The Role of Material Hardship in Grade Retention

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ABSTRACT
Sizeable bodies of research support a link between background socioeconomic status and children's outcomes both in the near and long term. A far less extensive literature has developed more recently that links material hardships to negative impacts for individuals and families. The joint contribution of the two factors – often explicitly linked in popular conception and implicitly linked in social policy – to student outcomes is, however, underexplored. This relationship may be of particular interest in light of recent decreases in earnings and increases in material hardship stemming from the recession of the late 2000s. This analysis considers the manner in which material hardship affects the rate at which students progress through school through its effects on grade retention. To this end a nationally representative dataset with a range of material hardship measures is analyzed. The analysis indicates that food insufficiency is a consistent, sizeable, and - among the hardship measures – the only statistically significant predictor of in-grade retention.

INTRODUCTION

The influence of family background is one of the most researched topics in the social sciences in the past half-century. This line of research consistently finds a link between family socioeconomic background and outcomes in childhood and across the life course (see Blau and Duncan, 1967; Duncan and Brooks-Gunn, 1997a). Common conceptions of the lived experience of low income often include experiences of material deprivation – inadequacies in living conditions or meeting basic needs. The link between the conception of low income and of material hardship is perhaps most concretely manifest in means-tested government programs that provide targeted support for adequate food, housing, medical care, public utilities, and other forms of consumption. While commonly thought of in tandem, low income and material hardship are not as consistently linked in occurrence (Bauman, 1999; Beverly, 1990, 2000; Meyer and Jencks, 1989). The goal of this research is to focus on the role of material hardship, in conjunction with household background, in affecting children's progress in school.

At present, there is a limited amount of research that considers material hardship as it relates to educational outcomes. The set of studies that do examine this relationship largely limit the set of hardships considered, often to just one form of material hardship. The handful of studies that consider multiple dimensions of material hardship in relation to educational outcomes are subject to limitations imposed by their data – data that is limited in generalizability or is cross-sectional. The present analysis incorporates multiple measures of material hardship drawn from nationally representative longitudinal data, allowing for a better assessment of the effects of material deprivation in conjunction with those of household background.

This study expands upon previous analysis of the effects of background no children's academic outcomes by incorporating the effects of multiple measures of material hardship jointly with those of household background on the experience of in-grade retention. Through its impact on

subsequent academic performance and attainment, as well as its association with lower later-life earnings (see Hill and Duncan, 1987, for example), grade retention may play an early role in the intergenerational transmission of advantage or disadvantage. This role would be further supported if the association between material hardship and in-grade retention varies by differences in student background.

GRADE RETENTION

In grade retention is fairly commonplace in the American educational system, with about 13 percent of 9th graders having been retained previously (Department of Education, 2012). There is substantial variation in the experience of retention, however, with 3.3 percent of Asian students, 9.5 percent of non-Hispanic white, 15.3 percent of non-black Hispanic, and 24.7 percent of black students having been retained at least once as of 9th grade.

Research on the effects of grade retention is characterized by some contention, but most analyses find negative impacts in subsequent years. Jimerson's (2001) meta-analysis of 20 studies found most to support the association of retention with negative outcomes, concluding that – at best – grade retention does not provide any greater benefit to the retained student than continuous promotion. This assessment is supported in part by Hong and Yu's (2007) finding that the negative effects of kindergarten retention on test scores fade over a five year period, while the impacts of retention in first grade do not diminish in subsequent years – certainly retention in either year confers no advantage. While kindergarten retention may have a diminishing effect on test scores, its impacts on students' behavior and interest in school are less innocuous (Hong and Yu, 2008; Jimerson, 1999; Roderick, 1994), which is problematic when classroom behavior is consequential for teacher assessments of students (Farkas, et al, 1990), and is associated with retention (Alexander, et al., 2003)

The negative impacts of retention are generally observed to persist rather than dissipate over time. Early grade retention reduce reading scores by 20-percent and math scores by 15-percent in the years immediately following retention (Hong and Raudenbush, 2005), and early school experiences' impacts persist across the educational career (Entwisle and Hayduk, 1988), and affect the tracking of students (Dauber, Alexander, and Entwisle, 1996). Indeed, a number of analyses link retention to negative outcomes much later in students' educational careers, most notably dropout in middle school (Rumberger, 1995) and high school (Jimerson, et al., 2002; Roderick, 1994; Stearns, et al. 2007).

