and structure characteristics that are responsible for poverty. According to Laderchi et al (2003), the monetary poverty measure is the dominant paradigm in research and policy arenas. However, the limited empirical consistency of the monetary poverty approach indicates the false impression of it being considered the most accurate of all the other approaches. Because monetary and capability poverty are basically individualistic, welfare policies often tend to ignore group characteristics. Both monetary and capability poverty tend to focus on individual access to resources. Laderchi et al (2003) suggested that monetary poverty often suggests poverty solutions that emphasize increasing incomes (by economic growth).

Description of the Conceptual Framework

As stated in chapter one, I was interested in examining how the different poverty measures estimate poverty outcomes in the United States. According to Rank (2003), understanding the real causes or major predictors of poverty has been shaped by different theories and concepts of poverty. However, differences in the theories and concepts of poverty can be attributed to varied theoretical assumptions that tend to shape the

fundamentals of the main poverty measures including monetary, capability and social exclusion poverty measures (Blank, 2007, Laderchi et al., 2003; Bell, 1995). Considering the different underlying assumptions regarding the definitions and measurements of poverty, Laderchi et al (2003) points out that the various conceptualizations and measurements of poverty may not point to the same person as being poor. Thus, the use of different poverty measures may be associated with varied and contradictory outcomes (Blank, 2007, Laderchi et al., 2003; Bell, 1995).

Based on the theoretical framework and models of poverty definitions and measurements, I utilize a conceptual framework that demonstrates the linkage between theory and concepts, predictors and the different poverty measures (Figure 1).

The conceptual framework, Figure 1 shows that:

1. Different theories and concepts tend to shape the determination of predictors as well as the operationalizations and measurements of poverty types.

2. The different poverty measures result in different estimates of population sizes of those considered as being poor. Although the three poverty measures are different, they do overlap to capture a size of the population as poor. They also result in information and conclusion discrepancies, which in turn may have serious policy implications

3. Predictor variables anticipated to be associated with all the three poverty measures are family size, family structure (marital status), age, race, gender, and place of residence.

4. What distinguishes one poverty measure from another is each measure unique poverty definition and defined threshold levels (Schiller, 2008; Laderchi et al, 2003).

As noted by Blank (2007), Laderchi et al. (2003), and Sen (1976), a poverty line is an important aspect of poverty measurement because it conveys useful information about the theoretical and political conceptualization and measurement of poverty. Individuals or households with resources below the poverty threshold are considered to be poor and those with resources above the poverty line are not poor.

5. The standards used to set the poverty line vary with each poverty measure such that the three poverty measures may not capture the same people as poor. Therefore, understanding the three poverty measures is crucial to poverty policy/ program formulation and analysis (Laderchi et al., 2003).

6. The monetary poverty measure sets the poverty line by focusing on an absolute standard. The absolute poverty line is a fixed cut off point of resources (income). Initially, the absolute poverty line is calculated based on studies such as food budget studies in the case of the United States. Once the absolute poverty standard or line was established, it remained unchanged (even though provisions are made for changes in price level) in the times of growing economy (US Department of Health and Human Services, 2007, 2009). In this study, the monetary poverty measure is based on the United States federal poverty level and is set at two levels, federal poverty threshold and guideline.

7. Unlike the monetary poverty, the social exclusion poverty measure sets the poverty line based on a relative approach. The social exclusion poverty defines the poverty threshold relative to the average living standard of the people (Schiller, 2008; US Department of Health and Human Services, 2007, 2009). Thus, social exclusion poverty points to the position of the individual in relation of others in society. The relative

poverty threshold is fixed as a certain percentage or proportion of some central summary statistic, such as the mean or median, of the population income or resource (US Department of Health and Human Services). While the absolute poverty line is set based on previous data, the relative poverty line is set utilizing current survey data, according to the US Department of Health and Human Services. In this study, social exclusion poverty threshold was based on the Luxembourg Income Study (LIS) standard, median income and is measured at two levels.

8. Unlike the monetary poverty and social exclusion poverty measures, the capability poverty measure utilizes a nonincome based approach. The capability poverty approach defines the poverty line in terms of educational achievement or how well a person is educated (Saith, 2001). The capability poverty threshold is defined as the end of specific years of schooling. However, the educational threshold is set by matching total income to educational level.

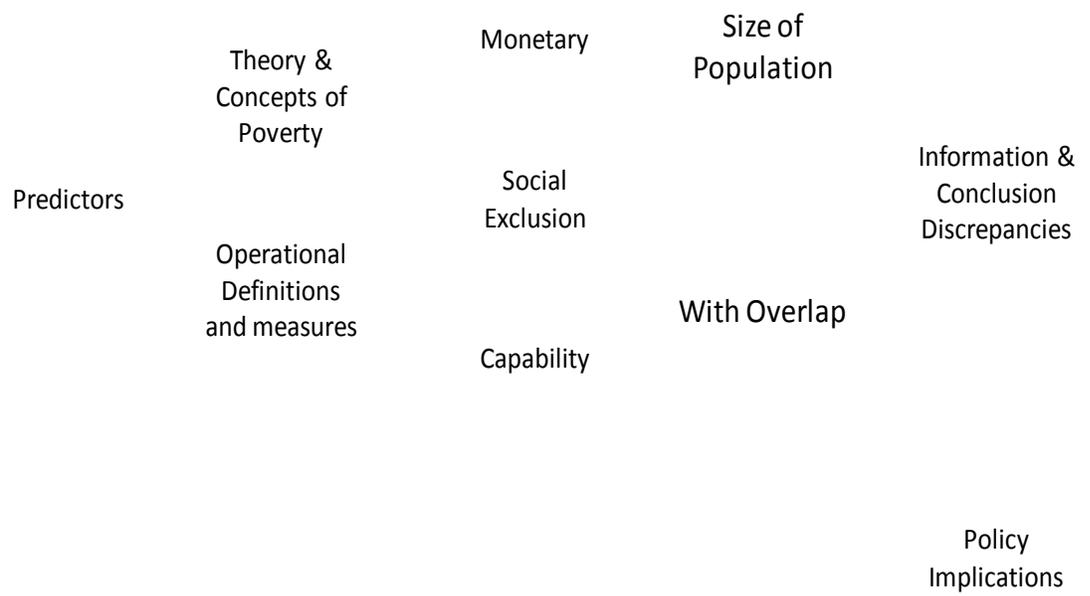


Figure 1. Conceptual framework of monetary, capability, and social exclusion poverty.

Hypotheses: Predicting the Three Poverty Types

Laderchi et al. (2003) and Bell (1995) pointed out that different poverty measures may be associated with different poverty outcomes. The choice of a particular poverty measure has important consequences for targeting the poor population as well as formulating the appropriate poverty policy.

Schiller (2008), Rank (2004), Hurst (2004), and the US Bureau of Census (2004) found that monetary poverty may be determined by family size, age, gender, race, place of residence, and marital status. Similarly, capability poverty such as educational achievement (how well a person is educated) may also be influenced by family size, age, gender, race, place of residence, and marital status (Schiller, 2008; Darling, 2002; Sen, 1985). Social exclusion poverty is likely to be predicted by family size, age, gender, race, place of residence, and marital status (Schiller, 2008; Rank, 2004; Hurst, 2004).

While family size, age, gender, race, place of residence, and marital status are more likely to predict the outcomes of the three poverty measures, there are no comparative studies that explore the relationship between demographic characteristics and the different poverty measures. Although I am hypothesizing that demographic characteristics predict the three different poverty measures, such a relationship may not exist. Knowing which determinants have a direct influence on the different types of poverty will allow policy makers to address issues that matter to the poor. In this study, I answer the four research central questions by examining four associated research hypotheses:

Hypothesis 1: It is hypothesized that there are discrepancies in estimating the distribution of people in poverty if different poverty measures are applied.

Hypothesis 2: It is hypothesized that the three poverty measures are explained by the same predictor (explanatory) variables.

Hypothesis 3: It is hypothesized that the predictor (explanatory) variables have the similar effects (similar odd ratios) on the three poverty measures.

Hypothesis 4: It is hypothesized that regional variation influences poverty outcomes.

CHAPTER THREE

METHODOLOGY

In this chapter, I review the research paradigm and design, data source, sampling procedure, and issues with missing data. I then discuss the criterion and predictor variables and how they are operationalized and measured, as well as the method of data analysis.

Research Paradigm and Design

Most of the previous studies on poverty measures employed a quantitative research methodology which measured the relationship between criterion and predictor variables. Most of these studies involved trend studies, as well as correlation and regression analysis (Atkinson & Hills, 1998; Blank, 2007; Cadena & Sallee, 2005; Rank, 2004). A quantitative approach is a systematic investigation of quantitative properties and their relationship using mathematical models. The process of measurement is fundamental to quantitative research inquiry because it allows the relationship between dependent and independent variables to be determined (Burns, 2000; Mertens, 2005; Monette et al., 2002; Sullivan, 1992).

The current study will utilize the quantitative research approach. The quantitative approach is based on the methodological principles of post-positivism. A choice of quantitative research methodology based on post-positivist paradigm is best suited for my research questions and hypotheses because the current study seeks to understand objective reality to explain relationships between dependent and independent variables. With the quantitative approach, the researcher can analyze data by means of statistical

methods to find the relationships between the various variables (Maxwell, 2005; Martens, 2005; Monette et al, 2002, Burns, 2000; Sullivan, 1992).

According to Monette et al. (2002), Burns (2000) and Sullivan (1992), most theories are built on the epistemological assumption that the world can be understood through science, or the human capacity to observe and reason. The post-positive paradigm is a research paradigm that holds that the world exists independent of people's perception, and that science can use objective techniques to discover factors that compel human behaviors or social actions. Post-positivism assumes basic consensus exists in society. It views society as an orderly system, and suggests that social reality (truth) can be determined with some level of probability (Burns; Guba & Lincoln, 1989; Monette et al.; Patton, 2002).

Because post-positivism relies on probability to predict objective reality, it requires the researcher to strive for objectivity. The researcher tends to manipulate the study environment in order to achieve the objective reality. In addition, the researcher tries to detach his values during a study to discover the objective reality (Burns, 2000; Guba & Lincoln, 1989; Monette et al., 2002; Patton, 2002). Thus, the quantitative research method employs variance theory which allows the relationship between the independent and dependent variable to be explored and conclusions drawn for the entire population.

The use of quantitative analysis in this study will allow me to control the effect of variables on dependent variable and predict relationship between the independent and dependent variables (Burns, 2000; Mertens, 2005; Monette et al., 2002, Sullivan, 1992). However, to establish a cause-effect relationship between dependent and independent

variables, a researcher needs to satisfy three essential criteria: temporal precedence, covariance of cause and effect, and no plausible rival explanations (Monette et al, 2002). To establish temporal precedent, the researcher needs to show that the independent variable occurs first before any change occurs in the dependent variable. The second criterion, covariation of the cause and effect needs to be established. It is possible that other factors or threats to internal validity may cause change in the dependent variable. Therefore, the researcher also needs to rule out that change in the dependent variable is not caused by other factors other than the independent variable for a casual assertion to be made (Monette et al, 2002)..

A true experimental design allows researchers to control the effect of variables on dependent variable in order to establish a cause-effect relationship between dependent and independent variables. The current study does not utilize a true experimental design. The researcher will use a nonexperimental technique and regression analysis to achieve statistical control (Burns, 2000; Mertens, 2005; Monette et al., 2002, Sullivan, 1992).

Data Source

This research will utilize data from the 2004 National Longitudinal Study of Youth, 1979 (NLSY79) from the US Department of Labor (2006). The 2004 data survey was the 21st wave of the panel, the NLSY79. Data from 2004 were selected because the data set contains those variables and information needed for the current research which is not captured in other data sets. Furthermore, in 2003 and 2004, and the United States economy was relatively stable. The NLSY79 is a longitudinal cohort study that was first conducted in 1979.

The NLSY79 is a panel study of the life course experiences of a large cohort born in the United States in the late 1950s and early 1960s (US Department of Labor, 2006). The major data elements, as well as the primary foci of the NLSY79 survey, cover variables on labor market experience, work experience, characteristics of jobs, human capital and socioeconomic factors, education, household, financial characteristics and program participation, educational, and occupation. Each round of the NSLY79, including the 2004 survey, contains core sets of questions on the above mentioned variables (US Department of Labor, 2006). The survey instrument for this research is included (see Appendix A).

Sampling Procedure

The National Opinion Research Center (NORC) at the University of Chicago developed a list of housing in selected areas of the United States in 1978 for the first sample of the NLSY79. The sample was selected through a multi-stage stratified area probability sample of dwelling units and group quarter units. Thus, the respondents are a multi-stage, stratified sample from the 50 States, the District of Columbia and other countries (mainly those military on official public assignments outside the US).

The NLSY1979 is a national representative sample of 12, 686 young women and men aged 14 to 22 when they were first interviewed in 1979. The NLSY79 samples consist of three subsamples:

1. A cross-sectional sample of 6,111 youths designed to be representative of noninstitutional civilian youths living in the United States in 1979 and born between January 1, 1957, and December 31, 1964 (ages 14 to 21 as of December 31, 1978),

2. A supplemental sample of 5,295 youths designed to oversample civilian Hispanic, Black, and economically disadvantaged nonBlack/nonHispanic youths living in the United States during 1979 and born between January 1, 1957, and December 31, 1964, and
3. A military sample of 1,280 youths designed to represent the population born between born between January 1, 1957, and December 31, 1961 (ages 17 to 21 as of December 31, 1978), and enlisted in one of the four branches of the active military forces as of September 30, 1978.

In 2004 the retention rates for the NLSY79 respondents was 76.9% ($N = 7661$). The subsample included 4686 in the cross sectional sample, 2818 in the supplementary sample, and 157 in the military sample (US Department of Labor, 2006). The 2004 interview was conducted between January 2004 and February 2005. Prior to the interview, the NORC office sent a reminder letter to each respondent about the upcoming interview. Personal and telephone efforts were the primary contact methods with telephone contact accounting for 82.8% ($n = 6497$). The interviews were administered using a laptop computer and an electronics questionnaire that captured responses (US Department of Labor, 2006). The Computer Assisted Personal Interview (CAPI) helped to eliminate problems associated with questionnaire booklets. The CAPI program automatically selected the question, and thus prevented the interviewer from entering values out of range. No data transcription was needed with the CAPI (US Department of Labor, 2006).

The respondents were given a monetary incentive of \$40 upon completion of the interview. The incentive was in line with social exchange theory that the use of monetary

incentives in a survey can induce a norm of reciprocity (Blau, 2004). The final data set was weighted to ensure that each stratum is proportionally represented (US Department of Labor, 2006).

Missing Data

The number of respondents interviewed in 2004 was 7661. However, there are few missing values in the survey data that resulted in a slightly smaller than the original sample size for some of the responses. Out of the 7661 responses for the highest grade completed has three (0 %) missing values were lost due to invalid skip during data recording. Another three values (0%) for the responses of marital status were lost due to invalid skip. This leaves a sample size of 7658 for the highest grade completed or marital status. The response for place of residence has 65 (0.8%) missing values mainly due to invalid skip during data recording. This results in a total sample size of 7596 for place of residence. The response for race has 577 (7.5%) missing values due to respondents' failure to answer those responses. This resulted in a sample size of 7084.

