A. Specific Aims

Researchers are becoming increasingly interested in alternative measures of well-being such as indicators of food insufficiency, housing upkeep problems, difficulty paying bills and unmet medical needs. Yet little is known about how individual reports of these measures vary by the context in which the individual embedded. Important contextual characteristics, which may vary by both state and time, may include the economic conditions, climate, and the economic and social policy environment. This paper will combine Survey of Income and Program Participation (SIPP) data from five different panels to model state-level predictors of material hardship among households with children. Results will reveal how reports of material hardship vary across time and space as well as the extent to which state-level differences in material hardship can be explained by demographic characteristics and by contextual differences.

B. **Background Literature**

While there is a growing literature on material hardship (Heflin 2006; Mayer and Jencks 1989; Edin and Lein 1997; Boushey and Gundersen 2001), prior work has focused on individual determinants of material hardship and largely ignored the role of context. In fact, to my knowledge, except in the area of food insecurity, there are no published reports of how levels of material hardship vary at the state level. Yet there is ample reason to believe that contextual characteristics could be important determinants of risk for material hardship if one looks to the literature on food security.

Prior work by Nord and Kantor (2006) and Bhattacharya et al.(2003) suggests that at both extremes of the temperature distribution there are trade-offs between food consumption and utility payments. Work by Cook et al. (2002), Winship and Jencks (2002), Borjas (2001) indicates that state variation in hunger is related to state welfare policies and Tapogna and

colleagues (2004) find that economic conditions are also strong predictors of state hunger rates. Bartfeld and Dunifon (2006) provide the best examination to date using 1998-2001 data from the Current Population Survey to explore the role of context in determining state-level variation in one form of material hardship—food insecurity.[1] They find that states vary greatly in the extent to which demographic characteristics are able to explain their level of food security. For example, while individual characteristics explain almost all of the state-specific risk of food security in California, individual characteristics explain very little of the state-specific risk in Oregon, where state-level policies and economic conditions are much more determinative. In general, they find that most of the observed cross-state variation can be explained by differences in demographic composition and contextual characteristics.

This proposal builds on Bartfeld and Dunifon (2006) study by examining measures of material hardship that span across four different dimensions (food hardship, housing hardship, medical hardship, and difficulty paying bills). The model will also control for measures of the context not part of the Bartfeld and Dunifon study (average temperature, median TANF + Food Stamp benefit level; and TANF policy characteristics). Additionally, by using data from the Survey of Income and Program Participation, the project will cover a wider time period (1992-2005) and will be sensitive to monthly variation in contextual measures, where they are available.

C. Study Questions

This paper will begin by presenting descriptive analysis aimed at answering the following research questions for a sample of households with children, a group of special interest due to the

[1] It is important to note that Bartfied and Dunifon use a measure of food security, a measure whose validity has been questioned (Bhattacharya et al. 2004; National Research Council 2006). In contrast, I plan to use a measure of food insufficiency. Respondents who indicate they "sometime" or "often" did not have enough to eat are coded as food insufficient. This measure of food insufficiency has been shown to be related to food expenditures and nutritional in-take (Basiotis 1992; Cristofar and Basiotis 1992).

possible consequences associated with exposure to material hardship at the early part of the life course (Duncan and Brooks-Gunn 1997):

1. How much state-level variation is there in (unadjusted) reports of four different types of material hardship? Are some forms of material hardship more common in some geographic regions of the United States than others?
2. Does the risk of reporting any form of material hardship (versus not reporting any of the four types of hardship measured) vary across geographic regions of the United States.

After exploring the level of variation present in hardship measures, I will then explore the extent to which observed variation in reports of material hardship across space and time is explained by differences in the composition of the population and by contextual differences. Specifically, I will address the following additional research questions:

1. What is the association between types of material hardship and contextual characteristic, such as state-level measures of economic conditions, economic policy, social policy and climate?
2. What is the relative contribution in variation in material hardship of individual characteristics and contextual characteristics?