The differences in retention rates by race noted previously follow the ranking of household income by race-ethnic group (Census Bureau, 2012). This suggests that income, in combination with race-ethnicity, structures the experience of grade retention, as supported by the observation that the rate of advancement through school is influenced by family socioeconomic status (Dimagio and Mohr, 1985).

INCOME POVERTY

The impact of family income on children has been an active topic of inquiry for more than the past half-century. Early status-attainment research highlighted the association between family income and child outcomes (Blau and Duncan, 1967; Featherman and Hauser, 1978; Sewell and Hauser, 1975), an association that has been repeatedly supported since in studies linking low family income to similar outcomes – lower educational attainment, lower labor force attachment, and lower earnings as an adult (Brooks-Gunn and Duncan, 1997; Havemen and Wolfe, 1994; Hill and Duncan, 1987). While the status-attainment literature supported the association of family income with long-term child outcomes – educational and occupational status in adulthood – more recent research has found associations between family income and more short-term child outcomes. More recent

research has found low income to be associated with poorer health and more chronic health problems (Aber, et al., 1997; Klerman, 1991), poorer quality and more hazardous housing (McLoyd, 1998), and lower grades (Smith, Brooks-Gunn and Kebanov, 1997).

The parents of poor children have fewer years of education (Haveman and Wolfe, 1994), which may disadvantage them in a few ways. Parents' level of education is associated with expectations for their children's educational and career attainment (Alexander and Eckland, 1975; Sewell, Haller and Portes, 1969), through the influence of parental expectations in the status attainment process, poor children are accordingly disadvantaged. Additionally, poor children's environments are less cognitively stimulating than their peers' (Guo, 1998; Guo and Harris, 2000). This may result from time and resource constraints associated with low income affecting parent's ability to purchase stimulating materials or engage in stimulating activities or from education effects on parental preferences for consumption. Duncan, Featherman and Duncan (1972) point to the provision of necessary resources, and Astone and McLanahan (1991) emphasize the role of reinforcing and rewarding behaviors associated with achievement in facilitating children's realization of parental expectations. To the extent that owning books and magazines, reading to children, listening to recorded music, and visiting museums – as well as associated materials and activities – constitute necessary resources and reinforce behaviors aligned with achievement, poor children are disadvantaged relative to their peers.

Indeed, the association between low family income and poorer academic performance and lower levels of attainment is frequently reaffirmed by studies. In a collection of 12 studies focusing on the effects of childhood poverty across a range of outcomes (Duncan and Brooks-Gunn, 1997), replication analyses found that family income was most strongly associated with child ability – as measured by test scores – and academic achievement, while the association between family income and children's physical, mental and behavioral health was much weaker. Additionally, Duncan and

Brooks-Gunn find that "family income is usually a stronger predictor of ability and achievement outcomes than are measures of parental schooling or family structure" (p.597).

The SIPP includes measures of material hardship – food insufficiency, inability to pay utility bills, inability to pay rent, inadequate medical or dental care, and household and neighborhood conditions – that are popularly associated with living with low income. There is good reason to believe that these dimensions are commonly thought to correspond to the experience of poverty as means-tested governmental programs are targeted to minimize hardship in these domains. WIC, SNAP, and school meal programs support food sufficiency; rent controls, public housing, and Section 8 support families ability to pay rent; the Low Income Home Energy Assistance Program supports the payment of utility bills; Medicaid supports the receipt of medical services; and, in some respects, the housing assistance programs noted above can support better home and neighborhood quality than what might otherwise be obtainable. Receipt of these programs' benefits is contingent upon income below an absolute income threshold (which the exception of the school meal programs, which subsidize some portion of all students' meals), indicating recognition of the popular association of low income with material deprivation. The inclusion of material hardship measures alongside income may more accurately capture the constellation of circumstances that reflect the broader idea of living with low income.

