Collateral Damage? The Relationship between Household Debt, Race, and Food Insecurity

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Abstract

In the United States, almost 1 in 8 households cannot access adequate food for a healthy, active lifestyle. Household unsecured debts, such as credit card debt and medical bills, may be an unexplored financial constraint associated with food insecurity. Using the 2015 Panel Study of Income Dynamics (PSID), I assess the relationship between unsecured debt, by type and amount, and food insecurity among lower-income households and examine whether the association differs across race/ethnic groups (N=3,643). Results indicate that medical debt and student loans increased risk of food insecurity even after accounting for socioeconomic risk factors, while no relationship exists between credit card debt and food insecurity. Moreover, the relationship between medical debt and food insecurity varies by race/ethnic group, such that it is especially harmful for food insecurity among white households. Efforts to prevent accumulating medical debt and student loans may be a critical step for eliminating food insecurity.

Collateral Damage? The Relationship between Household Debt, Race, and Food Insecurity

In the United States, almost 1 in 8 households are food insecure, or unable to consistently access enough food for a healthy and active lifestyle throughout the year (Coleman-Jensen et al. 2017). The problem of food insecurity is closely tied to a household's financial status (Guo 2011; Coleman-Jensen et al. 2015). Research consistently finds higher rates of food insecurity among lower-income households compared to the national average (Alaimo 2005; Coleman-Jensen et al. 2015; Gundersen and Ziliak 2014). Still, more than half of households below the poverty line remain food secure, suggesting that financial risk factors beyond income influence food insecurity (Coleman-Jensen et al. 2015; Fremstad 2010; Gundersen and Ziliak 2014). Extant research, however, has paid insufficient attention to the financial determinants of food insecurity beyond income and to a lesser extent, wealth (Gundersen and Ziliak 2014).

Household debt, which has increased dramatically over the past few decades, may be an important, yet overlooked determinant of food insecurity. Debt may increase risk of food insecurity by redirecting financial resources, such as income and assets, toward debt obligations and away from food purchases (Chang et al. 2014; Edin et al. 2013; Halpern-Meekin et al. 2015; Hamel et al. 2016). This may be an especially acute problem for lower-income and asset-poor families, who are more likely to acquire excessive debt, yet have fewer economic resources to meet debt obligations (Bird et al. 1999; Bricker et al. 2014; Edin et al. 2013; Hamel et al. 2016). On the other hand, certain debts, like credit card debt, may prevent food insecurity by allowing households to smooth consumption during income shortfalls (Gaines et al. 2014; Tach et al. 2018). The differential influence of household debt on food insecurity, as either a financial resource or constraint, remains unclear.

The relationship between household debt and food insecurity may also vary based on a borrower's race/ethnicity. Rates of food insecurity are higher among non-Hispanic black and Hispanic households compared to the national average (Coleman-Jensen et al. 2017), and research indicates that debt profiles, as well the consequences of accruing debt, differ according to the racial/ethnic status of debtors (Dwyer 2018; Addo, Houle and Simon 2016). Taken together, it is possible that the association between household debt and food insecurity is contingent upon the specific type of debt accrued, such as credit card debt or unpaid medical bills, as well as the race/ethnicity of borrowers. To date, however, the link between debt and food insecurity and whether this association is moderated by a borrower's race/ethnicity has not been examined.

The current study will address this gap by investigating the relationship between household debt, differentiating by type and amount of debt, and food insecurity among a nationally-representative sample of lower-income households. While there are several types of debt that households can accrue, unsecured debts, such as those incurred from credit cards and medical bills, may be especially relevant for understanding the food security status among lower-income families who have fewer resources to repay debts (Cohen and Kirzinger 2014; Edin et al. 2013; Halpern-Meekin et al. 2015; Houle 2014). As such, the current study examines whether unsecured debt– including debt incurred from credit cards, medical bills, student loans, and a combination of all unsecured debt sources– is associated with a household's risk of food insecurity, while also accounting for key sociodemographic and economic characteristics.

