

Measures of Material Hardship

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Measures of Material Hardship

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Executive Summary

Researchers have increasingly used measures of material hardship to examine the well-being of low-income families, especially in the context of welfare reform. These measures employ direct indicators of consumption and physical living conditions to examine whether families meet certain basic needs. In many cases, material hardship measures have been used to supplement more traditional income-based poverty measures, such as household income and the federal poverty level. However, researchers and policymakers interested in material hardship face methodological challenges in developing and using hardship measures and neither a commonly accepted definition nor a standard approach to its measurement has emerged.

In light of increased interest in material hardship measurement, the U.S. Department of Health and Human Services' Office of the Assistant Secretary for Planning and Evaluation (ASPE) developed a project to advance the study of material hardship. The project convened a series of workgroup meetings with federal researchers and a subsequent roundtable meeting, involving people inside and outside of the government, to gain insights and input on material hardship measurement. This report responds to roundtable meeting participant recommendations for: 1) additional syntheses of what is known about material hardship and its application to research with low-income families with children; and 2) further analyses of the measures that have most often been used to assess material hardship. Specifically, the report discusses:

- Why researchers and policymakers are interested in measuring material hardship;
- The challenges associated with defining and measuring material hardship and, based on a synthesis of the literature, practical suggestions for developing measures of material hardship;
- What we know about some of the material hardship indexes that have been used to date in domestic research; and
- New analyses of the SIPP for the purpose of furthering our understanding of material hardship measurement among families with children.

The report's goal is to pull together, in one place, the various strands of research and thinking on defining and measuring material hardship in the US, with an emphasis on how this has been applied to low-income families with children.

The Value of Hardship Measures

Material hardship measures allow researchers and policymakers to assess the challenges families face when they have limited income and resources. The proponents of material hardship measures see them as an important complement to income-based measures and as providing a different picture of the extent to which families are able to meet their basic needs. Poverty is not a unidimensional concept and the relationships between income, expenditures, consumption, and material hardship are complex. Changes in income may not result in parallel changes in the distribution of material well-

being or hardship and, as a practical matter, different populations of people may be identified when different measures are used.

In addition, differences in household living standards are not fully explained by current income. For example, income-based measures do not account for wealth, debt, or access to credit – all of which may be used to help meet families’ basic needs. Income’s ability to provide a meaningful picture of household resources is further limited by the reliability of the data used to construct income-based measures.

Finally, measures of material hardship also are a useful tool for policy analysis and program evaluation. This is especially the case with the growth in “in-kind” benefits and services relative to cash transfers, and in the wake of recent welfare reform policies. Moreover, these measures have been portrayed as “making more sense” to the public and policymakers than the official poverty statistic, which has been characterized as providing a less concrete sense of the living conditions of the poor and non-poor. As noted by one group of researchers, measuring material hardship gets at the issue of, “what does it mean to be poor,” by examining families’ living conditions and the extent to which they meet their basic needs.

Defining and Measuring Hardship

Consensus has not been reached on the definition and measurement of material need. While there is some agreement on how need may be defined within a specific domain, such as food security, researchers struggle with how to assess families’ overall material hardship experience across multiple aspects of need. As a result, different definitions of material hardship have emerged.

Based on a synthesis of research by European and US researchers, this report suggests some practical guidelines for developing a common definition of material need and identifying a standard below which people experience material hardship. First, direct measures should be used to assess the extent to which people are able to meet their needs. These are different from the income-based measures used to assess poverty. Second, the measures should start with basic physical needs that are related to physiological functioning in order to strengthen the claim that their absence represents a true hardship. Focusing on material needs that are essential to survival – basic levels of shelter, medical care, food and clothing – reduces the influence of personal preferences on observed living conditions.

These guidelines are a starting point for future discussion on how to define material hardship. However, there are still important differences in researchers’ views on what constitutes material need and a corresponding threshold for material hardship. Further work is needed in improving scientific knowledge regarding which hardships cause negative outcomes, as well as in developing societal consensus about what represents a true material hardship. Additionally, there are other aspects of measurement and analysis that require further clarification: choosing appropriate constructs for measuring need; selecting reliable and valid measures; and, deciding how to summarize a wide array of potential measures into a smaller, more manageable number of measures, or a material hardship index.

Material Hardship Indexes

A number of researchers have developed material hardship indexes. These indexes share some similarities: 1) they all define hardship in terms of direct measures of families' experiences and actual living conditions; and 2) they all include a core set of basic needs and food security indicators. Additionally, the majority of the hardship indexes examined in this report use data from the Survey of Income and Program Participation (SIPP).

Despite these similarities, however, there is considerable variability in the number and types of indicators (e.g., food security, housing quality) researchers have included in their material hardship indexes. Even in cases where all studies use the same basic indicator, researchers use different questions and combinations of questions to construct these indicators. Furthermore, although many researchers have used data from the SIPP in their hardship indexes, not much is known about whether these measures are “valid” measures of material hardship among families with children and how they should be combined to form a hardship index.

The variability in how researchers have constructed their indexes makes it difficult to determine whether there has been movement by researchers towards a “core” set of indicators or measures of material hardship. The differences among hardship indexes also makes it difficult to compare the results from these studies – both for specific aspects of hardship such as food or housing, and for overall material hardship.

Measuring Hardship Using the SIPP

Descriptive analyses of the SIPP measures most frequently used to assess material hardship show that these measures are potentially useful indicators of material hardship among families with children, particularly those with household incomes less than 100 percent of the federal poverty level. These results indicate that the measures included in the SIPP generally correspond to notions about hardship: they are more prevalent among households with low household income and liquid assets, and among households headed by single adults. Specifically:

- Families with children who have low incomes and limited assets experience basic needs, food security, and housing safety hardships more often than their counterparts with higher incomes and assets.
- For the most part, basic needs and food security hardships are equally prevalent among rural and urban households; however, when controlling for income, rural households are less likely to experience these types of hardships.
- Families that are headed by a single adult are more likely to experience basic needs or food security hardships than households with married adults or other types of households with multiple adults.

Chapter 1: Introduction

Researchers have increasingly used measures of material hardship to examine the well-being of low-income families, especially in the context of welfare reform. These measures generally employ direct indicators of consumption and physical living conditions to examine whether families are meeting certain basic needs. In many cases, material hardship measures have been used to supplement more traditional income-based poverty measures, such as household income and the federal poverty level. In recent years, material hardship measures have appeared in a wide range of surveys and studies, including the U.S. Census Bureau's Survey of Income and Program Participation (SIPP), recent studies of welfare leavers, the Project on Devolution and Urban Change, the National Survey of American Families (NSAF), and the Women's Employment Survey (WES).

In light of increased interest in material hardship measurement, the U.S. Department of Health and Human Services' Office of the Assistant Secretary for Planning and Evaluation (ASPE) developed a project to advance the study of material hardship. ASPE recognized that, while measuring material hardship has considerable value and policy relevance, researchers and policymakers also face methodological challenges in developing and using material hardship measures. For example, there is a lack of consensus on which hardships should be measured and whether and how they might be combined into an overall index of material hardship. Additionally, researchers are still evaluating the validity of hardship measures that are currently being used and how these measures compare to more traditional economic measures of income and poverty.

During the project's first phase, ASPE and Abt Associates Inc. held working group meetings with federal researchers from the U.S. Census Bureau, the U.S. Department of Housing and Urban Development, and the U.S. Department of Agriculture to plan the project's one-day Roundtable Meeting on Measuring Material Hardship (Roundtable Meeting). The Roundtable Meeting's goals were to:

1. Assess "where we are" in our understanding and measurement of material hardship;
2. Determine the extent to which there is agreement as to what we measure when we examine material hardship and how it should be measured; and
3. Identify what guidance can be provided, in the form of possible "next steps," to further develop material hardship measures.

On February 20, 2002, over 35 researchers and experts from both inside and outside the government attended ASPE's Roundtable Meeting on Measuring Material Hardship. The Roundtable Meeting's morning discussion session focused on identifying the underlying constructs of material hardship and criteria for developing material hardship measures. Meeting participants' also grappled with the issue of analytical strategies that might be used to develop a composite measure of material hardship. During the afternoon session, meeting participants discussed the key dimensions of hardship (e.g., food insecurity, shelter, and access to health care) and examined concrete measures in the areas of housing and health. The Roundtable Meeting concluded with a discussion of "next steps" for

furthering our understanding of material hardship measurement, generally, and for the project, more specifically. A summary of the meeting's proceedings is provided as Appendix A.

The Measures of Material Hardship project's second phase was to write this report, which provides further background on the issues discussed at the Roundtable Meeting. The goal of this report is to advance the study of material hardship measurement by summarizing information about material hardship and its application to research with low-income families and children. Specifically, the report:

- Discusses the ways in which material hardship has been conceptualized and operationalized by researchers;
- Highlights where there is consensus and differences across material hardship definitions and measurement approaches;
- Summarizes what we know about some of the material hardship measures that have been used to date in domestic research;
- Identifies the strengths and weaknesses of different measurement approaches and strategies that might be used to combine material hardship measures into composite scales and indexes; and
- Presents new analyses of the SIPP for the purpose of furthering our understanding of material hardship measurement among families and children.

Report Organization

The remainder of Chapter 1 discusses the motivation for measuring material hardship, including its potential to supplement existing income-based poverty measures. It also discusses some of the known weaknesses and limitations associated with measuring material hardship.

Chapter 2 focuses on clarifying what we mean by material need and identifies challenges and strategies with measuring this construct. First, we distinguish deprivation and, more specifically, material hardship from other common definitions of poverty. We subsequently present a possible conceptual model for defining material need. The chapter concludes with a discussion of some of the challenges that must be faced when developing a definition of material hardship and corresponding measurement strategies.

Chapter 3 reviews how material hardship has been measured in nine studies conducted in the US. It examines how these studies have defined material hardship and the approaches used to construct material hardship indexes. It subsequently distinguishes among the indicators that researchers have used to measure material need in these indexes and identifies those measures, taken from the SIPP, that have been most frequently used by researchers to construct hardship indexes.

Lastly, Chapter 4 builds on the previous chapters and presents analyses of material hardship among households with children, using measures from the 1996 SIPP's Adult Well-being topical module. The potential usefulness of various proposed material hardship measures depends on how these measures vary across households that have diverse experiences and live in different situations. The chapter uses the SIPP to provide concrete data examples and descriptive analyses of the measures that are most commonly used to construct material hardship indexes. The chapter concludes with a discussion of unanswered questions and options for future research.

Why Measure Material Hardship?

The growing use of material hardship measures to examine the well-being of low-income families, particularly families with children who have left welfare, reflects researchers' interest in assessing the challenges families face when they have limited income and resources. Recent research suggests that material hardship measures can supplement existing income-based poverty measures by providing descriptive information on how families are doing (e.g., Beverly, 1999, 2000; Mayer, 1997; Mayer & Jencks, 1989; Rector, Johnson, & Youssef, 1999). Moreover, measures of material hardship are a potentially useful tool for policy analysis and program evaluation. This is especially the case with the growth in "in-kind" benefits and services (e.g., food stamps, Medicaid, work supports and services) relative to cash transfers, and in the wake of recent welfare reform policies. Measures of material hardship also have been portrayed as "making more sense" to the public and policymakers than the official poverty statistic. The official poverty statistic has been characterized as "abstract" and as providing a less concrete sense of the living conditions of the poor and non-poor.

As noted by one group of researchers, measuring material hardship gets at the issue of, "what does it mean to be poor," by examining families' living conditions and the extent to which they meet their basic needs (Federman et al., 1996).

Limitations of Income-based Poverty Measures

Historically, poverty and well-being in the US have been assessed using income-based measures (i.e., by applying the official poverty thresholds to income data reported in surveys). In theory, income-based measures capture a household's ability to purchase the goods and services that it needs. That is, income is a measure of a household's resources that can be used to meet its needs, allowing for differences in individual tastes and preferences (income does not prejudge what expenditures households should make). Domestic income-based poverty measures also benefit from the fact that they draw upon nationally-representative surveys and administrative data systems that regularly collect income data. This allows for longitudinal comparisons of income trends over time.

However, using income as a proxy for total family resources or well-being may misrepresent what is actually available to a household for the purpose of meeting its basic needs. A family's living conditions are shaped by more than current income, and households may experience different living standards for reasons not explained by current income (e.g., Beverly, 1999; Edin & Lein, 1997; Mayer & Jencks, 1989, 1993; Rector et al., 1999).

Income-based measures usually only account for “current income” and do not account for wealth (e.g., savings or other liquid assets), debt, or access to credit that may be used to obtain goods and services. Goods also may be obtained without income, savings or credit – they may be acquired as gifts, exchanged via barter, received as free services or public goods from the government (Ringen, 1988). To the extent that families are able to meet their basic needs using accumulated wealth or credit or through other markets, measures based on current income will misrepresent families’ ability to meet their basic needs.

Income’s ability to provide a meaningful picture of household resources is further limited by the reliability of the data used to construct income-based measures. Survey respondents may be reluctant to reveal their income in surveys, fail to report or over-report income due to errors in survey design (e.g., this is particularly the case in households with irregular income sources or among individuals who engage in self-employment), and intentionally over- or –under-state their income (Roemer, 2000). For example, underreporting of welfare-related income and income derived from existing assets is a common concern with the Current Population Survey (CPS), which serves as the data source for calculating the US poverty statistics. In another example, Edin and Lein’s (1997) ethnographic study shows that low-income single mothers meet their basic needs by obtaining income and support from “irregular sources” that are not easily captured by traditional economic poverty measures (e.g., off-the-books employment, and money from relatives, romantic partners, and fathers of their children).

The limitations of income-based measures are illustrated by the recent criticisms of the US poverty measure. This measure, originally developed in the 1960s, compares families’ before tax cash income to poverty thresholds that were intended to identify families with income too low to purchase basic necessities (the original measure was based on families’ food needs and the percentage of their budgets that were devoted to food) (Short, 2001). While the statistic’s thresholds have been updated for inflation since that time, the Committee on National Statistics (Citro & Michael, 1995) and other researchers (e.g., Ruggles, 1990; Short, Shea, Johnson, & Garner, 1998) have criticized the official US poverty measure for not keeping pace with policy and other developments. Specifically, the measure:

- Uses a definition of income that does not take into account government tax (i.e., EITC) and non-cash transfer (e.g., food stamps, WIC) policies that are targeted at helping low-income families;
- Relies on self-reported income data from surveys;
- Does not take into account geographic differences in cost of living (e.g., local variations in housing or shelter costs); and
- Uses a threshold that has not been adequately updated to reflect changes in the minimal standard of need (e.g., cost of childcare) that have occurred since the measure’s inception (Citro & Michael, 1995; Ruggles, 1990; Short, 2001).

The Committee on National Statistics has proposed guidelines for a new poverty measure that addresses some of these criticisms; however, to date, consensus on the specifics of a new measure has not been reached.

Adding Another Dimension to the Picture of Family Well-Being

The limitations of existing income-based measures do not necessarily suggest that traditional poverty measures should be replaced with measures of material hardship. Rather, proponents of material hardship measures see them as an important complement to income-based measures and providing a different picture of the extent to which families are able to meet certain basic needs. Although the prevalence of income-based measurement strategies in the US may imply otherwise, poverty and well-being are multifaceted phenomena, not unidimensional concepts (Beverly, 2001). The relationships between income, expenditures, consumption, and material hardship are complex and changes in income may not result in parallel changes in the distribution of material well-being or hardship (Mayer & Jencks, 1993). As a result, researchers have come to use multiple measures to examine various aspects of family well-being and need.

As a practical matter, different populations of people are identified as poor when different measures are used. In fact, research findings suggest that hardship measures and income measures do not necessarily identify the same populations. For example, Mayer and Jencks (1989) found that family income only explains about 14% of the variance in the number of material hardships experienced by Chicago families in the 1980s. Other researchers also have shown that the distributions of material hardship and income do not parallel each other (e.g., Jencks & Torrey, 1988; Mayer, 1997; Mayer & Jencks, 1993). Bauman (2002) found that although the level of income-poverty increased as families were less attached to the labor force, families that experienced the greatest amount of material hardship were those that worked part of the year and those who moved onto welfare during the previous year. Similar differences in the population groups identified by income and direct measures of material hardship have been found in international and developing country research (e.g., United Nations Human Development Report).

The fact that different measures identify different population groups reinforces the premise that while income-based and material hardship measures are closely related, they are somewhat conceptually different. Mayer and Jencks (1989) point out that this corresponds to what they view as two distinct goals of US government programs and policies: 1) to reduce poverty through income transfers and other employment-support programs; and, 2) to reduce specific forms of hardship through in-kind assistance. As noted by Rector et al. (1999), “the fact that household income falls below a specific level reveals little about the nature of material deprivation within the household” (p. 351).

Increased Use of Material Hardship Measures by Researchers

Increasingly, policy research and program evaluations have incorporated material hardship measures into their analyses, both to look at whether programs and policies affect specific dimensions of hardship (e.g., food insecurity) and the overall level of material hardship experienced by families (e.g., across multiple dimensions of basic need). For example, recent research has:

- ***Compared hardship measures to income-based poverty measures.***
As discussed further in Chapter 3, a number of researchers have constructed a hardship or deprivation index that they subsequently have used to compare families identified as experiencing multiple hardships with families whose income is below the poverty thresholds (Bauman, 1998; Beverly, 1999; Federman et al., 1996; Mayer & Jencks, 1989; Rector et al., 1999). Short (2003) also found that different populations are identified when material hardship measures are compared to alternative income-based poverty measures, which suggests that even if the existing official US poverty statistic is modified the differences between material hardship and poverty measures will persist.
- ***Analyzed the effects of family structure on material hardship.***
Hardship measures have been used to examine resource-sharing and family well-being in cohabitating and married couple households. Generally, studies find that married couple households have less material hardship than households with a couple that cohabitates, even when controlling for income and other factors (Bauman, 2002; Lerman, 2002a, 2002b).
- ***Contrasted family well-being when adults receive welfare and when they work.***
In a synthesis of findings from ASPE's welfare leavers studies, Acs and Loprest (2001) found that some studies show an increase in food and housing-related hardships after leaving welfare, while others found a decline or no change in material hardship after exiting welfare. In their book, *Making Ends Meet*, Edin and Lein (1997) found that working mothers experience higher levels of material hardship than those who receive welfare assistance. This occurs despite the fact that working mothers earn wages and have more "regular" income. Danziger et al. (2000), using data from the WES, concluded that although women who work experience higher levels of financial well-being, they still experience material hardship, albeit at somewhat lower levels than women who do not work every month. Other researchers have used measures of material hardship to examine the extent to which families transitioning off welfare are able to meet basic needs (e.g., Polit et al., 2001; Sherman, Amey, Duffield, Ebb, & Weinstein, 1998).
- ***Evaluated the effectiveness of policy interventions that provide in-kind assistance such as food or shelter, rather than income.***
Borjas (2001) and Gundersen and Oliveira (2001) used material hardship measures to examine the extent to which in-kind government assistance programs (e.g., food stamps) attain their goal of helping families meet their basic food needs. They find that families with higher food hardship are more likely to participate in food stamps than other families. However, sophisticated analyses are required to disentangle causality and evaluate program efficacy.

- *Examined more complex behavior such as labor market participation and transitions from welfare to self-sufficiency.*

Material hardship has been shown to play a role in individual decision-making about transitions from welfare to work or self-support and the likelihood that families will be able to sustain self-sufficiency (Bauman, 2002).

In each of these studies, material hardship measures provide a valuable picture of family well-being, supplementing what can be learned from traditional income-based poverty measures.

Limitations of Material Hardship Measures

Despite their growing popularity, measures of material hardship are not without their weaknesses and limitations. Most importantly, despite recent efforts to further our understanding of material hardship and its measurement, a *common definition of material hardship does not exist*, nor is there a standard approach to its measurement. More specifically, since there is no commonly agreed upon standard of material need that applies to everyone, researchers have used somewhat different definitions and measurement approaches. For example:

- Researchers have included different dimensions of material need or consumption (e.g., food, shelter, medical care) in their operational definitions of material hardship; and,
- Within these dimensions, researchers have measured different constructs (e.g., housing quality, hunger, food insecurity, clothing in wintertime).

Additionally, there has been little research on the validity of specific measures and how they compare to more traditional economic measures of income and poverty.

Researchers also have made different choices about how to present material hardship data. Some report measures as independent indicators of need, while other researchers have used different strategies to combine hardship measures into composite indexes or scales. The composite measures describe hardship both within dimensions (e.g., food) and across dimensions (e.g., food, shelter, medical care). These issues are further complicated by the fact that no nationally-representative survey regularly collects data on multiple forms of hardship.¹

Material hardship measurement also is vulnerable to criticisms about the role played by individual choice and preferences. Because of personal preferences, people may choose to not consume specific goods or services that others may consider necessities. For example, people may report that they have not eaten on a particular day or are hungry because they have chosen to use their limited resources to purchase other goods and services. To the extent that hardship measures are not linked to a particular cause, they may be subject to questions about their appropriateness as a measure or might overestimate the actual level of hardship that is experienced.

These and other limitations of material hardship measures are examined in more detail in the remainder of this report.

¹ Although the SIPP is a regularly occurring nationally representative survey, the Adult Well-being module, which collects most of the material hardship-related data, has only been included in one Wave of each of the three last Panels (1991, 1993, & 1996).

Goal of This Report

The goal of this report is to pull together, in one place, the various strands of research and thinking on defining and measuring material hardship in the US, particularly as they relate to research with low-income families and children. The second chapter lays out some of the definitional issues, underlying theoretical constructs, and analytical challenges that we face when examining material hardship. The subsequent chapter reviews how researchers in the US have used material hardship measures in their work. Finally, the fourth chapter provides some basic tabulations of existing material hardship measures in the SIPP.

Chapter 2: Defining and Measuring Material Hardship

One of the primary challenges in measuring material hardship is the lack of a commonly accepted definition of material need or standard approach to its measurement. Most domestic researchers interested in material hardship have built upon earlier work by Mayer and Jencks (1989) in which they constructed a hardship index that included various indicators of material need. However, despite this common reference point, there remains considerable disagreement among researchers as to how to define and measure material hardship.

In response to this situation, discussants at the Roundtable Meeting recommended undertaking additional definitional and theoretical work that focuses on what is meant by material hardship and how it could be measured in the context of low-income families and children. This chapter responds to this recommendation by: 1) summarizing some of the literature on the related concepts of poverty and deprivation; and 2) discussing some of the challenges that must be overcome to develop a commonly accepted definition of material hardship and corresponding measurement strategies.

Poverty, Deprivation, and Material Hardship

Poverty is a multidimensional phenomenon and as a result may be conceptualized and measured in different ways. For example, in her presentation at the Roundtable Meeting, Susan Mayer made the following observations: “material hardship is not necessarily synonymous with poverty” and “hardship measures are not the same as income measures.” These comments reflect the fact that researchers and the public oftentimes do not differentiate between the terms ‘poverty,’ ‘deprivation,’ and ‘hardship.’ The confusion among these terms is a sign of both the interrelationship among these concepts and the fact that people often assign different meanings to these words.

Citro and Michael (1995) describe economic poverty as the extent to which households experience a “low level of material goods and services *or* a low level of resources to obtain these goods and services” (p. 21, emphasis added). These two forms of economic poverty are conceptually quite different; one focuses on the *lack of resources*, most often measured in terms of income, and the second on the lack of goods and services, or *deprivation*. Short (2003) takes this distinction one step further by distinguishing between income poverty and non-income poverty, or deprivation measures.

In the following sections we contrast resource- or *income-based poverty measures* with those that measure *deprivation*, which include measures of material hardship.

Resource- and Income-based Poverty Measures

People experience *subsistence poverty* “if they do not have the resources which are deemed necessary to achieve a certain minimum level of consumption” (Ringen, 1995, p. 353). The official US poverty statistic is an example of such a subsistence, or resource-based, poverty measure. Specifically, this measure uses poverty thresholds to identify families with incomes too low to purchase basic necessities (Citro & Michael, 1995). These thresholds, originally developed by Mollie Orshansky of the Social Security Administration, are based on the cost of a minimum diet and a multiplier that

accounts for other expenses. The thresholds are adjusted annually to reflect changes in consumer prices. Given the widespread use of the US poverty measure, most Americans have come to think of poverty in terms of an income-based definition.

Deprivation Poverty Measures

In contrast, Ringen (1995) defines *deprivation poverty* “in relation to how [people] in fact live” and “as a standard of consumption which is below what is generally considered to be decent minimum” (p. 354). Similarly, Sen (1979) noted that poverty might be identified through either income or *direct* approaches, where direct measures describe the extent to which people meet their needs after having made use of the resources at their disposal. The direct approach and income methods result in two alternative concepts of poverty, not two ways of measuring the same thing (Sen, 1981, in Short, 2003). Both consumption and material hardship measures, which focus on the goods and services consumed, are examples of direct measures. While poverty and deprivation are related concepts, a person could suffer from either poverty or deprivation alone. For example, a person lacking income could be well fed and housed through in-kind donations, while a person with regular income could be poorly fed and have inadequate shelter due to their inability to manage a budget.

