Debt and Foregone Medical Care in the Great Recession: A population-based study in Southeast Michigan*

Sarah A. Burgard
University of Michigan

Lucie Kalousova
University of Michigan

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ABSTRACT

Foregone medical care due to financial limitations is an important population health and policy problem, and its prevalence may have increased due to the "Great Recession" of the late 2000s and subsequent slow economic recovery. While studies have shown the association between income or financial strain and foregone medical care, very few have examined how additional dimensions of socioeconomic position, specifically debt, might affect the use of medical care. In this analysis, we use newly available data from the Michigan Recession and Recovery Study, a population-based study collected in late 2009/early 2010, to assess whether assessing various dimensions of debt adds to our understanding of the link between financial conditions and foregone medical care in the shadow of the Great Recession. Preliminary results show that those foregoing care have considerably worse debt profiles, even net of income differences, suggesting a heretofore under recognized dimension of disparity in access to health.

INTRODUCTION

A large body of literature has documented the link between financial resources and health and health behaviors. While it is clear that socioeconomic position (SEP) works through multiple pathways to influence health, financial resources are a component of SEP that can influence important health related behaviors like accessing needed medical care (Elofsson, Unden, and Krakau 1998) or fulfilling instructions to follow medication regimens (Briesacher, Gurwitz, and Soumerai 2007). This is especially true in contexts like the United States, where many individuals lack adequate health insurance and prescription coverage that would make access to these forms of health care affordable. However, while studies have considered the association between income or financial strain and foregone care, very few studies have looked in any detail at debt, assets, and individuals' broader financial portfolios, despite the growing understanding that wealth is even more unequally distributed in the United States than income.

Foregone medical care due to financial limitations is an important population health and policy problem, because it is more common among those already in poor health (Elofsson, Unden, and Krakau 1998) and it increases medical burden and total costs of care. The prevalence and potential impact of foregone medical care may have sharply increased due to the "Great Recession" of the late 2000s and subsequent slow economic recovery. While it was already increasing in 2003-2007 (Cunningham and Felland 2008), record levels of job loss and long spells of unemployment for many have generated conditions of income volatility, financial strain, and disruption of health insurance coverage that could be making it even more difficult for some individuals to obtain the care that they need. Moreover, beyond influencing incomes, the Great Recession had multiple facets that could have influenced assets – such as loss of housing wealth due to foreclosure – and debt accumulation.

Few data sources that measure foregone medical care also assess financial limitations in sufficient detail to understand the extent or dimensions of the association, and very few consider debt or assets. Many studies have focused on particular population groups – the elderly, those in poverty, or people with serious chronic condition – and there is very limited recent data available. In this analysis, we use newly available data from the Michigan Recession and Recovery Study, a population-based study collected in late 2009/early 2010, to assess whether assessing various dimensions of debt adds to our understanding of the link between financial conditions and foregone medical care in the shadow of the Great Recession.

BACKGROUND

There are many ways that individuals may forego needed medical care. Individuals may delay or avoid seeking medical attention even when it is needed, which means that they may not be diagnosed with illness in a timely fashion or treated when curative options are available. Additionally, even among those who have received a diagnosis of illness and are engaged with the medical care system, some may not adhere to the recommendations of their medical care providers if they cannot afford prescribed treatments. These forms of foregone care may be differently influenced by financial limitations and in particular by differ kinds of debt or by the ratio of debt to income or other assets that an individual has access to. While there is considerable research linking financial disadvantage in the form of low income or perceived financial strain to foregone care, and there is evidence that some forms of debt are linked to poorer health (Drentea 2000; Drentea and Lavrakas 2000), there has been limited research attention to the links between debt and foregoing medical care or medications.

Research has shown the clear links between low income, uninsured status, and lower access to medical appointments perceived as necessary (*cites*), and that the United States has a stronger income gradient in access to care than other developed economies (van Doorslaer, Masseria, Koolman, and Group 2006).

What is missing from this large body of literature is a consideration of debt and assets as well as income. A different body of literature has considered cost-related medication nonadherence. The findings clearly show that lower income individuals are more likely to skip or split pills to save money. However, these findings have limited application to the general population because much of the existing literature on medication nonadherence has focused on elderly Americans and on the influence of prescription drug coverage or changes in coverage, particularly with the recent extension of Medicare Part D (Briesacher, Gurwitz, and Soumerai 2007). Many extant studies also focus on patients with serious chronic conditions and comorbid conditions (Piette, Heisler, and Wagner 2004). Thus, we know relatively little about cost related medication non-adherence among non-elderly adults, who are relatively healthier but do not have the same access to Medicare or related prescription drug coverage benefits.

