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Disability, Urban Influence, and COVID-19 Financial Hardships: Findings from a Predominantly Rural Sample

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Abstract

This study examined the financial impacts of the early COVID-19 pandemic among households with children and compared outcomes based on disability status and urban influence. Survey data were collected in the fall of 2020 by the Urban Institute from mostly rural households participating in the Meals-to-You program, which delivered food to eligible households with children in the United States due to school closures. Relative risk-contingency analysis and multivariate logistic regression were used to assess financial hardship from the pandemic. Sampled households reporting at least one member with a disability had greater odds of food insecurity, delaying purchases, depleting savings, and difficulty paying utility and housing bills. Households with two or more disabilities had greater odds of increasing credit card debt and using long-term savings, net covariates. Metro households reported greater risk of financial hardship, but findings mostly attenuated in the multivariate analysis. Research and response to disasters should consider disability, health, and rurality.

KEYWORDS: COVID-19 economic impact, disability, rural households

Introduction

In this article we use data on 2,555 households from a unique sample, the predominantly nonmetropolitan (73 percent) Urban Institute's evaluation of the Meals-to-You (MTY) program conducted in spring and summer of 2020. We explore two related COVID-19 research questions: (1) Did households with disabled persons experience greater financial hardships during the early days of the pandemic than households without disabled persons? (2) To what extent did financial hardships vary by urban influence based on county of residence? We find that disability status predicts financial hardship to a greater extent than does urban influence.

Literature Review

Rural Health Care Paradox

The onset of the COVID-19 public health disaster brought adversity to communities, households, and individuals. People's lives were disrupted and their routines altered, and overnight many had to contend with unanticipated financial hardships (Monnat 2022). The negative consequences of economic, natural, and public health disasters are not equally distributed. Households with economic (savings, salaries, and transportation) and social (networks of friends and relatives) resources fared much better than those who were lacking in both (Brunsma, Overfelt, and Picou 2010; Peek and Stough 2010; Benevolenza and DeRigne 2019).

This disparity extends across the urban-rural divide (Monnat 2020; Perry, Aronson, and Pescosolido 2021). Rural Americans live in a health care paradox. Controlling for structural disparities in education, income, health insurance, and age structure, rural residents have longer life expectancies than their urban counterparts (Berry 2014). However, Monnat (2020) shows that the gap between urban and rural mortality rates increased significantly between 1990 and 2018, and that this pattern was most pronounced among non-Hispanic whites. The widening gap is attributed to the growing lack of access to the same quality of care (Berry 2014; Coughlin et al. 2019). Rural residents have access to fewer doctors per capita and fewer economic resources and experience hospital closures and shortages. Rural residents travel long distances to many health services, work in dangerous occupations in natural resource and manufacturing industries, and have higher rates of smoking and obesity (Berry 2014; Monnat 2022; Quandt et al. 2021; Sun, Cheng, and Monnat 2022). Moreover, recent estimates from a variety of states showed high levels of economic and health disruption (e.g., loss of income) and psychological distress from the COVID-19 pandemic in nonmetropolitan households in the United States compared to prepandemic levels in the western United States (Mueller et al. 2021, 2022; Perry et al. 2021; Ulrich-Schad, Givens, and Beacham 2022).

It is reasonable to expect that people in households in predominantly rural areas faced significantly greater financial hardships at the beginning of the pandemic. However, the full impact of the COVID-19 pandemic for rural households during the onset of the COVID-19 pandemic is relatively unknown. Research on rural America and the COVID-19 pandemic focuses on health issues such as mortality rates (Albrecht 2021, 2022; Monnat 2022) or has limited geography (Mueller et al. 2021; Perry et al. 2021).

Disability and Hardship

Nearly one in four people (85.3 million persons) in the United States had a disability in 2014, with 17.6 percent (55.2 million persons) of the population reporting a severe disability (Taylor 2018). These rates exclude institutionalized populations and thus are conservative estimates of disability. While several definitions exist, an inclusive definition of disability encompasses physical, mental, or emotional conditions that limit daily activities or tasks (Taylor 2018; Young 2021). Research on the pandemic shows that the socioeconomic impact of COVID-19 was worse for the most vulnerable, including those who live in or near

poverty, those with lower education levels, older adults, single-mother households, rural communities with fewer physicians and hospitals, and Black and Hispanic households (Mueller et al. 2021; Monnat 2022; Sun et al. 2022). We maintain that the financial impact of the pandemic may be especially acute for persons with disabilities (PWD) and their households.