Data and Methods

To address these questions, I use data from the 2015 Panel Study of Income Dynamics (PSID). The PSID is a longitudinal and nationally-representative panel survey that collects data

on characteristics such as employment, income, assets and debt status among U.S. individuals and their households. The PSID sample includes 8,978 households whose household head was over 18 years of age and under 65 years of age at the time of the survey to capture households headed by working-age adults. I further restrict the sample to non-Hispanic black, non-Hispanic white, and Hispanic respondents due to the limited number of respondents from other race/ethnic groups and to households where food insecurity is most relevant– those with incomes below 300 percent of the federal poverty level (FPL)– for a final sample size of 3,643 households. Approximately 2% of households remaining in the analytic sample were missing data on one or more individual or household characteristic of interest. I employ multiple imputation of missing data (Allison 2002) and generate 20 sets of probable values for each missing value using a diverse set of predictors and Stata 13 software.

The outcome measure is a dichotomous measure of household food insecurity provided by the PSID and derived from the 18-item version of the U.S. Household Food Security Survey Module developed by the Economic Research Service at the U.S. Department of Agriculture. Following convention, a household with "low food security" and "very low food security" is considered food insecure (Bickel et al. 2000). Debt status is captured by a series of continuous variables that measure the total debt balance of credit card debt, unpaid medical bills, student loans, and a composite measure of all other unsecured debt (i.e. legal fees, family loans, and other unsecured debt sources). Specifically, PSID respondents are asked whether they or anyone in their family living there currently have debt from credit card or store card debt, medical bills, student loans, loans from relatives, legal bills, or unsecured debt from any other source; and if so, to report the total amount. These measures are logged in the modeling process to adjust for

extreme values. I also account for a number of individual and household characteristics that are relevant to food insecurity and may confound the association of interest.

To examine the relationship between household debt and food insecurity I estimate a series of logistic regression models. After proving descriptive statics in Table 1 for the full sample and by food security status, Table 2 presents odds ratios (OR) from a model with only the measures of unsecured debt, then adjusts for a successive set of individual and household-level characteristics. Next, Table 3 is an abbreviated table that examines whether the relationship between household debt (specifically, medical debt) and food insecurity varies across race/ethnic groups. All models adjust for the complex survey design and use family-level weights provided by the 2015 PSID.

Results

Approximately 28% of households are food insecure. Among this sample of lower-income households, 28% report credit card debt, with marginally fewer food insecure households reporting credit card debt compared to food secure households. A significantly higher percentage of food insecure households report medical debt, such that 10% of food secure households report medical debt compared to 22% of food insecure households. Households with other unsecured debt are also more likely to be food insecure, though the average balance of unsecured debt among food insecure households is significantly *lower* than the average balance among food secure households. No differences emerge in food security status based on student loan debt. In terms of race/ethnicity, a moderately higher percentage of black households report food insecurity. No other differences exist among white and Hispanic households. Notably, supplementary descriptive statistics indicate that white households are significantly more likely

to report medical debt and carry higher levels of medical debt, on average, compared to black households.

Next, Table 2 presents logistic regression models predicting odds of food insecurity. Model 1 only incorporates the continuous (logged) measures of household debt. While credit card debt is negatively associated with food insecurity, medical debt and student loan debt are significantly and positively associated with odds of food insecurity. No relationship exists between other unsecured debt and food insecurity. Model 2 controls for the race/ethnic status of the household head. Compared to white households, black households have 1.38 times higher odds of food insecurity. Accounting for relationship status (married or cohabiting versus single) and dependent children, however, fully attenuates the higher odds of food insecurity among black households. Model 4 controls for income and the education level of the household head. Once these factors are considered, the association between total credit card debt and food insecurity is no longer significant. Model 5 includes all controls measures of interest and shows that total medical debt and student loan debt are associated with significant higher odds of food insecurity among lower-income households, even after accounting for household demographic and socioeconomic characteristics.

I also assess whether race/ethnic status moderates the association between household debt and food insecurity. The results indicate that the relationship between total (logged) medical debt and food insecurity varies by race/ethnic group, though this is not the case for the other types of unsecured debt. For this reasons, Table 3 focuses on the relationship between total (logged) medical debt, race/ethnicity and food insecurity. Specifically, the results indicate that medical debt is especially detrimental for food insecurity among white households compared to black and Hispanic households.