MATERIAL HARDSHIP

The official US poverty measure is a threshold that varies with the size and age composition of a household. Income poverty is defined in comparison to the official threshold for a given household. While the calculation of official poverty thresholds has remained largely unchanged, there is an active dialogue about the adequacy with which the measure captures poverty (see Brady, 2003; Iceland and Bauman, 2007 for example).

The measurement of material hardship follows from Mayer and Jencks' study of Chicago residents (1989), based upon surveys that included a battery of questions focused on material hardships – the sufficiency of food eaten in the household, housing problems and crowding, ability to pay bills, eviction, utility services disconnection, health insurance coverage, and medical and dental care. They found that income explained only 14 percent of the observed variation in the number of hardships that a family experiences. In subsequent years a number of surveys began including measures of material hardship. Analyses of these data, as with Mayer and Jencks', found only moderate associations between income and material hardship (Beverley, 2001; Boushey, et al., 2001; Mayer, 1997; Rector, et al., 1999).

While material hardship is rather weakly related to both level of income and changes in income, a gross relationship to income does exist. The incidence of hardship decreases from the lowest to highest quintiles (Sullivan, Turner and Danziger, 2008). Similarly, slightly more than half of poor families experience at least one hardship as compared to 13 percent of non-poor families (Federman, et al, 1996). In spite of this gross relationship and the frequency of hardship among the poor, Short's (2005) comparison of material hardship to the official measure of poverty, a relative poverty measure, and an experimental measure showed that none of the measures was particularly able to capture the group of people who experience material hardship. Short's analysis echoes a point often raised in research on hardship, that families experiencing poverty and families experiencing material hardships are distinct groups (Beverly, 1999; Edin and Lein, 1997; Rector, Johnson and Youssef, 1999). This may, in part, be due to the rather weak correspondence between income and consumption (Mayer, 1996; Meyer and Sullivan, 2003), and the relatively lower rates of poverty when measured via consumption (Selsnick, 1993). Consumption is tied to material hardship insofar as consumption in different domains, some corresponding to measures of material hardship, can become rival when resources are constrained. Assuming an equivalent resource set, divergent

household decisions, behaviors and strategies can result in the experience of material hardship or the satisfaction of basic needs. The present analysis explores the way in which these underlying behaviors and strategies may – in conjunction with the experience of hardships themselves – interact with income to affect children's academic progression.

A dialogue has existed for some time in the European social sciences surrounding the extent to which measures of socioeconomic status capture the lived experience of poverty (see Drewnowski, 1977; Sen, 1979; Townsend, 1974 for examples). Predictably, given the comparative age of this dialogue, the literature and measures are more developed than are similar American efforts. In response to the shortcomings of traditional measures of financial hardship, the SIPP "was developed to serve these needs [for more comprehensive measures] by collecting more detailed income data, covering a longer span of shorter periods and by giving explicit attention to the use of various government programs" and subsequently by incorporating measures of well-being (p. 247, Watts, 1992). Likely owning to the timing of the addition of hardship measures to the SIPP, in the 1991 panel, the measures are included are quite similar to those included in the surveys Mayer and Jencks' (1989) analysis is based upon.

Since Mayer and Jencks' study alternative measures of material hardship have been developed and a handful of surveys in addition to the SIPP have incorporated material hardship measures. While the domains of hardship – food, medical care, housing, etc. – that the different measures target share some similarity in capturing hardship along the same dimension, the measures themselves are often not directly comparable as the questions asked or criteria used to define an individual or household as suffering hardship vary. It is reasonable to expect that these differences affect the sizes of observed associations with material hardship, rather than their direction, as the underlying dimensions of hardship are similar, while variation in the criteria used to define may capture or fail to capture hardship at different levels of severity.

Material Hardship and Education

As with material hardship generally, there is a rather limited amount of research that considers the relationship between material hardship and education. The most commonly examined domain of material hardship, food hardship, is also the most commonly examined in reference to educational measures and outcomes. Food-related hardship is the most frequently examined dimension of material hardship for two reasons. First, measures of food-related hardship are included in more surveys than are other measures of hardship, particularly since the advent of the USDA Food Security Survey Module. Second, and not entirely separate from the previous reason, there is a notable focus on matters of food hardship in the United States, although there is variation in the measures used (Heflin, Sandberg and Rafail, 2009). A portion of the research on the educational effects of food hardship can be improved upon through the use of better measures or through looking at effects longitudinally.