Deprivation poverty measures and the use of direct measures have received considerably more attention by researchers in Europe and Great Britain than US researchers. As discussed below, European definitions of deprivation poverty generally represent a broader concept (i.e., social deprivation) than the American emphasis on material hardship. Also, more of the European measures have been grounded in socially-defined needs (e.g., some measures have been based on national survey data that identify what the public considers to be necessities).

Social Deprivation

European measures of social deprivation include social necessities as well as physical necessities (Fisher, 2001; Short, 2003). This general definition of deprivation was strongly influenced by the work of Townsend (1979), who created an index of 12 indicators of “deprivation,” which included 6 items related to physical necessities (e.g., household without refrigerator; gone without a cooked meal for one or more days within the past two weeks) and 6 items related to social activities (e.g., a one week holiday away from home in the last 12 months; a relative or friend to the home for a meal; child’s friends over to play). Conceptually, Townsend defined poverty in terms of *relative deprivation*, where families “can be said to be in poverty when they lack the resources to...have the living conditions and amenities which are customary, or at least widely encouraged or approved” (p. 31, in Fisher, 2001).

Mack and Lansley (1985) built on Townsend’s work in the Breadline Britain survey. Here, they defined poverty as “an enforced lack of socially perceived necessities” (p. 45). As was the case with Townsend, their necessities included both personal consumption items and social activities. Their definition, however, differed from Townsend’s work in two important ways (Fisher, 2001; Short, 2003). First, they chose indicators of deprivation that were based on a national survey that asked respondents to classify a series of items as necessities or non-necessities. Second, they asked survey respondents who reported that they did not have a specific item whether this was because it was something they did not want *or* it was something they wanted, but could not afford.

Fisher (2001) applies the term “consensual deprivation indicator” to Mack and Lansley’s approach, given its grounding in socially defined need. This approach has subsequently been used in surveys conducted in other European countries. For example, the work of Irish researchers (e.g., Callahan, Nolan, and Whelan, 1993) examines households that experience basic deprivation using indicators drawn from Mack and Lansley’s initial work *and* fall below specific income thresholds.

Measures of Material Hardship

US measures of material hardship are narrower in focus than European measures of social deprivation. Generally speaking, material hardship measures only look at material needs and consumption items, which are closely equated with physical necessities (Fisher, 2001). As noted by Exhibit 2.1, most domestic material hardship studies use direct measures of hardship experiences or actual living conditions (Bauman, 1998; Danziger et al, 2000; Edin & Lein, 1997; Federman et al., 1996; Lerman, 2002a; Mayer & Jencks, 1989; Rector et al., 1999; Short & Shea, 1995). Although Beverly (1999a) defines hardship as, “inadequate *consumption* of very basic goods and services,” the measures used to describe hardship actually focus on household experiences and living conditions (e.g., food insufficiency, housing quality), rather than consumption in relationship to need.

Despite their common focus on actual living conditions and physical needs, researchers conducting material hardship research in the US have struggled with establishing a common definition of material need. Unlike the consensual deprivation indicator approach, items included in these studies have been selected by researchers and have not been validated by social surveys where the general population identified which items constitute necessities and which do not. That said, researchers such as Mayer and Jencks (1989) and Beverly (1999a) have grounded their selection of measures in the policy literature and have chosen items that are directly linked to domestic social policy initiatives such as housing, food, and income support programs. That said, participants at the Roundtable Meeting agreed that material hardship is not a “neutral social scientific term.” As a result, material hardship may mean different things to different people.

Similar to European measures of social deprivation, however, most domestic studies use an index with a specified threshold to identify households that experience hardship. In many cases this index also is compared to the official poverty threshold or other income-based poverty measures. This is usually to offer alternative estimates of those in need to poverty estimates promulgated using the official poverty measure or to show how different types of households can be identified using different measures.

Exhibit 2.1**Definitions Used to Describe Material Hardship in US Research**

Author	Definitions
Bauman (1998)	Uses <i>direct</i> measures of economic well being to keep track of <i>how people are getting by</i>
Beverly (1999a)	Inadequate <i>consumption</i> of very basic good and services such as food, housing, clothing, and medical care.
Danziger et al. (2000)	Recent <i>experiences of material hardship</i> and financial strain
Edin & Lein (1997)	Items that virtually every American would consider <i>necessities; Living conditions</i> below a standard most Americans would consider adequate
Federman et al. (1996)	Summarizes <i>living conditions</i> of individuals living in poor and non-poor families
Lerman (2002a)	General and specific <i>problems in making ends meet</i> as well as the availability of <i>outside help to meet basic needs</i>
Mayer & Jencks (1989)	Uses direct measures to examine severity of household's <i>hardship experiences</i>
Rector et al. (1999)	<i>Actual material living conditions</i>
Short & Shea (1995)	Inability to meet <i>basic needs</i>

Conceptual Challenges in Defining Material Hardship

Researchers face a number of conceptual challenges in defining material hardship: 1) whether to measure “absolute” or “relative” material need; 2) what process should be used to determine material needs; and 3) what role should be played by individual choice and personal preferences. We discuss these themes below and consider their implications for measuring material hardship.

Absolute versus Relative Needs

Material needs may be defined in either absolute or relative terms. *Absolute* material needs are those that are *universal*, or *fixed*, for everyone in the population, while *relative* material needs are those that may *vary depending on circumstances* or norms (Ravallion, 1994).²

Based on research in developing countries, some analysts argue that there is an “irreducible core” (Sen, 1979) of *absolute basic needs* that are closely linked (theoretically and empirically) to a physiological interpretation of those things that are vital to human survival: “minimum specified quantities of such things as food, clothing, shelter, water, and sanitation that are necessary to prevent ill-health, undernourishment and the like” (Streeten, 1981, p. 25).

In contrast, *relative needs* are those “things that established rules of decency have rendered necessary” ([Adam] Smith, 1776, quoted in Sen, 1979, p. 288). In this case, the standard of need may vary depending on two factors – social wealth and context. As a society gets “richer” the relative standard of need changes to reflect societal wealth. For example, 75 years ago no one would have considered a telephone to be a necessity. However, today, given the almost universal access to telephones and the important role access to a telephone plays in people’s ability to function in daily life, it could be argued that not having a telephone is a material hardship. Needs also are contextual. Basic needs or a minimum living standard might vary by region of the country or urban *versus* rural settings. Even for an absolute material need such as food, a threshold may be set in relative terms, far above the physiological minimum but corresponding to a view as to what people “should” have.

Despite the benefits of a relative standard of need that reflects social wealth and context, it could be argued that defining need in absolute or near-absolute terms has several advantages.

1. An absolute standard is more likely to remain relevant across individuals, time and place;
2. Measures that assess whether people meet their very basic material needs may be more easily linked to short- and long-term outcomes; and,
3. People are less likely to voluntarily forego opportunities to meet their very basic needs, which means that these needs are more likely to be universally applicable (Beverly, 1999b).

Process for Determining Material Needs

The discussion of absolute and relative needs and corresponding minimum standards points us towards several potential processes for identifying which experiences or shortages constitute a material hardship.

² It is important to note that some researchers (e.g., Townsend, 1979, pp. 37-38) disagree about the existence of a fundamental difference between absolute and relative needs.

Scientific Research

One approach would be to rely on scientific research that relates hardship to physical necessities. For example, scientific evidence may show that caloric intake below a specified level leads to certain adverse medical conditions. While this process may most readily support basic physiological needs and their effect on medical outcomes, one could imagine social science research advancing to the point where there is a credible body of evidence-based research showing that similar shortages in other goods and services result in negative social outcomes.

Societal Consensus

Another process, similar to the process used in some European contexts, is to develop societal consensus on what needs are important enough to be considered hardships if they are not met. Obtaining the data necessary for such a consensus, however, is a challenging task. As discussed above, there is precedent for developing this type of standard using public opinion surveys (e.g., Townsend, 1979; Mack & Lansley, 1993), and Donnison (1988) clearly outlines a research approach that could be executed to capture this information domestically. Nonetheless, this has not previously been done in the US.

How the Measure Will Be Used

Roundtable Meeting participants observed that the process of determining what constitutes a material need should be conditioned on the purpose for which the material hardship measure will be used. For example, what is included in a hardship measure may differ depending on whether it will be used for research, monitoring, or policymaking purposes. Similarly, participants spoke of the need to understand the role behind the underlying reasons for hardship and how “need” is defined. For example, if measures focus only on self-defined needs, we may miss key elements or overstate the level of hardship experienced. The group also was concerned with whether an absolute boundary between hardship and non-hardship exists. The group’s consensus was that if there was a “true” boundary, research should be focused on “finding” or defining this boundary. Alternatively, if the boundary between hardship and non-hardship is arbitrary, it probably should be determined by public consensus.

Link to Negative Outcomes

For now, domestic researchers who study material hardship generally use existing social science research on which needs left unmet will likely to lead to negative outcomes *and* their perceptions of what the American public would consider a “hardship.” This hybrid approach is consistent with what most Roundtable Meeting participants thought was the best strategy for identifying material needs. This has resulted in material hardship thresholds that consistently equate need at the lowest level with the ability to meet basic physiological needs – such as a minimum level of things such food, clothing and shelter that are required for physical functioning (e.g., Bauman, 1998; Bauman, 2002b; Beverly, 1999a; Federman et al., 1996; Mayer & Jencks, 1989; Rector et al., 1999). This physiological approach to defining need is most consistent with the notions that an absolute or near-absolute standard exists and that scientific research can be used to identify basic needs. In contrast, there may be other measures that fit better with the principle of relative need and a process of socially defined necessities.

Role of Individual Choices and Social Norms

The role of individual preferences and social norms also should be considered when defining and interpreting material hardship. Ravallion (1994) notes the difference between the “welfarist” (choice-based) and “non-welfarist” (norm-based) approaches.

[Welfarism] aims to base comparisons of well-being, and public policy decisions, solely on individual ‘utilities’ – the preferences of individuals themselves – while [non-welfarism] typically prefers to base assessments on certain elementary achievements, such as being able to afford to be adequately nourished or clothed, and may pay little or no regard to information on utilities *per se*. (p. 4)

The choice-based approach, or welfarism, assumes that rational people can and will make choices that maximize their individual well-being, regardless of whether their choices are consistent with a societal, or norm-referenced, standard. In contrast, the norm-based approach (non-welfarism) assumes that there is some bundle of basic needs or commodities that form a *minimum standard* that applies to everyone regardless of preferences. For example, societal norms may say that indoor plumbing is a minimum necessity, but an individual may voluntarily forego this “necessity” to live in a remote cabin in the woods because he would rather live in an isolated place than have indoor plumbing. A welfarist would judge that the individual is better off for doing so; a non-welfarist, that the individual is worse off.

The norm-based (non-welfarist) approach reflects much of what has been done in resource economics and research in developing countries, where a minimum standard of basic need is identified for a population and an assessment is made of the extent to which that population falls below these minimum standards. In the US, however, virtually no one must go without the very barest necessities that are literally essential to sustain life. At the higher thresholds used in domestic analyses of material need, households may plausibly choose to make trade-offs or forego what are called “necessities” (indoor plumbing, a working automobile, a visit to the doctor) for reasons other than lack of resources.

Implications for Defining Material Hardship

These three themes and the earlier distinction between resource-based (e.g., income) and deprivation poverty measures suggest an approach for developing a common definition of material need and identifying a standard below which people experience material hardship. For the purpose of measuring material need we are less interested in indirect assessments of available resources than in the *direct assessment* of the extent to which people have the intrinsic goods they need, after having made use of the resources at their disposal.

Additionally, there is some logic in *minimizing the role played by individual choice and preferences* when defining material need. One purpose of a material hardship measure is to supplement the existing US poverty statistic, which already measures resource availability and accounts for individual preferences and choice. Nonetheless, collecting data that shows whether a need is not being met due to lack of resources, rather than personal preferences or other circumstances, would strengthen the claim that a *hardship* already exists. We also are most interested in learning whether people succeed in meeting a given set of socially-defined needs, regardless of individual choice.

One way to minimize the role of individual choice and personal preference is to focus on needs that are closer to “absolute” rather than to “relative” needs. Focusing on a core set of very basic needs, which are fairly closely related to physiological functioning, has the additional value of emphasizing needs about which there are fewer disagreements as to what constitutes a hardship. Absolute material needs also have the most applicability across population segments. It is difficult, however, to define needs with no consideration of the context of the society in which people live, and so some consideration of relative needs may be useful. In addition, it may be possible and valuable to develop measures that differ for families in different situations, just as the federal poverty measure varies by family size and food security is calculated differently for households with and without dependent children.

Finally, several researchers at the Roundtable Meeting advised working on both improving scientific knowledge (regarding which hardships cause negative outcomes) and developing societal consensus (especially in specifying socially-defined needs beyond the bare minimum required for survival) as future steps towards refining the definition and conceptual understanding of material hardship.

Measurement and Analytical Challenges

As described above, it has been possible for researchers who examine need and hardship in developing countries to reach broad agreement on a common set of material needs that are essential to survival – basic levels of shelter accommodations, medical care, food, clothing and sanitation (e.g., Ravallion, 1998; Sen, 1987; Streeten, 1981, 1984). Researchers in the US have used much higher standards and included items that reflect societal norms, which might not be considered “essential” in other contexts. Allowing for these variations in researchers’ views as to what constitutes a material need and a corresponding threshold for identifying material hardship, there are other aspects of measurement and analysis that require consideration. These include:

- Choosing appropriate constructs for measuring need;
- Selecting reliable and valid measures; and,
- Deciding how to summarize a wide array of potential measures into a smaller, more manageable number of measures, or possibly a scale or index.

In the following sections, we discuss these issues and identify possible strategies for overcoming these challenges.

Identifying Underlying Constructs of Needs

As part of the preparation for the Roundtable Meeting, Bauman (2002b) proposed a framework that describes how consumption and needs relate to overall family economic functioning. The framework extends a basic “means” and “ends” dichotomy to include four stages: 1) *inputs*, or resources such as income, assets, public goods; 2) *technology*, such as the ability to manage resources wisely, as well as other abilities and skills, including coping mechanisms; 3) *consumption and needs*, which considers consumption relative to needs; and 4) *outcomes*, which includes both short- and long-term outcomes.

In measuring material hardship, the primary interest is in assessing people’s actual material living conditions, and not how they come by these conditions. Thus, constructs that capture information

about the resources available to people or their ability to use resources to meet their material needs are not a good fit. For example, questions that ask whether people have enough money to pay bills or have health insurance assess the means people have at their disposal to meet their material needs, rather than indicating whether the material need itself has been met.

At the first level of consumption are those basic needs, or necessities, such as “food, clothing and shelter” (Bauman, 2002b). Beyond that, there are the other basic items that people need to function in society (e.g., clothing that meets acceptable social standards). In general, the strategy of assessing consumption relative to need is the same for various types of needs. It requires: 1) setting a standard or need (e.g., caloric intake); 2) measuring actual consumption; and 3) comparing it to this standard.

Alternatively, we can assess the degree to which people have met their material needs by looking at short- and long-term outcomes. Short-term outcomes could be material comforts or the degree to which basic needs are met, such as food insecurity and housing quality measures. Long-term outcomes could be lasting malnutrition or unemployment that can result from sustained material need over time. In either case, what is being measured is whether the desired outcome has been met.

Thus, two practical strategies for measuring material need or hardship can be drawn from the consideration of Bauman’s framework: measuring consumption in relation to need and looking at short-term outcomes. Long-term outcomes are generally more difficult to measure using static, point-in-time measures, although there are exceptions, such as physiological measures of malnutrition that would reveal sustained food hardship over time. Juxtaposing these strategies with existing research on basic needs and material hardship, as well as ethnographic work with low-income families, suggests a range of possible constructs that may be appropriate for material hardship measurement. For example, as seen in Exhibit 2.2, most studies of material hardship have included a very similar set of constructs in their measurement. Of these constructs, the following specifically measure short-term outcomes and consumption patterns (related to need):

- Food security;
- Housing – Quality, Overcrowding, and Security;
- Unmet medical need; and
- Access to consumer durables.

These constructs also are featured in Beverly’s (2001) list of recommended hardship indicators, which include: food, housing, utilities, medical, clothing, and consumer durables. (See Exhibit 2.2) These results suggest a trend toward a core set of constructs that measure material need. (Chapter 3 includes a more thorough discussion of the domains included in current research on material hardship.)

Exhibit 2.2

Domains Measured in Several US Surveys and Studies

	SIPP-Related Studies of Material Hardship												
	SIPP (1991, 1993, 1996)	NSAF (1999)	(Mayer & Jencks, 1989)	(Edin & Lein, 1997)	Moving to Opportunities (MTO) (2001)	AHS & Gundersen (1996)	Urban Change (1998)	Women's Employment Survey (Danziger et al., 2000)	(Bauman, 1998)	(Federman et al., 1996)	(Beverly, 1999a)	(Rector et al., 1999)	(Boushey & Gundersen, 2001)
Insufficient Food	X	X	X	X	X	X	X	X	X	X	X	X	X
Housing-Quality	X*	X	X	X	X	X	X	X	X	X	X	X	X
Housing Crowding	X*	X	X	X	X	X	X	X	X	X	X	X	X
Housing Security	X	X	X	X	X	X	X	X	X	X	X	X	X
Difficulty Affording Basic Necessities	X	X	X	X	X	X	X	X	X	X	X	X	X
Unmet Medical Need/Access to Medical Care/Health Insurance Coverage	X	X	X	X	X	X	X	X	X	X	X	X	X
Access to Consumer Durables	X*								X				X

*Domain omitted in 1993.

Criteria for Selecting Measures

In addition to identifying what constructs should be measured, researchers must select reliable and valid measures. In separate works, Beverly (2001), Citro & Michael (1995), Bauman (1998), and Moore (1997) suggest criteria researchers may use when selecting existing measures or developing new measures of material hardship. (Exhibit 2.3 provides a complete list of each set of proposed criteria.)

While Beverly (2001) and Bauman (1998) are the only authors that propose criteria specifically for material hardship measurement, the criteria proposed by Citro & Michael (1995) and Moore (1997) for selecting poverty measures and indicators of child well-being, respectively, also have considerable applicability to material hardship measurement.

Bauman, Citro & Michael, and Moore's criteria have several common threads:

- ***“Public acceptability,” “Face validity,” and “Clear and comprehensible”***
In recommending criteria, Citro & Michael, Bauman, and Moore all include criteria that direct researchers to select measures that will produce data that are *easily understood* and *“broadly acceptable” to both researchers and the general public.*
- ***“Statistical feasibility,” “Common interpretation,” “Forward looking,” “Relationship to explanatory variables”***
Researchers should consider, in advance, how the data collected using a specific measure will be used. Citro & Michael caution researchers to select measures that are “logically consistent” with each other and will allow for comparisons (e.g., across time periods and groups). Similarly, Bauman and Moore both note that when selecting measures researchers should pay close attention to whether they will serve as good predictors of poverty or material hardship, have a consistent interpretation across population subgroups, and provide effective baseline data for future trends.
- ***“Predicting long-term negative outcome[s],” “Positive outcomes,” “Comprehensive coverage”***
Selected measures should be related to well-established outcomes – both negative and positive (e.g., educational attainment, food insecurity). They also should assess well-being across an “array of outcomes, behavior and processes” (Moore, 1997).
- ***“Reliability,” “Consistency over time,” “Operational feasibility”***
Measures should be reliable both in the short- and long-term. That is, they should consistently provide data that measures the same construct.

Beverly's (2001) criteria are somewhat narrower in focus and specifically relate to how measures of material hardship should be defined and operationalized. In her presentation at the Roundtable Meeting, Beverly focused her list of criteria on three specific recommendations. Material hardship measures should:

- ***Measure objective, rather than subjective conditions.***
Both objective and subjective measures may be used to describe material need. In the latter case, subjective measures are self-assessments or evaluations of material need, whereas

objective measures capture facts about specific conditions or circumstances. As suggested by the definitional difference between material well-being and overall well-being, assessing material need is best done with objective indicators of living conditions, rather than subjective self-assessments or evaluations of these conditions. Researchers present at the Roundtable Meeting also noted that there are fundamental differences between actual experiences and perceptions of actual experiences and that direct measures of material hardship should focus on *actual* experiences.

However, most survey questions related to material need will always have an element of subjectivity due to the fact that the respondent reports the information. In some cases, this may lead to either “false positives” or underreporting. For example, in face-to-face interviews during the WES some interviewers noted that they saw mothers become visibly uncomfortable when they reported that their children had insufficient food. This led researchers to be concerned that the mothers might be underreporting food insufficiency in their household due to embarrassment or discomfort with admitting that they cannot provide for their children.

- ***Use direct measures of need that focus on consumption and short-term outcomes.***
Direct measures should focus on consumption outcomes associated with material hardship, rather than mediating factors. For example, determining whether a person has health insurance captures data about the resources available to address unmet medical needs (indirect). In contrast, a question about whether an unmet need exists provides a direct assessment of a particular health outcome.
- ***To the extent possible, indicate the cause of hardship.***
It is important to know why families experience hardship. For example, a hardship measure that reports hunger could mean that there are not enough resources to obtain necessary food, or that the respondent has reduced food intake for some other reason (e.g. a desire to lose weight). Measures of failure to obtain needed medical or dental care are even more vulnerable to this difficulty in interpretation. In the absence of information on “cause” it is difficult to know whether the hardship is “real” or the result of individual choices or preferences.

Additionally, in their presentations at the Roundtable Meeting, Connie Citro and Sondra Beverly both emphasized that hardship measures ought to be demonstrably linked to poor outcomes or well-being, and not to mediating factors. For example, it was pointed out that “lack of health insurance” is a mediating factor, not a direct hardship.

Exhibit 2.3

Suggested Criteria for Developing Material Hardship and Well-Being Measures

(Emphases added)

The Committee on National Statistics/Panel on Poverty and Family Assistance (Citro & Michael, 1995)	Recommendations for Measures of Material Hardship (Beverly, 2001)	Four Evaluation Techniques Used to Evaluate Hardship Measures (Bauman, 1998)	Criteria for Indicators of Child Well-being (Moore, 1997)
<p>Public Acceptability. “A sensible cut-off. Some rationale that has face validity ... understandable and broadly acceptable.”</p> <p>Statistical Feasibility. “The measure must be logically consistent...[and]... allow for reasonable comparative analyses ... across time, place, types of families, and population groups.”</p> <p>Operational Feasibility. “Implies that data can be collected that will in fact measure the prevalence of the conditions underlying the concept of poverty.”</p>	<p>Indicators of material hardship should assess consumption of the following goods and services: food, housing, utilities, medical, clothing, and consumer durables.</p> <p>Measures of material hardship should reflect very basic standards of material adequacy.</p> <p>To the extent possible, indicators should measure the severity of hardship.</p> <p>The core set of hardship measures should capture objective, rather than subjective conditions.</p> <p>The core set of hardship measures should consist of direct, rather than indirect, indicators.</p> <p>To the extent possible, hardship measures should indicate the cause of hardship.</p> <p>The core set of hardship indicators should include composite indexes of hardship as well as separate measures.</p>	<p>Face validity.</p> <p>Reasonable relationship to explanatory variables that are used to predict poverty.</p> <p>Utility in predicting a long-term negative outcome whose relation to family poverty has been well established (e.g., high school drop out).</p> <p>Reliability, measured by tracking measures over time and assessing sensitivity to sample selection and attrition bias.</p>	<p>Comprehensive coverage. Indicators should assess well-being across a broad array of outcomes, behavior and processes.</p> <p>Children of all ages. Age-appropriate indicators are needed at every age.</p> <p>Clear and comprehensible. The public should easily and readily understand indicators.</p> <p>Positive outcomes. Indicators should assess positive as well as negative aspects of well-being.</p> <p>Depth, breadth, and duration. Indicators are needed that assess dispersion across given measures of well-being, children’s duration in status, and cumulative risk factors experienced by children.</p> <p>Common interpretation. Indicators should have the same meaning in varied population subgroups.</p> <p>Consistency over time. Indicators should have the same meaning across time.</p> <p>Forward-looking. Indicators should be collected now that anticipate the future and provide baseline data for subsequent trends.</p> <p>Reflective of Social Goals. Some indicators should allow us to track progress in meeting national, state and local goals.</p>

Creating Summary Measures of Material Hardship

Many researchers have combined measures of material hardship to create a composite or summary measure (e.g., Beverly, 1999a; Federman et al., 1996; Mayer & Jencks, 1989; Rector et al., 1999). These composite measures may be formed *within* a dimension (e.g. insufficient food, number of housing problems) or *across* dimensions (combining housing problems and insufficient food). Composite or summary measures provide additional information on the concurrence of various hardships, but are at risk of obscuring detail seen in the individual components.