Because the proportion is relatively small, I excluded those missing values in the data analysis (Monette et al., 2002). In regard to total family income, 1032 (13.5%) values are lost mainly due to respondents' refusal or failure to provide responses. This has resulted in a total sample size of 6629 for the total family income. Considering the reasonable amount of missing values in the responses for the total family income, mean imputation might be required for those values (Allison, 2002; Monette et al., 2002). Because the total family income is the dependent (criterion) variable, I did not impute for those missing values.

The socioeconomic characteristics of the survey sample and the national population based on the 2004 American Community Survey (ACS) were compared to examine the extent to which the sample matched up well with the national population of the United States (see Table 4). The sample survey is a general representative of the national population in term of socioeconomic characteristics that included sex, educational achievement, family size, and family income (US Bureau of Census, 2007). The difference in the media age between the survey sample and the 2004 ACS could be due to narrow age range of the cohort sample. There is also inconsistency in the race distribution between the survey sample and the 2004 ACS. This limitation will be considered in the interpretation of the results.

Table 4: *Characteristics of United States National Population and Survey Sample*

	2004 ACS National Population (%)	Survey Population
Sex (18years and over)		
Male	48.20	48
Female	51.80	52
Age (18 years and above)		
Median Age*	36.2 years	43 years
Race		
White	67	46.9
Black/African American	13	32.0
Asian	5	0.7
Hispanic	14	16.9
Native American, Hawaiian Native & other P.I	1	3.5
Educational Attainment		
Population 25 Year and Over		
Less than Associate Degree	66.20	63.10
Less than Bachelor Degree	73.20	78.40
Graduate/Professional Degree (& some graduate work)	9.90	9.70
Median Family Income*	\$60,023	\$50,000
Average Household Size*	2.60	3.00

* The figure is not express in percentage

*\$60,023 is the weighted 2004 household median income of the population aged between 39 and 48

Measurement of Predictor Variables

One objective of this study is to identify those predictor variables associated with the three poverty measures. Literature and previous research indicate family size, age, gender, race, place of residence, and marital status as most influential on a person's experience of poverty (Hurst, 2004; Rank, 2004; Schiller, 2008).

I anticipate that demographic characteristics including indicate family size, age, gender, race, place of residence, and marital status will be associated with the three poverty measures

Gender and Race

As discussed in chapter 2, gender and race are social factors that can increase or decrease a person's risk of poverty. Gusky (2001) and Hurst (2004) note that differential earnings in the labor market are due to gender and race. Female and minority workers are poorly paid than their male and majority counterparts. Poverty rates tend to be higher among women and minorities.

Gender and race as predictors of poverty suggest that women or racial minorities are more likely to experience any dimension of poverty. Hurst (2004), Rank (2004), and Schiller (2008) noted that discrimination among women or racial minorities in education or the labor market can lead to low educational achievement or low income distribution. A study on poverty for different races indicated higher rate of poverty for minorities than white (Rural Development Resource; USDA Economic Resource Service, 2004). The poverty rates in 2002 for non-Hispanics and Blacks (33%) and Native Americans (35%) were more than three times the nonzero poverty rate for non-Hispanic Whites (11 %) (Rural Development Resource 2004; USDA Economic Resource Service, 2004).

To understand how gender influence educational achievement or income distribution, the respondents were asked to indicate their gender. The response category for gender was dichotomous variable with 1=male, 2= female. Gender was recoded with female scored 1 and male scored 0. Out of the 7661 responses, 52% were female and 48% were male.

To understand how race can affect a poverty measure, the respondents were asked to indicate their race. The responses for race had a long list of different race/ethnicity. The distribution for race has been recoded with 1= White, 2= Black, 3= Hispanic, and 4= others (Asian, and Alaska Native). Out of the 7084 responses, 46.9% were White, 32.0% were Black/African Americans, 16.9% were Hispanic/Latino and 4.2% were others (Asian, and Alaska Native) (Table 5).

In order to estimate the effect of race on a poverty measure using a binary logistic regression, dummy variables were set up for the race distribution as: White is coded 1, all else 0; Black is coded 1, all else 0; Hispanic is coded 1, all else 0; and Others is coded 1, all else 0. White was the omitted reference group in the multivariate analyses.

Table 5: *Respondents Race/Ethnicity*

Race/ Ethnicity	%
White	46.9
Black/African American	32.0
Hispanic/Latino	16.9
Others	4.2
Total	100.0

Age

According to Schiller (2008), life cycle is a prime factor of income mobility. Life cycle may show U-shape relationship with regard to income. Generally, young people have low income because their early experience in the labor market starts with low income and fewer hours of work. As individuals age, there is gradual gain in education, work experience and labor network. Thus, the income distribution of the individuals increases with time. Later in life as individuals move toward retirement, work hours and income tend to decline. Current literature suggests that age discrimination or aging has a discouraging effect on the overall investment in human capital. Human capital investment in younger people is more likely than in older people (Caputo, 2002; Walker, 2000). Respondents in this study were asked to indicate their current ages. The minimum and maximum ages were 39 and 48 respectively. The average and the median ages were both 43 years. Many of the respondents (56.4 %) were in the early forties (up to 43 years).

Urban/Rural Place of Residence

Research shows that rural residents generally have lower income or education than their urban counterparts (Rural Development Resource, 2004; USDA Economic Resource Service, 2004). In the United States the poverty rate is the highest in completely rural counties with 16.8 % of the population being poor. Research also reveals that minorities residing in inner cities can experience high rate of poverty (Rankin & Quane, 2000; Wilson, 1987 & 1996). According to Wilson (1987 & 1996), social isolation of inner cities minorities from mainstream behavior and absence of economic opportunity are known to be associated with persistent of poverty.

In order to investigate this claim, respondents were asked to indicate their current residence in a Standard Metropolitan Statistical Area (SMSA) as defined by the Census.

The responses were categorized as: 1= Not in SMSA, 2= SMSA, not in central city, 3= SMSA, in central city, 4= SMSA, central city, not known. Out of 7596 responses, 18% is not in SMSA (Table 6). 50% of respondents lived in SMSA, not central city and 32% of the respondents lived in SMSA, in central.

In order to estimate the effect of place of residence on a poverty measure using a binary logistic regression, dummy variables were set up for the distribution place of residence as: Not in SMSA is coded 1, all else 0; SMSA, not in central city is coded 1, all else 0, SMSA, in central city is coded 1, all else 0. SMSA, not in central city was the omitted reference group in the multivariate analyses.

Table 6: *Descriptive Statistics on Rural and Urban Residence*

Place of residence	%
Not in SMSA	18.0
SMSA, not in central city	50.0
SMSA, in central city	32.0
Total	100.0

Family Size

As discussed in chapter 2, larger family size is associated with lower income and educational attainment (Hurst, 2004; Schiller, 2008). To investigate these claims, respondents were asked to indicate their family size. The minimum and maximum family sizes were 1 and 15 respectively. The average and the median of the respondents' family

size were both 3. However, the majority of the respondents (83 %) had a family size not more than 4.

Marital Status

Married persons are expected to be less prone to poverty than those who are not married. The respondents were also asked about their marital status, and the responses were coded as: 1=Never married, 2=Married, 3= Separated, 4=Divorced and 6=Widowed. Out of 7659 responses, 17.6% never married, 58.2% was married, 5.0% was separated, 18.0% was divorced, and 1.2% was widowed (Table 7). In order to perform binary regression analyses, dummy variable were set up for the distribution of marital status as: Married was coded 1, all else 0; Never married was code 1 all else 0, Separated was code 1, all else 0; Divorced was code 1 all else 0; and Widowed was code 1, all else 0. Married was the omitted reference group in the multivariate analyses.

Table 7: *Descriptive Statistics on Marital Status*

Marital status	%
Never married	17.6
Married	58.2
Separated	5.0
Divorced	18.0
Widowed	1.2
Total	100.0

Operationalization and Measurement of Criterion Variables

In this section, I discuss how the criterion variables, the three different poverty measures, including monetary poverty, capability poverty, and social exclusion poverty are operationalized and measured.

Monetary Poverty (Federal Poverty Thresholds)

Monetary poverty is a short fall of a family or personal income (consumption) below some minimum level of resources such as a nation official poverty threshold or line. There are two slightly different versions of United States federal poverty measure, the Poverty Thresholds and Poverty Guidelines (US Department of Health and Human Services, 2009 & 2007). The poverty threshold is a set of money income thresholds that vary by family size and composition. The United States' official poverty threshold varies by family composition (based on age and number of family members), and any family or individual whose total income falls short of the official poverty threshold is regarded as poor (US Department of Health and Human Services, 2007; Weinberg, 1994).

The poverty guidelines are a simplified version (percentage multiples) of poverty thresholds. Both the guidelines and the thresholds are commonly referred to as the federal poverty level. While the poverty thresholds are used to calculate the number of people in poverty, the poverty guidelines are used to determine people's eligibility for certain programs. Because the poverty thresholds represent the number of people in poverty, the best approximation of people below the poverty guidelines is estimated as a percentage multiple of the threshold. In this study, monetary poverty was measured in term of federal poverty levels at two levels. The first poverty measure is federal poverty threshold. The second measure, poverty guideline, is estimated as 1.5 times the poverty threshold. Any

individuals or households with total income less than either of the thresholds and guidelines are considered poor respectively.

Respondents' poverty statuses were determined by matching their total family income to the federal poverty levels (Poverty income Guideline) (US Census Bureau, 2007; US Department of Health and Human Services, 2007; Bell, 1995; Fisher, 1992). Those individuals or families whose total incomes fell short of the various poverty thresholds were considered poor. Individuals or families in poverty were coded 1, and those families not in poverty were coded 0. Out of 6629 responses, 14.5% of respondents were found in poverty based on the U.S. official federal poverty thresholds. When poverty was measured using the federal poverty guideline, at 1.5 times the official poverty level, 21.4% of the respondents classified as being in poverty.

Capability Poverty (Educational Achievement)

Capability poverty is a marginalization of or failure of a person to achieve or develop certain basic functioning (or capability), where basic functionings (capabilities) are considered as a person's achieved ability to adequately fulfill certain crucial roles at a minimal level (Laderchi et al., 2003).

A literature review on the operationalization of capability poverty shows that capability poverty analysis tends to focus on achieved functioning rather than on a capability set (Saith, 2001). From lists of capabilities that have been developed by researchers using different methodologies, Saith (2001) finds that health, education, and nutrition consistently appear and relate to capability. Literature and some empirical studies often point to health, education and nutrition as basic functions necessary for living a decent life (Darling, 2002; Laderchi et al, 2003; Streeten et al, 1981). In the

choice of a particular indicator or a set of dimensions/indicators for capability poverty analysis, Alkire (2001) outlines five selection methods, either alone or in combination. These five selective methods are noted to include existing data, public consensus on a dimension/indicator, empirical evidence, assumption regarding a dimension, and deliberative process on a dimension.

In this current study, capability poverty is operationalized and measured in terms of how well an individual is educated (educational achievement). My choice of the education domain is based on three of Alkire's selective methods that include existing data, public consensus and empirical evidence. First, the survey data for the current study contains data on education with appropriate measurements. Furthermore, at the national and international arena, policy makers and poverty experts agree that a person's well-being or standard of living is determined by his/her educational achievement (Institute for Research on Poverty, 2009).

The United Nations millennium development goal aims to halve extreme poverty by 2015. One of the key strategies of the United Nations' millennium to poverty reduction is to promote universal education. (United Nations/ Economic and Social Council, 2004; International Workshop on Education and Poverty Eradication Kampala, 2001). Individuals or families' low educational investment is noted to translate to poorer outcomes or well-being. Because earning or employment boost can be associated with an increase level of education, education is pivotal to breaking the vicious cycle of poverty (Institute for Research on Poverty, 2009; International Workshop on Education and Poverty Eradication Kampala, 2001).

Although educational achievement is a primary indicator of social class and status in the United States, it is also a measure of economic inequality (Hurst, 2004; Schiller, 2008). Human capital is the knowledge and learned abilities of an individual that makes him valuable or productive in the labor market (Caputo, 2002; Darling, 2002; Walker, 2000). Inequality and poverty are not only a measure of income, but also of human capital (education achievement). US Census Bureau (2004) has shown that educational attainment has a profound impact on income and/or poverty in the United States.

Poverty rate based on educational level by income has shown a relative high rate for those with less than High School diploma. For instance, in 2004 the median household income by educational attainment reveals that on average those with less than a High School degree earned \$17,000, those with a High School degree (or equivalent) earned \$25,000, those with some College or Associate degree earned \$36,500, those with Bachelor degree earned \$44,000 and graduate or professional earned \$57,500. Significant average income increases occur as one climbs the educational ladder from less than a High School diploma to a High School diploma. The most significant average income increase occurs for those with some College or Associate degree and those with Bachelor degree or higher (US Bureau, 2008). US Census Bureau (2008) data also show that 22.4 percent of those with less than a High School diploma fall below the federal poverty level while 12 percent of those with a High School diploma fall below the poverty level. On the other hand, 8.2 percent of those with some college degree fall below the poverty level, and 3.9 percent of those with bachelors or higher degrees fall below the federal poverty level.

In the measurement of capability poverty, I set the educational threshold by taking into account the multidimensionality of capability poverty based on education by income (Bourguignon & Chakravarty, 2003). First, the educational threshold is identified by matching total income to educational level. The threshold is set at a point where income falls below the federal poverty line. A High poverty rate matches an educational level less than High School diploma (US Census Bureau, 2008). Because high income poverty tends to concentrate at the lowest educational level, I restrict the education poverty thresholds to High School diploma or less. I propose two levels of capability poverty measures. First, educational poverty shortfall is defined as the number of years of schooling that is 11 years (grade 11) or less. Second the educational poverty threshold is defined as the end of Senior High School, that is, 12 years of schooling (grade 12). The educational poverty shortfall is then defined as the number of years of schooling that is 12 years or less. Capability poverty was measured by asking about the highest grade completed by the respondents. The responses ranged from no schooling, 1st grade to 8th year college or more.

The distribution of the respondents' highest grade completed was transformed into a dummy variable at two different levels. First, capability poverty is a dummy variable, scored 1 if the respondent indicated education level to be Grade 11 or less, all else 0. Second, capability poverty is a dummy variable scored 1 if the respondent indicated highest grade completed to be Grade 12 or less, all else 0. When Grade 11 or less was used as a cut-off point, 10.6% of the respondents were found in poverty. When Grade 12 or less was used as a cut-off point, 54.2% of the respondents were found in poverty.

Social Exclusion Poverty (Median Income)

Social exclusion poverty is the relative deprivation of a person or a person having less than others in society. An individual may be discriminated against or excluded from the social, political or economic activity of society (Laderchi et al., 2003). It is the relative position of the individual in society with regard to their median income. Income is a fundamental measure of poverty or economic well-being. In median income, a person is poor when personal or family income is significantly less than the average income of the population. Relative income reviews the distribution of income (inequality) among the population or group.