The research that focuses on food-related hardships, perhaps expectedly, finds them to be associated with poorer academic, cognitive and behavioral outcomes for children. Alaimo, Olson and Frongillo (2001) find food insufficiency to be cross-sectionally associated with lower math performance, more behavioral problems, and higher likelihoods of grade retention and suspension. Food insecurity inferred from food stamp benefit receipt, while perhaps lacking as a measure of actual food hardship, is negatively associated with measures of school engagement cross-sectionally (Ashiabi, 2005). Food insecurity is also frequently observed to be associated with greater reported behavioral issues (Dunifon and Kowaleski-Jones, 2003; Kleinman, et al., 1998; Slack and Yoo, 2005), and with lower assessment test scores (Jyoti, Frongillo and Jones, 2005). Lower scores, greater reported behavioral problems, and cross-sectional associations with grade retention and suspension

are suggestive of an association between food insecurity and lessened academic achievement, whether that association is robust to retention in longitudinal data is not clear.

Aside from the analyses of the correspondence between hardship measures and income poverty measures discussed previously, there are few analyses that take a range of material hardships into account rather than one or two dimensions, and fewer still that concern themselves with child outcomes. As with measures of food-related hardship, the underlying dimensions of material hardship that measures capture are generally the same, but the measures themselves are often not equivalent.

Gershoff and colleagues (2007), using ECLS-K data, consider a range of material hardships and associated outcomes for 6 year old students and find material hardship - a latent construct of residential instability, adequacy of medical care, months of financial troubles, and food security – to be associated with lower measures of cognitive ability and poorer behavioral ratings. Zilanawala and Pilkauskas (2012), using Fragile Families data, find difficulty paying bills, having utilities service discontinued, and housing instability to be related to poorer child behavior and a measure or aggregate hardship to be strongly related to poorer child behavior. The paucity of analyses such as these, that assess measures of multiple dimensions of material hardship simultaneously is rather puzzling, particularly in light of Heflin, Sandberg and Rafail's (2009) finding that such analysis fits the data much better than does the use of an index or other aggregative method of measuring hardship. This paper incorporates multiple dimensions of material hardship in asking the question: what are the effects of hardships on in-grade retention alongside those of family background?

While the extent to which measures of income capture the experience of hardship is disputed, the existence of a relationship between income and hardship is not, with the poor four times more likely to experience at least one form of material hardship than are the non-poor. However, nearly half of poor families do not experience any form of material hardship (Federman,

et al., 1999), supporting the frequent observation in the analysis of material hardship is that families that experience poverty and families that experience material hardship are two different groups (Short, 2005; Beverly, 1999; Edin and Lein, 1997; Rector, Johnson and Youssef, 1999). This observation underlies the second question that this paper asks: does variation underlying the sorting of individuals into hardship states affect the impact of those hardships?

DATA AND METHOD

The analyses below are based on a sample of elementary school students drawn from the 1996 panel of the Survey of Income and Program Participation (SIPP), a nationally representative rotating panel survey with an oversample of households in high poverty areas. The SIPP collects income, labor force, and program participation and eligibility data in addition to general demographic information. The 1996 SIPP covers four years, December 1995 through February 2000. The sample is restricted to those students enrolled in elementary school in wave six, and for whom information is sufficient to determine whether they experienced retention and material hardship over the two-year period. These criteria restrict the sample to 2,721 students.

The SIPP is structured such that while the bulk of interview content is consistent from survey wave to survey wave, a topical module – the content of which varies from one wave to the next – is also included. These analyses draw on data from the sixth, eighth, and 12th survey waves' topical modules in addition to core demographic, income and benefit receipt data. The child wellbeing topical module – in waves six and 12 – includes questions about children's educational histories and orientation to school. The adult well-being topical module – in wave 8 – includes questions about the experience of hardship in the household: the sufficiency of food eaten, the ability to pay bills and receive medical care when needed, and questions about housing conditions.