First, disability status intersects with other forms of social and economic disadvantage (Okoro et al. 2018). Households with PWD have fewer financial resources due in part to a higher poverty rate, lower employment rate, and wage disparities based on disability status (Altman and Blackwell 2014; Maroto and Pettinicchio 2014; Okoro et al. 2018; Erickson, Lee, and von Schrader 2020; Young 2021). Those with fewer financial resources are less equipped to manage economic shocks and pandemic-response measures, such as shutdowns. Further, a greater likelihood of comorbid conditions (e.g., chronic health conditions) and disability related costs, such as assistive devices and prescription drugs, compared to the nondisabled population increases the risk of financial strain (Altman and Bernstein 2008; Huang et al. 2010; Krahn, Walker, and Correa-De-Araujo 2015; Mitra et al. 2017). The loss of access to local in-home and clinical services also exacerbated an existing urban-rural gap (Berry 2014) in support of households with PWD (Huang et al. 2021). Second, as with other disasters, the array of social and economic challenges that PWD and their caregivers face were heightened from the pandemic (Lebrasseur et al. 2021; Okoro et al. 2021; Shakespeare, Ndagire, and Seketi 2021; McAlpine and Alang 2021; Monnat 2022).

In addition to dealing with the threat of a potentially deadly disease, PWD faced a loss of health care provider services and rehabilitation services (Drum, Cooper, and Carlin 2020). Response measures designed for the general population posed disability-specific challenges. Lockdowns and physical distancing may have increased isolation and loneliness for PWD, reduced access to support workers, increased risk of abuse, and hindered access to information (Tough, Siegrist, and Fekete 2017; Lund et al. 2020; Shakespeare et al. 2021). Taken together, research suggests that the COVID-19 pandemic increased social and financial hardship for households with PWD. Finally, as a connection between our primary research questions, it is important to note that rural residents also experience more disabilities than urban residents and acquire disabilities and chronic illnesses earlier in life (von Reichert, Greiman, and Myers 2014; Zhao et al. 2019).

The Current Study

Our study examines the financial impacts of COVID-19 among vulnerable households with school-aged children during the early stages of the pandemic, who received food assistance through the Meals-to-You (MTY) program. We examine 10 indicators of financial hardship to assess (a) whether households including PWD reported more financial hardship from the pandemic than households without persons reporting a disability, and (b) whether the frequency of these 10 hardships varied by measures of urban influence during the first six months of the COVID-19 pandemic.

Data and Analysis

The data used in this analysis come from surveys collected by the Urban Institute as an ongoing evaluation of the Meals-to-You (MTY) program. MTY originally launched through the Baylor Collaborative on Hunger and Poverty in 2019 as a three-year demonstration project funded by the US Department of Agriculture (USDA) with the purpose of delivering boxes of shelf-stable food to children in rural areas who did not have access to Summer Food Service Program sites. When schools began to close in spring of 2020 due to COVID-19, the program was expanded to include an Emergency Meals-to-You (eMTY) component and began to ship boxes of food directly to qualifying students' homes beginning in April 2020. The Summer Meals-to-You (sMTY) component continued as planned with shipments starting in May 2020. Both components of MTY ended in mid-August. Overall, the MTY program from April

through August 2020 delivered 38,028,768 meals (37,599,408 eMTY meals and 429,360 sMTY meals) serving 272,527 participants in 129,016 households across 42 states and Puerto Rico (Waxman et al. 2021).

To qualify for MTY, households had to have children who went to a public school in a district participating in the program, qualify for free or reduced-price school meals, and sign up their household during the enrollment period for their school district. Additionally, one child enrolled in MTY qualified all other children (zero–eighteen) within their household to take part in the program. Originally, the two main qualifying criteria for school districts included having at least 50 percent of the district's students receive free or reduced-priced lunch and having a rural designation (according to USDA classification). Ultimately, the rurality criteria were loosened for eMTY due to the desperate need of families during the early months of the pandemic (Waxman et al. 2021). Still, these criteria resulted in a largely rural and lower-income population participating in the program and the evaluation.