The current study operationalized and measured social exclusion poverty based on the Luxembourg Income Study (LIS) standard (LIS, 2006; Maas & Wiepking, 2004). According to the LIS' definition, poverty is defined and measured internationally as half the real income of the household median income. A person is classified to be poor when his adjusted household income is below 50% of the median income of his country. For many years, the LIS' definition and measurement of poverty have been used by many countries and international development agencies (LIS, 2006; Maas & Wiepking, 2004; Janet (2004). In particular, the European Union (EU) has officially adopted and used the LIS' international poverty measure (Laderchi et al, 2003; Atkinson, 2002). The European statistical report shows that individuals or households incomes of 50% or 60% of the median national income indicate empirical evidence of poverty and/or near poverty (Atkinson, 2002; Silver and Miller (2002).

In this study, social exclusion poverty is operationalized in term of household median income. Social exclusion poverty is measured at two levels. Using a narrow

poverty level, households with total income below 50 percent of the household median income of the population aged between 39 and 48 are considered poor. And using a broader poverty level, households with total income below 60 percent of the median income are considered poor. The age distribution of the survey respondents ranged from 39 to 48 years. Because the age distribution of the survey respondents tends to be narrow, I considered the weighted 2004 household median national income of the population aged between 39 and 48 was \$60,023.00 (US Bureau of Census, 2005).

Respondents were asked to indicate their total income in the past calendar year. The responses for total family income were recoded into dummy variables. First, responses for household income were scored 1 if their total income was less than 50% of the household median income of the population aged between 39 and 48 are considered poor, else they were scored 0. Second, responses for household income were scored 1 if their total income was less than 60 % of the household median income of the population aged between 39 and 48 are considered poor else they were scored 0. With the narrow poverty level (50% the median income) 30.6% of the respondents were found in poverty. When poverty was measured using the broad poverty level (60% of the median income), 36.7 of the respondents were found in poverty.

CHAPTER FOUR

RESULTS

This chapter describes the empirical results of the study. The first part of the chapter presents the analysis of the distribution of the sample in poverty based on the three poverty measures. The second part of the chapter focuses on multivariate analyses.

Distribution of Sample Across the Three Poverty Thresholds

Poverty and social policy research utilize a diversity of poverty definitions and measurements (Laderchi et al., 2003; World Bank, 2002). The current study compared the distribution of the sample in poverty according to the three different poverty measures, monetary, social exclusion, and capability poverty. Because each poverty measure has different theoretical and methodological assumptions, the three poverty measures may not identify the same people as poor (Laderchi et al, 2003).

The first hypothesis stated that discrepancies exist in estimating the outcome probability of poverty if different poverty measures are applied. In order to test this hypothesis, a descriptive analysis involving percentages, frequency curves, and cross tabulations was carried out.

Percent in Poverty

Based on the thresholds of the different poverty measures, households with resources below the poverty threshold are considered to be poor. When the federal official poverty threshold was applied, 14.5% ($n = 6629$) of the sample was below the monetary poverty threshold. When the federal poverty threshold was set at 1.5 times the federal poverty threshold, 21.4% of the sample was below the monetary poverty (see Table 8). In contrast, social exclusion captured more people in poverty than monetary

poverty. With the social exclusion poverty threshold set at 50% median national income of the population aged between 39 and 48, 30.6% ($n = 6629$) of the sample was below the poverty threshold. At the 60% median income cutoff point, 36.7% of the sample was below social exclusion poverty. With the capability poverty cutoff point at equal to or less than grade 11 cutoff point, 10.6% ($n = 7661$) of the sample was below the capability poverty threshold. This figure is less than the percent of the monetary and social exclusion poverty at their respective first cutoff levels. At the cutoff point at equal to or less than grade 12 cutoff point, however, 54.2% of the sample was in capability poverty. As indicated in Table 8, the distribution of sample below the thresholds of the three poverty measures increases with the increase of the cutoff points.

Table 8: *Percent Distribution of Sample in Poverty*

Type of Poverty	Measured	% in Sample
Monetary Poverty	Poverty status at Federal Poverty Threshold cut off point	14.5
		21.4
	Poverty status at 1.5th cut off point	
Social Exclusion Poverty	Household Income at 50% cut off point of the median income of the population aged between 39 and 48 years.	30.6
	Household Income at 60% cut off point of the median income of the population aged between 38 and 49 years.	36.7
Capability Poverty	Equal to or less than grade 11 cutoff point	10.6
	Equal to or grade 12 cutoff point	54.2

Rate of Poverty Distribution

To get a bigger picture of how poverty distribution rates are influenced when the three poverty measures' threshold levels are increased, frequency curves were drawn for the three poverty measures (federal poverty threshold, median income and highest grade completed) (see Figure 2, Figure 3 and Figure 4). The monetary poverty curve is almost similar to that of the social exclusion poverty curve. There is a gradual change (increase) in the distribution of the sample in poverty as the cutoff points of the monetary poverty thresholds increase. There is a moderate rise of the poverty distribution curve between two times the federal poverty level cut off point and four times the federal poverty level cut off point, and then a decrease in the rate of change of distribution of people in poverty.

The distribution of the sample in poverty increased with the increased level of the poverty cut off points of the social exclusion poverty measure. With the capability poverty measure, there is not much change in the distribution of the sample in poverty until highest grade completed reached grade 12. From grade 12 there is a larger increase in the distribution of people in poverty until grade 13 (1st year college). This sharp increase in the distribution of people in poverty can partly be attributed to the institutional arrangement of education in the United States. In the United States, elementary and high school education is provided and enforced by the public sector, with control and funding coming from the federal, state, and local governments. Schooling is compulsory for all children in the United States, but the age range for which school attendance is required varies from state to state. Some states allow students to leave school between 14–17 years of age with parental approval (Coleman et al. 1966; Gatto, 2003). It seems the compulsory

and free education at the elementary and high schools levels have promoted higher attendances. The curve shows that from the first year of college the poverty distribution curve increases at a decreasing rate. In general, both the monetary and social exclusion poverty measures exhibit consistent patterns of gradual increase in the percent of distribution of sample in poverty. In contrast, capability poverty did not exhibit a consistent pattern of poverty distribution.

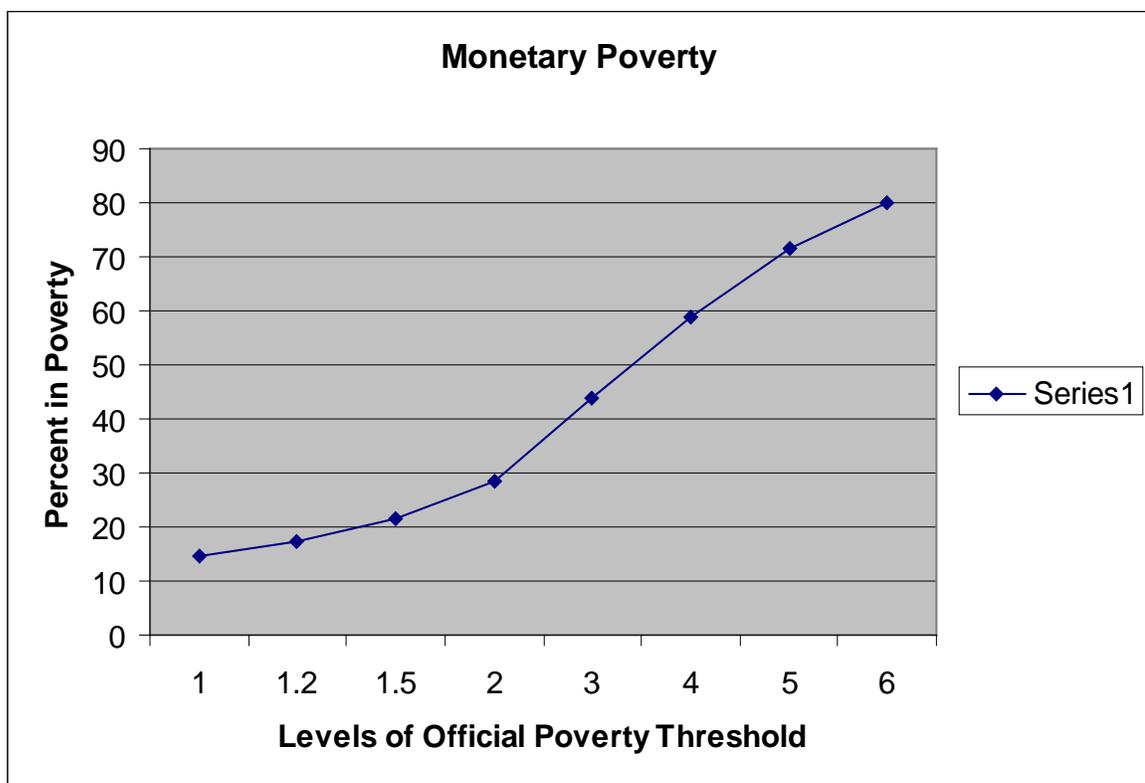


Figure 2. Distribution of people in monetary poverty.

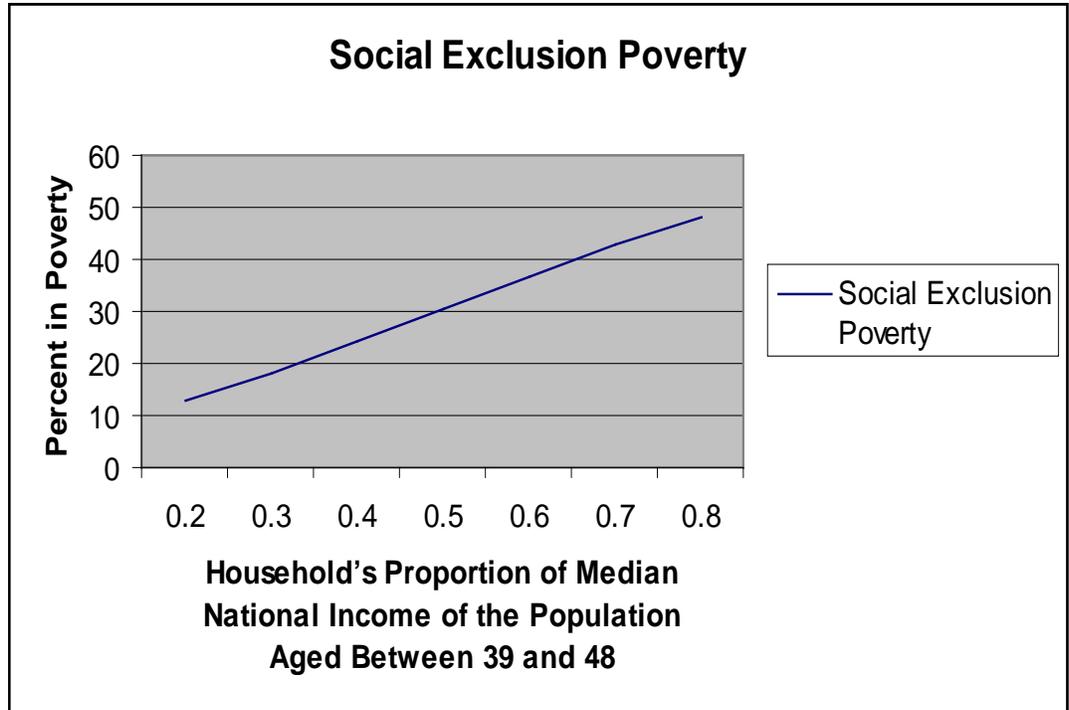


Figure 3. Distribution of people in social exclusion poverty.

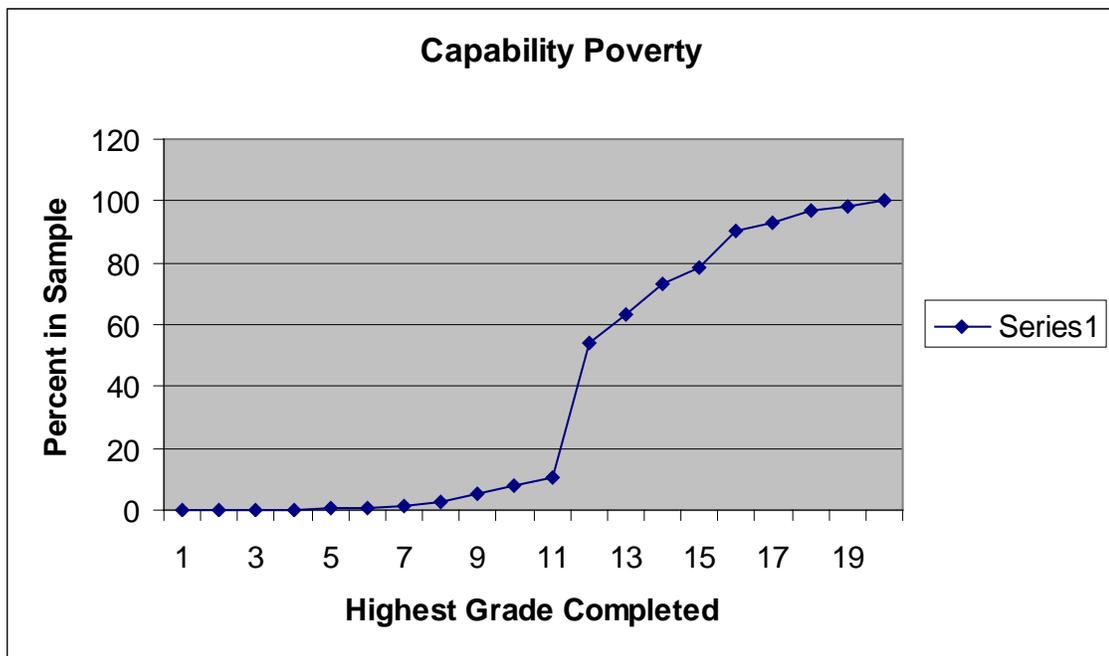


Figure 4. Distribution of people in capability poverty.

Economic Participation and Percent in Poverty

Individuals' engagement in economic activities is known to reduce poverty. However, a person's economic participation does not guarantee living above the poverty line (Schiller, 2008). Considering only the study sample of individuals who are working, the researcher assessed the poverty distribution of respondents across the different poverty thresholds (see Table 9). Comparing the results in Tables 8 and 9, a drop in poverty across the different poverty thresholds is seen among working individuals. Respondents' engagement in economic activities seems to reduce the possibility of people crossing the poverty lines.

Table 9: Percent Distribution of Working Sample in Poverty

Type of Poverty	Measured	% in Sample
Monetary Poverty	Poverty status at Federal Poverty Threshold cut off point	9.3
	Poverty status at 1.5 Th cut off point	15.8
Social Exclusion Poverty	Household Income at 50% cut off point of the median income	25.6
	Household Income at 60% cut off point of the median income	32.6
Capability Poverty	Equal to or less than grade 11 cutoff point	8.8
	Equal to or less than grade 12 cutoff point	52.1

Cross Tabulation Showing Overlaps Between Poverty Measures

Because different poverty measures are based on different theoretical assumptions, the three poverty measures may not overlap to identify the same person as poor (Bell, 1995; Hagenars & Vos, 1988; Laderchi et al., 2003). In order investigate whether poverty measures may overlap, cross tabulations were performed (Tables 10, 11, and 12). The cross tabulation table is then used to calculate the sensitivity and specificity of the poverty measures. The sensibility of a model is the percentage of the group that has the characteristics of interest (that is individuals in poverty) that is accurately been identified (Pallant, 2007). The model specificity is the percentage of the group without the characteristic of interest (that is individuals not in poverty) that is correctly been identified (Pallant, 2007).