This study is grounded in the conceptual framework that links the risk of experiencing material hardship to both individual characteristics that may place one at risk (such as having low-income or being unemployed) as well as the structure of the context in which one becomes vulnerable to hardship. Individuals that have access to more favorable economic conditions or policies may be less likely to report material hardship, all things equal. Additionally, less extreme weather conditions may free up resources to meet other basic needs.

IV. Research Design, Data and Methods

I propose to merge data from the Survey of Income and Program Participation to describe living conditions for the time period 1992-2005. Specifically, data will be merged from the eight wave of the 2004 SIPP panel collected in June through September 2005; the eighth wave of the 2001 SIPP panel collected in June through September 2003; the eighth wave of the 1996 SIPP panel collected in August through November 1998; the ninth wave of the 1993 SIPP panel collected in October 1995 through January 1996; and the sixth wave of the 1991 panel collected in October 1992 through January 1993. When survey weights are used, SIPP is designed to be representative of the civilian non-institutionalized population in the United States.

I will examine state-level predictors of individual variation among households with children across four broad domains: 1) meeting basic needs, including the ability to pay rent/mortgage, to avoid eviction and to maintain utilities and phone connections; 2) housing conditions, including problems with pests, leaking roof or ceiling, broken windows, non-functional plumbing and exposed wires, cracks or holes; 3) unable to visit doctor or dentist despite need; 4) sometimes or often not enough food to eat at the household level.

Because individuals are clustered within contexts that vary by state and year, I will use hierarchical modeling for the analysis (Raudenbush and Bryk, 2002). Hierarchical models are useful for examining this topic because they both allow for the estimation of specific contextual characteristics while also controlling for unmeasured differences across context that are correlated with the outcome of interest.[2] The analytic strategy follows closely the work of Bartfeld and Dunifon (2005) in their analysis of the state-level predictors of food security using data from the Current Population Survey.

Level 1 Model: $$\text{Log}[p_{ijk}] = \beta_{0j} + \beta_{10}X_{1ij} + \beta_{20}X_{2ij} + \beta_{30}X_{3ij} \quad (1)$$

[2] For this topic, I find hierarchical method superior over that of using fixed effect models that include a dummy variable for each unique context but does not allow for the examination of specific contextual characteristics.

Level 2 Model: $\beta_{0j} = \gamma_{00} + \gamma_{01}W_{1j} + \ldots + \gamma_{0q}W_{qj} + \mu_{0j}$ (2)

Where p_{ijk} is the probability that household i in state-month/year *j* reports material hardship type *k;*

$\mathbf{X_{ij}}$ is a vector of demographic characteristics of household *i* in state-month/year *j;*

$\boldsymbol{W_j}$ is a vector of characteristics representing the economic, policy, climate, and social context in state-month/year *j*

In the Level 1 Model, the log odds of reporting each form of material hardship is modeled as a function of individual characteristics. Specifically, the model will control for race/ethnicity of household hold, age of household head, household structure (single mother, single father, couple, other), highest level of completed education of household head, household income-to-poverty ratio, number of children, location (central city, other metropolitan, nonmetropolitan), presence of employed person(s) in household, presence of disabled person(s) in household and presence of noncitizens in household.

In the Level 2 Model, the intercept from Level 1 (β_{0j}) is expressed as a function of context-specific variables $W_{j.}$ Where possible, each measure will be specific not only to the state but also to the month and year. Measures to be included in the model are designed to capture economic conditions (unemployment rate, poverty rate, average wages per job, median rent), economic policies (low-income tax burden, overall tax burden), policy environment (Food Stamp Program participation, School lunch participation, combined TANF + Food stamps benefit level, TANF policy differences), and average temperature.

V. Outcome

This paper will explore variation in reports of material hardship using 1992-2003 data from the Survey of Income and Program Participation. The first set of research questions are

descriptive in nature and can be addressed through the production of a series of charts and tables. The second set of research questions will be answered using hierarchical models to determine the relative contribution of both individual factors and contextual factors. Results of this study will inform policy-makers, advocates and citizens across the Nation regarding the extent of material hardship in their state and the relative contribution of the demographic composition and contextual characteristics.