The Urban Institute conducted an evaluation of the MTY program (including both eMTY and sMTY) in 2020. Households were asked if they would be willing to participate in research about the program when they enrolled. Overall, 81.5 percent of participants (134,589 households) indicated that they would be willing (Waxman et al. 2021; Anderson, Waxman and Gundersen 2022). Of these households, the Urban Institute invited a random subset of eMTY households, including a targeted oversample of Black, Hispanic/Latino, or Native American eMTY households, and all sMTY households to participate. From these participating households, the Urban Institute fielded two rounds of surveys in May to June 2020 and September to October 2020. The first round recruited 6,537 households into the sample with 4,093 responding to the survey (62.6 percent response rate). The second round recruited 6,232 households into the sample (households that opted out of MTY partway through the program were not recruited into the second round) with 3,342 completing the survey (53.6 percent response rate). Most questionnaires were completed via the survey platform Qualtrics through a link sent to the household email or via text message; 102 were mailed and completed on paper. Surveys were available in both English and Spanish and respondents received a $10 or $20 (in Alaska and Hawaii) gift card as an incentive. One adult per household responded to the survey, providing information on their household's characteristics, material hardship, and program satisfaction. See Waxman et al. (2021) for more details related to program and survey methodology.

The data were provided to the authors for secondary data analysis. The data collection process was submitted to and approved by the Urban Institute institutional review board, and informed consent was acquired by the Urban Institute upon collection of the data. This analysis used de-identified, secondary data and therefore did not require an application to the institutional review board at the authors' institution. We utilize the second-round survey since only this survey asked questions about eviction and rent/mortgage struggles. About 10 percent of the 3,342 households in the round two sample is missing on an outcome of interest or disability status, limiting our sample to 2,903 households. An additional 12 percent of households are missing data on a covariate of interest, with the majority (9 percent) only missing on the county-level indicator for urban residence (because these households lacked valid zip codes). The final sample size for our weighted analysis is 2,552. The analysis uses survey weights provided by the Urban Institute to ensure that respondents are statistically similar to the overall MTY service population by program type, race and ethnicity, and nonresponse (Waxman et al. 2021).

Response Variables

We utilize 10 measures of COVID-19 household financial hardships in the MTY data. These include questions on food insecurity, challenges with paying rent/mortgage, savings/retirement depletion, increased credit card debt, having to move in with other relatives or friends, and employment changes, as well as receiving an eviction notice or threat (both notices and threats of eviction were combined into one measure due to small sample sizes). The specific measures for 10 of these items are presented in Table 1. Response categories were *yes* and *no* for eviction and household composition change questions and *yes*,

no, and *don't know* for the other financial hardship measures. The measure of food insecurity, not in Table 1, is from the USDA's six-item food security module with a thirty-day reference period, where households are defined as food insecure if they responded affirmatively to two or more of the six questions. Examples of affirmative responses include whether respondents reported it was often or sometimes true that "we couldn't afford to eat balanced meals," or that "the food we bought just didn't last, and we didn't have money to get more" (see Waxman et al. 2021 for a complete list of questions).

Table 1: Financial Hardship Measures, Meals-to-You (MTY) Data	
Because of the impact of the COVID-19/Coronavirus outbreak, have you or your household members experienced any of the following: [a]	
Moved in with other relatives or friends	1 = Yes, No = 0
Thinking about the impact of the COVID-19/coronavirus outbreak on the economy, has your work or the work of someone in your household been affected?	
Lost a job or was laid off from a job	1 = Yes, No = 0
Furloughed or reduced hours at work	1 = Yes, No = 0
Because of the impact of the COVID-19/coronavirus outbreak, have you or your household members done each of the following?	
Put off major household purchases	1 = Yes, No = 0
Used up all or most of your savings	1 = Yes, No = 0
Took money out of retirement, college or other long-term savings account	1 = Yes, No = 0
Increased your credit card debt	1 = Yes, No = 0
Was there any time in the last 30 days when your household could not:	
Pay the full amount of the rent or mortgage or was late with a payment because your household could not afford to pay?	1 = Yes, No = 0
Pay the full amount of the gas, oil or electricity bills?	1 = Yes, No = 0
Since March 1, 2020, have you received an eviction notice or been threatened with eviction?	
Received eviction notice	1 = Yes to either, Otherwise = 0
Threatened with eviction	
[a] Response options are *yes* and *no* for questions about eviction and moving in with relatives or friends and are *yes*, *no* and *don't know* for all other questions in Table 1.	