Kappa Measure of Agreement statistics is an appropriate measure to assess the inter-rater agreement or consistency of two different events. Its value of .5 indicates moderate agreement, above .7 represents good agreement and above 8 represents very good agreement (Pallant, 2007). A kappa Measure of Agreement statistics is performed to examine the extent to which individuals identified by one poverty measure are also classified under the other poverty measure.

Table 10 shows a cross tabulation between the monetary poverty measure (at the official poverty threshold cutoff point) and social exclusion poverty measure at 50% median national income threshold cutoff point. Out of 2026 individual respondents classified under the social exclusion poverty, 958 are also identified under the federal official poverty. This classification reflects the sensitivity of the classification. The

sensitivity value of 47.3 percent (958/2026) represents the proportion of those individuals classified under both the monetary and social exclusion poor that are correctly identified.

Table 10 also shows that out of 4603 cases not being classified under both the monetary and social exclusion poverty, 4602 not identified under the social exclusion poverty. The specificity value of 99.9 (i.e. 4602/4603) means that 99.9 percent of those individuals classified as not both monetary and social exclusion poverty poor are correctly identified. The Kappa Measure of Agreement value (Kappa= .6, $p < .001$) as shown on Table 10 indicates that moderate consistency between the two poverty measures.

Table 10: *Cross Tabulation Showing Overlap between Poverty Measures*

Federal Poverty Thresholds	Median Income (Less than 50% \$60023)		Percentage Correct
	Not in Poverty	In Poverty	
In Poverty	4602	958	99.9
Not n Poverty	4603	2026	47.3

Phi= .619, $p < .001$; Kappa = .554, $p < .001$

Sensitivity = (958/2026) =47.3; Specificity= (4602/4603) =99.9

Table 11 shows a cross tabulation between the capability poverty measure (when individuals educational achievement equals to or less than grade 11) and the monetary poverty measure (at the federal official poverty threshold cutoff point). Out of 667 individuals identified under the capability poverty, 258 individuals are also identified under the monetary poverty. The sensitivity value of 38.7 (258/667) implies that 38.7 percent of those individuals classified under both the monetary and capability poverty measures are correctly identified. Table 11 also indicates that out of 5962 identified as not capability poor, 5261 are also identified as not being monetary poverty poor. This specificity value of 88.2 (5261/5962) implies that the model correctly identified 88.2 percent of those not classified monetary and capability poverty poor. A Kappa Measure of Agreement value (Kappa= .23, $p < .001$) indicates a weak consistency between the two poverty measures (Table 11).

Table 11: *Cross Tabulation Showing Overlap between Poverty Measures*

Federal Poverty Thresholds	Educational Achievement (Equal to or less than grade 11)		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	5261	258	88.2
In Poverty	5962	667	38.7

Phi= .246, $p < .001$; Kappa = .225, $p < .001$

Sensitivity = (258/667)= 38.7; Specificity= (5261/5962)= 88.2

A cross tabulation between the capability poverty measure (when individuals' educational achievement equals to or less than grade 11) and social exclusion poverty (at 50% median national income of the population aged between 39 and 48 (Table 112). Out of 667 individuals identified under the capability poverty, 430 individuals are also identified under the social exclusion poverty. The sensitivity value of 64.5 (430/667) indicates that 64.5 percent of those individuals classified under both the social exclusion and capability poverty measures are correctly identified. Table 12 also indicates that out of 5962 individuals classified as not being capability poverty poor, 4366 are also identified as not being both social exclusion and capability poverty poor. The specificity value of 73.2 (4366/5962) implies that the model has correctly identified 73.2 percent of those not classified under both monetary and capability poverty. A Kappa Measure of Agreement value (Kappa= .2, $p < .001$) indicates a weak consistency between the two poverty measures (Table 12).

Table 12: *Cross Tabulation Showing Overlap between Poverty Measures*

Median Income (Less than 50% \$60023)	Educational Achievement (Equal to or less than grade 11)		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	4366	430	73.2
In Poverty	5962	667	64.5

Phi= .246, $p < .001$; Kappa =.198 , $p < .001$

Sensitivity = (430/667)= 64.5; Specificity= (4366/5962)= 73.2

Multivariate Analysis

Research question 2 asked, Are the different poverty measures explained by the same predictor (explanatory) variables? It was hypothesized that the three poverty measures are explained by the same predictor (explanatory) variables. Research question 3 states, How differently do the predictor variables (demographic characteristics) predict a poverty measure? The third hypothesis proposes that the predictor (explanatory) variables have similar effects (similar odd ratios) on the three poverty measures. In order to test these hypotheses, binary logistic regression models were performed. A logistic regression is the appropriate test when a researcher wants to predict the probability of occurrence of an event, criterion (dependent) variable from a number of predictor (independent) variables. A logistic regression holds the assumption that the outcome variable is binary. Thus, the logistic regression functions predict the probability of responses or outcomes with values ranging from 0 to 1. Because a logistic regression does not assume a linear relationship between the dependent and independent variables, it can handle a nonlinear effect even when the exponential and polynomial terms are not applied (Green & Salkind, 2005; Hosmer & Lemeshow, 2000; Pallant, 2007).

Logistic regression does not make the assumption that the descriptive statistics is normally distributed. Unlike OLS regression, the variables in logistic regression are not linearly related. Also, normal distribution error terms or equal variance within the groups are not assumed (Green & Salkind, 2005; Hosmer & Lemeshow, 2000). The dependent variable in binary logistic regression is dichotomous. It can take the value of 1 with the probability of success, or the value of 0 with the probability of failure.

As with the OLS regression, the predictor variables used in the logistic regression analysis can be either categorical or continuous (Green & Salkind, 2005; Hosmer & Lemeshow, 2000; Pallant, 2007). In this study, the predictor (independent) variables include age, family size, gender, place of residence, and marital status. The null hypothesis of the predictor variables holds that each predictor variable is having absolutely no effect (has a coefficient of 0).

The criterion variable is regressed against the predictor variables to assess the specific predictor variables associated with the different poverty measures. The results in examining the relationship between the criterion and predictor variables are presented in six models. Models 1 and 2 examine the relationship between the monetary poverty measures and predictor variables respectively. Models 3 and 4 show the relationships between the social exclusion poverty measures and the predictor variables. Models 5 and 6 examine the relationship between the capability poverty measures and the predictor variables.

Logistic coefficient and odd ratios are used to examine the relationship between the criterion and predictor variables. In the next section, a concise discussion on regression diagnostics to check the likelihood of multicollinearity as well as the fitness of the models is presented.

Regression Diagnostic

In order to test for multicollinearity in the binary logistic models, regression diagnostics were conducted. The second diagnostic involved computation of Tolerance and Variance Inflation Factor (VIF) to support the first diagnostic. Tolerance is an indicator of the proportion of variance in a predictor variable that cannot be explained by other predictor variables. Thus, a smaller tolerance value indicates that a predictor variable is redundant. VIF is the reciprocal of tolerance (Chen & Popovich, 2002; Green & Salkind, 2005). The VIF values associated with each of the predictor variables are computed, as shown in Tables 13, 14, and 15. It is observed that all the VIF values are low, with a range of 1.001-1.447, since the tolerance values are high. These VIF values indicate the nonexistence of multicollinearity.

Table 13: *Tolerance and VIF among Variables (Federal Poverty Level)*

	Tolerance	VIF
1 Family size	.728	1.374
2 Age	.991	1.009
3 Being female	.980	1.021
4 Being Black	.746	1.340
5 Being Hispanic	.833	1.201
6 Other race	.952	1.050
7 Not in SMSA	.886	1.129
8 In SMSA, inner city	.812	1.231
9 Never married	.707	1.413
10 Separated	.888	1.125
11 Divorced	.756	1.322
12 Widowed	.970	1.031

Table 14: *Tolerance and VIF among Variables (Highest Grade Completed, Years)*

	Tolerance	VIF
1 Family size	.728	1.374
2 Age	.991	1.009
3 Being female	.980	1.021
4 Being Black	.746	1.340
5 Being Hispanic	.833	1.201
6 Other race	.952	1.050
7 Not in SMSA	.886	1.129
8 In SMSA, inner city	.812	1.231
9 Never married	.707	1.413
10 Separated	.888	1.125
11 Divorced	.756	1.322
12 Widowed	.970	1.031

Table 15: *Tolerance and VIF among Variables (Total Household Income)*

	Tolerance	VIF
1 Family size	.713	1.403
2 Age	.990	1.010
3 Being female	.980	1.020
4 Being Black	.749	1.334
5 Being Hispanic	.836	1.196
6 Other race	.950	1.052
7 Not in SMSA	.886	1.129
8 In SMSA, inner city	.816	1.225
9 Never married	.691	1.447
10 Separated	.878	1.139
11 Divorced	.745	1.343
12 Widowed	.967	1.034

Logistic Coefficients and Odds Ratios

The logistic model formula is as follows:

$$P = Z = \beta_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \dots + \beta_k\chi_k$$

The variable z represents the exposure to a set of risk factors (independent variables). The variable z is the measure of the total contribution of all risk factors used in the model and is known as the logit.

Here, β_0 is the intercept (constant), and $\beta_1, \beta_2, \beta_3$ to β_k are the regression coefficients of the predictor variables, χ_1, χ_2, χ_3 , and χ_k respectively. The computed p value or $f(z)$ is the probability of a particular outcome in the presence of the risk factors with the value range of 0 to 1. If P is a probability then $P/(1-P)$ gives the corresponding odds (Pallant, 2007; Green & Salkind, 2005; Hosmer & Lemeshow, 2000).

The values for dependent variables in the logistic regression equation are in log-odds units. Thus, the estimates about the relationship between the criterion and the predictor variables are on a logit scale.

$$\frac{\text{Log Probability of event occurring}}{\text{Probability of event not occurring}} = \beta_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \dots + \beta_k\chi_k$$

Because these coefficients are in log-odd units, they are often difficult to interpret. The logistic regression functions transform the log-odd units to odds ratio by taking the natural logarithms of these odds units (Green & Salkind, 2005; Hosmer & Lemeshow, 2000; Pallant, 2007).

Thus, the dependent variable in a binary logistic regression is the odds ratio. The odds ratio is estimated by dividing the probability of an event occurring by the probability that it does not occur.

For example, the odds that an individual will fall below a poverty threshold are:

$$\text{Odds} = \frac{\text{Probability of the event occurring}}{\text{Probability of the event not occurring}}$$

Then,

$$\text{Odds ratio} = \frac{\text{Odds of the target category}}{\text{Odds of the reference category}}$$

The logistic regression coefficient of a variable is the change in the log odds associated with a one-unit change in the dependent variable when all other independent variables are held constant. If the logistic regression coefficient is positive, the odds ratio is greater than one, meaning that the odds of the event are increased. Thus, a positive regression coefficient implies that the risk factor increases the probability of that outcome. On the other hand, if the logistic regression coefficient is negative, the odds ratio is less than one, meaning the odds of the event are decreased. The logistic coefficient and odd ratios of the different models are used to examine the relationship between the criterion and predictor variables.

Relationship between the Monetary Poverty Thresholds and Predictor Variables

Models 1 and 2 (see Table 16 and 17) assess the relationships between the monetary poverty thresholds and the predictor variables (gender, race, place of residence, and marital status). Because the United States federal poverty thresholds vary with family composition (based on age and family size), I did not include the predictor variables, age and family size, in the binary logistic analyses. The criterion variable, the official federal poverty line, in logit equation one is a dummy variable with its value equal to one if the respondent's total household income is less than the federal poverty threshold, otherwise it is zero. Likewise, in model 2, the criterion variable, 1.5 times the federal poverty line is a dummy with a dummy variable and its value equals one if the respondent's total household income is less than 1.5 times the federal poverty line, otherwise it is zero.

Surprisingly, the estimated coefficients and odds ratio for independent variables in both the logit equations (one and two) are almost similar. As shown in models 1 and 2, the coefficient for females is .25. The significant positive association between being female and the monetary poverty thresholds (the official federal poverty threshold and 15 times official federal poverty threshold) means that female respondents are more likely to fall below the monetary poverty thresholds as compared to the male respondents. An examination of the corresponding odds ratio suggests that the odds of a female respondent falling below the monetary poverty thresholds is 1.3 times higher than that of a male respondent.

In both models 1 and 2, the estimated coefficient for race dummies is statistically significant with a positive sign. These estimates simply imply that respondents who are Black, Hispanic, and “Other race” compared to those who are White are more likely to fall below the monetary poverty thresholds. In the two logit equations (models 1 and 2), the corresponding odds ratio (2.5) for Black and Hispanic are almost equal. The odds ratio, 1.6, for “Other race” in both models 1 and 2 is the same. The risk of a respondent falling below the monetary poverty lines is lower for the “Other race” than for a Black or a Hispanic. The odds of a respondent who is a Black or Hispanic to fall below the monetary poverty lines is 2.5 times higher than for a White respondent, while the odds of the “Other race” falling below the monetary poverty thresholds is 1.6 times greater than for a White respondent.

With respect to place of residence, living in a rural or metropolitan area, an inner city area has a positive relationship with the monetary poverty thresholds (the official federal poverty threshold and 15 times official federal poverty threshold). The odds of a

respondent living in a rural area is 2.4 times more likely to put the individual below the monetary poverty threshold as compared to a respondent who lives in a metropolitan, noninner city area. For a respondent living in a metropolitan, inner city area, the odds of a person falling below the federal poverty line is 1.5 times higher than that for a person living in a metropolitan, noninner city area (model 1). On the other hand, according to model 2 the odds of an individual who lives in a metropolitan, noninner city area to fall below the poverty line is 1.6 times higher.

These statistics indicate that the coefficients for the dummy variables for marital status are positively associated with the monetary poverty thresholds (models 1 and 2). Compared to individuals who are married, the respondents who are never married, separated, divorced, or widowed are more likely to fall below the monetary poverty lines. Unexpectedly, the odds ratios for the never married, separated, divorced, and widowed are generally high. In model 1, the odds ratios for the never married, separated, divorced, or widowed are 7.2, 6.7, 4.1, and 6.5 respectively. This means that the odds for the respondents who are never married, separated, divorced, or widowed falling below the federal poverty threshold are 7.2, 6.7, 4.1, and 6.5 times higher respectively as compared to married individuals, set of other predictors.

Table 16 (Model 1): Logistic Regression of Predictor Variables on Federal Poverty Threshold (FPT)¹

Independent Variables	B (S.E.)	Odds Ratio
Gender		
Female	.253(.080)	1.288**
Race		
Black	.892(.100)	2.440***
Hispanic	.927(.118)	2.528***
Other race	.485(.204)	1.624*
Place of residence		
Not SMSA	.874(.110)	2.397***
SMSA, inner city	.383(.092)	1.467***
Marital status		
Never married	1.975(.107)	7.210***
Separated	1.915(.144)	6.786***
Divorced	1.416(.111)	4.122***
Widowed	1.869(.264)	6.482***
Constant	-3.825	
-2Log-Likelihood	1478.532	
N	6057	
Pseudo R Square	.230	

Note. Hosmer & Lemeshow Goodness-of-Fit Test: .132

Significant for coefficients: $p^* < .05$; $p^{**} < .01$; $p^{***} < .001$

Note Omitted categories: Male = 0, White = 0

Married = 0, SMSA, not inner city = 0.