The key argument for constructing a summary measure is that it shows the extent of *overall* material hardship. A composite measure could rank hardship severity for families that are housing insecure, but not food insecure, and families that are food insecure, but not housing insecure. Individual measures provide no way to order these two groups of families. Still, collapsing the data in this way sacrifices information. If these types of families need different supports it may be important to distinguish them.

Furthermore, the process for constructing a summary measure is judgmental. Overall rankings vary depending on the items contained within a dimension, the dimensions included, and the weights used to combine dimensions. In the absence of a standard approach, comparisons may be difficult and disagreements about the extent of hardship likely.

A final disadvantage to composite measures is that they may have less face validity than individual measures. For example, insufficient money to pay the rent, or having the telephone disconnected for non-payment, are clearer on their face than a concept of overall material hardship. Aggregation *within* a dimension is more likely to have face validity than aggregation *across* dimensions. For example, “number of housing problems” is a summary measure but is nevertheless a clear concept to many. The justification for constructing a summary measure is strongest when there is a well-defined central idea or construct. The summary measure of food security, for example, was developed after extensive theoretical and empirical work on the interrelated concepts of food security, food insecurity, and hunger. Many researchers now use this measure; however, this measure continues to be controversial, with some critics questioning whether food insecurity measures provide useful information about hunger.

The disadvantages of summary measures of material hardship are mitigated if the individual components are presented as well. This is the approach generally taken in the literature. Typically the relationships among the indicators also are analyzed, and the discussion of key findings is based both on the composite and individual measures. Presenting both types of measures provides a sense of the extent to which findings based on the composite measure are robust to the approach used to construct the composite.

Technical Issues in Creating Summary Measures

Two general approaches are used for combining multiple indicators: indexes and scales. Indexes, the most commonly used approach to combining material hardship measures, are created using logic and judgment about what constitutes a “reasonable” set of indicators. In contrast, scales attempt to identify a set of “factors or principal components that are assumed to represent an underlying dimension of well-being that is not perfectly reflected by any single indicator” (Bauman, 2002a). An overview of Bauman’s (2002a) summary of the comparative advantages and disadvantages of indexes, scales, and separate indicators is presented in Exhibit 2.4.

Both approaches must determine whether the summary measure should be continuous or categorical. For example, a continuous measure of material hardship might be constructed so as to take on values between 0 and 100. A categorical measure has a discrete number of hardship levels, with as few as two. An example of a categorical hardship measure is the USDA food security scale, which has three levels (food secure, food insecure-without hunger, food insecure-with hunger).

With either a categorical or continuous measure, analysts also may choose to set a threshold level, with hardship defined according to whether a family is above or below the threshold (analogous to the way poverty is typically defined). A threshold may be established based on judgment, or based on the distribution or correlation with an external measure. While a threshold provides a convenient summary, its use may entail the loss of valuable information. For example, two households might meet a threshold for being housing insecure, but one might be much worse off than another (e.g., homeless *versus* missing a rent payment). This drawback can be mitigated by providing more detailed results.

Exhibit 2.4

Bauman (2002a) Summary of Advantages and Disadvantages of Indexes, Scales, and Separate Indicators

Indexes		Scales		Subjective Evaluation of Separate Indicators	
Advantages	Disadvantages	Advantages	Disadvantages	Advantages	Disadvantages
<ul style="list-style-type: none"> Simple to construct – only need a “reasonable” set of indicators of a specific construct to be put together. Improves measurement over the use of a single indicator in that it lowers measurement error (assuming index is well-constructed). The index approach established by Mayer and Jencks (1989) has been validated and used as a model for indexes in other research (e.g., Mirowsky & Ross, 1999; Short & Shea, 1995). 	<ul style="list-style-type: none"> Lack of agreement on a set of criteria for choosing items. There may be an indeterminate number of items to be included in an index. Different numbers of items can result in different scores and weights for different components of the index. Even if researchers agree to use a standard set of items, there is still the challenge of producing acceptable and valid weights. Using an index throws away potentially useful information about the severity of the items used. 	<ul style="list-style-type: none"> Allows researchers to identify a “latent class” or underlying definition of a construct (e.g., material hardship). One strategy allows researchers to look at correlations between indicators to arrive at a set of factors (i.e., principle components) that are assumed to represent an underlying dimension of well-being not perfectly reflected by any single indicator. This avoids many of the disadvantages associated with an index. 	<ul style="list-style-type: none"> Intercorrelations between indicators may be attenuated by substitution or selective applicability. Relationships between variables are causal, or related to causal processes. This makes interpreting the model more complicated. 	<ul style="list-style-type: none"> Avoids problems of weighting and ignoring severity, as found when developing indexes. Avoids problems of ignoring causal relationships. Face validity of specific measures. 	<ul style="list-style-type: none"> Analyst must make subjective evaluations about the reliability and validity of the individual items and take into account offsetting errors when examining a set of unsummarized indicators. May present difficulties in ranking people consistently – that is, we don’t know when someone is definitely “worse off” when the set of indicators changes.

Summary Measures of Material Hardship Based on Logic and Judgment (Indexes)

When developing *indexes* of material hardship, indicators or dimensions chosen by the researcher are often combined simply by summation, with each component receiving the same weight. Weights are sometimes assigned based on the perceived importance or relevance to respondents of each component. Low frequency of a given hardship in the population indicates the degree to which a component is a necessity, in that the higher the proportion of households with a particular item (or that do not experience a particular hardship), the greater the extent to which the item may be deemed to be a necessity. Thus, lacking a refrigerator may be given greater weight than lacking an automatic dishwasher.

Mayer and Jencks (1989) created an index that was weighted according to the separate indicators' relative importance to the families that experience hardship. Weights were developed by regressing respondents' answers to a question on how families felt about their standard of living on the researchers' 10 hardship measures. Nonetheless, Mayer and Jencks ultimately reported their results in terms of unit weights (measured on the total number of hardships a respondent reported) because it was easier to interpret.

Despite the *ad hoc* nature of this approach, it is possible to use statistical techniques to validate indexes and similar summary measures to provide confidence in the soundness of the approach. In the paper mentioned above by Mayer and Jencks (1989) their approach has been validated (Bauman, 1998) and has been the model of indexes used in other research (Mirowsky & Ross, 1999; Short & Shea, 1995).

Exhibit 2.5 lists example studies that illustrate this general approach; however, it is important to note that there are numerous other studies that have used this approach.

Exhibit 2.5

Examples of Summary Measures Based on Logic and Judgment

(Mayer & Jencks, 1989). Based on two telephone surveys of Chicago households, the authors construct an index using the total number of hardships reported per family, out of eight dichotomous hardships relating to food, housing, and medical care. Each component is weighted equally in the total (i.e., unit weighted).³ The value of their summary measure therefore varies from zero to eight.

(Federman et al., 1996). Using SIPP data, the authors construct an index that is the total number of deprivations reported out of nine dichotomous indicators relating to food, housing, utilities, and appliances. Each component is implicitly weighted equally.

(Rector et al., 1999). The authors use SIPP data to construct a composite hardship measure based on a combination of specific hardship indicators and income in relation to the poverty threshold. Specifically, the authors define persons to have “overall material hardship” if they live in households with incomes below 200 percent of the official poverty threshold, and they have one or more “substantial” hardships or three or more “moderate” problems.

(Beverly, 1999a). Using SIPP data, the author constructs a primary hardship index as the sum of six equally-weighted dichotomous indicators relating to food security, housing, utilities, and medical need. The author also defines a threshold: a family is in hardship if it experiences any one of the individual indicators.

(Martinez & Ruiz-Huerta, 2000). Using data for Spain from the European Community Household Panel survey, the authors aggregate 20 dichotomous hardship indicators into four dimensions: maintenance (measures of current financial strain); durable goods; housing conditions; and lifestyle (e.g., ability to save, ability to buy furniture). The authors use weighted sums to combine the 20 items into four dimensions, where the weights are based on the proportion of individuals not lacking an item. The indexes are constructed to vary between 0 and 100. The authors construct a total hardship index by taking a weighted sum of the four dimensional indexes, where the weights are based on the average weight within each dimension. The authors also construct a basic hardship index, analogous to the total index but including only items lacked by less than half the population.

(Martinetti, 2000). Using data from 1994 survey of Italian households, Martinetti uses “fuzzy sets” theory to combine individual hardship indicators—some dichotomous, some categorical—into five dimensions: housing, health, education, social interactions, and psychological conditions. In combining the indicators within dimensions, the author uses different approaches for each dimension, including: weight averaging with weights based on the frequency of the hardship; weight averaging with unit weights; and taking the union of dichotomous indicators. Martinetti also constructs an overall hardship index combining the five dimensions.

(Muffels & Fourarge, 2003). Using data for 12 countries from the European Community Household Panel survey, the authors aggregate 21 dichotomous hardship indicators into a total hardship index. The 21 indicators reflect health conditions, financial stress, housing conditions, and possession of durables. The indicators are combined into a total hardship index using a weighted sum, where the weights for each indicator are based on the proportion of individuals not deprived by that indicator.

Summary Measures of Material Hardship Based on Statistical Approaches (Scales)

An alternative to a judgment-based approach to creating summary measures of hardship is to use statistical methods to select indicators, group indicators into dimensions, and to create weights. Methods such as cluster analysis, correspondence analysis, latent class analysis and factor analysis

³ In the same paper, Mayer and Jencks use a statistical test to determine whether unit weighting is appropriate, and find that it is.

can be used to aggregate indicators into groups (based on their mutual correlations), with weights determined by the statistical model. Weights also may be based on rarity or on correlation with an external measure of the construct. Items that are found to represent different dimensions are dropped from the scale. The statistical or modeling approach, however, does not eliminate the need to make assumptions and subjective decisions.

Exhibit 2.6 lists example studies that illustrate this general approach; numerous other studies have been done.

Exhibit 2.6

Examples of Summary Measures Based on Statistical Approaches

(Bickel, Nord, Price, Hamilton, & Cook, 2000). The authors provide a methodology for measuring household food security using 18 indicators collected via survey (or using a set of 6 indicators). A statistical approach known as a Rasch model was used to select the 18 indicators from a larger set, and to develop a scale that translates the number of affirmative responses into an equal interval scale that can be manipulated mathematically (e.g., mean scale scores can be computed). The scale scores are also used to assign households to one of four different levels of food security (food secure; food insecure without hunger; food insecure with hunger, moderate; and food insecure with hunger, severe). The food security scale is an example of aggregation within a particular dimension of material hardship, not an aggregation across dimensions.

(Bauman, 2002a). Using SIPP data, the author attempted to construct a material hardship scale using latent class analysis. Bauman examined the relationship between the latent classes and poverty to see whether a natural ordering of classes existed, and tested the degree to which the classes captured the information about poverty in the individual indicators. Based on his analysis, the author did not find strong support for a scale summarizing material hardship.

(Layte, Maitre, Nolan, & Whelan, 1999). Using data from the European Community Household Panel survey, the authors use factor analysis to cluster 25 dichotomous indicators of material hardship into five distinct groups: basic lifestyle deprivation (e.g., food, clothing), secondary lifestyle deprivation (e.g., car, telephone), housing facilities, housing deterioration, and environmental problems (e.g., noise, vandalism). The authors calculate a value for each household in each group by summing the number of indicators on which the household is deprived. The authors also construct an overall hardship index as the unit-weighted sum of the 25 indicators.

(Gundersen, 1996). In contrast to the other studies summarized in this section, the author uses a model-based approach to create a summary measure of hardship. Gundersen begins by developing an axiomatically-derived model of hardship, which he refers to as a “well-being evaluation function.” Using data from the American Housing Survey, the author applies the model to develop “housing evaluation functions.” Each function uses a different functional form to aggregate three indicators of housing quality (adequacy, comfort, and neighborhood) into an overall measure of housing hardship. (This is an example of aggregation within a dimension rather than across dimensions.)

Summary

Researchers and policymakers who are interested in measuring material hardship are faced with the definitional and operational challenges of: 1) conceptualizing and defining hardship; and 2) measuring families' hardship experiences and creating composite measures that summarize these experiences across domains (e.g., food, shelter, medical care). Research to date by European and, to a lesser extent, domestic researchers suggests an approach for developing a common definition of material need and identifying a standard below which people experience material hardship. Specifically, we are most interested in:

- Directly assessing the extent to which people have the basic goods and services they need after using all of the resources at their disposal;
- Minimizing the role played by individual choice and preferences when defining material need; and
- Learning whether people succeed in meeting a given set of socially defined needs, regardless of individual choice. This may be accomplished by focusing on a core set of basic needs that is fairly closely related to physiological functioning.

These principles, however, are a starting point for discussion. There are still different viewpoints as to what constitutes material need, and corresponding thresholds for identifying material hardship. Additionally, there are other aspects of measurement and analysis that require consideration. These include:

- Choosing appropriate constructs for measuring need;
- Selecting reliable and valid measures; and
- Deciding how to summarize a wide array of potential measures into a smaller, more manageable number of measures, or possibly a material hardship index.

A number of researchers have tackled these issues and developed approaches for measuring material hardship. In the next chapter we compare the features of nine studies that have defined and measured material hardship using an index.

Chapter 3: Material Hardship Indexes

Researchers have struggled to create composite measures of material hardship. There are numerous dimensions of material need (e.g., food, shelter, medical care) and researchers must not only choose what types of needs to include in their definition of material hardship, but also determine the threshold at which a family is considered “deprived” of a specific need. In assessing the overall needs of families, researchers also must decide how to weigh measures of material need and combine measures to create a composite hardship index. Despite these complexities, however, a number of domestic policy researchers have created material hardship indexes.

In this chapter, we examine the different approaches researchers have used to define material hardship and the measures they have included in their hardship indexes. Since the SIPP has been the most common source of data for constructing hardship indexes, this chapter distinguishes between the measures drawn from or that are comparable to the SIPP, and those that are not. Chapter 4 goes on to examine the SIPP measures that have been included in hardship indexes and provide descriptive analyses of how these measures relate to other constructs such as household income, where a household lives (e.g., urban *versus* rural), and family structure. Together, the analyses presented in Chapters 3 and 4 broaden our understanding of the measures that have been most frequently used to define material hardship and create hardship indexes.

Description of Studies Included in the Review

Nine studies were included in our review of material hardship indexes. These studies were selected because they: 1) measure multiple aspects of material hardship; and, 2) construct a hardship or deprivation index to describe household or families’ material well-being. (Exhibit 3.1)

Six of the studies use SIPP data in their analysis: Bauman (1998); Beverly (1999); Federman et al. (1996); Lerman (2002); Rector et al. (1999); and Short and Shea (1995). The SIPP is a nationally representative survey sponsored by the US Census Bureau that collects a wide variety of economic and demographic information on panels of respondents over a period of several years, contacting sample members every four months. All but one of these studies used data from the 1991/1992 and 1993 SIPP panels; Lerman, (2002a) used the 1996 panel. Data were primarily drawn from three of the SIPP’s topical modules - Extended Measures of Well-Being, Basic Needs, and Adult Well-Being topical modules; the module selected depends on which SIPP panel was used to construct the hardship index. (A more detailed description of the SIPP and its topical modules is provided in Chapter 4.)

The other three studies – Danziger et al. (2000), Edin and Lein (1997), and Mayer and Jencks (1989 – use data from surveys with targeted populations. Danziger et al. (2000) use the Women’s Employment Survey (WES), which was conducted in 1997 and 1998 with a random sample of single mothers who were welfare recipients in an urban Michigan county during 1997. Mayer and Jencks (1989) use a Chicago-based material hardship survey (conducted during Fall 1983 and Spring 1985). Edin and Lein (1997) collect data during qualitative interviews with low-income single mothers for a range of questions that were derived from Mayer and Jencks’ (1989) Chicago-based survey.

The first column of Exhibit 3.1 summarizes the different approaches these studies used to define material hardship. Among the studies, researchers primarily define material hardship in terms of direct measures of hardship experiences or actual living conditions (Bauman, 1998; Danziger, Corcoran, Danziger, & Heflin, 2000; Edin & Lein, 1997; Federman et al., 1996; Lerman, 2002; Mayer & Jencks, 1989; Rector et al., 1999; Short & Shea, 1995). Although Beverly (1999a) defines hardship as, “inadequate *consumption* of very basic goods and services,” the measures used to define hardship actually focus on household experiences and living conditions (e.g., food insufficiency, housing quality) rather than consumption.

All of the selected studies use a hardship index to describe households’ experiences. While each of the measures included in these indexes reflects a hardship, examining only one living condition at a time may underestimate the extent to which families forego other basic needs (Federman et al., 1996). For example, households with limited resources may make trade-offs among basic needs (e.g., food vs. needed medical care) or choose different allocations of goods and services to make ends meet (Edin & Lein, 1997). Moreover, indexes also may capture important information about the severity of a household’s living conditions. Here, the notion is that families’ hardship experience increases if a household suffers from multiple problems rather than a single condition (Rector et al., 1999).

For the most part, researchers have constructed unweighted indexes, which count each hardship experience equally -- that is, no one hardship is considered worse than another. However, it is important to note that such unit-weighted indexes often include multiple measures of the same construct (e.g., multiple measures of a families’ ability to meet its basic needs). To the extent that these questions actually measure the same construct the index may, in fact, be “weighted” more heavily toward certain types of hardship by virtue of the fact more than one measure captures certain aspects of hardship.

Four researchers use weighted indexes, which assign different weights according to the relative importance of specific hardship experiences. Lerman (2002a) uses *a priori* judgments regarding the relative severity of specific conditions. Edin and Lein (1997) and Mayer and Jencks (1989) weight specific hardship experiences according to their correlation with respondents’ satisfaction with living conditions.⁴ In contrast, Rector et al. (1999) define three levels of hardship:

- Threshold indicators, or questions that cover financial rather than material difficulties;
- Moderate material problems (i.e., having gas, electricity or oil cut off for non-payment during the last year; having phone service cut off for nonpayment during the year; moderate crowding; having three or four housing upkeep problems; not having a stove or refrigerator; occasional hunger; and unmet medical need in instances where a household does not have health insurance); and
- Substantial material problems (i.e., eviction during prior year; substantial crowding; five or more housing upkeep problems; frequent hunger).

⁴ Mayer & Jencks (1989) found that their weighted scale correlates 0.98 with their unweighted scale of eight hardships. As a result, they only use the unweighted scale when reporting their results.

Households are identified as experiencing hardship if they have one or more substantial material problems or three or more moderate material problems, **and** a household income less than 200% FPL. With a few exceptions (i.e., Edin & Lein, 1997; Mirowsky & Ross, 1999; Rector et al., 1999), households are defined as experiencing material hardship if they have at least one hardship condition. The conditions measured are presumed to be relatively rare in the general population, predominantly occurring among low-income households, and reflect households' inability to meet their basic needs (Beverly, 1999). Households that experience more severe hardship circumstances are identified by the presence of more than one condition (e.g., two or more, etc.).

All of the indexes examined here define material hardship in terms of three of basic needs: food insecurity, housing insecurity, and the inability to afford basic utilities such as gas, electricity, or a telephone. (Exhibit 3.1) All but two of the studies (i.e., Federman et al., 1996; Lerman, 2002) also include measures of unmet medical need as an indicator of a family's ability to meet its basic needs. In addition to these basic needs indicators, some of the studies include three other types of indicators in their definition of material hardship: housing safety, housing overcrowding, and the presence of essential durable goods in a household (i.e., stove and refrigerator). Only Short and Shea's (1995) material hardship definition includes measures of the amount of outside assistance available to a household (i.e., households that do not have access to a certain level of outside assistance are considered deprived).

In the following sections, we review the basic needs and other measures that have been used in the nine hardship indexes, highlighting the similarities and differences among the constructs used.

Exhibit 3.1

Summary of Material Hardship Studies

Types of Indicators Included In Index													
Author	Approach Used to Describe Hardship	Index is Unweighted (U) or Weighted (W)	Index Threshold	Data Source	Basic Needs and Food Insecurity Indicators					Other Indicators			
					Food Insecurity	Housing - Insecurity	Housing - Insecurity	Basic Utilities	Unmet Medical/No Insurance	Housing - Quality	Housing - Crowding	Durable Goods	
Bauman (1998)	Uses direct measures of economic well being to keep track of how people are getting by	U	One or more hardships	SIPP (1992/93)	X	X	X	X	X				
Beverly (1999a)	Inadequate consumption of very basic good and services such as food, housing, clothing, and medical care.	U	One or more hardships	SIPP (1992/93)	X	X	X	X	X				X
Danziger et al. (2000)	Recent experiences of material hardship and financial strain	U	One or two hardship conditions	WES	X	X	X	X	X*				
Edin & Lein (1997)	Items that virtually every American would consider necessities ; Living conditions below a standard most Americans would consider adequate	U/W	No threshold; reported average number of hardships for families in each site	In-person interviews with single mothers	X	X	X	X	X*			X	
Federman et al. (1996)	Summarizes living conditions of individuals living in poor and non-poor families	U	More than one deprivation	SIPP (1992)	X	X	X	X	X			X	X
Lerman (2002a)	General and specific problems in making ends meet as well as the availability of outside help to meet basic needs	W	One or more hardships	SIPP (1996)	X	X	X	X	X			X	

Exhibit 3.1

Summary of Material Hardship Studies

Types of Indicators Included In Index														
Author	Approach Used to Describe Hardship	Index is Unweighted (U) or Weighted (W)	Index Threshold	Data Source	Basic Needs and Food Insecurity Indicators				Other Indicators					
					Food Insecurity	Housing - Insecurity	Housing - Insecurity	Basic Utilities	Unmet Medical/No Insurance	Housing - Quality	Housing - Crowding	Durable Goods		
Mayer & Jencks (1989)	Uses direct measures to examine severity of household's <i>hardship experiences</i>	U/W	One or more hardships	Chicago-based Material Hardship Survey	X	X	X	X	X*	X	X			
Rector et al. (1999)	<i>Actual material living conditions</i>	U	Must meet conditions set in the Overall Material Hardship Index	SIPP (1992)	X	X	X	X	X	X	X	X	X	X
Short & Shea (1995)	Inability to meet <i>basic needs</i>	U	One or more deprivations	SIPP (1992)	X	X	X	X	X					
Total Number of Studies Including a Specific Type of Hardship in Their Index					9	9	9	9	7	5	4	2		

* Include measures of unmet medical need *and* whether household members have health insurance.

Types of Measures Included in Material Hardship Indexes

In the following sections we look at the different types of measures incorporated in the nine hardship indexes included in our review. This discussion distinguishes between indexes addressing basic needs and food insecurity, and those that also incorporate other measures of material hardship. For both types of hardship, we examine the specific indicators researchers have included in their hardship indexes and distinguish between those indicators that were drawn from the SIPP and those that were not.

Basic Needs and Food Insecurity

The indexes examined here define hardship in terms of at least three aspects of basic physiological needs: food, shelter, and medical care. Additionally, several indexes include indicators of whether a household has access to basic utilities such as electricity, gas and telephone.

Food Insecurity

Exhibit 3.2 shows the measures used to construct the various food-related indicators included in the studies' material hardship indexes. All of the studies included at least one food security indicator in its material hardship index. Six of the studies include one dichotomous indicator of food security (Bauman, 1998; Beverly, 1999; Danziger et al., 2000; Federman et al., 1996; Lerman, 2002; Rector et al., 1999), while the other three studies included two such indicators (Edin & Lein, 1997; Mayer & Jencks, 1989; Short & Shea, 1995).

The six SIPP-based studies used the same indicator in their hardship index: *whether or not a household "sometimes" or "often" did not have "enough" food during the past four months*. Rector et al. (1999) included those households that "sometimes" did not have enough to eat in their list of moderate material problems and those that responded "often" in their list of substantial material problems; the remaining studies counted households as having a food related hardship if they respond "sometimes" or "often." The relatively consistent use of this SIPP measure allows for a comparison of the levels of food-related hardship identified by these studies. This measure is included in the analyses presented in Chapter 4.

Short and Shea (1995) included a second dichotomous food security indicator in their hardship index: *whether a household had a day in the past month where they did not have food or money to buy food*. Beverly (1999a) also included this measure in a secondary material hardship index, in lieu of the "enough" food question, and shows that it is correlated with low-levels of household income. The extent to which this additional food security indicator overlaps with the "enough" food indicator is unclear. To the extent it does, Short and Shea's (1995) index, which uses both questions as separate indicators in their index, may place additional weight on food-related hardships in their overall measure of material hardship. Although this measure is included in the SIPP, given that it has been used relatively infrequently in hardship indexes, it is not included in the analyses presented in Chapter 4.

Studies that used non-SIPP data sources were more likely to use different food-related indicators and combinations of indicators in their hardship indexes than studies that used SIPP data. Danziger et al. (2000) included a dichotomous indicator of food insufficiency that is based on the USDA Food Security scale, which uses 18 measures to identify households that are food secure, food insecure-

with no hunger, and food insecure-with hunger.⁵ Also, the 6-item scale was validated against the 18-item scale. While the USDA scale has been validated against the 18-item USDA scale and against two alternative food sufficiency measures (nutrient intake and food expenditures), none of the more limited measures used in the eight other indexes examined here have been similarly validated (Cristofar & Basiotis, 1992; Rose & Oliveira, 1997).