Disability Status and Urban Influence

We use a broad and inclusive measure of disability that incorporates traditional physical limitations, in addition to illness, and mental health challenges (Taylor 2018). Our measure combines responses from three survey questions: "Do you or does anyone else in your household have: physical health issues (which includes illness and injury); mental health issues (which includes stress, depression, and problems with emotions); a disability that affects activities or requires the use of special equipment or devices." Response categories for each question were *yes*, *no*, and *don't know*. We created a categorical measure where 0 = no reported disabilities; 1 = one reported type of disability (respondent answered yes to one of the three

questions); 2 = two reported types of disability (respondent answered *yes* to two of the three questions); and 3 = three reported types of disability (respondent answered *yes* to all three questions).

To measure urban influence, we merged county-level data from the Rural Policy Research Institute at the University of Iowa College of Public Health, which "crosswalks" zip codes by county Federal Information Processing Series codes, with the MTY data at the zip-code level. We then used the USDA Urban Influence codes of county types to construct a measure with three categories: metropolitan (metro) household, micropolitan (micro) household, and non-core rural (rural) household (see https://www.ers.usda.gov/data-products/urban-influence-codes/). We examined the distribution of disability across urban influence categories and find that within the MTY there is negligible difference in persons reporting a disability across metro, micro, and noncore households.

Control Variables

The social vulnerability perspective proposes that disaster-related hardships are concentrated among the most socially and economically vulnerable households. We employ multiple household measures of vulnerability. All households in MTY have at least one member enrolled in a rural public school district where at least 50 percent of students receive free or reduced lunch. In other words, these are households with children attending schools in low-income school districts. We account for number of children in the household (one, two, three or more). We use binary indicators for single-parent households (1= yes) and employment status (1= respondent works for pay or is self-employed). Race and ethnicity of respondent is measured with five mutually exclusive categories: White, Black, Hispanic, Native American or Alaska Native, and all other racial and ethnic groups. We control for the federal poverty level (FPL) threshold status of the household using a generated variable, which accounts for household size and annual income (138 percent FPL and lower, 138-250 percent FPL, and greater than 250 percent FPL).

Sample Characteristics

Table 2 shows frequencies and weighted proportions for all variables in the analysis. Most households have two or more children (78 percent), are non-Hispanic White (49 percent), and fall at or below 138 percent of the poverty line for household size. Less than one in four households are single-parent households. The final sample in our analysis is mostly nonmetropolitan, with only 27 percent of participating households in metropolitan counties, while the remaining households are divided near equally among micro and noncore counties. In a national sample, we would expect eighty to 85 percent of households to be in metro counties, and 15 percent spread among the nonmetropolitan categories. The hardship measures show high levels of food insecurity (54 percent), delayed purchases (66 percent), and use of savings (65 percent) due to the pandemic.

Most respondents reported no disabilities in the household (53 percent), while 24 percent reported one type of disability, 15 percent reported two types of disability, and 8 percent reported all three types of disability in the household. The proportion reporting a disability is higher than what is documented for the general population. However, the sample, on average, includes lower socioeconomic status (SES) households participating in the MTY program. We also examined the disability data by urban influence categories. We find that households in micro counties had the highest reported rates of at least one disability (50 percent), compared to those in metro (48 percent) and noncore (43 percent) counties.