In the present study, then, we focus on research questions that will begin to address limitations in the extant literature. First, is debt associated with foregone medical visits and/or with skipping or splitting prescribed medications? Does the association differ when considering whether individual see any provider versus whether they are nonadherent to medication recommendations? The way that individual's characteristics, including their financial profile, influence these separate decisions could vary, leading to different kinds of self-selection patterns to consider in our analysis. Second, is the association robust to adjustment for more commonly used measures of material well-being, such as income? In other words, does accounting for individuals' broader financial profiles help us better understand their choices to forego care, beyond considering income? Finally, are certain types of debt more strongly associated with foregone care than other types? We propose that revolving debts like credit card debt will be more likely to be linked with foregone care than so called "good" debt, such as a mortgage or student loan debt.

DATA AND METHODS
Data
We use data from the Michigan Recession and Recovery Study (MRRS). The MRRS was designed to follow a stratified random sample of English-speaking adults aged 19-64 who lived in Southeastern Michigan (Macomb, Oakland, and Wayne counties) at the time of the initial data collection in late 2009 and early 2010. The MRRS oversampled African Americans and includes mainly African American and non-Hispanic white respondents, reflecting the residential composition of the area. We use data from the first wave of in-person survey interviews. Administration of the first survey interview took approximately 60 minutes, and respondents were paid between $50 and $120 for their participation. A total of 914 respondents were interviewed, with a survey response rate of 82.8%.

Two analytic samples are used: all respondents were eligible to answer items about forgoing needed doctor visits, and after dropping cases missing on key variables, 904 respondents remain in this first analytic sample. A second analytic sample included all respondents who reported that they had been prescribed medications (N = 433), as these are the individuals at risk of medication nonadherence. (*We will repeat all analyses using multiply imputed data to assess the impact of item missing data*).

Measures
Foregone Medical Care
Our analysis distinguishes two types of foregone medical care: whether respondents had not gone to a doctor because of cost in the last twelve months (22.6%), elicited with an item that asked: "Was there any time in the past 12 months that you needed to see a doctor or dentist but could not afford to go?" Among those who report having been prescribed medication (47.4%), we ascertained whether they

have been cutting or splitting pills in the last twelve months (13.4%) with an item that asked: "Are you skipping doses or cutting pills in order to save money?"

Debt Measures
All MRRS respondents were asked a battery of questions pertaining to their wealth, income, financial stability, and indebtedness. In order to gain a nuanced understanding of respondents' level of indebtedness, we present two basic levels of debt measures. First, we show the debt allocation to specific types of debts, such as medical debt (28.6% of the sample have any, with an unconditional mean value of $1,617), housing debt (47.2% of the sample, mean $69,032), and credit card debt (77.7% of the sample, mean balance $5,342). Secondly, we constructed several measures considering the relative magnitude of the total debt portfolio in relation to the respondents' total reported assets, income, and debt. In this abstract, we report the debt to asset ratio (mean 4.6), debt to income ratio (mean 2.0), and credit card debt to income ratio (mean 0.1). We explored these measures both for the whole sample and as conditional on having reported a particular type of debt. We also used the relative debt measures in both their regular and log transformed form.

Health Measures
Health status is clearly a predictor of the need for medical care, and those with multiple conditions may have to make more difficult choices about what health care to access or what medications to skip. Poor health status could also indicate the risk of having accumulated medical debt. We include measures of self-rated health, depression, number of chronic conditions reported, number of limiting chronic conditions reported, recent diagnosis or recent worsening of a chronic condition, and whether the respondent has been prescribed medications.

Self-reported health in MRRS was determined by the typical item: "Would you say that your health in general is excellent, very good, good, fair, or poor?" We used this variable in its collapsed form by dividing the respondents into those who reported poor or fair health and those who reported excellent, good or very good health. Overall, 17.7% of the sample reports poor or fair health. Depression was measured using the Patient Health Questionnaire (PHQ), a validated 9-item scale based on the diagnostic criteria for major depressive disorder in the Diagnostic and Statistical Manual Fourth Edition (DSM-IV) (Kroenke and Spitzer 2002). The PHQ-9 has two components that: (1) assess symptoms and functional impairment over the past 2 weeks to make a tentative diagnosis, and (2) can be used to derive a severity score (designed to help clinicians select and monitor treatment). Respondents were classified as meeting symptomatic criteria for major or minor depression according to guidelines provided by creators of the scale, so that meeting criteria = 1 and not meeting criteria = 0. Overall, 16.9% of the sample meets these criteria.