Edin and Lein (1997) included two food-related hardship indicators in their index. The first is based on a question similar to one included in the 1996 SIPP: *whether a respondent ate less than felt s/he should*. Their second dichotomous indicator identifies households as experiencing a food-related hardship if there has been a *time in the last year when it could not afford to buy food or could not get out to get food*. Mayer and Jencks (1989) also used this indicator in their hardship index. Additionally, Mayer and Jencks (1989) incorporated a dichotomous indicator that describes whether a household's food expenditures was below the USDA's thrifty food plan (defined as an "economy" food budget based on a basket of food items). The thrifty food plan was designed to represent the minimal cost of a nutritious diet. However, in using this indicator, Mayer and Jencks (1989) note that this might be an unreliable indicator of whether a family's diet contains what experts regard as desirable nutrients. Although, it can be expected that families that spend less than the "thrifty" food budget are less likely to eat nutritionally adequate diets.

⁵ USDA has developed a comprehensive 18-item scale and Short-form scale, with only 6 items, to describe food security. Eight of the studies examined here, with the exception of Danziger et al. (2000), use a more limited set of specific questions to construct their food-related hardship indicators, sometimes only using one or two questions to describe this condition. The USDA food security scale was developed after the 1991 and 1993 SIPP panels were fielded and the 1996 SIPP panel uses a different six-item food security scale, which contains modified versions of some of the USDA questions. The questions have been adapted from a 12-month reference period (as asked in the CPS) to a 4-month period, and the Economic Research Service has developed an algorithm that maps responses to the SIPP questions to the USDA's three-point scale (food secure, food insecure-without hunger, and food insecure-with hunger). (See *Survey of Income and Program Participation 1996 Wave 8 Food Security Data File, Technical Documentation, and User Notes*).

Exhibit 3.2

Questions Used to Construct Food Insecurity Indicators

	Studies Using SIPP Data						Studies Using Non-SIPP Data		
	Bauman (1998)	Beverly (1999)	Federman et al. (1992)	Lerman (2002a) ¹	Rector et al. (1999)	Short & Shea (1995)	Danziger et al. (2000)	Edin & Lein (1997)	Mayer & Jencks (1989)
Items from the 1996 SIPP (<i>Shaded Rows Indicate Questions Included in the 1992 SIPP</i>)									
Food bought didn't last and I/we didn't have money to get more							X		
Couldn't afford to eat balanced meals							X		
Respondent ate less than felt s/he should								X ⁶	
Adult(s) cut size or skipped meals in 3 or more months							X		
Adults didn't eat for a whole day							X		
Description of food in household in last four months: Enough of the kinds of food wanted, enough but not always the kinds of food wanted, sometimes not enough to eat, often not enough to eat	X	X ⁴ (Sometimes or Often)	X	X	X ²	X			
Children were not eating enough									X
Other Non-SIPP Questions									
One day in past month household had no food or money to buy food					X ⁵	X			
18-Item USDA Food Security Scale (Food Insufficient Households = 1 in Index)							X ³		
Has there been a time in the last year when you needed food but couldn't afford to buy it or couldn't get out to get it?								X ⁷	X
USDA Thrifty Food Budget (1 = Below Threshold; 0 = Above Threshold)									X

¹Lerman (2002a) is the only study that used data from the 1996 SIPP. All others used data from the 1992 and 1993 SIPP panels.

² "Sometimes" = Moderate Material Problem; "Often" = Substantial Material Problem

³ Items checked above are included in the 18-Item USDA Food Security Scale

⁴Included in primary index

⁵Included in secondary index

⁶Have you gone hungry because you could not afford to buy food? When was the last time that this happened to you?

⁷Asks if "ever" went without food and then asks when the last time this happened.

Housing Security

Housing security indicators address the stability and adequacy of a family's living conditions. Three types of these indicators were used in the examined studies: homelessness/doubling up, inability to meet essential housing expenses, and evictions. (Exhibit 3.3)

All but one of the studies included a dichotomous "eviction" indicator in its hardship index: *whether the respondent or anyone in the household was evicted from their home or apartment for not paying rent or mortgage*. This measure is similar to that included in the 1996 SIPP; however, researchers chose to apply different recall periods (e.g., 12 months *versus* 24 months). Researchers have shown that eviction is strongly correlated with low income and other factors related to material hardship (e.g., Bauman, 1998; Beverly, 1999a). (Additional descriptive analyses of this measure are included in Chapter 4.)

Lerman (2002a) combined two SIPP measures to create the eviction indicator included in his index: *evicted OR home undesirable enough to move*. The latter measure is intended to capture other types of involuntary moves, such as those due to inadequate or unsafe housing.

There is disagreement among researchers as to whether additional housing security indicators beyond eviction should be included in a material hardship index. Bauman (1998), Rector et al. (1999), and Short and Shea (1995) augment their use of an eviction indicator with a second indicator of housing security, a household's ability to meet its essential housing expenses. In all cases, a measure identical to that used on the 1996 SIPP is used: *whether there was a time in the last 12 months when you/your household did not pay the full amount of the rent or mortgage*. Mayer and Jencks (1989) and Edin and Lein (1997) similarly augment their eviction indicators: *whether there was a time when the respondent could not afford a place to stay or could not afford rent*. Danziger et al. (2000) and Edin and Lein (1997) also included indicators of homelessness or doubling up in their hardship indexes.

Interestingly, Mayer and Jencks (1989) eliminated their eviction indicator from their final hardship index due to the fact that it only had a small effect on respondents' assessment of their living standards, when controlling for whether the household could afford rent. They concluded that "eviction" measures are not a good measure of housing hardship.

Exhibit 3.3

Questions Used to Construct Housing Security Indicators

	Studies Using SIPP Data					Studies Using Non-SIPP Data			
	Bauman (1998)	Beverly (1999)	Federman et al. (1992)	Lerman (2002a) ¹	Rector et al. (1999)	Short & Shea (1995)	Danziger et al. (2000)	Edin & Lein (1997)	Mayer & Jencks (1989)
Items from the 1996 SIPP <i>(Shaded Rows Indicate Questions Included in the 1992 SIPP)</i>									
Homelessness/Doubling-up During the last 12 months, did you or your children move in with other people even for a little while because you could not afford to pay your mortgage, rent or utility bills?								X	
Unable to Meet Essential Housing Expenses Was there a time in the past 12 months when you/your household did not pay the full amount of the rent or mortgage?	X				X	X			
Evictions/Undesirable Enough to Move During the last 12 months were/was you/anyone in your household evicted from your home or apartment for not paying rent or mortgage? Are conditions in your home undesirable enough to move?	X	X	X	X ⁴	X	X ³	X		X
Other Non-SIPP Questions Has there been a time when you couldn't afford a place to stay or when you couldn't pay the rent? Have you been homeless since (date left welfare)?								X	X ²

¹ This is the only study that used data from the 1996 SIPP. All others used data from the 1992 and 1993 SIPPs.

² Question used a two year recall period and was not asked of homeowners, since it was assumed that almost all homeowners should be able to make their monthly housing payments and not suffer evictions. Homeowners were coded as "no" in scale.

³ Asks whether this occurred since date left welfare.

⁴ Lerman (2002a) uses a combined indicator in his hardship index – "Evicted OR Home Undesirable Enough to Move."

Medical and Health Insurance Hardships

Three types of medical and health insurance hardship indicators were included in the material hardship indexes we reviewed: access to needed medical care; access to needed dental care; and health insurance coverage. All but two of the studies – Federman et al. (1992) and Lerman (2002a) – included at least one of these indicators in their hardship indexes.

All of the studies that include a medical need indicator used a measure similar to that included in the 1996 SIPP to describe whether a household has access to needed medical care: *whether there was a time when anyone in the household needed to see a doctor or go to the hospital but did not go.* (Exhibit 3.4) Rector et al. (1999) added a second condition to this measure when constructing their hardship indicator: lack of health insurance. That is, households were not considered to have an unmet medical need unless they also did not have health insurance. This additional condition is intended to account for the fact that the SIPP measure does not identify a cause for the unmet need. For example, someone in a household might not go to a doctor when they needed to go for reasons other than those related to material hardship. Similarly, Mayer and Jencks (1989) added an insufficient resource condition to their unmet medical and dental questions. While incorporating these types of additional conditions into unmet medical need indicators may improve their usefulness as an indicator of material hardship, it makes it difficult to compare estimates of medical need hardship across studies. Bauman (1998) and Short and Shea (1995) also included a dental need indicator in their index. Chapter 4 includes further analyses of the SIPP measures on unmet medical and dental needs.

Edin and Lein (1997) and Mayer and Jencks (1989) used a combined indicator in their index that captures households that had either an unmet medical need **or** unmet dental need. The dental need measure used by these studies is very similar to that included in the 1996 SIPP.

Three studies – Danziger et al., (2000), Edin and Lein (1997), and Mayer and Jencks (1989) – included non-SIPP health-insurance related indicators in their hardship indexes. Danziger et al. (2000) included two separate indicators – one for adults without health insurance and one for children in a household without health insurance. In contrast, Edin and Lein (1997) only looked at the adult respondent and Mayer and Jencks (1989) included any household member. The measures used in these studies cannot be compared to those included the 1996 SIPP analyses presented in Chapter 4.

Including health insurance-related indicators in material hardship indexes, however, may be problematic. It is unclear whether the absence of health insurance is describing a construct different from access to medical care. To the extent that these indicators describe the same construct including them both in a hardship index may be problematic. For example, while lack of health insurance coverage can certainly bring about health care-related hardships, there is a question as to whether not having coverage in and of itself constitutes a hardship; instead, this might be considered a “crude,” or indirect, indicator of access to needed care (Kirby & Kennedy, 2001). However, Rector et al., (1999) note that “lacking insurance is not the same as lacking health care; in fact most uninsured persons receive medical care when needed” (p. 370). Furthermore, Mayer and Jencks (1989) found that “a family’s not having a member with no health insurance correlated only 0.20 with having been able to afford medical care, but it had a strong effect on respondents’ assessments of their standard of living” (p. 96). This suggests that a health insurance coverage measure may describe something other than health care-related hardship.

Exhibit 3.4

Questions Used to Construct Medical Care and Health Insurance Indicators

	Studies Using SIPP Data					Studies Using Non-SIPP Data				
	Bauman (1998)	Beverly (1999)	Federman et al. (1992)	Lerman (2002a) ¹	Rector et al. (1999)	Short & Shea (1995)	Danziger et al. (2000)	Edin & Lein (1997)	Mayer & Jencks (1989)	
Items from the 1996 SIPP (All Questions Included in the 1992 SIPP)										
In the past 12 months, was there a time you/anyone in your household needed to see a doctor or go to the hospital but did not go?	X	X			X ²	X	X ⁴	X ⁵	X ³	
In the past 12 months, was there a time you/anyone in your household needed to see a dentist but did not go?	X					X		X ⁵	X ³	
Other Non-SIPP Questions										
Adult respondent did not have health insurance							X		X	
Child(ren) in household did not have health insurance							X			
Is everyone in your household covered by health insurance such as Medicare, Medicaid, Veteran's benefits, Blue Cross, Prudential, an HMO, or any other program?									X	

¹This is the only study that used data from the 1996 SIPP. All others used data from the 1992 and 1993 SIPPs.

² Only included households in index who had an unmet need and did not have health insurance.

³ Only included in index if the unmet need was because of "lack of money."

⁴ Includes separate measures in index for mother having unmet need and child(ren) having unmet need; reference period was "since left welfare."

⁵ Combines doctor and dentist into one measure in index; only includes if unmet need is due to lack of insurance or money.

⁶ Reported in index as "no health benefits."

Difficulty Affording Utility Bills

Absent basic utilities such as gas, electric, water and phone, families may not have necessary heat, hot water, air conditioning, lights or cooking facilities, or key means of communication (Beverly, 1999a). All but one of the studies' hardship indexes included the following utility shut-off indicator in its hardship index: *whether or not a household had experienced a gas or electricity shutoff, or an oil company had not delivered oil.* (Exhibit 3.5) Beverly (1999a) constructed her indicator using two SIPP questions: the shut off question described above and a second question that determined whether a household did not pay the full amount of its gas, oil or electric bill in the last 12 months. Households that responded "yes" to either or both questions were identified as having a utility-related hardship. Bauman (1998), Rector et al. (1999), and Short and Shea (1995) included a separate indicator of whether a household did not pay the full amount of their utility bills in the last 12 months in their hardship indexes.

Both the shut-off measure and the unpaid bill measure are included in the SIPP. However, it is unclear to what extent there is overlap between these two measures. For example, it is not unlikely that those households that did not pay the full amount of their utility bills also would be those that were refused service. If this is the case, it may be that using these measures as separate indicators in a hardship index could be "double counting" the level of a households' material hardship.

Six of the studies included an indicator of whether a household had lost phone service in the past year because it did not pay the bill in their hardship index; Lerman (2002a), Edin and Lein (1997), and Mayer and Jencks (1989) did not. The telephone disconnection measure is included in the 1996 SIPP.

Chapter 4 presents additional descriptive analyses of the utility shut-off, unpaid utility bill, and telephone disconnection measures that are included in the 1996 SIPP.

Exhibit 3.5

Questions Used to Construct Utility-related Hardship Indicators

Items from the 1996 SIPP (All Questions Included in the 1992 SIPP)	Studies Using SIPP Data						Studies Using Non-SIPP Data		
	Bauman (1998)	Beverly (1999)	Federman et al. (1992)	Lerman (2002a) ¹	Rector et al. (1999)	Short & Shea (1995)	Danziger et al. (2000)	Edin & Lein (1997)	Mayer & Jencks (1989)
Time in past 12 months when did not pay the full amount of the gas, oil, or electricity bills	X	X ⁶			X ⁴	X			
Time in past 12 months gas or electricity company turned off service or the oil company did not deliver oil	X	X ⁶	X	X	X ⁵	X	X	X	X ³
Time in past 12 months phone company disconnected service because of late payments	X	X	X		X ⁵	X	X ²		

¹ This is the only study that used data from the 1996 SIPP. All others used data from the 1992 and 1993 SIPPs.

² Indicator worded as, "Phone disconnected or gone without a phone because could not pay bill"; reference period of "since left welfare."

³ Uses 24 month reference period.

⁴ Included in analysis as "Threshold indicator."

⁵ Included in analysis as "Moderate Material Problem."

⁶ Reported as a combined measure -- "household did not pay full amount ..." AND "household's gas or electric service was disconnected."

Other Hardships

Many of the hardship indexes we examined also augmented the basic needs indicators included in their index with housing quality, housing overcrowding, and durable goods indicators.

Housing Safety

Five of the studies (Mayer & Jencks, 1989; Edin & Lein, 1997; Federman et al., 1996; Beverly, 1999; and Rector et al., 1999) included a dichotomous housing safety indicator in their material hardship index. Households were identified as having a housing safety problem in these hardship indexes if they experienced a set number of housing problems. (Exhibit 3.6)

While researchers have used a relatively consistent set of housing problem measures to describe housing safety (e.g., the SIPP-based studies use the exact same measures and the two non-SIPP studies use very similar measures), the ability to compare housing safety-related hardships across studies and in relationship to overall material hardship is confounded by the different thresholds researchers use to identify a household as having a housing safety problem. For example:

- Mayer and Jencks (1989) considered respondents as having “housing problems” if a respondent had two or more problems (out of seven potential problems) that were due to “high cost” of repairs or a “problem with a landlord.”
- Edin and Lein (1997) identified low-income female-headed households as having housing safety issues if they experienced at least two housing problems (out of eight potential problems).
- Federman et al. (1996) identified SIPP respondents as having “moderate” housing upkeep problems if three or four problems were noted, and “severe” problems if five or more housing safety problems were reported (out of the seven SIPP items).
- Beverly (1999) defined a household as having a “housing problem” if three or more housing upkeep problems were present (out of the seven SIPP items).
- Rector et al. (1999) defined moderate housing upkeep problems as three-or-four of the seven SIPP items and substantial housing upkeep problems as five or more of these items.

Additionally, unlike food-related hardships, not all researchers include housing safety-related problems as an indicator in their material hardship index. Discussions at the Roundtable Meeting revealed that researchers perceive a number of problems and limitations with these types of indicators. (See Roundtable Meeting Summary in Appendix A.) First, the measures are inherently subjective and do not capture the severity of the circumstances. Respondents indicate whether they feel a problem is present, but it is unclear as to how severe the situation should be for the circumstance to actually indicate a housing hardship exists.

Second, it may be the case that even families who are well-off and do not experience material hardship occasionally experience some of these conditions (e.g., leaky room, a broken window). Although the analyses presented in Chapter 4 (Exhibits 4.6 and 4.7) show some correlation between the incidence of housing problems and low-income, this contrast is not as stark as with other hardship measures.

Lastly, with the exception of the measures used by Mayer and Jencks (1989), the questions used to construct the studies’ housing problem indicators do not identify the cause of the circumstance. Mayer and Jencks (1989) ask the respondent whether this problem had not been taken care of “due to the high cost involved, lack of time, a problem with the landlord, or some other reason” (p. 93). Only those conditions attributable to cost or a landlord problem were included in their housing problems index.

Exhibit 3.6

Questions Used to Construct Housing Quality Indicators

	Studies Using SIPP Data						Studies Using Non-SIPP Data				
	Bauman (1998)	Beverly (1999)	Federman et al. (1992)	Lerman (2002a) ¹	Rector et al. (1999)	Short & Shea (1995)	Danziger et al. (2000)	Edin & Lein (1997)	Mayer & Jencks (1989)		
Items from the 1996 SIPP (All Questions Included in the 1992 SIPP)											
Problems with pests such as rats, mice, roaches, or other insects	X	X	X		X		X	X	X		
A leaking roof or ceiling	X	X	X		X		X	X	X		
Broken window glass or windows that can't shut	X	X	X		X				X		
Exposed electric wires in the finished areas of your home	X	X	X		X		X	X	X		
A toilet, hot water heater, or other plumbing that doesn't work	X	X	X		X		X	X	X		
Holes in the walls or ceiling, or cracks wider than the edge of a dime	X	X	X		X						
Holes in the floor big enough for someone to catch their foot on	X	X	X		X						
Other Non-SIPP Questions											
Unreliable furnace, boiler, or heating system/heating system does not work properly							X	X	X		
Broken locks or no locks on door in unit							X				
A stove or refrigerator that doesn't work							X	X	X		
Inadequate garbage pickup								X			
Threshold Used to Identify Household with Housing Quality Hardship	N/A	3 or More Housing Quality Problems	3 or More Housing Quality Problems	N/A	3-4 for Moderate Housing Quality Hardship; 5 or More for Substantial	N/A	N/A	2 or More Housing Quality Problems	2 or More Housing Quality Problems - Due to Cost or Landlord		

¹This is the only study that used data from the 1996 SIPP. All others used data from the 1992 and 1993 SIPPs.

Overcrowding.

Overcrowding in households has been shown to be a problem in low-income households, especially in communities where rents are high, and in certain communities, such as Indian reservations, Alaska native villages, and communities with growing immigrant populations (Richardson, 2001).⁶

Four of the studies include an indicator of overcrowded housing in their material hardship indexes. Each study identified overcrowded households using a metric from the 1996 SIPP: the ratio of the *total number of rooms in a household* to the number of people living in the household, not counting bathrooms and hallways. Federman et al. (1992), Lerman (2002a), and Mayer and Jencks (1989) define a household as overcrowded as more than one person per room. Rector et al. (1999) identify households with 1-1.50 persons per room as experiencing moderate overcrowding and those with 1.51 or more persons per room as experiencing substantial overcrowding.

Some researchers excluded an overcrowding indicator from their hardship index due to its perceived limitations. For example, Mayer and Jencks (1989) excluded overcrowding from their final hardship index on the basis that it was found to have, “little effect on respondents’ assessments of their living standards, perhaps because it does not coincide with subjective standards” (p. 96). Secondly, overcrowding measures do not take into account the size of rooms, the age and gender of household members or the economies of scale associated with living space (e.g., households that live in large living spaces need fewer rooms per person than those that live in small living spaces).

Durable Goods

Federman et al. (1992) and Rector et al. (1999) included two indicators of whether a household has two essential durable goods: a stove or a refrigerator in their residence or building. In both cases, these researchers find that the absence of these durable goods occurs only in very low-income households. This finding is confirmed by cross-tabulations presented in Chapter 4 where 99% of households with children under 100% of FPL have a refrigerator and 98% have a stove. This suggests that these indicators identify only the most needy households.

Summary

Based on the information summarized in Exhibit 3.1, at first glance it appears that there is a great deal of similarity in how researchers have constructed their hardship indexes. The indexes define hardship in terms of direct measures of families’ experiences and actual living conditions, and include a core set of basic needs and food insecurity indicators. The indexes also are unweighted and draw their data from the SIPP.

Despite these similarities, however, there is variation in the number and types of indicators researchers have used to create their material hardship indexes. For example, about half of the studies include indicators of housing quality in their hardship index and only four studies include a measure of whether a family lives in crowded housing. Furthermore, even in cases where all studies include the same basic indicator (i.e., food security, housing security, or basic utilities), researchers have used different questions and combinations of questions to construct these indicators.

⁶ The 1999 American Housing Survey (AHS) shows 2.5% of all US occupied housing units as crowded, with a 7% rate for households in poverty, and 13% for Hispanic households (Richardson, 2001).

Given this variability in how researchers have defined and measured material hardship in their indexes, it is difficult to identify either a preferred approach to developing hardship indexes or agreement on a “core” set of indicators or measures of material hardship. Moreover, the differences among hardship indexes also make it difficult to compare the results from these studies - both for specific aspects of hardship such as food or housing, and for overall material hardship.

This lack of consistency in how researchers have created their indexes reflects the complexities associated with creating a composite measure of material hardship. While the frequent use of the SIPP as a data source for analyzing material hardship to some extent standardizes the types of indicators and measures included in hardship indexes, there is still much to be learned about how SIPP measures may be used and combined to identify material hardship among families with children. To further our understanding of the complexities faced when defining and measuring material hardship, Chapter 4 presents new descriptive analyses of the SIPP measures that have most frequently been used by researchers to construct material hardship indexes. These analyses provide a closer look at the SIPP and how its measures relate to other constructs, such as household income, where a household lives, and family structure, and each other.

Chapter 4: Measuring Material Hardship in the SIPP

Data from the SIPP have frequently been used by researchers to assess families' material well being and to create material hardship indexes. While it is clear from the discussion presented in Chapter 3 that many researchers have used SIPP-based measures to examine material hardship, far less is known about the extent to which the selected measures are adequate or appropriate for measuring material hardship among families with children.

In this chapter we use the 1996 SIPP to conduct descriptive analyses of the specific measures that have most frequently been used by researchers in their material hardship definitions and indexes. The goal is to provide concrete data examples that further our understanding of these material hardship measures. The analyses respond to recommendations made by participants at the Roundtable Meeting for additional empirical analyses that examine the relationships between measures of material hardship in the SIPP and other measures of poverty and demographic characteristics. (See Appendix A for Roundtable Meetings participants' recommendations for "next steps.")

The analyses presented in the following sections examine how SIPP measures used by researchers to describe material hardship (i.e., those presented in Chapter 3) relate to: 1) other poverty measures; 2) general population characteristics (e.g., urban/rural), to understand how patterns of a particular hardship might differ; and 3) each other, to determine the congruence of the various hardship measures. Additionally, to improve our understanding of how these measures may be used to evaluate need among families with children, the comparisons presented in this chapter have been restricted to families with dependent children. This restriction reflects the growing interest in how these families are faring in the wake of welfare reform and, more specifically, the presence of specific types of material hardship among families with dependent children, since they are most likely to be affected by changes in federal and state welfare programs.

This chapter makes several important contributions to our understanding of material hardship and its measurement. First, to the extent that a condition frequently occurs among non-poor families with children, it may not be a useful indicator of the kind of hardship in which we are most interested – that which is specifically related to unfavorable economic circumstances. Similarly, if measures seem to capture conditions only among families with certain demographic characteristics (e.g., urban or rural residence) they may be less useful in identifying hardship among the broader population. Second, to the extent that specific hardships occur together, we also may be able to identify patterns of hardship and where specific measures seem to describe the same experience. This is an important first step in evaluating existing measures and understanding how they might be combined to form a composite index of material hardship.

In the following sections, we describe our methodology for relating measures of material hardship to household characteristics. We then present two series of tabulations: selected measures of material hardship relative to household characteristics, and cross-tabulations of these measures with each other.

The SIPP

The SIPP, conducted by the U.S. Census Bureau, collects a wide variety of economic and demographic information on panels of respondents over a period of several years, contacting sample members every four months. In the following sections, we describe the 1996 SIPP Panel's design and content, as well as that of its Adult Well-Being Topical Module. The section concludes with a discussion of the suitability of these data for analyzing material hardship.