Table 2: Sample Characteristics, Weighted Proportions (N = 2,552)		
	Unweighted *N*	Weighted Proportions
Financial Hardships		
Food insecure	1,405	0.54
Eviction notice/threat	152	0.05
Increased credit card debt	1,060	0.41
Used long-term savings	683	0.26
Put off major purchases	1,701	0.66
Used most/all regular savings	1,699	0.65
Gas/electric payment trouble	1,090	0.41
Rent/mortgage payment trouble	796	0.30
Furloughed	940	0.37
Lost job	664	0.26
Disability Status		
No disability	1,393	0.53
One condition	595	0.24
Two conditions	362	0.15
Three conditions	202	0.08
Individual and Household Characteristics		
Race and ethnicity		
White	977	0.49
Black	450	0.16
Hispanic	469	0.14
Native American, Alaska Native	359	0.08
Other racial and ethnic groups	297	0.13
Poverty status		
< = 138% FPL	1,730	0.65
138%–250% FPL	568	0.23
> 250% FPL	254	0.12
Number of children in household		
One	410	0.22
Two	755	0.31
Three or more	1,387	0.47
Employed	1,504	0.59
Single-parent household	591	0.23
County type		
Noncore county	923	0.36
Microcounty	937	0.37
Metrocounty	692	0.27

Analysis

In the analysis we use contingency analysis and multiple logistic regression to examine the relationship between household disability status, urban influence, and measures of financial hardship. In the bivariate analysis we examine the covariance between disability status and the 10 measures of financial hardship with a relative risk contingency analysis (Gordon 2012). In the multiple regression logistic models, we estimate models for which there are strong relationships in the bivariate analysis and sufficient cell sizes for regression analysis.

In supplemental analyses, we employed multiple imputation of missing data (Enders 2010) and generated 20 sets of probable values for missing values using a set of predictors and Stata 17 software. These models produced substantively similar results to those presented here.

Results

Contingency Analysis

Table 3 shows two models for the relative risk of experiencing a pandemic related hardship for a household with one, two, or three types of disability (relative to households without a reported disability), and the distribution of hardships across metro, micro, and noncore households. Households with at least one reported disability have a higher risk of food insecurity, eviction threat or notice, depletion of regular savings, and trouble paying utilities and rent/mortgage. For these outcomes, the risk of hardship increases by number of reported disabilities. For example, households with one type of disability are 38 percent more likely to report food insecurity than households with no reported disabilities, while those with two and three disabilities are 85 percent and 238 percent more likely to report food insecurity. Similarly, the risk of struggling to pay utilities is 66 percent for one disability, 87 percent for two disabilities, and 137 percent greater risk for households with three disabilities reported.

The relative risk of using long-term savings and delaying purchases is only higher for households reporting two or more disabilities. Relative to households with no disabilities, those with two disabilities are 53 percent more likely to use long-term savings and 81 percent more likely to delay a major purchase, while those with three disabilities are 53 percent more likely to use long-term savings and 60 percent more likely to delay a major purchase. Interestingly, the greater risk of increasing credit card debt (57 percent) and moving in with others (212 percent) due to the pandemic is limited to households with two reported disabilities (only) relative to households without a reported disability. Risk of job loss and furlough are similar among households with and without reported disabilities.

The results for urban influence show that, counter to our expectations, metropolitan households had greater risk of negative financial impact. Households in noncore and micro counties had lower risk of eviction threats, lower reported issues regarding rent/mortgage payment, employment issues, putting off purchases, and exhausting regular savings than households in metropolitan counties. For example, metropolitan households were at 49 percent greater risk than micro households, and 33 percent greater risk than noncore households to be unable to pay rent/mortgage. Metropolitan households were also 49 percent (micro) and 47 percent (noncore) more likely to have lost a job. The only category where rural, noncore households were more "at risk" than metro households is moving in with a relative because of the pandemic. The findings are not consistent with the rural paradox theory, which predicts greater pandemic hardships for nonmetropolitan households. However, they are consistent with other studies, which indicated that metropolitan households experienced greater stress during the beginning of the pandemic (see Albrecht 2021; Cuadros et al. 2021).