MRRS also collected data on multiple chronic conditions. These included heart disease, asthma, high blood pressure, and mental health issues, among others. Each respondent was asked whether they were ever diagnosed as having the issue, and if they responded in the affirmative, how old they were at the time of diagnoses, whether this condition limits their daily lives, and whether this condition recently has gotten worse. By using these variables, we constructed a measure of number of chronic conditions (mean 1) and number of limiting chronic conditions (mean 0.4). We also examined what percentage of respondents report having a recent diagnosis or worsening of a previously diagnosed problem (29.0% of the sample). Additionally, we present insurance status of the respondents (80.5% insured) and whether or not they had been prescribed medications (47.0%).

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Other Measures
In our analyses we will also account for respondent's gender, age, race (African American or not African American), educational attainment (bachelor's degree or more, some college, high school diploma, less than high school), and partnership status (married or cohabitating versus not).

Methods
We present descriptive bivariate figures in this extended abstract and will pursue multivariate analyses to explore our research questions. All analyses account for the complex sample survey design by using the "svy" commands in Stata 11SE, and weights are used that address sample non-response and make the sample representative of English-speaking adults ages 19 to 64 years old living in the three-county area in Southeastern Michigan.

PRELIMINARY RESULTS
Table 1 shows the characteristics of MRRS respondents, stratified by foregone care – for cost reasons skipping doctor or dental visits that were perceived as needed. Table 1 shows that those who skipped a medical or dental visit for cost were significantly less healthy than those who did not, were more likely to be female or black, less likely to be married and less likely to have a bachelor's degree. Those skipping medical or dental visits had much lower average incomes and were less likely to be insured. The presence and amount of medical debt was higher among those skipping medical or dental visits, and they had worse debt-to-asset profiles. By contrast, those skipping medical visits had lower likelihood of reporting housing debt (e.g., a mortgage) and had less overall housing debt, often considered "good debt" because it also represents an important asset for most Americans, though the positive aspects have been dampened recently by the housing crisis. Those skipping medical visits were less likely to have credit cards but had the same average balance overall as those who were not and had significantly higher credit card debt-to-income ratios.

Table 2 shows the same comparisons for the subsample of respondents who have been prescribed medications, this time focusing on whether they were skipping or splitting pills for cost reasons. Again, those skipping medications are significantly less healthy on multiple dimensions, an association found in prior studies. While they have similar demographic characteristics and do not significantly differ on basic insurance coverage, those skipping or splitting pills have less education and lower incomes than those who report being adherent. Those skipping or splitting pills are more likely to have medical debt and have higher mean levels of medical debt overall, and their debt-to-asset profile appears worse than individuals who are not skipping medications. They have less hosing debt and are less likely to have credit cards but have similar mean levels of credit card debt.

Table 3 assesses whether debt may be providing additional information in understanding foregone care, beyond its known associations with low income. We stratified the sample by category of income-to-needs ratio, considering those under 1 (poor), at 1-2 (near poor), 2-3, and 3+ (not poor), to assess whether associations between debt measures and foregone care were still apparent. In this preliminary table, it appears that even within income-to-needs categories, associations between debt-to-asset ratio and skipping medical or dental visits can be found. Debt-to-income ratios (log-transformed) appear to be more salient for lower income individuals. Considerable further analyses will be completed before the PAA meeting, using stratification and multivariate models to assess the links between debt and foregone care net of the sociodemographic characteristics that put people at risk of debt accumulation and poor health.

Some Next Steps in the Analysis
1. Categorize risk groups and examine association between foregone care and debt within groups on the basis of gender, age, and health profiles.
2. Replicate analyses using multiply data
3. Explore ways to address the complex links between health status, medical debt, and foregone care
4. Sensitivity analyses and robustness checks, especially examining distributional properties of debt and financial measures for nonlinearities

SOURCES
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Table 1. Descriptive characteristics of MRRS respondents, stratified by whether not attending needed medical visits.