¹The dependent variable equals 1 if total household income is less than the Federal Poverty Threshold, 0 otherwise.

Table 17 (Model 2): Logistic Regression of Predictor Variables on 1.5 Federal Poverty Measure²

Independent Variables	B (S.E.)	Odds Ratio
Gender		
Female	.249(.070)	1.283***
Race		
Black	.937(.085)	2.552***
Hispanic	.932(.100)	2.540***
Other race	.475(.173)	1.608**
Place of residence		
Not SMSA	.858(.096)	2.358***
SMSA, inner city	.406(.079)	1.501***
Marital status		
Never married	1.745(.090)	5.724***
Separated	1.781(.130)	5.935***
Divorced	1.343(.241)	7.317***
Widowed	1.990(.241)	3.829***
Constant	-3.168	
-2Log-Likelihood	2574.110	
N	6057	
Pseudo R Square	.245	

Note. Hosmer & Lemeshow Goodness-of-Fit Test: .100

Significant for coefficients: $p^* < .05$; $p^{**} < .01$; $p^{***} < .001$

Note Omitted categories: Male = 0, White = 0

Married = 0, SMSA, not inner city = 0.

²The dependent variable equals 1 if total household income is less than 1.5 times the Federal Poverty Threshold, 0 otherwise.

To assess how well the logistic model 1 (see table 16) is able to correctly predict each of categories (in poverty/not in poverty), a classification table is performed (Table 18). The sensitivity value of 5.6 implies the model 1 has correctly classified 5.6 percent of those identified as monetary poverty poor when the federal poverty threshold is applied. The specificity value of 99.4 indicates that the model 1 correctly classified 99.4 percent of those identified as not monetary poverty poor. The classification of the under the different categories (in poverty/not in poverty), has shown 85.8 overall percent correct in classifying the categories. The positive predictive value indicates that the model 1 accurately predicted 60.5 percent of individuals classified as being poor. The negative predictive value shows that the model 1 correctly predicted 86.1 percent of those who are not classified as monetary poverty poor.

Table 18: *The Observed and Predicted Frequencies for Monetary Poverty (Federal Poverty Threshold) Logistic Regression*

Observed	Predicted		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	5146	32	99.4
In Poverty	830	49	5.6
Overall Percent Correct			85.8

Note: Sensitivity = $49/(830+49)= 5.6$; Specificity= $5146/(5146+32)=99.4$

Positive Predictive Value = $49/(32+49)=60.5$

Negative Predictive Value= $5146/(830+5146)=86.1$

Classification is conducted to assess how well the logistic model 2 has correctly predicted each of categories (in poverty/not in poverty) (Table 19). The sensitivity value of 22.4 implies the model 2 (see Table 17) has correctly classified 22.4 percent of those identified as monetary poverty poor when the 1.5 times federal poverty threshold is applied. The specificity value of 95.3 indicates that the model correctly classified 95.3 percent of those identified as not monetary poverty poor. The classification of individuals under the different categories (in poverty/not in poverty), has shown 79.6 overall percent correct in classifying the categories. The positive predictive value indicates that the model 2 accurately predicted 57 percent of individuals classified as being poor. The negative predictive value shows that the model 2 correctly predicted 81.7 percent of those who are not classified as monetary poverty poor.

Table 19: *The Observed and Predicted Frequencies for Monetary Poverty (1.5 Federal Poverty Threshold) Logistic Regression*

Observed	Predicted		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	4528	221	95.3
In Poverty	1015	293	22.4
Overall Percent Correct			79.6

Note: Sensitivity = $293 / (293 + 1015) = 22.4$; Specificity = $4528 / (4528 + 221) = 95.3$

Positive Predictive Value = $293 / (293 + 221) = 57.0$

Negative Predictive Value = $1015 / (1015 + 4528) = 81.7$

Relationship between the Social Exclusion Poverty Thresholds and Predictor Variables

Models 3 and 4 (see Tables 20 and 21) assess the associations between the social exclusion poverty thresholds and the predictor variables including level of family size, age, gender, race, place of residence, and marital status. In model 3, the criterion variable, 50% of the median income is a dummy variable with its value equal to one if the respondent's total household income is less than 50% of the median national income of the population aged between 39 and 48 (\$60023), otherwise it is zero. In model 4, 60% of the median income is a dummy variable with its value equal to one if the respondent's total household income is less than 60% of the median income, otherwise it is zero.

The estimated coefficients for level of family size and age in the logit equations in models 3 and 4 are not statistically significant. Consequently, the corresponding odds ratio for level of family size and age are not significant, indicating that level of family size and age do not have an effect on the odds of respondents falling below the social exclusion poverty thresholds. The logit equations in models 3 and 4 show that gender, race, place of residence, and marital status are good predictors of the likelihood of the individual respondents falling below the social exclusion poverty thresholds.

The coefficients for females in models 3 and 4 are positive and very close, which implies that female individual respondents are more likely to cross the social exclusion poverty thresholds. Interestingly, the corresponding odds ratio for female in both logit equations is 1.2. This means that being a female, the odds of falling below the social exclusion poverty lines (50% and 60% median income) are 1.2 times higher than for males.

There is a positive association between race dummies and the social exclusion poverty thresholds. Similar to female odds ratio, the odds ratios for the respective race dummies in models 3 and 4 are almost equal. Comparing the odds ratio for the race dummies, being Black scores the highest odd ratio, followed by being Hispanic, and 'Other race.' As shown in models 3 and 4, the odds ratio for being Black is 2.4. The investigation of the corresponding odds ratio suggests that being Black increases the individual odds of falling below the social exclusion poverty thresholds by 2.4 times relative to Whites.

The dummy variables for both the place of residence (rural and inner cities) and marital status (never married, separated, divorced, and widowed) are positively related with the different poverty thresholds of the social exclusion poverty measures. The odds of an individual who lives in an inner city or rural area to cross the two thresholds of the social exclusion poverty measure are almost equal. In a similar manner, the odds of a never married, separated, divorced, or widowed individual to cross the two thresholds of the social exclusion poverty measure are similar.

Table 20 (Model 3): Logistic Regression of Predictor Variables on Median Income (50%)
³

Independent Variables	B (S.E.)	Odds Ratio
Family size	.021(.024)	1.021
Age	-.007(.015)	.993
Gender		
Female	.167(.067)	1.181*
Race		
Black	.882(.079)	2.417***
Hispanic	.694(.096)	2.002***
Other race	.557(.159)	1.745***
Place of residence		
Not SMSA	.930(.092)	2.35***
SMSA, inner city	.440(.075)	1.552***
Marital status		
Never married	2.317(.097)	10.140***
Separated	2.463(.138)	11.737***
Divorced	1.981(.092)	7.252***
Widowed	2.346(.248)	10.443***
Constant	-2.602	
-2Log-Likelihood	5709.50	
N	6057	
Pseudo R Square	.358	

Note. Hosmer & Lemeshow Goodness-of-Fit Test: .215

Significant for coefficients: $p^* < .05$; $p^{**} < .01$; $p^{***} < .001$

Note Omitted categories: Male = 0, White = 0

Married = 0, SMSA, not inner city = 0.

³The dependent variable equals 1 if total household income is below 50% of the national household Median Income of the population aged between 39 and 48 (\$60023), otherwise 0.

Table 21 (Model 4): Logistic Regression of Predictor Variables on Median Income (60%)
⁴

Independent Variables	B (S.E.)	Odds Ratio
Family size	.018(.024)	1.018
Age	.005(.014)	1.005
Gender		
Female	.184(.065)	1.202**
Race		
Black	.894(.077)	2.444***
Hispanic	.774(.092)	2.169***
Other race	.601(.154)	1.823***
Place of residence		
Not SMSA	.934(.090)	2.544***
SMSA, inner city	.455(.074)	1.576***
Marital status		
Never married	2.391(.096)	10.926***
Separated	2.539(.144)	12.667***
Divorced	2.080(.096)	8.003***
Widowed	2.154(.251)	8.620***
Constant	-2.810	
-2Log-Likelihood	5969.834	
N	6657	
Pseudo R Square	.387	

Note. Hosmer & Lemeshow Goodness-of-Fit Test: .165

Significant for coefficients: $p^* < .05$; $p^{**} < .01$; $p^{***} < .001$

Note Omitted categories: Male = 0, White = 0

Married = 0, SMSA, not inner city = 0.

⁴The dependent variable equals 1 if total household income is below 60% of the national household Median Income of the population aged between 39 and 48 (\$60023), otherwise 0.

To assess how well logistic model 3 (see Table 20) is able to correctly predict each of categories (in poverty/not in poverty), a classification table is performed (Table 22). The sensitivity value of 61 implies model 3 has correctly classified 61 percent of those identified as social exclusion poverty poor when a cutoff point of 50% of the median national income of the population aged between 39 and 48 (\$60023) is applied. The specificity value of 85 indicates that the model correctly classified 85 percent of those identified as not social exclusion poverty poor. The classification of the under the different categories (in poverty/not in poverty), has shown 77.6 overall percent correct in classifying the categories. The positive predictive value indicates that model 3 accurately predicted 64.4 percent of individuals classified as being poor. The negative predictive value shows that model 3 correctly predicted 83 percent of those who are not classified as social exclusion poverty poor.

Table 22: *The Observed and Predicted Frequencies for Social Exclusion Poverty (Median Income (50%)) Logistic Regression*

Observed	Predicted		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	3561	629	85
In Poverty	728	1139	61
Overall Percent Correct			77.6

Note: Sensitivity =61; Specificity=85
 Positive Predictive Value = $1139/(629+1139)=64.4$
 Negative Predictive Value = $3561/(728+3561)=83.0$

To assess how well logistic model 4 (see Table 21) is able to correctly predict each of categories (in poverty/not in poverty), a classification table is performed (Table 23). The sensitivity value of 66.2 implies the model 4 has correctly classified 66.2 percent of those identified as social exclusion poverty poor when a cutoff point of 60% of the median national income of the population aged between 39 and 48 (\$60023) is applied. The specificity value of 83.5 indicates that the model correctly classified 83.5 percent of those identified as not social exclusion poverty poor. The classification of the under the different categories (in poverty/not in poverty), has shown 77.1 overall percent correct in classifying the categories. The positive predictive value indicates that model 4 accurately predicted 70.2 percent of individuals classified as being poor. The negative predictive value shows that model 4 correctly predicted 80.7 percent of those who are not classified as social exclusion poverty poor

Table 23: *The Observed and Predicted Frequencies for Social Exclusion Poverty (Median Income (60%)) Logistic Regression*

Observed	Predicted		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	3182	631	83.5
In Poverty	759	1485	66.2
Overall Percent Correct			77.1

Note: Sensitivity = $1485 / (759 + 1485) = 66.2$; Specificity = $3182 / (3182 + 631) = 83.5$

Positive Predictive Value = $1485 / (1485 + 631) = 70.2$

Negative Predictive Value = $3182 / (759 + 3182) = 80.7$

Relationship between the Capability Poverty Thresholds and Predictor Variables

Models 5 and 6 (see Tables 24 and 25) assess the associations between the capability poverty thresholds and the independent variables including level of family size, age, gender, race, place of residence, and marital status. The dummy variable, SMSA, inner city, was not included in the model 5 binary logistic analysis because its exclusion has made the model a better fit. The variable, family size was not included in the model 6 logistic analysis because its exclusion has made the model a better fit.

In model 5, the dependent variable, the capability poverty is a dummy variable, scored 1 if the respondent's highest grade completed is equal to or less than Grade 11, or else 0. In model 6, the dependent variable, the capability poverty is a dummy variable scored 1 if the respondent's highest grade completed is equal to or less than Grade 12, or else 0. Age are not good predictors of the capability poverty measures in the logit equation of model 5. Surprisingly, age has significantly predicted the likelihood of individuals to dropout of school, at grade 12 in particular (model 6).

Females have a negative association with individuals dropping out of school. This means that females compared to their male counterparts are less likely to drop out of school. This observation falls in line with the previous research that indicated that males are more likely to drop out of high school. Similar to Kaufman et al.'s (2000) findings, Cataldi et al. (2007) also found that males have a higher dropout rate as compared to females in completing their high school education. The odds ratio for place of residence (being inner city) is not statistically significant in model 6. This implies that there is no difference in the likelihood of dropping out of school 12 for individuals living in inner city than from the individuals living in suburban locations.

Table 24 (Model 5): Logistic Regression of Predictor Variables on Highest Grade Completed (Grade 11 or Less)⁵

Independent Variables	B (S.E.)	Odds Ratio
Family size	.020(.029)	1.020
Age	.000(.018)	1.000
Gender		
Female	-.338(.081)	.713***
Race		
Black	.323(.103)	1.382***
Hispanic	1.282(.105)	3.603***
Other race	.320(.210)	1.378
Place of residence		
Not SMSA	.512(.100)	1.672***
Marital status		
Never married	.760(.114)	2.138***
Separated	1.049(.156)	2.856***
Divorced	.469(.096)	1.599***
Widowed	1.095(.294)	2.989***
Constant	-2.892	
-2Log-Likelihood	4439.741	
N	7019	
Pseudo R Square	0.08	

Note. Hosmer & Lemeshow Goodness-of-Fit Test: .112

Significant for coefficients: $p^* < .05$; $p^{**} < .01$; $p^{***} < .001$

Note Omitted categories: Male = 0, White = 0

Married = 0, SMSA, not inner city = 0.

⁵The dependent variable equals 1 if Highest Grade Completed is less than the 12 Grade, 0 otherwise.

Table 25 (Model 6): Logistic Regression of Predictor Variables on Highest Grade Completed (Grade 12 or Less)⁶

Independent Variables	B (S.E.)	Odds Ratio
Age	-.027(.011)	.973**
Gender		
Female	-.388(.050)	.679***
Race		
Black	.285(.061)	1.330***
Hispanic	.620(.073)	1.860***
Other race	.289(.125)	1.334**
Place of residence		
Not SMSA	.628(.070)	1.875***
SMSA, inner city	.077(.058)	1.080
Marital status		
Never married	.419(.069)	1.521***
Separated	1.003(.126)	2.727***
Divorced	.469(.067)	1.598***
Widowed	.433(.224)	1.542*
Constant	.991	
-2Log-Likelihood	9308.658	
N	7019	
Pseudo R Square	0.07	

Note. Hosmer & Lemeshow Goodness-of-Fit Test: .132

Significant for coefficients: $p^* < .05$; $p^{**} < .01$; $p^{***} < .001$

Note Omitted categories: Male = 0, White = 0

Married = 0, SMSA, not inner city = 0.

⁶The dependent variable equals 1 if Highest Grade Completed is less than the 13 Grade, 0 otherwise.

Classification is conducted to assess how well logistic model 5 (see Table 25) has correctly predicted each of the categories (in poverty/not in poverty) (Table 26). The sensitivity value of 0 implies model 5 has correctly classified 0 percent of those identified as capability poverty poor at the equal to or less than grade 11. The specificity value of 100 indicates that the model correctly classified 100 percent of those identified as not capability poverty poor. The classification of the respondents under the different categories (in poverty/not in poverty), has shown 89.5 overall percent correct in classifying the categories. The positive predictive value indicates that model 5 accurately predicted 0 percent of individuals classified as being poor. The negative predictive value shows that model 5 correctly predicted 89 percent of those who are not classified as monetary poverty poor.