Table 3: Relative Risk of Reporting Financial Hardship by Household, Disability Status, and Urban Influence (N = 2,552)												
	Food Insecure		Eviction Issues		Credit Card Debt		Long-term Savings		Put off Purchases		Regular Savings	
Disability Status												
None (ref)												
One	0.38	**	0.67	*	0.00		0.00		0.00		0.36	***
Two	0.83	***	1.74	***	0.57	***	0.53	***	0.81	**	0.75	***
Three	2.38	***	1.94	***	0.00		0.53	***	0.60	***	1.51	***
Urban Influence												
Metro (ref)												
Micro	0.00			*			0.00			**	0.72	**
Noncore	0.00			***		**	0.00			**	0.80	**
	Gas/		Rent/		Moved In		Furlough		Lost Job			
Disability Status												
None (ref)												
One	0.66	***	0.37	**	0.00		0.00		0.00			
Two	0.87	***	0.56	***	2.12	***	0.00		0.00			
Three	1.37	***	0.75	***	0.00		0.00		0.00			
Urban Influence												
Metro (ref)												
Micro	0.00		0.67	***	0.00		0.67	***	0.73	***		
Noncore	0.00		0.75	**	1.12	*	0.62	***	0.67	***		
*p < =.05; **p < =.01; ***p < =.001												

Multiple Logistic Regression

Table 4 presents the odds ratios from the multiple logistic regression models for select financial hardship and controls for covariates shown in Table 2. The analysis shows that disability status remains a significant predictor of financial hardship when other household characteristics are controlled. The results for urban influence show that the significant differences between metro, micro, and noncore households are (mostly) attenuated when controlling for other factors, though metro households had greater odds (OR: 1.32) of reporting problems paying rent/mortgage. The results presented focus on disability status and pandemic related hardships.

Households with one or more reported disabilities have greater odds of food insecurity, delaying major purchases, depletion of regular savings, and an inability to pay gas/electric and mortgage/rent bills.

For example, households with one (OR: 1.40), two (OR: 1.81), and three (OR: 2.90) reported disabilities have significantly higher odds of food insecurity compared to households without a reported disability. Households with two or more disabilities (roughly 22 percent of our sample) have the greatest odds of experiencing hardship. For example, households with two reported disabilities have 1.83 times greater odds of using all or most of their savings, while those with three disabilities have 2.41 times greater odds of draining their savings. Similarly, households with two and three reported disabilities have 1.89 and 2.12 times greater odds, respectively, of struggling to pay their gas/electrical bill compared to similar households without a disability.

Table 4: Logistic Regressions for COVID-19 Financial Hardships, Odds Ratios Reported (N = 2,552)

	Food Insecure		Credit Card Debt		Long term Savings		Delayed Purchase		Regular Savings		Gas/ Electric		Rent/ Mortgage	
Disability status														
None (ref)	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
One condition	1.40	**	1.17		1.17		1.28	*	1.41	**	1.75	***	1.42	**
Two conditions	1.81	***	1.78	***	1.90	***	1.70	***	1.83	***	1.89	***	1.61	***
Three conditions	2.90	***	1.70	**	1.83	**	1.89	**	2.41	***	2.12	***	1.65	**
Race and ethnicity														
White (ref)	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Black	0.93		1.20		1.99	***	1.19		1.34	*	1.68	***	1.42	*
Hispanic	1.12		1.12		1.17		1.10		1.24		0.95		1.10	
Native American or Alaskan	1.29		0.71	*	0.97		0.90		1.07		1.31		1.05	
Other racial and ethnic groups	1.09		1.25		1.75	***	1.05		1.29		1.29		1.04	
Single-parent household	0.93		0.96		0.69	**	0.78	*	1.05		0.95		1.02	
Poverty status														
< =138 FPL (ref)	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
138% to 250% FPL	0.55	***	1.69	***	1.75	***	1.18		0.79	*	0.51	***	0.66	***
>250% FPL	0.22	***	1.35		1.37		0.97		0.36	***	0.16	***	0.25	***
Number of children														
One (ref)	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Two	1.19		1.13		1.04		1.13		1.23		1.35	*	1.26	
Three or more	1.16		1.30	*	1.28		1.34	*	1.40	*	1.62	***	1.74	***
Employed	0.90		1.56	***	1.25	*	1.08		1.05		0.97		1.04	
County type														
Noncore (ref)	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Micro	0.84		1.18		1.09		0.92		0.91		0.97		0.89	
Metro	1.12		1.20		1.22		1.19		1.26		1.00		1.32	*