Survey Design⁷

Each SIPP panel of households is derived through a two-stage process: selection of primary sampling units (PSUs), which are counties and independent cities, and selection of address units within PSUs. Sample members are the residents at those addresses. Information also is collected on individuals who join their households through birth or moving in. Original sample members aged 15 and over are followed if they move away. The sampled households are randomly divided into four rotation groups, which are interviewed in successive months. The 1996 panel was designed to run for 4 years, or 12 waves, and had an initial sample size of 40,188 households.

Starting in 1992, a mixed mode survey design has been used to contact and interview households. Generally, household interviews were initially conducted in person during Waves 1 and 2 and by phone during subsequent waves. Computer-assisted interviewing (CATI/CAPI) was introduced with the 1996 panel.

Survey Content

The SIPP interview is comprised of three components: the control card, core questionnaire, and topical modules. The *control card* contains information about the type of housing, household roster, and basic demographics (date of birth, race/ethnicity, origin or descent, gender, marital status, armed forces status, and educational attainment). The *core questionnaire* includes seven sections: labor force participation, earnings, sources and amounts of unearned income, assets, health insurance, participation in various assistance programs, and education activities. This information is collected for all household members age 15 and older. The SIPP's *topical modules* vary by panel and wave. The modules administered to the 1996 panel are listed in Exhibit 4.1.

The key source of material hardship data in the 1996 SIPP is the *Adult Well-Being* Topical Module, which was administered during Wave 8 (in mid-1998).⁸ The Census Bureau plans to administer this module again during Wave 8 of the 2001 SIPP panel (summer 2003).

⁷ Material in this subsection and the following is taken from Burstein *et al.* (2003), *Guide to Data Sources on the Determinants of Marriage and Cohabitation*.

⁸ During Wave 9 of the 1993 panel, this module was administered in two parts: *Extended Measures of Well-Being* and *Basic Needs*.

Exhibit 4.1	
1996 SIPP Topical Modules	
	1996 SIPP Topical Module Content
Wave 1	Assistance reciprocity history, employment history
Wave 2	Marital history, fertility history, work disability, education and training history, migration history, household relationships
Wave 3	Assets and liabilities, medical expenses/health care utilization, work-related expenses, child support paid
Wave 4	Annual income and retirement accounts, taxes, work schedule, child care, disability
Wave 5	School enrollment and financing, child support, support for non-household members, functional limitations, employer-provided health benefits, work and training activities while receiving public assistance/food stamps
Wave 6	Children's well-being, assets and liabilities, medical expenses/health care utilization, work-related expenses, child support paid
Wave 7	Annual income and retirement accounts, taxes, retirement expectations and pension plan coverage, home health care
Wave 8	Adult well-being, welfare reform (services and benefits received from government agencies and charities)
Wave 9	Assets and liabilities, medical expenses/health care utilization, work-related expenses, child support paid
Wave 10	Annual income and retirement accounts, taxes, work schedule, child care
Wave 11	Child support, support for non-household members, functional limitations and disability
Wave 12	Assets and liabilities, medical expenses/health care utilization, work-related expenses, child support paid, children's well-being

The Adult Well-Being Topical Module

The 1996 SIPP Adult Well-Being topical module evolved from earlier work by the SIPP Interagency Working Group (comprised of Bureau of Labor Statistics, Census Bureau, and Social Security Administration staff), which considered the development of a “well-being” topical module for inclusion on the 1991 and 1992 SIPP panels. For the purpose of developing this module, the Group adopted a broad definition of “well-being,” which focused on assessing “quality of life,” and developed a comprehensive collection of materials on how to assess the issue of well-being. They subsequently winnowed the list of topics for inclusion to:

- Durable goods;
- Housing conditions;
- Crime conditions;
- Neighborhood conditions;
- Ability to meet expenses;
- Help when in need;
- Food adequacy;
- Community services;
- Food and clothing expenses;
- Housing expenses;
- Transportation expenses;

- Health expenses; and
- Minimum income (Kominski & Short, 1996).

The final set of questions on well-being included in the 1991 and 1992 SIPP was very similar to that used by Mayer and Jencks (1989) in their Chicago-based hardship survey (Bauman, 1998). In evaluating the SIPP well-being data, the Census Bureau found response levels of comparable value to other available data sources and low levels of nonresponse. Further, debriefings with field representatives showed that respondents had few problems with the topics covered in the module (Kominski & Short, 1996).

Bauman (1998) points out, however, that more work is necessary to understand the well-being measures included in the SIPP. While he shows that these measures have a strong relationship to poverty, other factors correlated with poverty (e.g., education, employment status), and undesirable outcomes (e.g., high school dropout), there are still limitations in our understanding of how these measures work. Specific questions feature ambiguities that may complicate their interpretation. Questions also may not reliably measure aspects of need over time. Lastly, there are issues with understanding how these measures work together to describe well-being.

Many material hardship studies have used data from the 1991/1992 and 1993 SIPP panels (e.g., Bauman, 1998; Beverly, 1999a; Federman et al., 1996; Rector et al., 1999; Short & Shea, 1995). The questions included in the 1996 Adult Well-Being Topical Module are very similar to the well-being questions included in the original 1991/1992 panels. (See Appendix B, Exhibit B.2 for a summary of questions included in the 1991/1992 and 1993 SIPP panels.) Specifically, the 1996 module includes batteries of questions on the following seven topics:

- Durable goods;
- Housing safety;
- Neighborhood quality;
- Crime;
- Community Services;
- Basic needs; and
- Food security.

Of these, four are of particular interest for the study of material hardship: durable goods, housing safety, basic needs, and food security. (A complete list of the questions included in the Adult Well-Being Topical Module is included in Appendix C.)

Suitability for Research

The SIPP has a number of advantages for studying material hardship. The Adult Well-Being Module covers many topics of interest, has been administered in three panels to date, and will presumably be included in future panels, so that comparisons in levels of hardship over time will be possible.

Furthermore, the SIPP collects rich economic and demographic information on sampled households for a period of up to four years. Information is collected on all members and they are followed to new locations if they move away either individually or as a group. This allows of changes in

household composition to be tracked during the periods preceding and following the measurement of hardship, and the correlation of hardship measures with many household characteristics. The large sample size also permits subgroup analyses.

The Adult Well-Being Module is administered to *one member in each household*. A household is defined as the group of people living at a particular address at the time of the interview. This approach, however, introduces several possible sources of error. For example, consider the initial question of the Adult Well-Being Module:

During the past 12 months, has there been a time when (YOU/YOUR HOUSEHOLD) did not meet all of your essential expenses?

To the extent that respondents have been members of multiple households during the past year, they may or may not report on the experiences of the household in which they now reside. Similarly, there may be new household members that the respondent knows little about.

These issues do not arise with respect to the *durable goods* and *housing safety* items, because they pertain to a point in time. The problems also are less severe for the *food security* battery, which refers to a relatively narrow window (four months) and allows the analyst to determine at least whether the household “had enough to eat” in each of those months.

The food security battery contains modified versions of some of the questions included in the full 18-question battery that appears in the Current Population Survey (CPS). The questions have been adapted from a 12-month period (as asked in the CPS) to a four-month period. The subset of questions included does not match the short version of six items currently recommended by the Census Bureau, in part because the subset was developed before research on the statistical properties of the full battery had been completed. Mark Nord of the Economic Research Service has developed an algorithm which maps responses to five of these items to the standard three-point food security scale: food secure, food insecure without hunger, food insecure with hunger.⁹

Because the SIPP sample frame comprises the *non-institutionalized* population, some forms of homelessness are not represented. Doubling up also may or may not be captured, depending on whether the householder considers those who moved in to be part of the household rather than visitors.

Methodology

In this section we describe our approach to conducting the analysis. Issues of importance are defining the analysis sample, linking household characteristics to hardship measures, using sample weights, measuring material hardship, and measuring household characteristics.

⁹ See Economic Research Service, United States Department of Agriculture, *Survey of Income and Program Participation 1996 Wave 8 Food Security Data File, Technical Documentation and User Notes*.

The Analysis Sample

The tabulations presented later in this chapter are restricted to households with dependent children.¹⁰ A household, however, is an ambiguous concept with regard to measuring basic needs. A respondent who reportedly experienced hardship in the past 12 months may have had children living with him or her in some but not all of those months. *Our approach is to identify households with dependent children based on their composition at the time of the administration of the Adult Well-Being Module.*

Linking Household Characteristics to Hardship Measures

Our analytic approach is, in most cases, to relate reported hardships to household characteristics *at the time of the response*. For example, we examine the prevalence of some hardships during the past 12 months among households whose income *in the current month* is high, medium, or low. As discussed in the previous section, this can perhaps be misleading if the current household characteristics are not reflective of the time when hardship was experienced.

An exception to measuring household characteristics at the time the Adult Well-Being Module was administered occurs with regard to assets. Assets were measured in Wave 6 and Wave 9, while the Adult Well-Being Module was administered in Wave 8. We associate hardships reported in Wave 8 with the assets of the household in which the apparent respondent lived during Wave 6.

Sample Weights and Standard Errors

The SIPP has a very complex sample design. The Census Bureau provides a series of weights and guidance to users on how to apply them.¹¹ The basic components for all the different sets of weights are the same, namely:

- A base weight that reflects the probability of selection for a sample unit;
- An adjustment for subsampling within clusters;
- An adjustment for movers (in Waves 2 and beyond);
- A nonresponse adjustment to compensate for sample nonresponse; and
- A poststratification (second-stage calibration) adjustment to correct for departures from known population totals.

The weight variable used is WHFNWGT, for the fourth month of Wave 8. This weight represents “the population that the sample household represents in that reference month” (p. 8.4).

The Census Bureau recommends that standard errors be calculated using Fay’s method of balanced repeated replications (BRR); however, the replicate weights are not publicly available on the Census

¹⁰ A dependent child is an individual under age 18 who is neither a household head nor the spouse or partner of a household head.

¹¹ U.S. Census Bureau, *Survey Of Income and Program Participation Users’ Guide (Supplement To The Technical Documentation)*, Third Edition, Washington, D.C.2001

Bureau website.¹² As a result, we used the method recommended by the Census Bureau for earlier SIPP panels.¹³

Measures of Material Hardship

Three groups of material hardship measures taken from the 1996 SIPP Adult Well-Being Module are included in our analysis. (Exhibit 4.2) These measures correspond with those that have been most frequently used in the material hardship indexes previously discussed in Chapter 3.¹⁴

¹² The User's Guide (p. 7-3) notes that:

The variance formula for Fay's method is

$$\text{Var}(\theta_0) = \{1/[G(1-k)^2]\} \sum_{i=1}^G (\theta_i - \theta_0)^2, \quad (7-1)$$

where

G = number of replicates;

$1-k$ = perturbation factor;

i = replicate i , $i = 1$ to G ;

θ_i = i th estimate of the parameter θ based on the observations included in the i th replicate;

θ_0 = survey estimate of the parameter θ based on the full sample.

The 1996 SIPP Panel uses 108 replicate weights, which are calculated on the basis of a perturbation factor of 0.5 ($k = 0.5$). Inserting those values into Equation (7-1) results in the 1996 SIPP Panel variance formula of

$$\text{Var}(\theta_0) = [1/(108 * 0.5^2)] \sum_{i=1}^{108} (\theta_i - \theta_0)^2.$$

The Census Bureau used VPLX software to compute the replicate weights that are available through FERRET.

¹³ Variances for this report were estimated using SAS PROC SURVEYMEANS, with the following specifications:

```
proc surveymeans;
weight whfnwgt;
var &varname;
strata gvarstr;
cluster ghlfam;
domain &domain;
run;
```

where &varname is the variable being tabulated (e.g. indicator of not paying rent or mortgage), and &domain is the analytic stratifier (e.g. category of income relative to FPL).

¹⁴ Appendix D presents additional descriptive analyses for some durable goods measures that also are included in the SIPP, but have not frequently been used in material hardship definitions or composite measures.

Exhibit 4.2		
Material Hardship Measures Included in Analysis		
Basic Needs & Food Insecurity (9 measures)	Durable Goods (2 measures)	Housing Quality – Safety and Overcrowding (10 measures)
<ul style="list-style-type: none"> • Did not pay rent/mortgage • Evicted for failure to pay rent/mortgage • Did not pay gas/oil/electricity bill • Lost gas/oil/electricity for failure to pay • Telephone disconnected for failure to pay • Needed to see doctor/go to hospital but did not • Need to see dentist but did not • Food insecure • Food insecure with hunger 	<ul style="list-style-type: none"> • Refrigerator • Gas or electric stove (with or without oven) 	<ul style="list-style-type: none"> • Problem with pests such as rats, mice, roaches, or other insects • A leaking roof or ceiling • Broken window glass or windows that can't shut • Exposed electrical wires in the finished areas of your home • A toilet, hot water heater, or other plumbing that doesn't work • Holes in the walls or ceiling, or cracks wider than the edge of a dime • Holes in the floor big enough for someone to catch their foot on • 3 or more of the above safety issues • 4 or more of the above safety issues • Overcrowding (more than 1.5 persons per room)

Household Characteristic Measures

In our analyses, basic needs, food security and other material hardship measures have been cross-tabulated with several measures of household characteristics. The following sections describe how the household characteristic measures were constructed.

Income relative to federal poverty level (FPL): Total household income is reported for the last month of Wave 8. This is compared with the federal poverty line (FPL), conditional on household size, and households are classed as: under 100% of FPL, 100-200% of FPL, and over 200% of FPL. These three groups comprise 15, 21, and 64% of the weighted sample, respectively.

Assets: Household assets were measured in Wave 6 (months before the administration of the Adult Well-Being Module) for the household that includes the person responding to the Adult Well-Being Module.¹⁵ Assets are defined in terms of the money available in respondents' *savings* and *checking accounts*. Households are classified as having liquid assets up to \$100, and greater than or equal to

¹⁵ It is important to note that not everyone who responds to Wave 8 also responds to the Adult Well-Being module, which may not comprise all the same individuals that are included in Wave 8.

\$100. The latter group comprises 66% of the weighted sample, thus being similar in size to the highest of the three income groups.

Urban/Rural: Households are classified according to whether they are identified in the SIPP as residing in a metropolitan or non-metropolitan area. For purposes of confidentiality, the public use data were altered, with 10% of true metropolitan area residents classified as living in non-metropolitan areas. Hence, the results for non-metropolitan areas are not completely accurate, and it might be more correct to refer to this group as “residual” rather than “rural.” Households classified as urban comprise 82% of the sample.

Household Composition: All households included in these analyses include dependent children. They are further classified according to whether they include a single adult, a married couple, or multiple adults with no married couple. The presence of a married couple in the household is determined based on the RHTYPE variable (1=married couple present). Married couple households account for 70% of the weighted sample, while single-adult and other multiple adult configurations account for 16 and 13%, respectively.

Variations in Frequency of Material Hardship by Household Characteristics

The potential usefulness of various proposed measures of material hardship depends on how these measures vary across households in different situations. We evaluated whether hardship measures used in the literature show greater frequency among households that are financially better off. Patterns also may vary substantively between urban and rural households, as their needs and opportunities differ. Finally, patterns may vary markedly among households headed by single adults, by married couples and other multiple adult configurations. These patterns are presented and discussed in the following sections.

Basic Needs and Food Security

As described above, the “basic needs” and food security indicators are comprised of nine measures of negative outcomes. Three different reference time periods are used in these questions: the past 12 months, the current point in time, and the past 4 months. The most common of these outcomes are: missing a utility payment during the past year and experiencing food insecurity during the past 4 months (14 and 12% respectively for all households with children; Exhibit 4.3). The rarest of these outcomes are: eviction for failure to pay rent or mortgage and loss of utilities for failure to pay bills (less than 1 and 2%, respectively). Falling in the middle of the prevalence range are: failure to make a rent or mortgage payment, telephone disconnection for failure to pay, failing to see a doctor or go to the hospital, failing to see a dentist, and food insecurity with hunger, all falling between 4 and 10%.

The qualitative patterns of relative prevalence are replicated for less well-off households, but at much higher levels. Food insecurity is experienced by 32% of households under 100% FPL and by 23% of households with no more than \$100 in liquid assets; the proportions of these less-well-off groups’ failure to pay their utility bills are 29 and 25%, respectively.

In general, these nine outcomes are significantly more common among households with low incomes and limited assets (i.e., income under 100% of FPL and with less than \$100 in liquid assets). The sole

exception to this statement is that households in the middle income category, 100-200% of FPL, are no more likely to miss seeing a dentist when they need to than households under 100% of FPL. Aside from this, the prevalences are significantly different in the expected direction ($p < 0.01$) for all comparisons between the respective reference groups.

Not all of these basic need measures seem to be equally useful as indicators of hardship. *Evictions for failure to pay rent or mortgage*, and to a lesser extent *loss of utilities for failure to pay*, are such rare events that they sacrifice specificity to sensitivity. That is, while virtually all households experiencing these events undoubtedly suffer material hardship (indicating that these are highly sensitive measures), many households that do not experience these events also suffer material hardship (suggesting that they are not highly specific measures).

Failure to see a dentist also does not have a clearly defined relationship to income. This finding is not entirely a surprise given that there might be reasons to not to see a dentist that are unrelated to poverty or material hardship (e.g., a general dislike of dental appointments). This is consistent with Roundtable Meeting participants' comments on the importance of knowing or understanding the reasons behind a situation before labeling it a hardship. This is particularly the case with health care-related measures. Researchers who attended the Meeting and had been involved with the National Survey of America's Families (NSAF) noted that they found it very difficult to code reasons for not seeing medical care when it was needed.

Exhibit 4.3

Availability of Basic Needs and Food Security, by Income and Assets

	Did not pay rent or mortgage	Evicted for failure to pay rent or mortgage	Did not pay gas, oil, or electricity bill	Lost gas, oil, or electricity for failure to pay	Telephone disconnected for failure to pay	Needed to see doctor or go to hospital but did not	Needed to see dentist but did not	Food insecure	Food insecure with hunger
Household income relative to FPL									
Under 100% ^a	18.2	1.1	29.4	6.0	15.1	14.9	16.8	32.0	12.6
100-200%	13.0***	0.4**	21.6***	3.2***	10.4***	11.1***	16.0	19.5***	7.6***
Over 200%	4.5***	0.2***	8.7***	1.0***	2.9***	4.4***	6.9***	5.4***	1.7***
Liquid assets									
< \$100 ^a	14.6	0.7	24.6	4.5	12.3	12.5	16.1	23.0	9.0
≥ \$100	4.7***	0.2***	9.0***	1.0***	2.9***	4.4***	7.1***	6.5***	2.2***
All households	8.3	0.4	14.4	2.2	6.2	7.3	10.2	12.2	4.6
Notes:									
^a Reference category.									
*** Statistically significantly different from reference category, $p < 0.01$.									
** Statistically significantly different from reference category, $p < 0.05$.									
* Statistically significantly different from reference category, $p < 0.10$.									

Households in urban and rural areas: While most hardships are about equally prevalent among households in rural *versus* urban areas¹⁶, rural households are significantly more likely to miss seeing a dentist when they needed to ($p < 0.10$) than their urban counterparts. (Exhibit 4.4) This is in part a reflection of the different income distribution; however, as previously discussed, this measure also could be capturing phenomena unrelated to material hardship (e.g., transportation barriers or travel time to see a dentist).

Controlling for income, rural households tend to be *less* likely to experience hardships. In all three income groups, rural households have a significantly lower rate for at least one of the four occupancy and utility-related hardship measures than urban households. In addition, the poorest rural households are less likely to experience hunger than their urban counterparts ($p < 0.01$).

Households headed by single adults, married couples, and other multiple-adult configurations: All of the “basic needs” hardships are significantly more prevalent ($p < 0.01$) among households headed by single adults than among households headed by married couples. (Exhibit 4.5) Other multiple-adult households fall somewhere in the middle. They show very similar rates to those of single-adult households for eviction for failure to pay rent or mortgage and failure to get needed medical care. While generally not attaining the low rates of hardships as experienced by married couple households, this group does have significantly lower rates than single-adult households for hardships such as failure to pay utility bills, lack of a telephone, food insecurity, and food insecurity with hunger ($p < 0.01$).

The differences between *married couple* and single-adult households cannot be attributed solely to income. Even within income groups, married couple households tend to experience markedly fewer hardships than households headed by single parents. In all three income groups, married couple households are less likely to miss a rent or mortgage payment, miss a utility payment, have utilities cut off for failure to pay, have their phone disconnected, be food insecure, or experience hunger ($p < 0.05$ for 4 of the 18 tests, $p < 0.01$ for the remaining 14). They also are less likely to miss seeing a doctor (in the highest income group; $p < 0.01$) and to miss seeing a dentist (in the two higher income groups; $p < 0.05$, $p < 0.01$). But, the effect of income cannot be ignored. For example, married couple households are 10 percentage points less likely than single parent households to miss a rent or mortgage payment; yet within each of the income groups, the difference is “only” five-to-six percentage points. The remainder is a compositional effect.

Within income groups, households headed by *other multiple adult configurations* tend to look more like single-parent households, although a few differences show up. In the middle-income group (100-200% of FPL), they are less likely than single parent households to miss a utilities payment ($p < 0.05$), but are more likely to miss seeing a doctor ($p < 0.10$).

¹⁶ Recall that the group referred to here as “rural” in fact is contaminated by inclusion of some percentage of urban households, whose metropolitan status was altered by the Bureau of the Census to preserve confidentiality.

Exhibit 4.4

Availability of Basic Needs and Food Security, by Urban versus Rural and Income

	Did not pay rent or mortgage	Evicted for failure to pay rent or mortgage	Did not pay gas, oil, or electricity bill	Lost gas, oil, or electricity for failure to pay	Telephone disconnected for failure to pay	Needed to see doctor or go to hospital but did not	Needed to see dentist but did not	Food insecure	Food insecure with hunger
Geographic Location									
Urban ^a	8.4	0.4	14.7	2.2	6.4	7.1	9.9	12.1	4.6
Rural	7.7	0.3	13.3	2.1	5.6	8.2	11.7*	12.7	4.6
Under 100% FPL									
Urban ^a	19.7	1.2	30.6	6.3	15.8	14.9	16.5	32.8	13.4
Rural	12.3***	0.8	24.8*	4.9	12.3	15.0	18.0	29.2	9.5*
100-200% FPL									
Urban ^a	13.1	0.5	22.3	3.1	10.8	11.1	15.2	19.6	7.6
Rural	12.4	0.0***	19.2	3.6	9.2	11.3	18.8	19.2	7.7
Over 200% FPL									
Urban ^a	4.5	0.2	9.0	1.1	3.0	4.3	6.9	5.4	1.7
Rural	4.4	0.3	7.6*	0.6*	2.3	4.9	6.9	5.3	1.9
All households	8.3	0.4	14.4	2.2	6.2	7.3	10.2	12.2	4.6

Notes: ^a Reference category.

*** Statistically significantly different from reference category, $p < 0.01$.

** Statistically significantly different from reference category, $p < 0.05$.

* Statistically significantly different from reference category, $p < 0.10$.

Exhibit 4.5

Availability of Basic Needs and Food Security, by Household Composition and Income

	Did not pay rent or mortgage	Evicted for failure to pay rent or mortgage	Did not pay gas, oil, or electricity bill	Lost gas, oil, or electricity for failure to pay	Telephoned disconnected for failure to pay	Needed to see doctor or go to hospital but did not	Needed to see dentist but did not	Food insecure	Food insecure with hunger
Household Composition									
Single adult ^a	15.5	0.8	27.7	4.8	12.6	11.0	14.9	25.3	11.2
Married couple	5.7***	0.2***	10.0***	1.3***	3.9***	5.6***	8.0***	7.6***	2.5***
Other multiple adults	13.0*	0.9	22.0***	3.6*	10.7*	12.0	16.2	20.5***	7.3***
Under 100% FPL									
Single adult ^a	20.2	1.1	34.2	7.5	17.6	14.5	16.1	37.0	16.1
Married couple	15.1**	0.9	23.2***	4.3**	11.5***	14.3	17.3	24.2***	8.7***
Other multiple adults	20.4	1.7	32.3	6.4	17.2	16.9	17.3	37.8	13.5
100-200% FPL									
Single adult ^a	16.6	0.6	30.9	4.8	14.6	11.5	18.0	27.7	13.2
Married couple	11.4***	0.1	17.5***	2.4**	8.3***	9.9	14.0**	15.1***	5.0***
Other multiple adults	13.9	1.2	24.3**	4.0	13.0	15.2*	20.8	24.9	9.8
Over 200% FPL									
Single adult ^a	9.5	0.6	18.3	1.9	5.6	7.0	11.0	10.8	4.4
Married couple	3.2***	0.1	6.6***	0.7**	2.0***	3.5***	5.5***	3.9***	1.2***
Other multiple adults	9.7	0.5	16.9	2.2	7.1	8.5	13.7	11.7	3.8
All households									
	8.3	0.4	14.4	2.2	6.2	7.3	10.2	12.2	4.6

Notes: ^a Reference category.