	Not skipping doctor	Skipping doctor	p for diff.
% Fair/Poor Self-Rated Health	12.3%	36.4%	<0.001
% Minor or major depressive symptomatology	10.9%	37.7%	<0.001
Mean # of Conditions Ever Diagnosed	0.9	1.5	<0.001
Mean # of Limiting Conditions Ever Diagnosed	0.3	0.9	<0.001
% Recently Diagnosed With a Condition or Worsening Symptoms of a Condition	25.6%	41.0%	0.01
% On Prescription Medication	48.0%	44.0%	0.343
Age in years	42.16	39.72	0.063
% Male	52.5%	37.4%	0.034
% African American	21.9%	37.4%	0.002
% Married or Cohabitating	67.3%	50.4%	<0.001
% Bachelor's degree or more	31.1%	12.3%	<0.001
Household Income 2009	$82,993	$30,569	<0.001
% Health Insurance	85.4%	63.0%	<0.001
%Medical Debt	20.0%	58.0%	<0.001
Mean Medical Debt	$568	$5,199	<0.001
% Housing Debt	52.8%	28.3%	<0.001
Mean Housing Debt	$78,391	$37,626	0.001
% Credit Cards	80.5%	68.3%	0.002
Mean # Credit Cards	3.35	1.73	<0.001
Mean Credit Card Balance	$5,312	$5,441	0.914
Debt to Assets	3.33	8.86	0.014
Ln Debt to Assets	-0.84	-0.01	<0.001
Debt to Income	1.85	2.50	0.064
Ln Debt to Income	-0.27	-0.25	0.871
Credit Card Debt to Income	0.09	0.24	<0.001
N	651	253	

Table 2. Descriptive characteristics of MRRS respondents who have been prescribed medications, stratified by whether skipping or splitting pills.

	Not Skipping Medications	Skipping Medications	p for diff.
% Fair/Poor Self-Rated Health	19.6%	57.3%	0.001
% Minor or major depressive symptomatology	19.9%	47.0%	0.005
Mean # of Conditions Ever Diagnosed With	1.7	2.7	<0.001
Mean # of Limiting Conditions Ever Diagnosed With	0.6	1.6	<0.001
% Recently Diagnosed With a Condition or Worsening Symptoms of a Condition	41.4%	73.3%	0.001
Age in years	47.48	46.00	0.365
% Male	40.1%	38.8%	0.867
% African American	23.1%	28.9%	0.333
% Married or Cohabitating	70.3%	57.7%	0.113
% Bachelor's degree or more	30.4%	14.3%	0.009
Household Income 2009	$75,752	$45,379	0.003
% Health Insurance	93.7%	87.7%	0.133
% Medical Debt	24.3%	68.3%	<0.001
Mean Medical Debt	$1,757	$5,436	0.016
% Housing Debt	52.5%	39.2%	0.117
Mean Housing Debt	$80,402	$40,737	<0.001
% Credit Cards	83.7%	80.9%	0.557
Mean # Credit Cards	3.74	2.26	<0.001
Mean Credit Card Balance	$5,706	$6,960	0.455
Debt to Assets	4.88	4.27	0.714
Ln Debt to Assets	-1.20	-0.49	0.049
Debt to Income	1.87	1.74	0.761
Ln Debt to Income	-0.59	-0.52	0.741
Credit Card Debt to Income	0.12	0.20	0.263
N	369	64	

Table 3. Relationship between debt and foregone doctor visits, stratified by income to needs ratio

	Income to needs <1			Income to needs 1-2			Income to needs 2-3			Income to needs 3+		
	Not skipping doctor	Skipping doctor	p for diff.	Not skipping doctor	Skipping doctor	p for diff.	Not skipping doctor	Skipping doctor	p for diff.	Not skipping doctor	Skipping doctor	p for diff.
Debt to Assets	16.59	17.52	0.909	3.33	6.01	0.289	1.02	6.05	0.249	0.64	2.90	0.191
Ln Debt to Assets	-1.31	-0.02	0.040	-1.81	-0.66	0.103	-1.50	0.18	<0.001	-1.20	-0.55	0.043
Debt to Income	2.85	2.37	0.437	1.11	1.51	0.486	1.77	5.75	0.036	1.86	1.31	0.098
Ln Debt to Income	-2.19	-0.88	0.070	-2.01	-0.67	0.031	-1.03	0.93	<0.001	-0.36	-0.65	0.388
Mean Medical Debt	$8,715	$8,412	0.943	$1,517	$5,577	0.021	$2,575	$4,920	0.327	$268	$5,436	0.101
Credit Card Debt to Income	0.67	0.14	0.086	0.15	0.08	0.115	0.14	0.16	0.706	0.12	0.11	0.635
N	133	103		76	67		87	34		305	42	