Data drawn from the sixth and 12th wave topical modules are used to construct an outcome measure indicating whether a student was retained in-grade between wave six and wave 12. Parents who indicate that their child has repeated a grade are asked to specify the grade or grades the child has repeated. For purposes of this analysis, students are taken to have repeated a grade if in wave 12 they are reported to have repeated the grade in which they were enrolled in wave six or a subsequent grade. Students who are reported in wave six to have repeated the grade in which they are currently enrolled are not considered to have repeated the grade over the wave six to wave 12 period as subsequent repetition of the same grade is not distinguishable in the data.

The adult well-being topical module is used to construct four indicators of material hardship. A food insufficiency measure is constructed from respondents' description of the food situation in the household over the previous four months. Households are considered to be food insufficient if the respondent characterized the sufficiency of food eaten in the household in the previous four months as "sometimes not enough to eat" or "often not enough to eat". The food measures in the SIPP are not consistent with the USDA's Food Security Module (FSM), which is commonly used to assess food insecurity and food insufficiency. The SIPP measure used here, however, has been validated elsewhere(Christofar & Basiotis, 1992). Three additional measures of material hardship are constructed using the adult well-being topical module data. An indicator of medical hardship is constructed to indicate membership in a household in which at least one person was unable to receive medical or dental care when needed in the previous year. A similar measure is constructed for those living in households that had fail to pay bills for rent or mortgage, or for utilities. A measure of housing quality is constructed to indicate those households whose reference person\ indicated that the conditions in their home were such that they would like to move.

[FIGURE 1 ABOUT HERE]

These four dimensions of material hardship – food, bill paying, medical care, and housing conditions – are the same dimensions used by Mayer and Jencks (1989) in their pioneering study of material hardship in the United States, although the measures used here differ somewhat. These four dimensions are still frequently used in those analyses that take account of multiple dimensions of hardship (see Short, 2005; Rector, et al., 1999 for example), although it is common for measures to be collapsed into an index representative of general hardship in a manner similar to Mayer and Jencks' analysis. I follow Heflin, Sandberg and Rafail's (2009) finding that a four-dimension operationalization of the SIPP hardship measures best fits the data given the co-occurrence of hardships along those dimensions and likely similar unmeasured underpinnings. 2

One challenge in assessing educational outcomes using the SIPP, compared to education-focused surveys, is a relative lack of measures of academic performance, and of student and family orientation toward school. Six measures included in the SIPP are used to adjust for these factors. To capture prior school performance, wave six reports of prior grade retention experiences and of prior expulsions are used, patterns of prior promotion being consequential in the accuracy of predicted achievement trajectories (Moller et. al, 2006). Students' attitudes toward school are captured by parental reports that students are disinterested in school work, that they dislike going to school, and that they do not work hard in school. To measure family orientation toward school and expectations for students, indicators of the level of schooling that the interviewed parent thinks the child will complete are constructed.

The receipt of social program benefits may affect grade retention through the forestallment of material hardship or other pathways. Welfare receipt is associated with lower levels of educational attainment and secondary school completion among children of recipients (Duncan and Yeung, 1995), which may manifest in prior grade retention. To the extent that food-related programs may

prevent micronutrient deficiencies (Devaney, Ellwood and Love, 1997), which are associated with behavioral and learning difficulties (Benton, 2001), receipt of these programs may also be consequential. Additionally, the circumstances, experiences and practices that underlie a household's qualification for and receipt of social program benefits may be meaningfully related to grade retention independently of the receipt of benefits. Measures of social program benefit receipt are included in the analyses as the 1996 dollar value of monthly household TANF, food stamp and WIC benefits, and as indicators of students' receipt of free or reduced price school breakfasts and free or reduced price school lunches.

[FIGURE 2 ABOUT HERE]

To capture socioeconomic status, indicators for parental education and household income are included from wave six data. Parental education is the highest level of education attained by either of the students' parents. Household income is included here as average monthly income in thousands of 1998 dollars over the term of the panel, as 'permanent' income is consequential for the length of poverty spells and predictive of the experience of hardship (Blau, 1999; Mayer, 1997; Mayer and Jencks, 1989; Iceland and Bauman, 2007).3 Students are identified as Black, Hispanic, and non-Hispanic white, other students are excluded from the analysis. Additionally, an indicator of residence in single-parent households is included.