Table 26: *The Observed and Predicted Frequencies for Capability Poverty (Equal to or Less than Grade 11)) Logistic Regression*

Observed	Predicted		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	6280	1	100
In Poverty	738	0	0
Overall Percent Correct			89.5

Note: Sensitivity = $0/(0+738)=0$; Specificity = $6280/(6280+1)=100$

Positive Predictive Value = $0/(0+1)=0$

Negative Predictive Value = $6280/(6280+738)= 89$

Classification Table 27 reflects how well logistic model 6 (see Table 25) has correctly predicted each of categories (in poverty/not in poverty). The sensitivity value of 69.9 implies model 6 has correctly classified 69.9 percent of those identified as capability poverty poor at the equal to or less than grade 12. The specificity value of 47.3 indicates that the model correctly classified 47.3 percent of those identified as not capability poverty poor. The classification of the respondents under the different categories (in poverty/not in poverty), has shown 59.5 overall percent correct in classifying the categories. The positive predictive value indicates that model 6 accurately predicted 61 percent of individuals classified as being poor. The negative predictive value shows that the model correctly predicted 57 percent of those who are not classified as monetary poverty poor.

Table 27: *The Observed and Predicted Frequencies for Capability Poverty (Equal to or Less than Grade 12)) Logistic Regression*

Observed	Predicted		Percentage Correct
	Not in Poverty	In Poverty	
Not in Poverty	1516	1687	47.3
In Poverty	1149	2667	69.9
Overall Percent Correct			59.5

Note: Sensitivity = $2667 / (2667 + 1149) = 69.9$; Specificity = $1516 / (1516 + 1687) = 47.3$
 Positive Predictive Value = $2667 / (2667 + 1687) = 61$
 Negative Predictive Value = $1516 / (1516 + 1149) = 57$

According to Hosmer and Lemeshow (2000), a good fitting logistic model requires the Hosmer and Lemeshow statistics to be greater than .05. The value of Hosmer and Lemeshow Goodness-of-Fit statistics greater than .05 implies there is no difference between the values observed and predicted models. While good fitting models show a nonsignificant value ($p > .05$) on Hosmer and Lemeshow Goodness-of-Fit statistics, a poor fit model is indicated by a significant value of less than .05. Hosmer and Lemeshow Goodness-of-Fit statistics for all the binary logistic regression models are presented in Table 28. The values for all the Hosmer and Lemeshow statistics are greater than .05. These results suggest that the logit models that examine the relationship between the criterion (poverty measures) and predictor variables are good fits.

Table 28: *Regression Models*

Model	Hosmer & Lemeshow Goodness-of-Fit Test Statistics
1 (see Model 1)	.132
2 (see Model 2)	.100
3 (see Model 3)	.215
4 (see Model 4)	.165
5 (see Model 5)	.112
6 (see Model 6)	.132

Comparing Significant Predictors of the Different Poverty Measures

To examine the third research hypothesis that the predictor (explanatory) variables have similar effects (similar odd ratios) on the three poverty measures, the comparison of the odds ratio for the significant predictors of the different poverty measures was performed, as shown in Table 29. For all the poverty measures, gender, race, place of residence, and marital status are the main predictors of the likelihood of individuals falling below the respective poverty thresholds. All reported odds ratio are significant except the figures in bold. With the exception of age predicting the likelihood of individual falling capability poverty at equal to or less than grade 12 threshold, both the level of family size and age are not predictors of the odds of individuals falling below the all poverty thresholds.

Apart from a few cases, the odds ratios for the various predictors show consistent patterns of estimates across both the monetary and social exclusion poverty thresholds. Generally, the odds ratio remains fairly constant for the different levels of the monetary and social exclusion poverty thresholds. In the main, the odds ratio of the capability poverty thresholds are about half those of the monetary and social exclusion poverty thresholds.

With respect to gender, the odds ratio of females for both monetary and social exclusion poverty thresholds is about 1.2. For capability poverty, the odds ratio is about .70. This means that for a female, the odds of falling below the monetary and social exclusion poverty lines is about twice the odds of falling below the capability poverty line. The odds ratios for being Black and Hispanic are very close under the monetary and social exclusion poverty thresholds. The odds ratio for the race dummies, being Black or

Hispanic, show a little higher odds ratio estimates (2.5) under the monetary poverty thresholds compared to that of the social exclusion poverty. The odds ratio (1.6) for “Other race” for both the monetary and social exclusion poverty thresholds is the same. The risk of a respondent falling below the monetary or the social exclusion poverty lines is lower for the “Other race” than for a Black or Hispanic.

Under the monetary and social exclusion poverty thresholds, the odds ratio for a respondent living in a rural area is the same at around 2.4. Similarly, the odds ratio for a respondent living in a metropolitan, inner city area is very similar for the monetary and social exclusion poverty thresholds.

Compared to the other predictor variables, the odds ratio for the marital status dummies for both the monetary and social exclusion poverty thresholds are relatively high with a range from 3.8 to 12.7. Most (90%) of the odds ratios for the marital status dummies for both the monetary and social exclusion poverty thresholds are estimated at least 5.7. The odds ratio for marital status dummies using the capability poverty threshold is comparatively small. On an average, the odds ratios for the marital status dummies under the capability poverty thresholds are between .2 and .3 times the corresponding odds ratios for the monetary and social exclusion poverty thresholds.

Generally, the odds ratios for the monetary and social exclusion poverty thresholds are higher than those of the capability poverty thresholds. In addition, they appear to show a consistent pattern of estimates compared to the capability poverty thresholds, which somewhat lack a consistent pattern.

Table 29: *Comparing Significant Predictors of the Different Poverty Measures*

	Monetary Poverty (Th) (1.5 TH)		Social Exclusion Poverty (505MI) (60%MI)		Capability Poverty (G≤11) (G≤12)	
Family size	-	-	1.021	1.018	1.020	-
Age	-	-	.993	1.005	1.000	.973
Gender (being female)	1.288	1.283	1.181	1.202	.713	.679
Race (being Black)	2.440	2.552	2.417	2.444	1.382	1.330
Race (being Hispanic)	2.528	2.540	2.002	2.169	3.603	1.860
Race (others)	1.624	1.608	1.745	1.823	1.378	1.334
Place of residence (not in SMSA)	2.397	2.358	2.350	2.544	1.672	1.875
Place of residence (SMSA, in inner city)	1.467	1.501	1.552	1.576	-	1.080
Never married	7.210	5.724	10.140	10.926	2.138	1.521
Separated	6.786	5.935	11.737	12.667	2.856	2.727
Divorced	4.122	7.317	7.252	8.003	1.599	1.598
Widowed	6.482	3.829	10.443	8.620	2.989	1.542

Note. Reported odds ratios are significant, except the bolded figures (not significant).

Poverty Measure and Regional Variations

Empirical studies have shown variations in income and/or poverty rates for the four regions of the United States (US Bureau of Census, 2004, 2005). With the current research, it is likely that poverty estimates may vary with the four regions in the United States. I hypothesized that regional variation does influence poverty outcomes.

In order to assess the fourth hypothesis that regional variation does influence poverty outcomes, a descriptive analysis on a percentage of the sample to indicate poverty at the regional levels was conducted. Similar to the finding at national level, the poverty outcome estimates for the regions vary with different poverty measures with the social exclusion poverty measure having the biggest count followed the monetary poverty (Table 30). Even, after I confined the sample data to only those who were working, there is still variation in sample in poverty across the four regions. The south's sample in poverty exceeds the rest of the regions for both the monetary and social exclusion poverty measures (Table 31).

These research findings are consistent with previous empirical studies that have shown regional variations in income and/or poverty rates for the four regions of the United States (US Bureau of Census, 2004, 2005). For instance, in the breakdown of the 2004 household median income by region, the Northeast (\$47,994), West (\$47,680), Midwest (\$44,657), and South (\$40,773) varied. The South had the lowest median income while Northeast and the West had the highest median income. However, there was no statistically significant difference between the Northeast and West (US Bureau of Census, 2005). With respect to school completion, Kaufman et al. (2000) noted that the event dropout rates across the four regions of the United States did not indicate a wide

variation. Kaufman et al (200) find school dropout rate for the South was 6.2%, Midwest was 4.4%, the Northeast was 3.9%, and that of the West was 3.5%.

Table 30: *Percent Distribution of Sample in Poverty by Regions*

Type of Poverty	Measured	% in Sample, NE	% in Sample, Midwest	% in Sample, South	% in Sample, West
Monetary Poverty	Poverty status at Federal Poverty Threshold cut off point	13.3 (n=969)	12.8 (n=91599)	17.0 (n=2717)	11.6 (n=1474)
Social Exclusion Poverty	Household Income at 50% cut off point of the median national income of the population aged between 39 and 48 years.	25.5 (n=969)	26.8 (n=1599)	35.6 (n=2717)	27.9 (n=1474)
Capability Poverty	At equal to or more than Grade 11 cutoff point	9.8 (n=1169)	8.2 (n=1803)	11.4 (n=3155)	12.8 (n=1474)

Table 31: *Percent Distribution of Working Sample in Poverty by Regions*

Type of Poverty	Measured	% in Sample, NE	% in Sample, Midwest	% in Sample, South	% in Sample, West
Monetary Poverty	Poverty status at Federal Poverty Threshold cut off point	7 (n=828)	9.2 (n=1417)	11.6 (n=2349)	5.7 (n=1097)
Social Exclusion Poverty	Household Income at 50% cut off point of the median national income of the population aged between 39 and 48 years.	18.8 (n=828)	22.9 (n=1417)	30.8 (n=2349)	22.2 (n=1097)
Capability Poverty	At equal or more than Grade 11 cutoff point	7.9 (n=1001)	6.5 (n=1594)	9.7 (n=2726)	10.6 (n=1253)

While the same demographic factors may be associated with regional variations in households' income and poverty rates, the effects of some factors may be more significant in a particular region than others (Chestnut, 1999; Schiller, 2008). Table 32 shows the predictor variables of the three poverty measures for the four regions. Similar to the results of the national analysis, the logit results show that gender, race, place of residence, and marital status are significant predictors of the monetary poverty measure. There are, however, a few exceptions. Gender (being female) is not a good predictor in the Midwest while place of residence (rural and inner) is not a good predictor in the West. Race ('other' race) is not a good predictor for the Northeast and the West.

Apart from a few cases, the odds ratios of the monetary poverty logit equations in Table 32 compared to those on model 5 and model 6 are almost identical.

Table 32: *Comparing Significant Predictors of the Monetary Poverty for the four Regions*

Predictor variable	Northeast		Midwest		South		West	
	Th	1.5Th	Th	1.5Th	Th	1.5Th	Th	1.5Th
Family size	-	.	-	-	-	-	-	-
Age	-	-	-	-	-	-	-	-
Gender (being female)	1.222	1.420	1.057	1.172	1.338	1.304	1.433	1.237
Race (being Black)	2.286	2.513	3.283	3.009	1.734	2.089	2.355	2.008
Race (being Hispanic)	2.945	3.129	2.198	2.500	2.005	2.192	2.603	2.190
Race (others)	2.414	1.463	2.533	1.922	1.026	1.175	1.669	1.745
Place of residence (not in SMSA)	.677	.415	2.433	2.907	2.748	2.596	1.434	1.163
Place of residence (SMSA, in inner city)	2.134	2.080	1.919	2.290	1.277	1.213	1.032	1.169
Never married	7.220	7.085	9.526	6.283	6.845	5.199	5.177	5.093
Separated	4.972	6.680	7.154	5.530	5.958	5.399	9.948	6.954
Divorced	2.671	3.614	6.571	4.210	3.886	3.613	3.635	3.983
Widowed	2.078	3.347	10.918	11.078	7.624	8.495	2.485	3.346

Note. Reported odds ratios are significant, except the bolded figures (not significant).

Summary and Conclusion

This section presents a summary of the findings in relation to the hypotheses stated in this research. The first hypothesis that discrepancies exist in estimating the outcome probability of poverty if different poverty measures are applied is supported. The results of the analysis show that the population size in poverty varies with the three poverty measures. In general, both the monetary and social exclusion poverty measures exhibit consistent patterns of gradual increase in the percent of distribution of sample in poverty. In contrast, capability poverty did not exhibit a consistent pattern of poverty distribution. It seems the capability poverty measure is not a good poverty measure.

The assessment of the second hypothesis that the three poverty measures are explained by the same predictor (explanatory) variables reveals that gender, race, place of residence, and marital status had statistically significant positive effects on the likelihood of individuals falling into poverty. Of these, marital status is the strongest predictor in determining the likelihood of persons falling into poverty. In regard to the third hypothesis, the findings show that the odds ratio remains somewhat the same for the different levels of the monetary and social exclusion poverty thresholds. However, the odds ratio of the capability poverty thresholds are about half those of the monetary and social exclusion poverty thresholds. Similar to the results of the national analysis, the logit results for the regional level analyses show that gender, race, place of residence, and marital status are significant predictors of the monetary poverty measure.

CHAPTER FIVE

DISCUSSION OF RESULTS

The utilization of different dimensions of poverty measures was associated with varied levels of poverty outcomes (Blank, 2007; Laderchi et al., 2003; World Bank, 2002). Because there is no comparative study on the three main poverty measures, it is difficult to tell of their similarities in terms of their predictor variables as well as the level of estimate outcomes. The purpose of the current study is to compare the different poverty measures to examine their outcomes and implications for poverty reduction. Specifically, the current study will examine how different poverty measures (monetary, capability, and social exclusion poverty) estimate poverty outcomes in the United States.

The findings of this study are organized with the ultimate aim of providing answers to the four research questions:

Research question 1: Is there any relationship between the distribution of people in poverty and the different poverty measures (monetary, capability, and social exclusion poverty)? In other words, how does the distribution of people in poverty vary under the three different poverty measures?

Research question 2: Are the different poverty measures explained by the same predictor (explanatory) variables?

Research question 3: How differently do the predictor variables (demographic characteristics) predict a poverty measure?

Research question 4: Apart from the predictor variables, does region influence the outcomes of poverty measures?

The discussion is presented in three subsections. The first subsection discusses the distribution of individuals in poverty based on the three poverty measures. The second section examines the similarities and differences between the predictor variables of the three poverty measures. Based on the odds ratios associated with the different predictor variables, the odds ratio associated with the different predictor variables and the similarities in the predictor variables for the three poverty measures were verified. The third subsection discusses whether contextual regional variation accounts for different poverty outcomes.

Distribution of Individuals under the Monetary, Social Exclusion and Capability Poverty Measures

Poverty and social policy research utilize a diversity of poverty definitions and measurements (Laderchi et al., 2003; World Bank, 2002). While many poverty studies in the United States employ the federal official poverty threshold (a monetary poverty measure), other evaluative studies tend to focus on indicators of capability and social exclusion poverty (Blank, 2007; Rank, 2004).

Although a number of comparative studies on poverty measures are carried out in the United States, these studies focus mainly on alternative monetary poverty measures that include the federal official poverty thresholds, the Census Bureau alternative measure and the National Association of Science alternative measure (Citro, Constance, & Michael, 1995; Dalaker, 2005; National Poverty Center, 2006). There are no studies that compare the three main poverty measures.