*** Statistically significantly different from reference category, $p < 0.01$.

** Statistically significantly different from reference category, $p < 0.05$.

* Statistically significantly different from reference category, $p < 0.10$.

Other Hardships

Housing Safety and Overcrowding

An additional set of hardship measures pertain specifically to housing conditions. These comprise seven serious safety issues, counts of these issues, and overcrowding (more than 1.5 persons per room).

The most prevalent housing safety issue is problems with “pests such as rats, mice, roaches, or other insects.” (Exhibit 4.6) Approximately 15% of families experience this condition. Next most common, in the 5 to 7% range, are leaking roofs or ceilings, broken windows, and holes in the wall or ceiling. Exposed wires, nonworking plumbing, holes in the floor, and overcrowding are experienced by 1 to 3% of families.

The relationship of each of these measures to income is marked. In all cases, households with incomes less than 100% of FPL experience housing safety issues at higher rates than higher income households. That said, for two of the measures there is either a non-statistically significant difference between those households with the lowest incomes and those in the middle income category (i.e., exposed wires and non-working plumbing), and a weaker statistical difference ($p < 0.10$) for three other housing safety measures (i.e., broken windows, holes in the ceiling, and holes in the floor). This suggests that these measures may be less efficient indicators of housing safety hardships than other measures, where stronger differences between income groups exist.

Remarkably, while the lowest income group experiences each of the seven housing safety issues at rates of two-to-three times those of the highest income group, the 3- and 4-item combinations are experienced at rates four times as great. This suggests that these issues tend to be concentrated among certain low-income households. Overcrowding also is much more prevalent among the lowest *versus* the highest income group (4.9 *versus* 0.6%; $p < 0.01$).

Similar patterns are apparent when households with more and less liquid assets are compared. The better off group has prevalences of housing safety issues and overcrowding very similar to those of the highest income group, which comprises about two-thirds of the population.

Households in urban and rural areas: Housing safety problems are somewhat more common in rural than in urban areas. (Exhibit 4.7) Overall, families in rural areas are more likely to have broken windows, exposed wires, and holes in their walls or ceilings ($p < 0.05$, $p < 0.10$, $p < 0.05$ respectively), as well as combinations of three or more safety issues ($p < 0.05$).

Among the poorest households, overcrowding is slightly more common in urban settings ($p < 0.10$). In the middle income group, rural families are worse off than their urban counterparts with regard to leaking roofs or ceilings, holes in walls or ceilings, and holes in the floor ($p < 0.10$). They also are more likely to experience combinations of three or more safety issues ($p < 0.01$). In the highest income group, nonworking plumbing is more common among rural than urban households ($p < 0.05$).

Exhibit 4.6

Housing Safety and Overcrowding, by Income and Assets

	Problem with pests	Leaking roof or ceiling	Broken windows	Exposed wires	Nonworking plumbing	Holes in wall or ceiling	Holes in floor	3+ safety issues	4+ safety issues	Overcrowding
Household income relative to FPL										
Under 100% ^a	25.3	11.3	10.2	2.4	5.0	9.0	2.0	7.9	3.4	4.9
100-200%	19.5***	8.4***	8.1*	1.7	5.0	7.4*	1.4*	5.1***	2.3**	3.7**
Over 200%	11.7***	6.1***	3.7***	0.5***	2.2***	3.4***	0.7***	1.9***	0.8***	0.6***
Liquid assets										
< \$100 ^a	21.6	9.9	8.5	1.7	4.4	7.7	1.8	5.8	2.5	3.7
≥ \$100	12.1***	6.1***	4.0***	0.7***	2.5***	3.8***	0.6***	2.2***	0.9***	0.8***
All households	15.3	7.4	5.6	1.0	3.2	5.1	1.0	3.4	1.5	1.9

Notes: ^a Reference category.

*** Statistically significantly different from reference category, $p < 0.01$.

** Statistically significantly different from reference category, $p < 0.05$.

* Statistically significantly different from reference category, $p < 0.10$.

Exhibit 4.7

Housing Safety and Overcrowding, by Urban versus Rural and Income

	Problem with pests	Leaking roof or ceiling	Broken windows	Exposed wires	Nonworking plumbing	Holes in wall or ceiling	Holes in floor	3+ safety issues	4+ safety issues	Over-crowding
Geographic Location										
Urban ^a	15.3	7.4	5.2	0.9	3.0	4.8	0.9	3.2	1.4	1.9
Rural	15.6	7.4	7.2**	1.4*	4.0	6.3**	1.6	4.6**	1.8	1.5
Under 100% FPL										
Urban ^a	26.1	11.7	9.7	2.3	5.1	9.2	2.0	8.0	3.3	5.3
Rural	22.3	9.9	11.9	2.4	4.5	8.3	2.1	7.4	3.8	3.1*
100-200% FPL										
Urban ^a	19.3	7.9	7.6	1.4	4.9	6.8	1.1	4.3	2.0	3.9
Rural	20.1	10.2*	10.0	2.7	5.1	9.9*	2.4*	8.0***	3.0	2.8
Over 200% FPL										
Urban ^a	11.7	6.3	3.5	0.5	2.0	3.3	0.6	1.8	0.8	0.6
Rural	11.8	5.5	4.6	0.6	3.4**	4.2	1.2	2.4	0.7	0.5
All households	15.3	7.4	5.6	1.0	3.2	5.1	1.0	3.4	1.5	1.9

Notes: ^a Reference category.

*** Statistically significantly different from reference category, $p < 0.01$.

** Statistically significantly different from reference category, $p < 0.05$.

* Statistically significantly different from reference category, $p < 0.10$.

Households headed by single adults, married couples, and other multiple-adult configurations:

Overall, married couple households are less likely to experience housing safety hardships than single adult households and those with multiple adults. The only exception occurs in the case of the most infrequent housing safety issue, holes in the floor, where there was no difference in the likelihood of experiencing this hardship across different types of households. (Exhibit 4.8) Single adult and households with other multiple adult configurations experience housing safety hardships at higher rates and at relatively similar levels of prevalence.

It appears that the advantages *married couple households* have over single adult households are attributable to their income. Within the poorest group, married couple households are better off only with respect to pest problems ($p < 0.01$). The sole advantages of married couple households in the middle income group are with regard to broken windows and nonworking plumbing ($p < 0.05$). In the highest income group, however, married couple families are significantly better off with regard to four of the seven housing safety issues, as well as both safety issue combination measures. Households with *other multiple adult configurations* are significantly worse off than single-adult households in the poorest income group with regard to several housing safety hardships; they are more likely to have problems with pests, leaking roofs or ceilings, broken roofs, and four or more safety issues.

In contrast, a different pattern emerges in the domain of overcrowding. Single adult headed households are least likely to experience overcrowding. This finding is not surprising given that the presence of more persons (e.g., adults) in the household no doubt contributes to the significantly higher rate of overcrowding for multiple-adult and married couple families.

Overall, households with *other multiple adult configuration* are most likely to experience overcrowding ($p < 0.01$). However, among the lowest two income groups, both *married couple* and *other multiple adult configurations* are significantly worse off than single adult households. Among the highest income group, only households with *other multiple adult configurations* are significantly more likely to experience overcrowding hardships ($p < 0.01$).

The similarity in overcrowding patterns between married couple households and those with other multiple adult configurations, however, suggests that the SIPP's overcrowding measure may describe different circumstances, depending on the household's composition. In the case of married couple households, we would expect that these families would be sharing more common living space (e.g., bedrooms). As a result, for married couple households the measure may over-identify families that experience overcrowding hardships. However, households with other multiple adult configurations may not necessarily experience these efficiencies and the measure may in fact capture families that have "doubled up." These results seem to reflect some of the potential limitations of overcrowding measures that were discussed in Chapter 3.

Exhibit 4.8

Housing Safety and Overcrowding, by Household Composition and Income

	Problem with pests	Leaking roof or ceiling	Broken windows	Exposed wires	Nonworking plumbing	Holes in wall or ceiling	Holes in floor	3+ safety issues	4+ safety issues	Over-crowding
Household Composition										
Single adult ^a	20.7	9.2	8.0	1.7	5.2	7.8	1.2	5.7	2.7	1.3
Married couple	13.0***	6.6***	4.4***	0.7***	2.5***	3.9***	0.8	2.5***	0.9***	1.7
Other multiple adults	21.4	9.3	9.0	2.1	4.6	7.8	1.7	5.5	2.9	3.2***
Under 100% FPL										
Single adult ^a	25.9	10.8	8.4	2.3	4.9	9.5	1.9	7.6	3.0	2.9
Married couple	21.4*	10.3	10.1	1.7	4.6	7.4	2.0	6.7	2.9	6.2***
Other multiple adults	32.2*	14.5*	14.1**	3.9	6.1	11.4	2.3	10.8	5.4*	6.2**
100-200% FPL										
Single adult ^a	20.6	9.4	10.5	2.0	7.2	8.5	0.8	5.8	3.1	0.6
Married couple	17.5	8.2	6.5**	1.3	4.2**	6.5	1.4	4.5	1.8	4.8***
Other multiple adults	25.5*	8.0	11.2	2.7	4.8	9.5	2.1	6.5	2.8	3.4***
Over 200% FPL										
Single adult ^a	15.2	7.3	5.4	0.8	3.9	5.5	0.7	3.5	2.0	0.2
Married couple	10.9***	5.8	3.2**	0.4	1.8**	2.9**	0.6	1.5**	0.5**	0.4
Other multiple adults	15.4	8.0	6.0	1.1	3.9	5.6	1.3	3.0	2.0	2.0***
All households										
	15.3	7.4	5.6	1.0	3.2	5.1	1.0	3.4	1.5	1.9

Notes: ^a Reference category.

*** Statistically significantly different from reference category, $p < 0.01$.

** Statistically significantly different from reference category, $p < 0.05$.

* Statistically significantly different from reference category, $p < 0.10$.

Durable Goods

The analyses presented here focus on the two types of durable goods most frequently incorporated in researchers' material hardship indexes: whether a household has a refrigerator or stove in their home or building. Supplementary descriptive analyses for other types of durable goods measures that are included in the SIPP, but have not frequently been used in researchers' material hardship indexes, are presented in Appendix D.

Very high proportions of households have refrigerators and stoves (99.4 and 99.2%, respectively), with even households in the lowest income group likely to have these durable goods. (Exhibit 4.9) Households in the lowest two income groups were equally less likely to have a refrigerator, whereas households in the middle and upper income groups were more likely to have a stove. In both cases, households with fewer liquid assets were less likely to possess or have access to these durable goods. Furthermore, there were no significant differences among possession of or access to refrigerators or stoves among households that reside in rural *versus* urban areas (Exhibit 4.10) and while married couple households are less likely to not have a refrigerator or stove, this relationship disappears when controls for income are added to the analyses (Exhibit 4.11).

Overall, these findings suggest that these durable goods measures, individually or in combination, will only identify the most needy households. That is, lack of a refrigerator or stove is a rare event and only found in households with the fewest resources (i.e., income and assets). This is consistent with the findings reported by Federman et al. (1992) and Rector et al. (1999).

Exhibit 4.9		
Availability of Durable Goods, by Income and Assets		
	Refrigerator	Gas or electric stove
Household income relative to FPL		
Under 100% ^a	98.9	98.0
100-200%	99.0	98.9**
Over 200%	99.7***	99.6***
Liquid assets		
< \$100 ^a	99.2	98.5
≥ \$100	99.6***	99.5***
All households		
	99.4	99.2
Notes: ^a Reference category. *** Statistically significantly different from reference category, $p < 0.01$. ** Statistically significantly different from reference category, $p < 0.05$. * Statistically significantly different from reference category, $p < 0.10$.		

Exhibit 4.10		
Availability of Durable Goods by Urban versus Rural and Income		
	Refrigerator	Gas or electric stove
Geographic Location		
Urban ^a	99.4	99.2
Rural	99.4	99.2
Under 100% FPL		
Urban ^a	99.0	97.8
Rural	98.6	98.5
100-200% FPL		
Urban ^a	99.0	98.9
Rural	99.2	98.8
Over 200% FPL		
Urban ^a	99.7	99.6
Rural	99.8	99.6
All households		
	99.4	99.2
Notes: ^a Reference category. *** Statistically significantly different from reference category, $p < 0.01$. ** Statistically significantly different from reference category, $p < 0.05$. * Statistically significantly different from reference category, $p < 0.10$.		

Exhibit 4.11		
Availability of Durable Goods by Household Composition and Income		
	Refrigerator	Gas or electric stove
Household Composition		
Single adult ^a	98.8	98.7
Married couple	99.6***	99.4***
Other multiple adults	99.4	98.6
Under 100% FPL		
Single adult ^a	99.0	98.3
Married couple	98.8	98.0
Other multiple adults	98.8	97.2
100-200% FPL		
Single adult ^a	98.2	98.3
Married couple	99.3	99.0
Other multiple adults	99.1	99.0
Over 200% FPL		
Single adult ^a	99.2	99.5
Married couple	99.8	99.7
Other multiple adults	99.7	99.0
All households		
	99.4	99.2
Notes: ^a Reference category. *** Statistically significantly different from reference category, $p < 0.01$. ** Statistically significantly different from reference category, $p < 0.05$. * Statistically significantly different from reference category, $p < 0.10$.		

Joint Frequency: Measures of Material Hardship

The measures of hardship tabulated in the previous section tend to occur jointly. In this section we document the proportions of households experiencing particular hardships that are conditional on experiencing other types of hardship.

Joint Frequency of Basic Needs and Food Security

Each of the basic needs hardships is experienced by fewer than 15% of households and is a strong predictor of other types of hardship. Some of these relationships are definitional (i.e., all households that were food insecure with hunger were also food insecure). However, strong relationships also are seen across domains. For example, among the 8% of households with children that did not always pay their rent or mortgage, nearly two-thirds (64%) also did not always pay their utility bills, nearly a third (31%) had their telephone disconnected, and nearly half (46%) were food insecure (Exhibit 4.12,

second row¹⁷). Similarly, among the 12% of households that were food insecure, nearly a third (31%) did not always pay their rent or mortgage, nearly half (49%) did not always pay their utility bills, and nearly a quarter (24%) had their phone disconnected. These findings suggest that households that are in need tend to experience multiple hardships.

Similar qualitative patterns, at somewhat higher rates, are seen when the sample is restricted to households under 100% FPL. (Exhibit 4.13) That is, among households with less income, it is even more likely that those experiencing one hardship will also experience another. While “only” 46% of households with children that missed a rent or mortgage payment were also food insecure, among those under 100% FPL the corresponding proportion was 56%.

¹⁷ Each cell in the exhibit after the first row shows the proportion of households experiencing the hardship corresponding to the column header, among those households that experienced the hardship indicated by the row description. Comparing these values to the marginal frequencies shown in the first row of the exhibit shows how much more prevalent each hardship is among households experiencing other hardships than among all households in general.

Exhibit 4.12

Joint Frequency of Basic Needs and Food Security Measures

	Did not pay rent or mortgage	Evicted for failure to pay rent or mortgage	Did not pay gas, oil, or electricity bill	Lost gas, oil, or electricity for failure to pay	Telephone disconnected for failure to pay	Needed to see doctor or go to hospital but did not	Needed to see dentist but did not	Food insecure	Food insecure with hunger
Overall Frequency	8.3	0.4	14.4	2.2	6.2	7.3	10.2	12.2	4.6
Did not pay rent or mortgage	100.0	4.5	63.6	14.4	31.3	27.9	32.7	45.9	23.0
Evicted for failure to pay rent or mortgage	100.0	100.0	72.2	26.5	44.7	29.3	35.3	54.7	20.5
Did not pay gas, oil, or electricity bill	36.4	1.9	100.0	15.1	28.0	24.5	31.0	41.6	19.7
Lost gas, oil, or electricity for failure to pay	54.6	4.5	100.0	100.0	53.8	26.2	37.3	54.3	29.1
Telephone disconnected for failure to pay	41.5	2.7	64.9	18.8	100.0	27.4	32.3	47.1	21.3
Needed to see doctor or go to hospital but did not	31.5	1.5	48.2	7.8	23.4	100.0	64.2	47.3	23.7
Needed to see dentist but did not	26.4	1.3	43.7	7.9	19.7	46.0	100.0	39.2	19.7
Food insecure	31.1	1.7	49.2	9.7	24.0	28.4	32.9	100.0	37.3
Food insecure with hunger	41.8	1.7	62.4	13.9	29.1	38.1	44.2	100.0	100.0

Notes: Cell entries represent percent of households that have characteristic shown in column, among those that have characteristic shown in row.

Exhibit 4.13

Joint Frequency of Basic Needs and Food Security Measures for Households Under 100% FPL

	Did not pay rent or mortgage	Evicted for failure to pay rent or mortgage	Did not pay gas, oil, or electricity bill	Lost gas, oil, or electricity for failure to pay	Telephone disconnected for failure to pay	Needed to see doctor or go to hospital but did not	Needed to see dentist but did not	Food insecure	Food insecure with hunger
Overall Frequency	18.2	1.1	29.4	6.0	15.1	14.9	16.8	32.0	12.6
Did not pay rent or mortgage	100.0	6.1	68.2	19.0	34.6	31.9	34.0	55.9	29.1
Evicted for failure to pay rent or mortgage	100.0	100.0	93.0	45.7	47.0	42.6	44.7	64.8	42.9
Did not pay gas, oil, or electricity bill	42.1	3.5	100.0	20.5	32.4	27.7	31.5	54.3	25.9
Lost gas, oil, or electricity for failure to pay	57.2	8.4	100.0	100.0	45.8	28.9	34.2	58.3	32.9
Telephone disconnected for failure to pay	41.8	3.5	63.3	18.3	100.0	30.8	32.2	53.0	25.3
Needed to see doctor or go to hospital but did not	39.0	3.2	54.8	11.7	31.2	100.0	62.3	55.8	31.4
Needed to see dentist but did not	36.9	3.0	55.3	12.3	28.9	55.3	100.0	55.9	29.2
Food insecure	31.7	2.3	49.8	11.0	24.9	25.9	29.3	100.0	39.4
Food insecure with hunger	41.9	3.8	60.4	15.7	30.2	37.1	38.8	100.0	100.0

Notes: Cell entries represent percent of households that have characteristic shown in column, among those that have characteristic shown in row.

Joint Frequency of Availability of Basic Needs, Availability of Selected Household Durables, and Housing Summary Measures

Lack of a refrigerator or stove is a mild predictor of basic need hardships (Exhibit 4.14, rows 2 and 3). The strongest relationships, not surprisingly, are between these household durables and the two food security measures (recall that less than 1% of households lack a refrigerator or stove).

Overcrowding is somewhat more strongly related to basic needs hardships. Compared with the general population, overcrowded households are three times as likely to be food insecure (37 versus 12%).

The presence of *housing safety issues* is very strongly related to all basic needs hardships. Households with four or more safety issues are nearly four times as likely as the general population to have missed a rent or mortgage payment, more than three times as likely to have missed a utility payment, four times as likely to be food insecure, and almost five times as likely to be food insecure with hunger. These households comprise 1.5% of the population.

Among households under 100% of poverty, lack of a refrigerator or stove is a strong predictor of experiencing food insecurity and hunger. (Exhibit 4.15) Food insecurity and hunger also are more prevalent among overcrowded households. Household safety issues are still a strong predictor and around two-thirds of households under 100% FPL with four or more safety issues missed a utility payment, and an equal proportion were food insecure.

Exhibit 4.14

Joint Frequency Selected Durable Goods and Housing Safety Measures, by Basic Needs and Food Security

Basic Needs & Food Security									
	Did not pay rent or mortgage	Evicted for failure to pay rent or mortgage	Did not pay gas, oil, or electricity bill	Lost gas, oil, or electricity for failure to pay	Telephone disconnected for failure to pay	Needed to see doctor or go to hospital but did not	Needed to see dentist but did not	Food insecure	Food insecure with hunger
Overall Frequency	8.3	0.4	14.4	2.2	6.2	7.3	10.2	12.2	4.6
Selected Durable Goods									
Refrigerator	11.5	2.4	21.9	0.0	14.4	14.6	11.7	28.0	10.7
Stove	11.2	1.5	16.9	5.2	10.0	8.3	8.2	29.4	13.8
Housing Safety Measures									
3+ safety issues	27.6	1.9	42.3	11.0	18.2	22.8	29.3	46.1	21.6
4+ safety issues	30.2	3.3	46.4	13.2	19.8	22.4	33.6	48.8	22.1
Overcrowding	16.8	1.1	19.5	2.4	15.5	16.2	16.1	37.1	12.3
Notes: Cell entries represent percent of households that have characteristic shown in column, among those that have characteristic shown in row.									

Exhibit 4.15

Joint Frequency of Selected Durables and Housing Safety Measures, by Basic Needs and Food Security, Households Under 100% FPL

		Basic Needs & Food Security									
		Did not pay rent or mortgage	Evicted for failure to pay rent or mortgage	Did not pay gas, oil, or electricity bill	Lost gas, oil, or electricity for failure to pay	Telephone disconnected for failure to pay	Needed to see doctor or go to hospital but did not	Needed to see dentist but did not	Food insecure	Food insecure with hunger	
Overall Frequency		18.2	1.1	29.4	6.0	15.1	14.9	16.8	32.0	12.6	
Selected Durables											
No refrigerator		4.3	0.0	26.7	0.0	13.0	25.1	11.1	42.1	20.8	
No stove		12.3	4.2	33.0	9.4	10.8	13.4	12.2	48.3	18.9	
Housing Safety Measures											
3+ safety issues		37.3	4.3	56.9	15.8	25.1	26.1	29.3	59.4	28.7	
4+ safety issues		38.1	6.8	65.0	17.2	21.5	24.1	34.5	68.3	32.4	
Overcrowding		19.9	1.7	21.6	5.8	16.6	18.4	14.1	44.6	13.3	
Notes: Cell entries represent percent of households that have characteristic shown in column, among those that have characteristic shown in row.											

Joint Frequency of Housing Safety Issues and Overcrowding

Individual housing safety issues and overcrowding are strong predictors of each other. (Exhibit 4.16) For example, households with pest problems (the most common safety issue, affecting 15% of the households with children) are two-to-four times as likely to experience each of the other six safety issues as the general population, and twice as likely to be overcrowded. Similarly, overcrowded households (2% of the population) are two-to-three times more likely to experience each of the safety issues, than households in the general population.

Similar qualitative relationships, at higher rates, are seen when the sample is restricted to households under 100% FPL. (Exhibit 4.17) About a quarter of those with pest problems also experience leaking roofs or ceilings, broken windows, and holes in the wall or ceiling. Those with the least common (and most serious) safety issues—exposed wires, nonworking plumbing, and holes in the floor—have very high prevalences of nearly all of the other safety issues. For example, among households under 100% FPL with exposed wires in their homes, 87% also have pest problems, 61% have leaking roofs or ceilings, and 65% have holds in their walls or ceilings.

Exhibit 4.16

Joint Frequency of Housing Safety Issues and Overcrowding

	Problem with pests	Leaking roof or ceiling	Broken windows	Exposed wires	Nonworking plumbing	Holes in wall or ceiling	Holes in floor	3+ safety issues	4+ safety issues	Overcrowding
Overall Frequency	15.3	7.4	5.6	1.0	3.2	5.1	1.0	3.4	1.5	1.9
Problem with pests	100.0	19.0	18.0	4.0	10.5	17.0	4.3	18.3	8.3	4.0
Leaking roof or ceiling	39.5	100.0	22.7	6.6	13.8	24.6	5.3	29.6	15.5	3.4
Broken windows	49.6	30.1	100.0	8.7	20.0	30.0	8.2	41.0	20.6	4.2
Exposed wires	60.3	47.8	48.0	100.0	31.7	61.2	16.1	73.3	50.9	6.1
Nonworking plumbing	50.1	31.7	34.7	10.0	100.0	33.4	10.8	47.7	25.6	4.8
Holes in wall or ceiling	51.3	35.7	32.8	12.2	21.1	100.0	11.8	46.9	25.4	4.7
Holes in floor	64.4	38.5	45.0	16.0	33.9	58.8	100.0	65.2	50.7	5.1
3+ safety issues	81.8	63.7	66.4	21.6	44.5	69.4	19.4	100.0	42.9	5.3
4+ safety issues	86.6	77.9	77.7	35.0	55.8	87.9	35.1	100.0	100.0	4.5
Overcrowding	33.0	13.6	12.6	3.3	8.3	12.8	2.8	9.9	3.6	100.0

Notes: Cell entries represent percent of households that have characteristic shown in column, among those that have characteristic shown in row.