Analytic Plan

First, descriptive statistics are given for the sample by poverty status and by number of hardships experienced. Next, logit models predicting grade retention are estimated to assess the joint effect of the four types of material hardship with family background on the likelihood of grade retention.

RESULTS

Descriptive analysis. Table 1 presents descriptive statistics for the full analytic sample, the portion of the sample with household incomes below the poverty threshold, the portion with income from one to two times the poverty threshold, and the portion of the sample with household incomes above twice the poverty threshold. Consistent with previous research on material hardship and income, there is a noticeable decrease in the incidence of hardship with increasing household income relative to the federal poverty threshold with the majority of reported hardship occurring in those households with incomes falling below twice the federal poverty threshold for a consumption unit of the household's size. While hardships are concentrated among households with incomes below twice the poverty threshold, with the exception of food insufficiency, those households with incomes more than twice the poverty threshold experience hardships at more than half the for the full sample. Table 2 presents descriptive statistics for households that experience no, one, two, three, or four dimensions of hardship. The same income-hardship relationship is observed, with those experiencing more hardships having greater incomes, however, the differences between groups are not as substantial as might be expected in light of the contrast by income seen in table 1. This is consistent with research observing the wide variation in the experience of hardship by income.

[FIGURE 3 ABOUT HERE]

Material Hardship. Table 3 presents the results for logistic regression models predicting grade retention. In addition to the adjustment variables specified in the table, each model includes measures of sex, age, value of household TANF, value of household food stamps, value of household WIC, receipt of school breakfast, receipt of school lunch, Hispanic, black, change in household composition and sex. Data are weighted by the wave six panel weight (distributed with the data by the Census Bureau) multiplied by the inverse probability of continued participation

through wave 12 of the survey as estimated by a logit model using individual demographic and family background characteristics reported at wave six.

The model indicates, in line with expectations, that family income is predictive of non-retention such that an increase of $100 in monthly household income corresponds to an decrease in the likelihood of in-grade retention of approximated one-and-a-half percent. It is notable, and consistent with assertions in the literature that hardship and income are only moderately related, that the effect of family income changes very little from the model that includes no hardship variables to the model that includes all four dimensions of hardship. This also is consistent with qualitative research that indicates that individuals and families often avoid material hardship by utilizing informal resources (Edin & Lein, 1997). Consistent with prior research, previous grade retention is associated with an 85 percent greater likelihood of retention over the period of observation.

Interestingly, only household food insufficiency is consequential in the model for students' likelihood of grade retention. Students who live in food insufficient households are 72 percent more likely to be retained over the period of observation than are students who live in food sufficient households. The association of membership in a food insufficient household with increased likelihood of grade repetition is consistent with the cross-sectional association found by Alaimo, Olson and Frongillo (2001), as well as the association suggested by other analyses of food insecurity as an individual material hardship variable. That this relationship is robust to longitudinal analysis and the inclusion of other hardship variables is of consequence for research on material hardship more generally given the relative abundance of datasets that include measures of food insecurity and – less frequently – food insufficiency, as well as the relative strength and size of the effect relative to other dimensions of hardship.

DISCUSSION

Prior research has established that students from family backgrounds characterized by lower levels of education and income face poorer academic and later life outcomes (Duncan and Brooks-Gunn, 1997a). The more recent adoption of measures of material hardship in nationally representative surveys has made the examination of a set of experiences moderately related to family background, in conjunction with that background, possible. Grade retention is examined as an outcome that has consequence for academic and life outcomes through its effects through subsequent academic performance and educational attainment and has been found to be affected by family background.