Laderchi et al. (2003) noted that the use different poverty measures would likely result in different counts of people in poverty. From the descriptive analysis of the

current study, it is evident that the levels of the percent distribution of individuals in poverty vary with the different poverty measures. A comparison of the percent distribution of samples in poverty shows that, at the national level, 14.5% of the people in the sample are poor when the United States' federal official poverty line was applied. Taking the capability poverty threshold at equal to or less than grade 11, 10.6% of the sample crosses the poverty line. The poverty incidence is highest for the social exclusion poverty measure. At less than 50% of the median income, 30.6% of the sample is in poverty.

The variability in the levels of the percent distribution of an individual crossing the poverty line for the three poverty measures can be attributed to the differences of the theoretical assumptions of these poverty measures (Laderchi et al., 2003; World Bank, 2002). The diversity of the assumptions as well as the methodology adopted for each poverty measurement have influence over the extent to which each poverty measure is able to capture a particular individual as poor. The assumption of the monetary poverty is based on absolute poverty and focuses on the income that classifies a family as poor when the income or consumption falls below an objectively derived poverty line. On the other hand, the capability poverty perspective points to individual's achievement of basic functioning or capabilities to fulfill certain essential functions in society. The social exclusion poverty measure based on the concept of relative poverty asserts that the position of individual satisfaction is in relation to other members of a society. It focuses more on group and structure characteristics, such as gender, race, as the primary causes of poverty.

When the poverty line of the capability poverty threshold is raised to equal to or less than Grade 12, the percent distribution of individuals in poverty increased sharply to 54.2%. A comparison of the percent distribution of individuals in poverty for the three poverty measures indicates that the poverty incident is highly sensitive to a big change when the capability poverty threshold is increased. Particularly, when the poverty threshold of educational achievement was raised from equal to or less than grade 11 to grade 12 the percentage in poverty was dramatically higher. Both the monetary and social exclusion poverty measures exhibit a consistent pattern of gradual increase in the percent distribution of the sample in poverty. The social exclusion poverty has the highest counts of percent distribution of sample in poverty. After the social exclusion poverty, next comes the monetary poverty with a consistent count of sample percent in poverty when we raise the official federal poverty threshold level.

Furthermore, the results of the cross tabulations the poverty measures could overlap to capture a percentage of the sample as poor. In general, there are overlaps between the poverty measures to identify individuals who experience more than one type of the poverty measure. A Kappa Measure of Agreement for the social exclusion poverty and monetary shows a moderate level of consistency. The Kappa Measure of Agreement value ($Kappa = .6, p < .001$) indicates a moderate consistency between the monetary and social exclusion poverty measures. The Kappa Measure of Agreement value between the capability poverty and monetary or social exclusion poverty indicates a weak inter rater agreement ($Kappa = .2, p < .001$). The findings that the capability poverty measure exhibits inconsistent patterns of poverty distribution as well as a weak Kappa Measure of Agreement value with the poverty measures implies the capability poverty measure is not

a good poverty measure. In general, both the social exclusion poverty and monetary poverty measures have shown a consistent pattern of poverty in an identifying sample.

To reduce poverty, the monetary poverty policy emphasizes the need for an increase in productivity and income as a means to reduce poverty among the poor (Laderchi et al., 2003). While the policies of capability poverty emphasize increase accessibility of goods such as good health, nutrition, and education to individuals or groups, the social exclusion poverty policies tend to promote policies that minimize racial, gender, and class discrimination and inequality to increase access to more resources (Laderchi et al., 2003).

The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) was enacted in 1996 to reduce welfare rolls as well as the number of people in poverty. The current welfare reform was influenced by the theoretical assumption of the monetary poverty approach (Abramowitz, 1996; Hays, 2005). From a policy perspective, the welfare reform assumes that if the poor are forced or encouraged to work they will be economically independent and self-sufficient.

Considering the US welfare policy outcomes, participation in the labor market will considerably reduce the percent of people in poverty. Contrary to the policy expectation outcome, the analysis of the percent distribution of working individuals in poverty has to some extent decreased poverty in the sample across different poverty thresholds (see Table 9). However, respondents' involvement in economic activities does not show that simply working does not assure their escape from poverty as 9.3 percent of the working household still fall below the federal poverty level.

This finding is consistent with the previous evaluation work on US welfare reform, which revealed that individuals' labor market participation does not sufficiently reduce poverty among previous welfare participants (Angel, Chase-Lansdale, & Cherlin, 2004; Blank, 2007; Hays, 2005). Schiller (2008) also pointed out that a person's participation in the labor market does not necessarily assure financial success. According to Schiller, earning disparities between people with the same educational qualifications and who work in the same jobs exist. The real earning of a worker depends on a number of variables that may include nature of job, age, work experience (employment), education, race, gender, and place of residence.

Overall, the increase in income was overridden by higher expense and reduction in the receipt of cash and noncash benefits. Most of the families had difficulty balancing household budgets to cover expenses such as childcare, housing, and employment related costs.

Similarities and Differences between the Predictor Variables Associated with the Monetary, Social Exclusion and Capability Poverty Measures

Many studies examined rising poverty trends (Hurst, 2004), while others studied factors associated with people's likelihood of falling below poverty thresholds (Rank, 2004). However, no studies have compared predictor variables associated with the three main poverty measures. In this subsection, the similarities in the predictor variables associated with the probability of people crossing the monetary, social exclusion and capability poverty lines are discussed followed by the similarity of the odds ratio for the significant predictor variables.

The analysis of results in Table 26 has shown that the common predictor variables associated with the different poverty measures are: gender, race, place of residence, and marital status. Age and family size did not predict the three poverty measures.

Age

Age and family size are not predictor variables of an individual's likelihood of crossing the different poverty lines. Age showed a curvilinear relationship with income and educational achievement (Cataldi et al., 2007; Fronczek, 2005; Kaufman et al., 2000). Kaufman et al. found that students with age beyond the traditional school age are at an increased risk of dropping out of school. The event dropout rate for young students of typical school age (between 15 and 18) is substantially lower than older students aged 19 to 24. The study sample consisted of older cohorts between age 39 and 48. The lack of significant relationships between age and the different poverty measures could be attributed to the fact that the variable age is not widely distributed enough to exhibit meaningful relationships.

Level of Family Size

The lack of significant relationships between level of family size and different poverty measures (social and capability poverty) could be attributed to inconsistent and inconclusive outcomes shown by previous studies. Estimated 2004 household median income by family size for the various states in the United States has generally shown a curvilinear relationship. However, a few cases show an irregular pattern for the level of family size and median income (US Bureau of Census, 2004). Some studies found an inverse relationship between the family size and children's educational achievement (Downey, 1995). This observation is explained by family resource dilution, which states

that the availability of parental resources decreases as the number of siblings increases. However, the functional form of this relationship is not always linear, and this depends on whether the resource is interpersonal or economic.

Review of previous research has consistently found a negative statistical relationship between sibling size and children's intellectual development (Guo & VanWey, 1999; Jæger, 2008). For instance, Guo and VanWey found the observed negative was casual and spurious. When Guo and VanWey controlled the effects shared across siblings and over time, the negative relationship between sibling size and intellectual development disappears, casting doubt on the causal interpretation of the conventionally found negative relationship. A study by Conley (2000) demonstrated a negative significant sibling size effect on educational attainment. Lu and Treiman's (2008) analysis of China's educational policies over the years found that implementation of different educational policies has alternately reduced and increased competition for educational resources, and this has correspondingly reduced and increased the effect of sibling size on educational attainment.

Gender

A review of the literature has shown an association between gender and socioeconomic outcomes. (Cataldi et al., 2007; Kaufman et al., 2000). Studies conducted by Schiller (2008) and the U.S. Bureau of Census (2008) revealed that women earned less than men even at the same level of education and occupation. An analysis of 2007 data from a household survey in the United States on earnings of full-time wages and salary workers revealed that in general, men earn more than women (US Bureau of Census, 2008). Although Kaufman et al. (2000) pointed out that females are more likely to

experience a lower level of school dropout rates than males, the current data analysis has shown a positive relation with the probability of falling below the poverty threshold.

The fact that being female is negatively associated with the probability of falling below the capability poverty measure thresholds suggests that females are less likely to dropout of school at grades 11 and 12. However, Table 30 shows being females is positively associated with the probability of falling below the monetary and social exclusion poverty. The implication of this finding is that gender is an important predictor of female's likelihood of falling into the monetary and social exclusion poverty.

Race

With respect to race, the findings of this study are consistent with the results of other studies, which reveal that race continues to be a predictor, since people belonging to a race other than White have a greater probability of crossing the thresholds for the three poverty measures. Analysis of 2003 poverty rate using data from the Current Population Survey of the United States indicates a lower percent of White compared to other races crossing the federal poverty thresholds. Of the race group, 10.5% of White, 11.8% of Asians, 22.5 of Hispanic, and 24.4% of Black were found to fall below the federal poverty level (US Census Bureau, 2004). Fronczek's (2005) report on percent of subgroups show a similar outcome. With income below the federal poverty line based on data from the 2004 American Community Survey, 7.8% of Hispanic, 6.4% of Black, 3.6% of Asian, and 3.4% of Whites were below the federal poverty lines. Kaufman et al. (2000) also found that high school dropout rates for Whites remained lower than the rate for Blacks.

Marital Status

In this study, the effect of an individuals' marital status on poverty was high. Across the three poverty measures, the separated, divorced, or widowed have indicated a positive relationship with the different poverty thresholds. This means that individuals moving from a married status to the marital dissolution (or nonmarriage) status can pose a negative experience of poverty. These results are consistent with previous research. A report from US Bureau of Census revealed 28.2% of female households without husbands compared to 4.6 % of married female households lived below the federal poverty thresholds (US Bureau of Census, 2008). McMarry and Schoeni (2001) and Fagan and Rector (2000) have found divorce to cause significant negative economic consequences for families with decreased household income. Although a divorce household has smaller family members than the predivorce household, the income loss for the former is generally great compared to the latter (Fagan & Rector, 2000; McMarry & Schoeni, 2001).

Using national panel data from the 1990s in the United States, McMarry and Schoeni (2001) found that 44% of the difference in the economic status between widows (widowers) and married elderly was due to differences in the economic status that existed between the two groups. The rest of the difference 56% in the economic status was attributed to the loss of income and expenses associated with the death of the spouse. Grable (2007) also noticed that the individuals' large expenses for divorce processing led to fewer financial resources available for the divorced individuals. This is usually true for low-income and wealthy households.

Urban and Rural Place of Residence

Place of residence has also emerged in this study as a predictor variable for individuals crossing all the poverty thresholds. Living in rural area increased the likelihood for study respondents to cross the three poverty lines. However, living in inner cities area increased the likelihood for study respondents to cross both the monetary and social exclusion poverty lines. This observation could be attributed to the fact that, in generally, living in rural or inner city areas has been shown to be associated with have lower income (Rural Development Resource, 2004; USDA Economic Resource Service, 2004). In the United States, the poverty rate has been higher for rural and inner city dwellers counties (Rankin & Quane, 2000; Schiller, 2008; Wilson, 1996). According to Wilson (1987, 1996), minority residents in inner cities have been isolated from mainstream behavior and economic opportunities.

The disparities in income for those living in suburban verses inner city and rural areas could be attributed to the lack of educational opportunities and manufacturing jobs in the rural areas or inner city areas (US Bureau of Census, 2008). Using data from 2003 data from the Current Population Survey of the United States, Schiller (2008) found that those who live in metropolitan areas have the highest income followed by those who live in the inner city of the metropolitan area, while people who live in nonmetropolitan areas have the lowest income.

Comparing Odds Ratio for the Predictor Variables

Generally, there is mixed support for the third hypothesis that the predictor (explanatory) variables have similar effects (similar odd ratios) on the three poverty measures. To some extent, the odds ratio for the predictor variables is similar both within and across the different poverty thresholds. Interestingly, the odds ratio for females for both monetary and social exclusion poverty thresholds is the same with 1.2 estimates. The odds ratio for females under capability poverty threshold is almost half that for the monetary and social exclusion poverty thresholds. This means that for a female, the odds of falling below the monetary and social exclusion poverty lines is about twice the odds of falling below the capability poverty line.

The odds ratio for race other than White crossing the monetary and social exclusion poverty thresholds is twice that for gender. Being Black or Hispanic has an average estimated odds ratio of 2.5 under the monetary poverty and social exclusion poverty compared to that of the gender with 1.2 odds ratio estimates. Similarly, the estimated odds ratio for minority race (about 1.4 on average) is twice that of being female (about .700) under the capability poverty measure. With respect to their respective reference categories, the risk of respondent' race is twice that of the gender factor to cause individuals to fall into the three poverty measures.

The odds ratio for the marital dissolution (or nonmarriage) status including separated, divorced, or widowed is very high compared to all the other predictor variables under both the monetary and social exclusion poverty thresholds. The modal odds ratio for the marital status dummies for both the monetary and social exclusion poverty thresholds are estimated to be around 10 compared to the 2.0 of the other predictor

variables. The odds ratio for marital status dummies for the capability poverty thresholds are almost similar to other the predictors under the capability poverty measure. So far, the study has shown similarity and difference between the three poverty measures. Generally, the odds ratios for the monetary and social exclusion poverty thresholds are higher than that of the capability poverty thresholds. The high odds ratio for the marital dissolution (or nonmarriage) status represent the most dramatic form of socioeconomic dislocation among the separated, divorced, or widowed of the study sample.

In this section, the odds ratio for the different predictor variables for the three poverty measures were compared. In general, the odds ratios for predicting capability poverty threshold is lower than the odds ratios for social or monetary poverty measures. Compared to their respective dummy references, the marital dissolution or nonmarried) status (separated, divorced, or widowed) is the strongest predictor of falling into poverty, followed by race and place of residence (being Black or Hispanic). Being female significantly increases the risk of falling into poverty. The odds of an individual respondent falling under the monetary and social exclusion poverty are the same for both race (being Black or Hispanic) and place of residence (being a rural resident). The risk (odds) of experiencing social exclusion and monetary poverty is similar for both gender (being female), and being an 'other' race or inner city dweller.

Policy Implications and Applications

My current study has informed literature on poverty with a focus on the conceptualization and measurement of poverty. It is particularly useful to the United States where there is a growing concern over the emphasis on the federal official poverty measures. The poverty threshold has been criticized as being far from the real experience of poverty in the contemporary society of the United States. The official poverty measure is assessed to have both methodological and resource definition weaknesses (Blank, 2007; Dalaker, 2005). In the computation of the original poverty measure, Orshansky estimated that food expenditure represented about one-third of the total family income. Many poverty researchers argue that several socioeconomic changes have occurred over the years, and that the current United States official poverty thresholds fail to capture the real experience of poverty (Blank, 2007; Dalaker, 2005; U.S. Bureau of Census, 2004).