Discussion

The current study assessed whether unsecured debt, by amount and type of debt, contributes to food insecurity. Among households below 300% of the FPL, total medical debt and student loan debt were associated with higher odds of food insecurity, even after considering individual and household characteristics. In contrast, credit card debt and other unsecured debt (e.g. debt from legal fees and family loans) were not associated with food security status. Moreover, the relationship between medical debt and food insecurity varies by race/ethnic group. That medical debt is especially detrimental for white households is unexpected, and something to pursue in further research. This finding may reflect the fact that white households report, on average, higher levels of medical debt than their non-white counterparts. To assess this possibility, I will conduct sensitivity analyses using various cut-off points of medical debt balance. For example, I will test whether the findings are similar among a sub-set of respondents who report $4,000 or less of total medical debt. It is also possible medical debt pushes lower-income (or near poor) white households into food insecurity, while black and Hispanic households navigate more socioeconomic challenges to maintaining food security beyond (or in addition to) medical debt.

This study contributes to a growing body of research that identifies financial risk factors beyond income that influence food security status. The findings also advance an emerging literature on the consequences of household debt by assessing how specific types of unsecured debt relate to family and child well-being. Consequently, medical debt and student loan debt emerged as having important implications for food insecurity risk. While the current study is cross-sectional and cannot make causal claims, extant research suggests that medical debt impacts food insecurity by redirecting financial resources, such as income and assets, away from

food purchases (Gundersen et al. 2017; Hamel et al. 2016; Nielson et al. 2010). For example, during in-depth interviews, SNAP recipients reported that medical expenses, such as costly prescription drugs, and medical emergencies triggered financial shortfalls, which created significant challenges for maintaining food security (Edin et al. 2013). Similarly, Nielsen and colleagues (2010) found that the probability of experiencing food insecurity increased as out-of-pocket medical expenditures increased. They found no evidence of a reverse relationship, whereby food insecurity affected medical expenditures, suggesting that families invest scarce resources in health care at the expense of meeting food-related needs.

Student loan debt was also associated with food insecurity risk. Similar to medical debt, it is possible that student loan borrowers divert scare resources away from food related purchases toward repaying student loans. Given that many families with student loan debt carry other forms of unsecured debt— and have less wealth— I will further explore the heterogeneity among households with student loan debt and assess how different socioeconomic and demographic profiles of student loan borrowers may have different implications for food insecurity (Tach and Green 2014; Dwyer 2012; Chen and DesJardins 2010). The results also show that credit card debt is not a significant predictor of food insecurity. Resource-constrained families employ a range of coping strategies to stave off food insecurity (Bartfeld and Collins 2017; Edin et al. 2013; Kim and Wilmarth 2016). It possible that credit card debt is not associated with food insecurity because food-insecure families do not use credit to purchase food (Tarasuk 2001). Alternatively, credit card debt may be unrelated to food insecurity because lower-income households are more likely to ignore credit card debt compared to other financial obligations (Halpern-Meekin et al. 2015; Tach and Greene 2014).

Overall, the current study demonstrates that outstanding medical bills and student loan debt contribute to food insecurity risk among lower-income households. The study also finds that the association between medical debt and food insecurity differs across race/ethnic groups. Given the increasing percentage of American households with medical debt and student loans, preventing debt accumulation among lower-income households may be a key step in addressing the on-going food security crisis.

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Table 1. Means and Proportions for Households below 300% of the FPL, PSID 2015 (N=3,643)