To test the effects of material hardship and family background on likelihoods of grade retention, I take advantage of the comparably rich material hardship measures in the SIPP that capture four dimensions of hardship commonly used in assessments of multiple-hardship impacts. The effects of these hardships, alongside those of family background and prior school experiences, are modeled for students in the first through sixth grades. The analysis finds support for the role of material hardship in generating grade retention

Only food insufficiency is found to be particularly predictive of grade retention. This is consequential for the study of material hardship more generally as food insecurity and insufficiency measures are the hardship measures most commonly included in those surveys that incorporate any measures of hardship. Accordingly, this effect can be examined further in datasets that are better suited to investigating particular outcomes by virtue of the inclusion of more comprehensive measures of educational histories, and of family structure and change, for example. The effect of food insufficiency is slightly attenuated, but remains sizeable while standard errors are not meaningfully inflated, in models that do not incorporate other measures of material hardship, suggesting that such extension of the measure is acceptable.

Research focusing on food insecurity specifically, as well as some focusing on multiple dimensions of hardship, suggests some reasons for the comparably sizeable effect of food insecurity

on grade retention. Some studies find general hardship (Heflin and Iceland, 2009) and food insecurity (Heflin, et al. 2005; Siefert, et al., 2004) to be related to higher scores on measures of depression. Other analyses find children in food insecure households, as well as mothers, to score as more depressed and anxious (Whitaker, et al. 2006). To the extent that food insecurity is representative of a similar lived experience, the same processes that generate an association between living in poverty and the higher levels of depression and anxiety, and poorer and more harsh parenting (Conger, et al. 1997; Hanson, et al. 1997; Korenman, et al. 1997) are likely to contribute to the effect of food insufficiency on grade retention.

The direction of causality in a hardship-mental health may be problematic to determine. This is particularly the case given the observation of cross-sectional association between assessments of maternal depression and food insufficiency (Casey, et al. 2004). Mental health may as easily affect the processes underlying the experience of material hardship as the experience of material hardship may exacerbate unobserved mental health issues or states. A theoretical argument can be made for this alternative causal account based upon Edin and Lein's (1997) finding that low-income populations often avoid or offset material hardship through informal channels. If mental health serves to constrain the size of associative networks, the set of informal channels that individuals can take advantage of in their quest of offset hardship is similarly constrained, potentially increasing the likelihood of hardship. The experience of material hardship may then worsen mental health symptoms – contributing to the association between hardship and mental health in longitudinal analyses. This alternative causal account highlights one way in which further research into material hardships would beneficially be extended.

There is a general knowledge-based and normative reason to extend analysis of material hardship and of food insecurity given the great recession stretching from the late 2000s. Over the term of the great recession financial hardship has increased, if through no other mechanism than the

moderate association between income and material hardship there is reason to believe that the experience of hardship has become more commonplace as incomes have fallen and unemployment risen. Additionally, the utilization of food stamps and other programs and charities that target the domain of food hardship has expanded quite rapidly in the wake of the recession beginning in 2008. Finally, current political efforts aimed at the reduction of funding for the food stamp program provides impetus to better understand how food insufficiency affects other outcomes for children – the most food insecure portion of the population – and families, and how food hardship focused programs affect the likelihood of experiencing food insufficiency and the effect of food insufficiency when experienced in that context.

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Table 1. Descriptive Statistics by Poverty Status

	Full Sample	In Poverty	Poverty to Twice Poverty	Above Twice Poverty
Mean Income	42.2065	11.158	22.82	61.199
	(36.694)	(4.7065)	(7.567)	(40.056)
Hardship Count	.4786	.9774	.5931	.2569
	(.8109)	(1.05)	(.8708)	(.5674)
Food Insufficiency	3.5%	13.2%	4.4%	0.7%
Bill Paying	21%	.4198	.277	.098
Medical Care	14%	.2695	.177	.077
Housing Quality	12%	.206	.133	.086
Less than HS	14%	.432	.166	.028
High School	27%	.364	.381	.179
Some College	33%	.175	.338	.376
College +	26%	.029	.281	.417
AFDC	54.06	236.51	31.13	5.89
	(194.58)	(338.56)	(172.02)	(58.99)
Food Stamps	61.91	267.24	43.25	4.102
	(159.63)	(243.59)	(131.61)	(35.06)
Black	.17	.379	.198	.093
Hispanic	.15	.2798	.202	.079
White	.68	.341	.601	.828
N	2793	486	752	1483