Exhibit 4.17

Joint Frequency of Housing Safety Issues and Overcrowding, Households Under 100% FPL

	Problem with pests	Leaking roof or ceiling	Broken windows	Exposed wires	Nonworking plumbing	Holes in wall or ceiling	Holes in floor	3+ safety issues	4+ safety issues	Overcrowding
Overall Frequency	25.3	11.3	10.2	2.4	5.0	9.0	2.0	7.9	3.4	4.9
Problem with pests	100.0	24.2	26.2	8.1	12.5	24.0	7.0	27.6	13.0	8.7
Leaking roof or ceiling	54.2	100.0	32.7	12.7	13.7	34.4	8.7	42.8	23.5	7.1
Broken windows	65.3	36.4	100.0	11.8	21.9	37.5	10.2	51.0	25.0	7.6
Exposed wires	86.9	60.9	50.5	100.0	35.4	64.6	21.5	84.7	64.2	5.8
Nonworking plumbing	63.1	30.8	44.5	16.7	100.0	42.6	14.5	60.2	29.4	6.2
Holes in wall or ceiling	67.5	43.1	42.3	17.0	23.7	100.0	17.5	63.5	34.2	7.7
Holes in floor	86.4	48.1	50.7	25.0	35.7	77.3	100.0	81.5	70.3	4.1
3+ safety issues	88.6	61.5	65.9	25.4	38.3	72.7	21.1	100.0	43.2	7.1
4+ safety issues	96.5	78.3	74.7	44.6	43.3	90.6	42.1	100.0	100.0	6.0
Overcrowding	45.4	16.6	15.8	2.8	6.4	14.3	1.7	11.4	4.2	100.0

Notes: Cell entries represent percent of households that have characteristic shown in column, among those that have characteristic shown in row.

Summary

The analyses presented in this chapter show the items included in the 1996 SIPP's Adult Well-Being Topical Module are potentially useful indicators of material hardship among families with children. Broadly speaking, the results indicate that these measures correspond to general notions about hardship. That is, the measures are related to unfavorable economic circumstances (e.g., low income and limited assets) and suggest that families oftentimes simultaneously experience multiple hardships. Moreover, the prevalence of certain hardships appears to meaningfully distinguish between groups of households that are economically better or worse off (e.g., single adult *versus* married couple households). The results presented in this chapter can be summarized in the context of the three dimensions of need: basic needs and food security; housing safety and overcrowding; and access to essential durable goods.

- **Basic needs and food security hardships.**

Families with children who have low incomes (less than 100% of FPL) and limited assets (less than \$100 in savings or checking accounts) experience basic needs and food security hardships more often than their counterparts with higher incomes and assets. However, not all of these negative outcomes are equally prevalent among low-income families. Evictions and utility shutoffs are far less frequent experiences, which suggests that these relatively “rare” events may describe only the most needy households.

For the most part, basic needs and food security hardships are equally prevalent among rural and urban households; however, when controlling for income, rural households are slightly less likely to experience these types of hardships. Families that are headed by a single adult are more likely to experience basic needs or food security hardships than households with married adults or other multiple adult configurations.

There is an anomaly in the results, however, in the case of unmet dental needs. Here, there is no clearly defined relationship between the study's economic, demographic, or household characteristic measures. Given that there may be many other reasons a person does not see a dentist that are unrelated to poverty or material hardship, these findings are not entirely surprising and reflect comments made by Roundtable Meeting participants (see Chapter 3) on this measure's potential usefulness in examining material hardship.

- **Housing safety and overcrowding hardships.**

Generally speaking, families with low incomes and limited assets also are more likely to experience housing safety hardships than their higher income counterparts. Housing safety hardships are more prevalent among rural households and among households headed by a single adult.

In the case of five of the seven measures, however, there either was no difference (i.e., exposed wires and non-working plumbing) or a weak statistical difference (i.e., broken windows, holes in the floor or ceiling) between households with incomes less than 100% FPL and those with incomes of 100-200% FPL. This finding suggests that these five measures may be less efficient indicators of economic-related hardships. It also is consistent with Roundtable Meeting participants' concerns that the housing safety measures included in the SIPP may both identify households that are well off and those that face economic challenges.

(See Chapter 3 for further discussion.) That said, low-income households are four times more likely to experience multiple housing safety issues (i.e., 3 or more or 4 or more). This finding implies that a combined measure of housing safety may be a better indicator of material hardship.

Families with the low incomes and limited assets are more likely to experience overcrowding. This is especially the case among those that live in urban areas. Single adult headed households are least likely to experience overcrowding; households with married adults and other multiple adult configurations are more likely to live in overcrowded households. This finding is not entirely surprising given that we might expect that households with fewer adults would be less crowded.

- **Access to essential durable goods hardships.**

Very high proportions of households have refrigerators and stoves, with even households in the lowest income group likely to have these durable goods. These findings suggest that these durable goods measures, individually or in combination, will only identify the most needy households.

The findings also suggest that families with children who are in need generally experience multiple hardships. In the aggregate, each of the basic needs hardships is a strong predictor of other types of hardships, and even stronger patterns emerge among households with incomes under 100% FPL. Among low-income families the lack of a refrigerator or stove and housing overcrowding are strong predictors of whether a family experiences basic needs or food security hardships.

While the analyses presented in this chapter go a long way towards furthering our understanding material hardship measurement using the SIPP, more work is still needed to develop a consistent approach to measuring material hardship. In the following chapter, we present some of the unanswered questions and options for future research that may help us move towards establishing a common definition and approach to measuring material hardship.

Chapter 5: Unanswered Questions for Future Research

While this report describes the approaches taken to define and measure material hardship, more work is needed to answer several key questions related to defining what constitutes material need, specifying a threshold above which people are considered well-off and no longer in material need, and identifying measurement strategies that collect data appropriate to determine whether people fall above or below a threshold. In concluding this report, we identify a number of unanswered questions that might direct future research.

Defining and Measuring Basic Material Needs

- What constitutes basic material needs for families with children, from a normative societal perspective? That is, how do Americans understand and define “basic needs?”
- To what extent should material needs included in our discussion of material hardship be universal or “absolute?” Is there an “irreducible core” of material needs that apply to all Americans? Similarly, what types, if any, of material needs based on relative circumstances (e.g., air conditioning in hot climates) should be incorporated in a material hardship measure?
- What are the minimum standards or thresholds for basic material needs? How might the intensity, severity, and duration of certain conditions be incorporated in these minimum standards? How would these standards be operationalized in material hardship measurement?
- Should the goal be to develop one consistent approach to measuring material hardship for the entire US population, or should different approaches be developed and adopted for different population groups?

Measuring Material Hardship

- To what extent do the indicators used in material hardship indexes identify the same and different population groups? Are there instances where different indicators used in hardship indexes measure the same construct (e.g., both within and across aspects of need)?
- What is the best approach to developing a hardship index? Should the set of indicators used be based on sub-scales within specific aspects of need (e.g., food security, housing security) or on a separate set of indicators that are based on a single measure? Should the focus be on individual types of hardship (e.g., food security, housing quality) or should the primary focus be on a more global index of overall material hardship? In what ways might the intensity and severity of households’ hardship conditions be summarized in a hardship index? Is there room for a categorical ranking of material need, similar to that used in food security research?

The SIPP

- Which SIPP questions have the greatest degree of face validity and are most important for measuring material hardship? Are there questions on the SIPP that have not been previously

used, or only lightly used, which could be incorporated into future research to improve our understanding of material hardship?

- What dimensions or aspects of material hardship, if any, are not covered by the SIPP? What other data sources might be used to fill these gaps in coverage?
- What ambiguities or sources of measurement error exist among the SIPP questions most often used for material hardship measurement? How might these questions be improved?

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Appendix A
Summary: Roundtable
Meeting on Measuring
Material Hardship

Prepared for
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Overview

On February 20, 2002, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) sponsored a one-day Roundtable Meeting on Measuring Material Hardship. Meeting participants included 40 researchers from both inside and outside the federal government with expertise related to measuring material hardship and family and child well-being. Julia Isaacs (ASPE) and Tammy Ouellette (Abt Associates) facilitated the Roundtable.

The Roundtable Meeting was one of several initiatives undertaken by ASPE as a part of its one-year Material Hardship project. In recent years, a number of national and state surveys have used material hardship measures to supplement more traditional measures of family or household income when assessing family well-being. However, although material hardship measures have considerable value and policy-relevance, they face methodological challenges. There is a lack of consensus on which specific hardships should be measured, and whether and how they might be combined into an index of deprivation. Additionally, researchers are still evaluating the validity of hardship measures currently being used and how these measures compare to more traditional economic measures of income and poverty. In this context, ASPE's Material Hardship project was initiated to advance the study of material hardship measurement by addressing the following broad questions:

- What are the strengths and weaknesses of the existing measures on material hardship and the data resulting from these measures?
- What, if any, next steps should be undertaken in the development of material hardship measures?

In light of these project goals, the one-day Roundtable Meeting was developed to bring together researchers and experts familiar with material hardship measures to:

- Advance the understanding of “where we are” in measuring material hardship.
- Determine to what extent there is agreement as to what we are measuring and how it should be measured.
- Determine what guidance can be provided to the project's remaining nine months (e.g., topics that might be covered through such efforts as commissioned papers and longer-term steps needed to further develop material hardship measures).

The following report summarizes the Roundtable Meeting's proceedings. Specific sections correspond to the Meeting's six discussion sessions:

1. Underlying Constructs Behind Material Hardship Measurement.
2. Criteria for Developing Measures.
3. Analytic Strategies.
4. Key Dimensions of Material Hardship.
5. Concrete Measures.
6. Unanswered Questions and Recommendations for Next Steps.

Each section begins with an overview of the discussion questions presented at the beginning of the Meeting's session. To lead off these discussions, one or two researchers were asked in advance of the Meeting to comment on the discussion questions. The text reflects a summary of statements made by the lead off discussants and an overview of the ensuing discussions on specific topics. A list of Meeting participants and a copy of the Meeting's agenda are provided at the end of Appendix A.

Discussion Session I: Underlying Constructs Behind Material Hardship Measurement

Discussion Questions

- 1.1 What are we measuring when we consider material hardship among low-income families and children?
 - 1.1a To what extent is it a measure of material deprivation?
 - 1.1b How does material hardship relate to total family and child well-being and to income-poverty measures?
- 1.2 Why are we interested in material hardship measures?
 - 1.2a How are measures of material hardship policy-relevant in the context of welfare reform?
 - 1.2b How are measures of material hardship policy-relevant in relation to cash and in-kind assistance, as well as providing primary services to meet basic needs?

Lead Discussant Comments

Susan Mayer (The University of Chicago) and Sandra Danziger (The University of Michigan) served as lead discussants for this session and focused their comments on the sessions' two discussion questions. Dr. Mayer's remarks emphasized the point that *hardship measures are not the same as income measures* and that *material hardship is not necessarily synonymous with poverty*. As a result, it is important to consider *what we are measuring* when we examine material hardship. For example:

- Whether we care about relative or absolute hardships (or both).
- The role subjective and objective measures should play in measuring material hardship.
- How the causes and consequences of material hardships should be integrated into measurement.
- What specific domains (e.g., food, housing, nutrition, consumer durables) should be included in our conceptualization and measurement of material hardship.
- How material hardship should be related to overall family well-being.

Dr. Danziger presented results from her recent work on the Women's Employment Study (WES) to illustrate how material hardships differ between families reliant on welfare and those that are reliant on work. For example, WES results demonstrate that problems with access to health insurance increase as families leave welfare for work, but housing problems are less likely among working leavers than among those who remain on the rolls. She also noted that, in the case of the WES, moving from welfare to work increases income, but may not significantly reduce the overall level of material hardship experienced by current and former welfare recipients. Several independent variables related to human capital (e.g., educational attainment, health status, prior work history) did

not affect levels of material hardship. However, domestic violence and mental health problems, net of other factors, predict whether a respondent reports any one or more of the following: food insufficiency, homelessness, eviction, or utility shut off.

Hardship Measures and Income

Most of the session's ensuing discussions built on the point that material hardship differs from income and poverty. Specifically:

- Most participants agreed that although material hardship is not the same as income or financial hardship, income is a factor contributing to material hardship because it is a resource (or input).
- It was noted that point-in-time measures of material hardship and income are not measuring the same thing. This difference may be attributed to difficulties measuring income and financial resources (e.g., existing income and poverty measures do not include non-cash benefits, EITC, childcare expenses, savings and debt). However, as you get closer to measuring lifetime income and lifetime hardship, the correlations between the two get higher. That is, in theory, if you have a great measure of income (e.g., net resources where income is adjusted for expenses, accumulated wealth, and debt), the difference between income and the level of hardship experienced would be attributed to differences in need and individual taste.
- Group participants also pointed out that not all hardships are directly related to insufficient income. For example, lack of access to health care may be related to non-financial hardships (e.g., insufficient supply of medical providers) and has implications for well-being.

The group noted that hardships are also measured imperfectly and often in just a few domains. For example, participants suggested that higher correlations between long-term measures of income and material hardship might be found if good measures of hardship were aggregated across domains (e.g., food and housing). However, despite this, there would still be differences because income and material hardship are conceptually different. Researchers also noted that differences in the levels of hardship between households of similar income levels might be accounted for by examining households' taste or spending preferences, behaviors (such as making trade-offs), needs, and community or neighborhood conditions.

Defining "Hardship"

One of the central themes of the discussion was that hardship is not a neutral social-scientific term, nor have researchers and policy-makers consistently defined it. Additionally, issues as to how it should be measured (e.g., subjective vs. objective measures) remain unresolved.

Roundtable participants noted that defining hardship is dependent on "who" decides what it entails as well as "what" dimensions should be measured. Two approaches to addressing these questions were suggested:

1. Over time, research may be able to help us determine what are "real" problems or hardships based on examining the consequences of various suspected hardships and by determining which of these results in negative outcomes. However, some participants felt that currently there exists insufficient expert judgment in this area and that more work is required.

2. It may be undesirable to project “expert” judgment onto other people and, instead, the public’s judgment should be used. An example of this approach has been implemented in Ireland and the United Kingdom, where public surveys have been used to ask members of the public to rank various goods and services as “absolutely necessary,” “important but not necessary,” or “optional” for daily living. These data are then used to create material hardship measures.

It is important to note that many Meeting participants thought that the best strategy for developing a consistent measure of material hardship would involve both of the above approaches.

In the context of defining material hardship, the group discussed the relative merits of using subjective and objective measures when measuring material hardship. (See *Discussion Session II: Criteria for Developing Material Hardship Measures* for more information related to this topic.)

Meeting participants also noted that the type of measure used to examine material hardship should be influenced by the purpose for which the measure will be used. (See below section on “*What Constitutes Material Hardship*” for more on this discussion topic.)

The use of the term “material hardship” was also discussed. Some participants proposed alternate terms such as “material living conditions,” or “non-income financial hardship,” as ways of describing this circumstance without the connotations of the word “hardship.” Other researchers were content with the term “material hardship,” particularly if it could be used in a way that acknowledges that material problems may occur at different gradients or levels of severity.

In later discussions during the day, it became clear that there was disagreement among Roundtable participants as to whether material hardship measures should only focus on material living conditions that are related to purchasing power, or whether this should look more broadly at social/community factors that affect families living in low-income neighborhoods. There also was disagreement as to whether neighborhood aspects (e.g., crime) were things that could be ameliorated by changes in income or resources, or whether they were things that are external to the household.

“What” Constitutes Material Hardship

The discussion of “what” dimensions or constructs should be included in a material hardship measure focused on the importance of knowing the purposes for which hardship measures would be used. That is, what is included in a material hardship measure may differ depending on whether it will be used for research, monitoring, or policy-making purposes. These factors affect the strategies used to develop and validate measures. Broadly, there was a suggestion for the group to focus on what we *want to* measure and not what we *currently* measure.

The group agreed that there is a need to understand the role behind the underlying reasons for hardship and how “need” is defined before determining “what” should be measured. For example, if the measures focus only on self-defined needs, we may miss key elements or overstate the level of hardship experienced. The group was concerned with whether an absolute boundary between hardship and non-hardship exists. The group’s consensus was that if there is a “true” boundary, research should be focused on “finding” or defining this boundary. Alternatively, if the boundary between hardship and non-hardship is arbitrary, it should be determined by public consensus.

There was also some discussion (in this session and throughout the day) as to whether measures of material hardship should focus strictly on outcomes or should capture some aspect of “why” the outcome occurred. Opinions were mixed as to what extent the reason “why” an individual experiences a hardship should be a factor in identifying “what” should be measured. One argument was that the data would be most useful if accompanied by a detailed follow-up question as to “why” a person experienced a hardship (e.g., if did not go to doctor because of lack of insurance, lack of provider, of lack of money). In contrast, some participants argued that measures should focus on outcomes, with the “why” being a secondary priority. Several participants questioned whether surveys do an adequate job of getting at underlying reasons behind material hardship. These participants commented that they thought questions as to why outcomes are observed might be better addressed using other research methods. For example, ethnography could provide some of the “why” answers quantitative surveys may be unable to elicit. Additional statistical modeling that draws from other parts of surveys may also help explain how household needs (such as having a disabled child) impact hardship.

There was a related discussion about the distinction between direct material hardships and indirect mediators. For example, some participants pointed out that “lack of health insurance” is a mediator, not a direct hardship. One argument was that the hardship measures should be “pure,” that is, looking at an outcome and using other data analysis from other parts of surveys to examine why the outcome occurred. In this case we should separate measuring hardship from examining why it occurred. Once the hardship is identified, researchers could then examine causes and know whether it was lack of money, transportation, or refrigerator that caused the hardship. Others felt strongly that material hardship should be examined in terms of financial pressure to retain its face validity (e.g., hunger due to dieting is not of any interest).

Trade Offs and Time Frame for Measurement

The group discussed the difficulties faced in measuring material hardship when aggregating across domains (e.g., food and housing) given the situation where people make “trade-offs” between domains (e.g., paying rent and buying food). Similarly, participants noted that the intensity and duration of a particular combination of hardships is also an important but difficult factor to consider when developing material hardship measures. Additionally, if you have a short-term measure of income and a point-in-time measure of hardship, it was argued that they would not measure the same things.

Discussion Session II: Criteria for Developing Material Hardship Measures

Discussion Question

2. Considering the criteria identified by Sondra Beverly (2001), the National Research Council's Panel on Family Assistance (1995), Bauman (1998), and Federman *et al.* (1996), which of these should we adopt to guide work on developing measures of material hardship and what additional criteria are needed?

Lead Discussant Comments

Connie Citro (The Committee for National Statistics) and Sondra Beverly (The University of Kansas) served as lead discussants for this session. Dr. Citro launched the discussion by reviewing three broad criteria for a poverty measure: *public acceptability (relative to the broad needs of the culture); statistical feasibility (logically consistent and can be compared across groups, people, and time); and operational feasibility (implies that data can be collected that will measure the underlying conditions of poverty)*. She noted that hardship measures might be easier to report than income, although more experimental measurement work is needed to look at such issues as self-reporting and the reluctance to report. She also added that hardship measures ought to be demonstrably linked to poor outcomes or well-being.

Dr. Beverly's comments referred to her seven recommendations for material hardship and, in particular, focused on three specific recommendations: *the core set of hardship measures should capture objective, rather than subjective conditions; the core set of hardship measures should consist of direct, rather than indirect, indicators; and to the extent possible, hardship measures should indicate the cause of hardship*. (For Dr. Beverly's seven criteria, see "Measures of Material Hardship: Rationale and Recommendations," *Journal of Poverty* (2001) 5(1), 23-41.) She explained that in her view the primary difference between subjective and objective measures was whether an individual was asked *about* an experience (objective), as opposed to *feelings or perceptions* of an experience. Similarly, in the case of direct measures, she felt that it was important to focus on outcomes associated with material hardship, rather than mediating factors (e.g., questions on health care would address unmet health needs, not lack of health insurance). Dr. Beverly also disagreed with earlier suggestions that hardship measures should focus solely on outcomes; instead, she felt that it was important to know *why* families experience hardship (e.g., it is important to know that hunger exists because of financial hardship, rather than because the individual is on a diet). In the absence of having information on the cause of a situation, it is difficult to determine whether a situation presents a "real" hardship.

Subjective Versus Objective Measures

There was considerable discussion in this session and throughout the day about the difference between objective and subjective measures. Researchers noted that there are fundamental differences between actual experiences and perceptions of actual experience. For example, the public may perceive that the crime rate is increasing, when, in fact, crime reports have remained relatively unchanged. This is not to say that perceptions are unimportant. For example, a mother's perception

that crime is rising in her neighborhood and its relationship to her subsequent decisions regarding work and childcare (e.g., leaving child home unattended) may be more important than the actual crime rate reports in administrative data. Still, it is important to recognize that questions on respondent perceptions may result in data that do not accurately reflect the facts of the situation.

It was noted that most survey questions related to material hardship have an element of subjectivity due to the fact that the respondent reports the information. In some cases, this may lead to either “false positives” or underreporting. For example, interviewers participating in the WES indicated that they saw respondents become visibly uncomfortable when they reported that they were unable to provide their children with sufficient food. This apparent discomfort was even higher than when respondents were asked questions about domestic violence. These comments led researchers to worry that mothers may underreport food insufficiency for their children due to embarrassment or discomfort with admitting that they cannot provide for their children.

Another concern about using self-reported perceptions of living conditions or material hardship is acclimatization. Ethnographers at the Roundtable pointed out that people get acclimatized to their material living conditions. For example, one participant noted that when she lived in a very impoverished area with her children, she did not notice her children were getting sick more often than in the past because other children in the neighborhood were frequently sick. Ethnographers also pointed out that families often tell them that their standard of living is “in the middle” because there are people below them as well as above them in terms of resources, and that they felt better off than others because they did not use certain types of services (e.g., “I don’t go to food banks, those are for people who really need them”).

One researcher suggested that instead of viewing responses as simply subjective and objective, we may want to recognize that people can report experiences and can also report perceptions of experiences. Moreover, both of these aspects can be measured in interesting and important ways using various data collection methods (e.g., asking the subject, or collecting the data in an alternative method). It may confuse the issue to assume all survey data are subjective because self-reported. For example, it is different to ask the respondent, “Do you view crime as a problem,” than to ask, “Have you experienced a specific crime in the last “x” months.” Also, one can ask, “Have you known neighbors who have experienced a crime in last “x” months,” or “Do your neighbors view crime as a problem?”

Validation

An additional criterion that was discussed in this session was validity. One participant noted that validation requires multiple types of validity (e.g., face, predictive, construct, discriminate). As a result, to validate a measure, it is important to have a rudimentary theory of what are the causes and consequences of hardship. Some participants stressed that we may need to spend less time refining the measures and more time developing theory and showing how even imperfect measures can be validated by how they operate. Other participants argued that we already have theories (e.g., one of the slides presented by Susan Mayer in her opening remarks, or the framework suggested by Kurt Bauman in his literature review of current research in this area). Still, others felt that there needs to be further theoretical work.

Some Roundtable participants argued that we should neither be concerned about the causes and consequences of hardship nor whether hardships have face validity to the public. It is not that we are

uninterested in consequences, but the consequences were seen as “round two” in the development process. The first step is to develop and start using the measures. Measure validation also depends somewhat on what the measures are being used for (e.g., research, monitoring, or policy-making purposes).

Discussion Session III: Analytic Strategies for Developing Material Hardship Measures

Discussion Questions

- 3.1 How important is it to develop a summary measure of hardship that includes multiple dimensions (e.g., food security, housing, health) rather than having separate measures of each dimension?
 - 3.1a For an individual dimension of hardship (e.g., housing), how important is it to have a summary measure rather than a group of standard indicators?
- 3.2 If dimensions are to be combined into a summary measure, should their relative weights be based on logic and judgment or based on statistical relationships?
- 3.3 If a summary measure is to be created, should it be categorical (e.g., in hardship vs. not in hardship) or continuous (e.g., a scale with values from 1 to 10)? Is it important to have a summary measure in both forms?

Lead Discussant Comments

Chris Hamilton (Abt Associates) kicked off the discussion by asking the group to consider how important it is to develop a summary measure, and then noted that if such a measure were developed, there were two possible approaches: 1) Creating a summary measure (or measures) using an axiomatic approach; and 2) creating a summary measure using a statistical approach. More specifically, he asked the group to consider whether weights used to develop a summary measure should be applied to measures based on logic and judgment (the axiomatic approach), or, alternatively, whether they should be based on the statistical relationships between items. These comments were followed two presentations providing examples of these two approaches. Kurt Bauman (U.S. Census Bureau) spoke of his research attempting to use statistical techniques to group hardship measures in the Survey of Income and Program Participation (SIPP) (*Aggregating Measures of Material Well-being*). Then Craig Gundersen (U.S. Department of Agriculture) described his research developing an index of hardship measures following an axiomatic approach (*Direct Measures of Poverty and Well-being: A Theoretical Framework and Application to Housing Poverty in the United States*).

Roundtable participants did not express overwhelming support for a summary measure in the discussion that followed. The group felt that separate indicators seemed to be as important as summary measures. One roundtable member noted that a summary measure would be acceptable at the family level, but at an individual level a summary measure would not be useful.