	Full Sample N= 3,643	Food Secure N= 2,553	Food Insecure[a] N= 1,090	
Food insecure	0.28			
Household Debt				
Has credit card debt	0.28	0.29	0.25	+
Total credit card debt (2015 USD)	5,465	5224	6187	
Has medical debt	0.14	.10	0.22	***
Total medical debt (2015 USD)	22,577	13,345	33,539	
Has other unsecured debt	0.04	0.03	0.06	*
Total other debt (2015 USD)	9,393	12,573	4,699	*
Has student loan debt	0.24	0.23	0.28	+
Total student loan debt (2015 USD)	29,424	30,763	26,555	
Individual and Household Characteristics				
Race/ethnicity of household head				
White (ref)	0.56	0.57	0.54	
Black	0.28	0.27	0.31	+
Hispanic	0.16	0.16	0.05	
Age of household head (in years)	41.13	41.25	40.82	
Household head is single	0.69	0.66	0.77	***
Number of children present	0.82	0.87	0.70	*
Total income (2015 USD)	27,952	30,190	22,198	***
Education level				
Less than a H.S. degree	0.14	0.12	0.21	***
High school degree	0.40	0.39	0.42	
Some college	0.23	0.22	0.23	
Bachelor's degree or higher	0.23	0.26	0.15	***
Owns home	0.31	0.34	0.24	***
Has less than $1,000 in liquid assets	0.65	0.58	0.86	***
Received food stamps in previous year	0.30	0.23	0.48	***
Metro	0.81	0.81	0.81	
Region				
Northeast (ref)	0.13	0.14	0.10	*
North Central	0.27	0.27	0.28	
South	0.38	0.36	0.42	+
West	0.22	0.22	0.20	
Household head's insurance status				
Private (ref)	0.42	0.49	0.24	***
Public	0.37	0.32	0.51	**
None	0.21	0.19	0.25	*
Poor self-rated health (head/spouse)	0.28	0.22	0.44	***
Health-related work condition (head/spouse)	0.26	0.21	0.40	***

[a] p-value for a test of significance by column (i.e. not food insecure vs. food insecure); *** $\leq$ 0.001 ** $\leq$ 0.01 * $\leq$ 0.05 + $\leq$ 0.10

Note: Sample sizes for each debt type include: credit card debt (*n*= 794), medical debt (*n*= 545), other unsecured debt (*n*= 128), and student loan debt (*n*= 975)

Note: Averages are conditional means, or average debt among respondents with that type of debt.

Table 2. Logistic Regression Models for Households below 300% of the FPL, PSID 2015 (N=3,643)

	Model 1		Model 2		Model 3		Model 4		Model 5	
Total credit card debt	0.96	**	0.96	**	0.97	*	0.99		1.01	
Total medical debt	1.12	***	1.12	***	1.13	***	1.12	***	1.09	***
Total other unsecured debt	1.04		1.04		1.04		1.05	+	1.05	
Total student loans	1.03	+	1.03	+	1.03	+	1.06	***	1.06	**
Individual and Household Characteristics										
Race/ethnicity of household head										
White (ref)			1.00		1.00		1.00		1.00	
Black			1.28	+	1.22		1.06		0.79	
Hispanic			1.08		1.20		1.04		0.97	
Age of household head (in years)					1.00		1.00		0.99	+
Household head is single					1.59	***	1.69	***	1.47	**
Number of children present							0.95		0.90	*
Total income (2015 USD)							0.94	**	1.00	
Education level										
Less than a H.S. degree							1.00		1.00	
High school degree							0.59	**	0.79	
Some college							0.45	***	0.74	
Bachelor's degree or higher							0.25	***	0.55	*
Owns home									0.99	
Has less than $1,000 in liquid assets									3.00	***
Received food stamps in previous year									1.88	***
Metro									1.04	
Region										
Northeast (ref)									1.00	
North Central									1.46	+
South									1.54	+
West									1.51	+
Household head's insurance status										
Private (ref)									1.00	
Public									1.64	**
None									1.61	**
Poor self-rated health (head/spouse)									1.82	***
Health-related work condition (head/spouse)									1.45	+

*** ≤ 0.001 ** ≤ 0.01 * ≤ 0.05 + ≤ 0.10

Table 3. Logistic Regression Models for Household Food Insecurity among Households below 300% of the FPL (Odds Ratios) (N=3,643)

	Interaction Model	
Household unsecured debt (logged)		
Total credit card debt	1.01	
Total medical debt	1.14	***
Total other unsecured debt	1.06	
Total student loan debt	1.07	***
Race/ethnicity of household head		
White (ref)	1.00	
Black	0.93	
Hispanic	1.10	
Medical debt and race/ethnic interactions		
Total medical debt * White	1.00	
Total medical debt * Black	0.88	**
Total medical debt * Hispanic	0.91	*

+p<.10; *p<.05; **p<.01; ***p<.001

Note: This model is fully-adjusted and includes all covariates shown in Table 1 and 2.