Based on the findings of this study, each of the three poverty measures remains unique and captures a different percent of the sample as poor. Although one cannot conclude that any one particular poverty measure is better than the other, the choice of a particular poverty measure has important implications for policy strategy toward poverty reduction. From the findings of this study it appears that the social exclusion poverty measure has consistently captured a good number of the sample who are identified as being either monetary or capability poor. While many poverty studies utilize the United States official poverty threshold to estimate the poverty rate, many of the government aid programs use the simplified version of poverty thresholds and poverty guidelines to determine individuals' eligibility for certain Federal programs (US Department of Health and Human Services, 2007). The findings of current study show that the federal official

poverty measure may not adequately capture individuals who might be experiencing poverty.

This research might be useful in developing effective policy and policy program toward poverty reduction. The determination and choice of a poverty line is crucial for poverty measurement because the different ways in which a poverty threshold is set and defined will be invariably influenced by the effectiveness of poverty reduction. As recommended by Laderchi et al. (2003) and Hagenaars and Vos (1988), this study proposes that more than one poverty measure should be used to identify and target the poor. With regard to a development policy toward poverty reduction, this study suggests that the social exclusion poverty measure be combined with any other poverty measure to identify the poor for a meaningful policy formulation.

Although the study respondents' labor market participation has a positive effect on reducing the percent of individuals falling below the different poverty thresholds, the finding shows that simply working does not assure a household escape from poverty as 9.3 percent of working households is still in poverty. This finding suggests that working or work participation may be a necessary policy strategy but not a sufficient condition to considerably reduce poverty. Gender, race, marital status, and place of residence have been found to be crucial in determining one's position for all three poverty measures. Policy makers may need to be more sensitive to gender, race, marital status, and place of residence to achieve effective policy and policy program. This is in line with the social exclusion poverty approach, which stresses the need to address those structural inequalities based on gender, race, and marital status to effectively reduce poverty.

An estimation of a sample in poverty at the regional level reveals that the South has the highest incidence of poverty. This result is consistent with the other previous studies. The estimated poverty rates based on the United States federal poverty thresholds shows variations for the four regions. In 2003, the poverty rates in the four regions of the US indicated South (14.1%), West (12.6%), Northeast (11.3%), and Midwest (10.7%) (US Bureau of Census, 2004). A policy implication from these findings is that to reduce poverty in the South, policy makers should look at the issue of school dropout, especially among females and nonWhite school dropouts.

Limitations of the Study and Suggestions for Further Studies

Previous studies have demonstrated a significant relationship between age and income or educational achievement (Cataldi et al., 2007; Fronczek, 2005; Kaufman et al., 2000). One limitation of this study is that the study sample consists of respondents of older adults with a narrow age range. Contrary to expectation, age is not a significant predictor of the probability of an individual falling below the different poverty measures. This observation could be explained by the fact that the variable age is not distributed enough to exhibit meaningful statistical relationships. The study sample consists of older cohorts with the age range between 39 and 48. Future research should utilize a study sample with a wide age range to examine the effect of age on the likelihood of individuals crossing the different poverty lines.

Another weakness of this research is the operationalization and measurement of capability poverty. In this study, the capability poverty has been operationalized in term of educational achievement of the individuals. The capability poverty has been measured at two levels. First, individuals whose education attainments are equal to or less than 11

schooling (grade 11) are considered poor. Second, individuals whose education attainments are equal to or less than 12 years schooling (grade 12) are considered poor. The results of current study using the capability poverty measures reveal that educational achievement is not the best measure of capability. The findings have shown inconsistent result with the defined capability poverty. Future studies show extend capability poverty measurement to other spheres such as health and nutrition indicators.

Based on the finding of working on poverty reduction, this study speculates that work participation may be a necessary policy strategy but not sufficient condition to considerably reduce poverty. It is also likely that other factors such as different job types may account for the extent to which working may reduce the number of people in poverty. Schiller (2008) argued that a person's participation in the labor market does not necessarily assure financial success. According to Schiller, although persons with the same educational qualifications work the same jobs, the real earning of a worker depends on a number of variables that may include nature of job, gender, and race. Previous evaluation of the effect of welfare reform shows that working might not necessarily reduce poverty (Blank, 2007; Hays, 2005; Angel et al., 2004). For example, a report released by the US Census Bureau indicated an increase in the national poverty rate from 12.5 to 12.7% between 2003 and 2004. At the same time, the national unemployment rate fell from 6.0 to 5.5 percent (Cadena & Sallee, 2005). Cadena and Sallee's analysis of the unusual increase in poverty rate revealed that, in the Midwest, employment fell significantly in higher wage sectors including manufacturing, education, and health while employment increased in low wage sectors such as leisure and hospitality between 2003 and 2004.

The research findings show that gender (being female) is an important variable that predicts the odds of individuals falling into all the three poverty measures. However, the current study did not take a detail gender (being) and the risk of falling into poverty. Future study should be extended to the sphere of feminization of poverty. The current study did not look at the details of the different jobs respondents were engaged in. As a result of the constraint of the study data set, it is not possible to conduct a comparative analysis on the various job types in relation to the various poverty measures. Future study that looks at the relationship between the respondents' economic activity and poverty levels is suggested.

Conclusion

The current research reveals the complexity of poverty in terms of the linkage between theory, predictor, definition and measurement of poverty. Even with the simple model that I have utilized, which included key poverty indicators, I find a great deal of variation exists due to the different poverty measures. The different poverty measures result in different estimates of population sizes of those considered as being poor. This variation occurs as a function of the definition and measurement of poverty. Therefore differences in conclusions among studies and discrepancies among evidence for policy makers may, among other things, stem from the variation in poverty definitions and means of measurement. It is reasonable to suggest that researchers seriously consider reporting results using more than one measure. The relatively low pseudo R-squared values of the models support this notion. Although the three poverty measures are different, they do overlap to capture a segment of the population as poor. These findings

explain the discrepancies in information and conclusion regarding poverty outcomes, which in turn may have serious policy implications.

The United States' federal official poverty measure (a monetary poverty) has been criticized as a less effective poverty measure. In general, this study did not directly address this controversy, but instead I inform literature on poverty measures in a number of directions. First, I have conceptualized and defined three poverty measures including monetary, social exclusion, and capability poverty measures. In addition, two set of poverty lines have been set for each poverty measure. These poverty lines represent what is considered the least amount of resources needed for a decent life. Individuals who fall below the specific poverty lines are considered poor. Second, I analyzed and examined the outcomes of different poverty measures. The sample in poverty is computed for the entire country as well as for each of the four regions of the United States using the data from the 2004 of National Longitudinal Study of Youth, 1979 (NLSY79) from the US Department of Labor (2006).

This study finds that the distribution of people in poverty varies depending on the poverty measures used. Because the different poverty measures do not capture the same people as poor, I make the case that it seems more appropriate to employ two poverty measures to identify the poor. With the logit analyses, the odd of individuals falling into each of the three poverty measure is shown to be affected differently by the same predictor variables. The specific demographic characteristics found to increase the odd of people falling into poverty include gender, race, place of residence, and marital status. A comparison of the monetary poverty and social exclusion poverty measures show the two poverty measures are explained by the almost the same predictor (explanatory)

variables including gender , race , place of residence, and marital status. In general, both the monetary and social exclusion poverty measures exhibit consistent patterns of gradual increase in the percent of distribution of sample in poverty. The risk (odds) of falling into monetary or social exclusion poverty is similar for the predictor variables.

The odds ratios of the marital status dummies, which on the average are between 3.8 and 12.7 across the different poverty thresholds, have exhibited the largest impact on the chance of people falling into poverty. Surprisingly, the analysis also shows that simply by working a household could not escape from poverty. This suggests that merely working is not sufficient strategy to substantially reduce poverty. In my view, the findings that the likelihood of people falling into poverty is associated with specific demographic characteristics clarifies that a more comprehensive approach that looks at labor market participation and those specific demographic characteristics is required.

In conclusion, using the different poverty thresholds, the different definitions and measurements of poverty associated with different outcomes at both national and regional levels have been demonstrated. Nevertheless, more than one poverty measure may better capture those who might be experiencing poverty. The analysis of specific demographic factors also reveals that poverty is likely to be influenced by a person's gender (being female), race (race other than being white), place of residence (rural and inner city dwellers), and marital status (being separated, divorced, and widowed).

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APPENDIX A

SURVEY OF NLSY79 THE LIFE COURSE EXPERIENCES OF A LARGE COHORT
BORN IN THE UNITED STATES IN THE LATE 1950S AND EARLY 1960S

2004 of National Longitudinal Study of Youth, 1979 (NLSY79)

US Department of Labor.

Identification code.....

Note: this number was assigned according to the record number of each respondent on the tape. The first respondent was assigned id#1, the second was assigned id#2, etc

I. Family Background and Demographic Characteristics

A. Sex of respondent

- 1 Male
- 2 Female

B. Age of respondent at interview date

- 1. 37
- 2. 38
- 3. 39
- 4. 40
- 5. 41
- 6. 42
- 7. 43
- 8. 44
- 9. 45
- 10. 46
- 11. 47
- 12. 48
- 13. 49

C. Respondent's racial/ethnic cohort from screener.

- 1. Hispanic
- 2. Black
- 3. Non-black, Non Hispanic

D. Marital status (collapsed)

- 1. Never married
- 2. Married, spouse present
- 3. Other

E. Marital status

- 0. Never married
- 1. Married
- 2. Separated
- 3. Divorced
- 4. Widowed

D. What is your origin or descent?

- 0. None
- 1. Black
- 2. Chinese
- 3. English
- 4. Filipino
- 5. French
- 6. German
- 7. Greek
- 8. Hawaiian, p.i.
- 9. Indian American or Native American
- 10. Asian Indian
- 11. Irish
- 12. Italian
- 13. Japanese
- 14. Korean
- 15. Cuban
- 16. Chicano
- 17. Mexican
- 18. Mexican-American
- 19. Puerto Rican
- 20. Other Hispanic
- 21. Other Spanish
- 22. Polish
- 23. Portuguese
- 24. Russian
- 25. Scottish
- 26. Vietnamese
- 27. Welsh
- 28. Other
- 29. American

2. Education

A. Was respondent enrolled in school at all since last interview?

1. Yes
0. No

B. What is the name of the highest degree you have received since [{{lintdate}}]?

1. High school diploma (or equivalent)
2. Associate/junior college (AA)
3. Bachelor of Arts degree (BA)
4. Bachelor of Science (BS)
5. Master's degree (MA, MBA, MS, MSW)
6. Doctoral degree (PhD)
7. Professional degree (MD, LLD, DDS)
8. Other (specify)

C. Highest grade completed as of May 1 survey year (Revised)

- 0 None
- 93 Pre-kindergarten
- 94 kindergarten
- 1 1st grade
- 2 2nd grade
- 3 3rd grade
- 4 4th grade
- 5 5th grade
- 6 6th grade
- 7 7th grade
- 8 8th grade
- 9 9th grade
- 10 10th grade
- 11 11th grade
- 12 12th grade
- 13 1st year college
- 14 2nd year college
- 15 3rd year college
- 16 4th year college
- 17 5th year college
- 18 6th year college
- 19 7th year college
- 20 8th year college or more
- 95 Upgraded

3. Labor Market Experience

A. Respondent's occupation (using census occupation codes)

1. 10 to 430: Executive, administrative and managerial occupations
2. 500 to 950: Management related occupations
3. 1000 to 1240: Mathematical and computer scientists
4. 1300 to 1560: Engineers, architects, surveyors, engineering and related technicians
5. 600 to 1760: Physical scientists
6. 1800 to 1860: Social scientists and related workers
7. 1900 to 1960: Life, physical and social science technicians
8. 2000 to 2060: Counselors, social and religious workers
9. 2100 to 2150: Lawyers, judges and legal support workers
10. 2200 to 2340: Teachers
11. 2400 to 2550: Education, training and library workers
12. 2600 to 2760: Entertainers and performers, sports and related workers
13. 2800 to 2960: Media and communications workers
14. 3000 to 3260: Health diagnosing and treating practitioners
15. 3300 to 3650: Health care technical and support occupations
16. 3700 to 3950: Protective service occupations
17. 4000 to 4160: Food preparation and serving related occupations
18. 4200 to 4250: Cleaning and building service occupations
19. 4300 to 4430: Entertainment attendants and related workers
20. 4460: funeral Related occupations
21. 4500 to 4650: Personal care and service workers
22. 4700 to 4960: Sales and related workers
23. 5000 to 5930: Office and administrative support workers
24. 6000 to 6130: Farming, fishing and forestry occupations
25. 6200 to 6940: Construction trade and extraction workers
26. 7000 to 7620: installation, maintenance and repairs workers
27. 7700 to 7750: Production and operating workers
28. 7800 to 7850: Food preparation occupations
29. 7900 to 8960: Setters, operators and tenders
30. 9000 to 9750: Transportation and material moving workers
31. 9800 to 9830: Military specific occupations
32. 9840: Armed forces
33. 9950: Not in labor force (acs code)
34. 9990: Uncodeable

4. Household Composition

A. Respondent's Family size

- 1. 0
- 2. 1
- 3. 2
- 4. 3
- 5. 4
- 6. 5
- 7. 6
- 8. 7
- 9. 8
- 10. 9
- 11. 10 to 999: 10+

5. Income and Asset

A. Total net worth for family (Dollar amount)

Created by summing all asset values and subtracting all debts.
Missing assets and debt values are imputed.

- 1. 0
- 2. 1 to 999
- 3. 1000 to 1999
- 4. 2000 to 2999
- 5. 3000 to 3999
- 6. 4000 to 4999
- 7. 5000 to 5999
- 8. 6000 to 6999
- 9. 7000 to 7999
- 10. 8000 to 8999
- 11. 9000 to 9999
- 12. 10000 to 14999
- 13. 15000 to 19999
- 14. 20000 to 24999
- 15. 25000 to 49999
- 16. 50000 to 999999999: 50000+

B. Total net family income in past calendar year (2003) *key* (truncated).

Total net family income truncated values are equal to the average value of the top 2% of respondents who are U.S. residents (Dollar amount).

1. 0
2. 1 to 999
3. 1000 to 1999
4. 2000 to 2999
5. 3000 to 3999
6. 4000 to 4999
7. 5000 to 5999
8. 6000 to 6999
9. 7000 to 7999
10. 8000 to 8999
11. 9000 to 9999
12. 10000 to 14999
13. 15000 to 19999
14. 20000 to 24999
15. 25000 to 49999
16. 50000 to 999999999: 50000+

C. Family poverty status in 2003.

0. Not in poverty
1. In poverty

D. Family poverty level in 2003

Comment: poverty level for respondent's family size - 2003

1. 0
2. 1 to 999
3. 1000 to 1999
4. 2000 to 2999
5. 3000 to 3999
6. 4000 to 4999
7. 5000 to 5999
8. 6000 to 6999
9. 7000 to 7999
10. 8000 to 8999
11. 9000 to 9999
12. 10000 to 14999
13. 15000 to 19999
14. 20000 to 24999
15. 25000 to 49999
16. 50000 to 999999999: 50000

6. Geographic Residence Information

A. Region of current residence

- 1 Northeast
- 2 North central
- 3 South
- 4 West

B. Is respondent's current residence urban/rural?

0. Rural
1. Urban
2. Unknown

C. Is respondent's current residence in Standard Metropolitan Statistical Area (SMSA)?

1. Not in SMSA
2. SMSA, not central city
3. SMSA, in central city
4. SMSA, central city not known