Source: 1996 SIPP

Table 2. Descriptive Statistics by Number of Hardships Experienced

	No Hardships	One Hardship	Two Hardships	Three Hardships	Four Hardships
Mean Income	10.69	6.82	5.31998	4.349	2.97
	(9.09)	(5.76)	(5.11)	(3.47)	(1.57)
Food Insufficiency	0	.035	.123	.501	1
Bill Paying	0	.51	.799	1	1
Medical Care	0	.20	.6758	.866	1
Housing Quality	0	.29	.4566	.646	1
Less than HS	.10	.168	.278	.329	.533
High School	.25	.317	.324	.317	.066
Some College	.33	.362	.283	.219	.333
College +	.35	.153	.115	.135	.068
AFDC	31.75	91.04	80.485	163.34	442.56
	(157.76)	(233.59)	(196.36)	(291.55)	(669.85)
Food Stamps	35.48	102.21	132.23	160.61	252.60
	(21.15)	(199.45)	(208.26)	(228.98)	(352.31)
Black	.14	.222	.292	.244	0
Hispanic	.13	.183	.174	.146	.666
White	.73	.595	.634	.61	.333
N	1847	558	291	82	15

Source: 1996 SIPP

Table 3. Logit Models for In-Grade Retention

	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	-0.829**	-1.976**	-1.927**	-1.944**	-1.941**
	(0.289)	(0.366)	(0.368)	(0.370)	(0.370)
Material Hardship					
Food Insufficiency		0.545*	0.616*	0.569*	0.575*
		(0.237)	(0.264)	(0.267)	(0.267)
Bill Hardship			-0.202	-0.228	-0.224
			(0.161)	(0.163)	(0.164)
Medical Hardship				0.129	0.135
				(0.174)	(0.174)
Housing Quality					-0.0554
					(0.233)
Household Income	-0.0139**	-0.0138**	-0.0140**	-0.0132**	-0.0110**
	(0.00399)	(0.00399)	(0.00399)	(0.00398)	(0.00294)
Less than High School	-0.0209	-0.0131	-0.00971	-0.0190	-0.0168
	(0.159)	(0.197)	(0.197)	(0.198)	(0.198)
Some College	0.0506	0.252	0.253	0.252	0.253
	(0.128)	(0.162)	(0.162)	(0.162)	(0.162)
College +	-0.199	-0.0495	-0.0547	-0.0546	-0.0528
	(0.173)	(0.223)	(0.224)	(0.224)	(0.223)
School Orientation					
Prior Retention	0.292	0.617**	0.615**	0.610**	0.609**
	(0.168)	(0.190)	(0.190)	(0.189)	(0.190)
Dislikes School	0.206	0.280	0.276	0.272	0.271
	(0.301)	(0.372)	(0.374)	(0.372)	(0.373)
Disinterested in School	0.0831	0.0403	0.0417	0.0367	0.0328
	(0.253)	(0.303)	(0.305)	(0.305)	(0.305)
Does not Work Hard	0.237	0.308	0.328	0.331	0.335
	(0.300)	(0.357)	(0.357)	(0.357)	(0.358)
Previously Expelled	0.299	0.0541	0.0865	0.0740	0.0772
	(0.347)	(0.420)	(0.419)	(0.423)	(0.423)
Expectation: Less than High School	-0.295	-0.0419	-0.0480	-0.0487	-0.0585
	(0.608)	(0.677)	(0.690)	(0.683)	(0.681)
Expectation: Some College	-0.713**	-0.828**	-0.838**	-0.832**	-0.827**
	(0.240)	(0.304)	(0.305)	(0.305)	(0.304)
Expectation: College	-0.621**	-0.496*	-0.505*	-0.507*	-0.508*
	(0.187)	(0.228)	(0.229)	(0.229)	(0.229)
Expectation: Post-Baccalaureate	-0.688**	-0.647*	-0.653*	-0.658**	-0.659**
	(0.208)	(0.254)	(0.255)	(0.255)	(0.255)
N	2,721	2,721	2,721	2,721	2,721

Source: 1996 SIPP; Note: data are weighted; Adjustment variables not appearing above: sex, age, value of household TANF, value of household food stamps, value of household WIC, receipt of school breakfast, receipt of school lunch, Hispanic, black, change in household composition, sex