Some researchers noted that instead of focusing efforts on combining or summing material hardship measures, existing surveys that collect extensive data on material hardship (such as the SIPP and NHANES) should be expanded to include larger sample sizes at the state and local levels so that existing measures might be compared among a larger number of groups.

Reference was also made to the work of Kenneth Land on developing an indicator of child well-being that aggregates 25 child well-being indicators. This measure was perceived as being useful for tracking overall phenomena, but detail beyond the “one number” was needed to better understand child well-being.

It was also suggested that to effectively understand and track hardship a cluster of indicators would be needed. One Roundtable member stressed that, “If nothing else, the current poverty indicators are grossly inadequate.” For example, if there was an indicator that tracked the well-being of children via household surveys, we could miss out on data such as school and health.

Discussion Session IV: Identifying the Key Dimensions of Material Hardship

Discussion Questions

- 4.1 What are the key dimensions of material hardship (e.g., food insecurity, shelter, and access to health care)?
- 4.2 What does ethnography tell us about the key dimensions of hardship?
- 4.3 What does a review of major survey-based research tell us about key dimensions of material hardship?

Lead Discussant Comments

The Session began with presentations by ethnographers, Andrew London (Kent State University) and Laura Lein (University of Texas). Generally speaking, both felt that participant observations pointed toward hardships in many of the areas, or domains, that had already been discussed during the day (e.g., food insecurity, housing quality and insecurity, and health care). Difficulties covering prescription drugs and unmet needs for dental care were mentioned as specific forms of health care hardship that come up a lot in the ethnographic interviews. Women in their ethnographic studies also mention some areas of hardship not yet discussed, such as: access to safe childcare, school hardships for children (lack of resources and class size); lack of clothing for children and the women themselves; and durable goods in the home. When looking at consumer durables, they suggested that the group also think about where these goods came from. For example, a household may have a dishwasher, but the item may have been purchased for the household as a gift and could, therefore, lead researchers to false conclusions about the level of hardship in the household.

Consumer Durables

The group focused its discussion on what role durable goods in the home (or lack thereof) should play in material hardship measurement. Some participants stressed that it is important to differentiate items that can be purchased at one time (e.g., a television set or a telephone) from things that must be paid for or maintained on a monthly basis (e.g., groceries or telephone service). One argument for having more, rather than fewer measures of material hardship is that sometimes information that may not seem critical (e.g., television set) can later be related to hardship. Additionally, ethnographers participating in the Meeting indicated that many low-income mothers felt that “losing their children to the streets” or “child protective services” were the worst hardships possible. As a result, these mothers make conscious choices about what they purchase (e.g., cable television, expensive clothing) so that their children do not turn to illegal activities to gain access to these items, or to keep others from viewing them as a “bad mother.” Oftentimes, acquiring these items requires mothers to sacrifice other necessities (e.g., food) that would be considered a hardship.

Some argued that using the presence of durable goods as a material hardship measure may be misleading. For example, durable goods are relatively cheap, do not require periodic replacement,

and may be easier for financially distressed families to acquire than ongoing needs like food. Also, families may have acquired these items prior to encountering their current living situation in which they experience material hardship. Other Roundtable participants pointed out that durable goods are often gifts from an absent father or relatives.

One argument in favor of including consumer durable goods in a measure of material hardship is the substantial rise during the past century in the number of households that own these goods. As a result, collecting data on this rise is important to understanding how Americans' standard of living today is much higher than it was 50 years ago. For example, washing machines and dryers in homes are now more prevalent. Likewise, Americans have many more consumer durable goods than people in less developed countries, and documenting these material advantages can contribute to understanding economic well-being in this country.

It was also noted that clothing may also be considered a durable good that should be included in a material hardship measure. For example, children require new winter coats almost every year because of growth. Moreover, in some climates, not having appropriate winter clothing is a severe hardship.

Setting

Neighborhood characteristics were also addressed as an important aspect of material hardship. For example, some researchers at the Meeting noted that personal safety and security (e.g., the potential for being a victim of crime) are important aspects of material hardship. It was also noted that some European counterparts measure hardship with regard to social inclusion in the community; the more connected a household is to the community, the more likely the household can rely on others to help meet needs and avoid hardship. Additionally, some researchers noted that insufficient access to information determined by individuals' lack of connectedness to the community (e.g., access to libraries, computers, and telephones) can also be a significant hardship. Lastly, participants noted that additional domains of hardship (pertaining to settings) might include: access to affordable, reliable, and high quality childcare, and the quality of schools that children attend.

Discussion Session V: Concrete Measures

Discussion Questions

- 5.1 Based on the criteria discussed this morning, what housing-related concepts should be included in material hardship measures and what concrete measures should be used to measure housing hardship?
- 5.2 Considering the health-related questions currently asked in surveys of low-income populations and the forthcoming handout on health-related concepts and measures and the criteria discussed this morning, what health-related concepts should be included in a material hardship measure?
- 5.3 To what extent can housing and health discussions serve as case examples for the overall approach of applying criteria to select concepts / sub-domains and concrete items to include in measures of material hardship?

Discussion - Housing

Todd Richardson (U.S. Department of Housing and Urban Development) launched the discussion by presenting six measures of housing need that are being used in HUD's Moving to Opportunity study: *homelessness; housing quality; overcrowding (typically measured by dividing the number of persons in a home by the number of rooms); housing cost burden; housing security (the main components of the index relate to problems paying utility bills, utility shut-offs, problems paying rent, eviction threat, actual eviction, and relations with landlords); and neighborhood quality.*

Following the presentation, the group continued its discussion of how community-based problems relate to material hardship measurement. (Also see previous section on *Setting*.) Specifically, participants noted that it is difficult to examine housing-related hardships without understanding community context; that is, both household and community markers are needed. However, participants were unclear as to whether this was best done through asking the household about its community, or by linking survey data to administrative data about the community characteristics.

Some participants emphasized that it is important to see hardship, in particular housing-related hardships, as a continuum based on intensity. Alternatively, others thought that it would be important to focus on the most severe hardships since they are most likely to be "face valid" to the public.

Discussion - Health

Genevieve Kenney (The Urban Institute) and Jim Kirby (Agency for Healthcare Research and Quality) initiated the group's discussion on the role access to health care should play when considering material hardship measurement. Similar to the discussion on housing, they shared the following list of possible working definitions, or concepts, that might be used to develop or assess measures of health care access: *unmet need and delays in receiving care; having a usual source of care; health insurance coverage; perceptions of access; and health care utilization.*

Roundtable participants reiterated that they felt it was important to know or understand the reasons behind a situation before labeling it a hardship. In terms of access to health care, an example given was the case of not going to the doctor. The group agreed that there could be a number of different reasons unrelated to financial distress that could account for why an individual did not visit a doctor. Researchers involved with the National Survey of America's Families (NSAF) noted that they found it very difficult to code reasons for not seeking medical care when it was needed.

Some participants questioned what constitutes lack of access to health care. For example, such a definition could include dental care, over the counter medications, prescription drugs, and eyeglasses. The group acknowledged that all were valid, but did not come to consensus as to which should be considered when measuring hardship.

The health analysts at the Roundtable noted that they did not usually look at measures of health care access as a material hardship, or as part of a broader measure of material hardship. They found the discussion to be quite interesting, however, and it gave them a different angle from which to examine some of their survey measures. Likewise, housing analysts at the Meeting noted that the broader discussion of material hardship was helpful for their own work in conceptualizing housing needs.

Discussion Session VI: What Unanswered Questions Are Answerable and Recommendations for Next Steps

Generally speaking, Roundtable Meeting participants identified two broad categories of “next steps” that could be pursued within the context of the Material Hardship project.

1. Additional definitional/theoretical work that focuses on examining what is meant by material hardship and how it could be measured in the context of low-income families and children (e.g., what constitutes meeting a family’s basic needs in American society or what families define as being normative).
2. Further research and analysis with material hardship measures that have been used in large surveys (e.g., SIPP, PSID, NSAF and SPD). This research would focus on how these measures perform as indicators of material hardship and how they might be improved or augmented, with the intent of evaluating existing measures to determine if they are appropriate as a baseline or starting point for constructing a composite material hardship measure or list of individual measures within specific domains.

Roundtable Participants’ Specific Recommendations

A. Additional Theoretical/Definitional Work

The following were suggested as potential questions for further theoretical/definitional work in the form of commissioned papers:

- What is the theory underlying material hardship and basic needs measurement and how may these theories be applied in the U.S.?
- What constitutes adult and child basic needs from a normative societal perspective (e.g., how do Americans understand and define “basic needs”)?
- How do the intensity, severity, and duration of certain types of material hardships affect long-term family and child well-being outcomes?
- What criteria should be applied when developing or evaluating survey questions used to measure material hardship (e.g., subjective vs. objective, and concrete vs. attitudes)?
- What does the literature tell us about the known relationships between measures of material hardship (e.g., food insecurity and evictions), and between material hardship measures and other poverty indicators (e.g., housing insecurity and income)?

B. Additional Work With SIPP and Other Major Surveys

Roundtable participants also suggested that additional work with the SIPP and other existing surveys (e.g., NSAF, PSID, SPD) might contribute valuable information on the adequacy and appropriateness of existing material hardship measures. Specific suggestions included:

1. Additional reliability and validity tests of SIPP questions related to material hardship (e.g., those included in the SIPP’s Basic Needs Topical Module).

2. An assessment of the types of material hardship questions asked in the SIPP (in particular) and also possibly the NSAF, PSID and SPD. For example:
 - Which questions are most important for measuring material hardship?
 - What, if any, additional data should be collected to provide a more complete picture of material hardship (e.g., add questions about transportation)?
 - Which questions need improvement?
 - Should follow-up questions that gather additional information on intensity or duration be added?
3. Empirical analyses that examine relationships between measures of material hardship on the SIPP (e.g., food insecurity and evictions), and between material hardship measures and other poverty indicators (e.g., income). Roundtable participants also noted that these types of analysis could also be applied to surveys other than the SIPP.

C. Other Suggestions

The group also suggested the following as possible next steps:

1. Conduct further research as to what constitutes meeting a family's basic medical and health needs.
2. Examine what specific or unique material hardships are faced by children.

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Meeting Agenda

Roundtable on Measuring Material Hardship

February 20, 2002

Morning Session

8:30-9:00 a.m.

Registration

Abt Associates Inc. Office at 1110 Vermont Ave. NW Suite 610,
Washington D.C.

9:00-9:30 a.m.

Project Overview and Meeting Goals

Julia Isaacs, ASPE / DHHS

9:30-10:15 a.m.

Discussion Session I: Underlying Constructs Behind Material Hardship
Measurement

- A. **What are we measuring?**
- B. **Why should we measure material hardship among low-income families and children?**

Facilitator: Julia Isaacs, ASPE / DHHS

Lead Discussants: Susan Mayer, The University of Chicago
Sandra Danziger, University of Michigan

10:30-11:15 Discussion Session II:

Criteria for Developing Material Hardship Measures

Facilitator: Julia Isaacs, ASPE / DHHS

Lead Discussants: Connie Citro, Committee on National Statistics
Sondra Beverly, University of Kansas

11:15 a.m. -

12:15 p.m. Discussion Session III:

**Analytic Strategies for Developing Material Hardship
Measures**

Facilitator: Chris Hamilton, Abt Associates Inc.

Lead Discussants: Kurt Bauman, US Census Bureau
Craig Gundersen, ERS / USDA

12:15 – 1:15 p.m. Lunch

Meeting Agenda

Roundtable on Measuring Material Hardship

February 20, 2002

Afternoon Session

1:15 - 2:00 p.m. Discussion Session IV: Identifying the Key Dimensions of Material Hardship

Facilitator: Tammy Ouellette, Abt Associates Inc.

Lead Discussant: Andrew London, Kent State University

2:00 - 3:00 p.m. Discussion Session Va: Housing and Related Measures

Facilitator: Tammy Ouellette, Abt Associates Inc.

Lead Discussants: Todd Richardson, HUD
Laura Lein, University of Texas

3:15 - 4:00 p.m. Discussion Session Vb: Health and Other Measures

Facilitator: Tammy Ouellette, Abt Associates Inc.

Lead Discussants: Genevieve Kenney, The Urban Institute
Jim Kirby, AHRQ / DHHS

4:00 - 4:30 p.m. Discussion Session VI: What Unanswered Questions are Answerable and Recommendations for Next Steps

Facilitator: Julia Isaacs, ASPE / DHHS

Meeting Adjourns at 4:30 p.m.

Appendix B: Summary of Basic Needs Questions Included in SIPP Surveys

Type of Hardship	Survey Questions in the 1991 and 1992 SIPP Survey Panels	Survey Questions in the 1993 Basic Needs Topical Module
Food Security	<p>Which of these statements best describes the food eaten in your household in the last four months? (Enough of the kinds of food we want; Enough but not always the kinds of food we want to eat; Sometimes not enough to eat; Often not enough to eat)</p> <p>In which months did the household not have enough to eat?</p> <p>Which of the following reasons explain why your family did not have enough food? (Did not have enough money, food stamps, or WIC vouchers to buy food or beverages; Did not have working appliances for storing or preparing foods – such as a stove or refrigerator; Did not have transportation – transportation problems; Some other reason)</p> <p>Thinking about the past month, how many days did your household have no food or money or food stamps to buy food?</p> <p>About how much did your household fall short on its food budget last month?</p>	<p>Which of the following statements best describes the amount of food eaten in our household? (Enough food to eat; Sometimes not enough to eat; Often not enough to eat)</p> <p>Do you have enough and the kind of food you want to eat, or do you have enough but not always the kind of food your want to eat?</p> <p>Thinking now about the past four months, in which of those four months did your household not have enough to eat?</p> <p>Here are some reasons why people don't always have enough to eat. For each of these, please tell me whether it applies to you. (Not enough money for food; Too hard to get to the store; No working stove; No working refrigerator; Not able to cook or eat because of health problems)</p> <p>Now, please think about the past 30 days. On about how many days during the past 30 days did your household not have food to make a meal or not have money or food stamps to get food?</p> <p>About how much money did your household fall short on its food budget last month?</p>
Housing-Quality	<p>Are any of the following conditions present in this home? (A leaking roof or ceiling; A toilet, hot water heater, or other plumbing that doesn't work; Broken windows; Exposed electrical wires; Rats, mice, roaches, or other insects; Holes in floor – large enough to trip in; Open cracks or holes in the walls or ceiling)</p>	None.
Housing-Crowding	<p>How many rooms are there in your home? Count the kitchen but do not count the bathrooms?</p>	None.
Housing-Security	<p>In the past 12 months, has there been a time when your household:</p> <ul style="list-style-type: none"> ▪ Did not pay the full amount of the rent or mortgage? ▪ Was evicted from your home/apartment for not paying the rent or mortgage? 	<p>In the past 12 months, has there been a time when your household:</p> <ul style="list-style-type: none"> ▪ Did not pay the full amount of the rent or mortgage? ▪ Was evicted from your home/apartment for not paying the rent or mortgage?
Difficulty Affording Basic Necessities	<p>In the past 12 months, has there been a time when your household had services disconnected by the telephone company because payments were not made?</p>	<p>In the past 12 months, has there been a time when your household:</p> <ul style="list-style-type: none"> ▪ Did not pay the full amount of the gas, oil, or electricity bills? ▪ Had service turned off by the gas company, or oil company would not deliver oil? ▪ Had service disconnected by the telephone company because payments were not made?
Unmet Medical Needs/Access to Health Care/Health Insurance Coverage	<p>In the past 12 months, has there been a time when your household:</p> <ul style="list-style-type: none"> ▪ Had someone in your household who needed to see a doctor or go the hospital but didn't go? ▪ Had someone who needed to see a dentist but didn't go? 	<p>In the past 12 months, has there been a time when your household:</p> <ul style="list-style-type: none"> ▪ Had someone in your household who needed to see a doctor or go the hospital but didn't go? ▪ Had someone who needed to see a dentist but didn't go?
Access to Consumer Durables	<p>Which of the following items do you currently have in your home (or building) that are in working? (Washing machine; Clothes dryer; Dishwasher; Refrigerator; Food freezer; Color television; Gas or electric stove; Microwave oven; Videocassette recorder; Air conditioner; Personal computer; Telephone)</p>	None.

Appendix C. Questions Included in the 1996 SIPP That Were Used in Analyses Presented in Chapter 4

Durable Goods

- Do you currently have the following items in your home, in working condition? (Yes/No)
 - Washing machine
 - Clothes dryer
 - Dishwasher
 - Refrigerator
 - Stand-alone food freezer (separate from refrigerator)
 - Color television
 - Gas or electric stove (with or without an oven)
 - Microwave oven
 - Videocassette recorder (VCR)
 - Air conditioner (central or room)
 - Personal computer
 - Cellular phone or car phone
 - Regular telephone

- You didn't list a washing machine in your home. Is there a washing machine in your BUILDING provided for your use?

- You didn't list a dryer in your home. Is there a dryer in your BUILDING provided for your use?

- You didn't list a telephone in your home. Is there a way for people to reach you by telephone?
 1. Yes, neighbor's phone, common phone, pay phone
 2. Yes, cell phone
 3. Yes, other device
 4. No, cannot be reached by phone

Housing Quality

This section comprises five questions with the following lead-in:

The next set of questions are about the quality of your neighborhood, crime in your neighborhood, and the type of services available to you. First, I will ask about your home.

- How many rooms are there in your home? Count the kitchen but do not count the bathrooms.
- Are any of the following conditions present in your home?
 - Problem with pests such as rats, mice, roaches, or other insects
 - A leaking roof or ceiling
 - Broken window glass or windows that can't shut
 - Exposed electrical wires in the finished areas of your home
 - A toilet, hot water heater, or other plumbing that doesn't work
 - Holes in the walls or ceiling, or cracks wider than the edge of a dime
 - Holes in the floor big enough for someone to catch their foot on

Basic Needs

This module's lead-in is:

Next are questions about difficulties people sometimes have in meeting their essential household expenses for such things as mortgage or rent payments, utility bills, or important medical care.

A general question is then asked, but a negative response DOES NOT lead to skipping out of the rest of the section:

During the past 12 months, has there been a time when (you/your household) did not meet all of your essential expenses?

The module then asks about *seven forms of hardship*, with this lead-in:

The following are some of the specific difficulties people experience with household expenses.

For each of the forms of hardship, a gateway question is asked about occurrence of difficulty, and then two follow-up questions:

When (you/your household) had this problem, did any person or organization help? Who was that?

- *A family member or relative*
- *A friend, neighbor or other non-relative*
- *A department of social services*
- *A church or non-profit group*
- *Other*

The seven gateway questions are:

- Was there any time in the past 12 months when (you/your household) did not pay the full amount of the rent or mortgage?
- In the past 12 months (were./was) (you/anyone in your household) evicted from your home or apartment for not paying rent or mortgage?
- How about not paying the full amount of the gas, oil or electricity bills? Was there a time in the past 12 months when that happened to (you/your household)?
- In the past 12 months did the gas or electric company turn off service, or the oil company not deliver oil?
- How about the telephone company disconnecting service because payments were not made?
- In the past 12 months, was there a time (you/anyone in your household) needed to see a doctor or go to the hospital but did not go?
- In the past 12 months, was there a time (you/anyone in your household) needed to see a dentist but did not go?

Food Security

This section opens with the basic food security question and a follow-up to establish the time frame of food insecurity:

- Getting enough food can also be a problem for some people. Which of these statements best describes the food eaten in your household in the last four months:
 - 1) Enough of the kinds of food we want
 - 2) Enough but not always the kinds of food we want to eat
 - 3) Sometimes not enough to eat
 - 4) Often not enough to eat
- In which of the last four months did (you/anyone in your household) NOT have enough to eat?

It then asks six items adapted from the full food security module that appears in the March supplement to the Current Population Survey:

I'm going to read you some statements that people have made about their food situation. For these statements, please tell me whether it was OFTEN TRUE,

SOMETIMES TRUE, or NEVER TRUE for (you/anyone in your household) in the past four months

- The food that (I/we) bought just didn't last and (I/we) didn't have money to get more.
- (I/we) couldn't afford to eat balanced meals.
- (My child was/our child was/the children were) not eating enough because (I/we) couldn't afford enough food.

The next questions refer to adults in the household. In the past four months did (you/anyone in your household/you or the other adults in the household/you or the other adult in the household) ever:

- Cut the size of your meals or skip meals because there wasn't enough money for food.
- Eat less than you felt you should because there wasn't enough money to buy food.
- Not eat for a whole day because there wasn't enough money for food.

Exhibit D.1

Availability of Durable Goods by Urban versus Rural and Income

	Washing machine	Clothes dryer	Dishwasher	Refrigerator	Stand-alone freezer	Color television	Gas or electric stove	Micro-wave oven	VCR	Air conditioner	Personal computer	Cell phone or car phone	Regular telephone
Geographic Location													
Urban ^a	92.1	87.6	59.9	99.4	32.8	99.0	99.2	92.3	92.1	78.5	54.1	43.0	95.9
Rural	94.0**	89.5*	51.6***	99.4	54.0***	98.8	99.2	92.6	90.9	74.7**	48.4***	37.7***	93.5***
Under 100% FPL													
Urban ^a	78.7	65.5	26.4	99.0	17.4	97.8	97.8	79.3	77.0	64.7	21.8	14.1	85.1
Rural	87.8***	73.7**	27.4	98.6	37.3***	97.3	98.5	82.4	75.5	69.5	22.0	16.8	83.6
100-200% FPL													
Urban ^a	86.6	79.4	42.1	99.0	24.8	98.4	98.9	88.9	87.6	73.5	32.5	24.2	94.1
Rural	90.0*	85.7***	35.8**	99.2	45.1***	98.5	98.8	88.7	87.3	71.9	34.9	22.1	89.4***
Over 200% FPL													
Urban ^a	96.7	94.9	72.6	99.7	38.5	99.4	99.6	96.1	96.8	83.0	67.6	55.0	98.8
Rural	97.5	95.5	65.1***	99.8	62.6***	99.4	99.6	97.1	96.8	77.4***	61.6***	50.3***	98.0
All households	92.5	88.0	58.4	99.4	36.7	99.0	99.2	92.3	91.9	77.8	53.1	42.0	95.5
Notes:	^a Reference category.												
	*** Statistically significantly different from reference category, $p < 0.01$.												
	** Statistically significantly different from reference category, $p < 0.05$.												
	* Statistically significantly different from reference category, $p < 0.10$.												

Exhibit D.2

Availability of Durable Goods by Household Composition and Income

	Washing machine	Clothes dryer	Dish washer	Refrigerator	Stand-alone freezer	Color television	Gas or electric stove	Micro-wave oven	VCR	Air conditioner	Personal computer	Cell phone or car phone	Regular telephone
Household Composition													
Single adult ^a	83.3	75.4	36.3	98.8	19.8	98.1	98.7	84.6	80.9	69.8	31.0	22.3	88.2
Married couple	95.7***	92.5***	67.5***	99.6***	42.3***	99.3***	99.4***	95.0***	95.4***	81.3***	62.1***	49.6***	97.5***
Other multiple adults	86.3**	79.4**	37.3	99.4	27.2***	98.5	98.6	87.8**	86.7***	69.4	32.3	26.4**	93.5***
Under 100% FPL													
Single adult ^a	75.4	61.1	20.3	99.0	15.5	97.2	98.3	74.5	69.4	64.1	13.7	8.0	77.8
Married couple	88.7***	77.1***	36.0***	98.8	28.4***	98.3	98.0	86.9***	85.5***	72.0***	34.3***	22.2***	91.3***
Other multiple adults	74.8	59.3	20.3	98.8	19.9	97.7	97.2	77.1	73.8	56.2**	13.1	13.0**	85.7***
100-200% FPL													
Single adult ^a	84.5	78.9	33.7	98.2	18.6	98.1	98.3	86.7	81.2	69.7	25.6	18.3	90.7
Married couple	89.8***	83.0*	46.6***	99.3	33.5***	98.3	99.0	90.9**	90.6***	75.8**	38.6***	28.0***	94.4**
Other multiple adults	81.9	74.9	28.3*	99.1	27.6***	99.2	99.0	84.2	84.4	68.0	22.0	15.0	91.3
Over 200% FPL													
Single adult ^a	90.7	87.6	55.6	99.2	25.3	99.0	99.5	93.6	92.8	76.1	53.7	40.9	97.2
Married couple	98.0***	96.6***	76.2***	99.8	46.1***	99.6	99.7	96.9**	97.8***	83.7***	71.1***	58.0***	99.0***
Other multiple adults	93.0	89.4	48.1***	99.7	29.8*	98.5	99.0	93.8	92.7	75.2	44.7***	37.0	97.6
All households													
	92.5	88.0	58.4	99.4	36.7	99.0	99.2	92.3	91.9	77.8	53.1	42.0	95.5

Notes: ^a Reference category.

*** Statistically significantly different from reference category, $p < 0.01$.

** Statistically significantly different from reference category, $p < 0.05$.

* Statistically significantly different from reference category, $p < 0.10$.