*p < =.05; **p < =.01; ***p < =.001

The odds of increasing credit card debt and using long-term savings are limited to households with two or more reported types of disability. Relative to households without a reported disability, the odds of incurring credit card debt are significantly higher for households with two (OR: 1.78) and three (OR: 1.70) disabilities, net covariates. Similarly, only households with two (OR: 1.90) and three (OR: 1.83) reported types of disability have greater odds of using long-term savings due to the pandemic.

In terms of control variables, Black respondents have greater odds of using long-term savings (OR: 1.99), depleting regular savings (OR: 1.34), and issues paying for utilities (OR: 1.68) and rent/mortgage (OR: 1.42) relative to White respondents. Native American or Alaska Native respondents have lower odds of incurring credit card debt than White respondents, net covariates. Single-parent households have lower odds of using long-term savings (OR: 0.69) and putting off major purchases (OR: 0.78) compared to similarly situated two-parent households. Relative to households below 138 percent the FPL, households further from the poverty line have lower odds of food insecurity, depleting regular savings, and inability to pay bills for gas/electricity and rent/mortgage, independent of disability status and other covariates. Only households between 138-250 percent the FPL have greater odds of incurring credit card debt (OR: 1.69) and using long-term savings (OR: 1.75). Compared to households with one child, those with three or more children have greater odds of reporting increased credit card debt (OR: 1.30), delaying major purchases (OR: 1.34), depleting regular savings (OR: 1.40), and struggling to pay utilities (OR: 1.62) and rent/mortgage (OR: 1.74). Households with two children also have higher odds of struggling to pay gas/electric bills (OR: 1.35).

Discussion

In this article we pursued two important and related research questions: (1) Did households with disabled persons experience greater financial hardships during the early days of the pandemic than households without disabled persons? (2) To what extent did financial hardships vary across levels of urban influence? We examined reported financial hardships among primarily nonmetropolitan households with children during the first months of the COVID-19 pandemic, who participated in the MTY program. Using a holistic and inclusive measure of disability (Young 2021), we found that households with at least one reported type of disability had a higher risk of food insecurity, eviction threat or notice, depletion of savings, and trouble paying bills. Among our sample, households with two or more reported disabilities had a higher risk of increasing credit card debt, using long-term savings (which often includes a penalty for early withdrawal), delaying major purchases, and moving in with a friend or relative due to the pandemic. These findings suggest that households reporting multiple conditions are especially vulnerable to short and long-term financial consequences from the COVID-19 pandemic. We found no evidence that disability increased risk of job loss or furlough/reduced work hours among our sample of households with children participating in the MTY program. However, we did find that households in metro counties were at greater risk of job loss/furlough than noncore or microhouseholds. Disability status of the household increased risk of nearly all measures of financial hardship; urban influence increased greater risk of employment hardships.

Future studies should consider the extent that disability type and severity impacted financial hardship, as well as voluntary and involuntary labor market changes, during the pandemic. In supplemental analyses, we found that pandemic-driven financial hardships were limited to households reporting a mental or physical disability (rather than households only reporting a "disability that affects activities or requires the use of special equipment or devices"). Though the reasons for this are beyond the scope of our data, among households reporting a disability that affects activities or requires the use of special equipment, the majority (86 percent) also reported a mental or physical health condition.

We also examined whether the relationship between disability, urban influence, and financial hardship was spurious to other household characteristics. The multivariate models show that the relative risk relationships documented in Table 3 mostly persist once we control for other risk factors. These findings

advance scholarship showing a disproportionate impact of disasters, including the COVID-19 pandemic, for households including members with disability and health challenges (Mauldin and Brown 2021; Shakespeare et al. 2021). However, the controls did affect the risk associated with urban influence. Noncore and microhouseholds had lower risks of eviction threats, credit card debt, delaying purchases, using regular savings, issues paying rent/mortgage, and job issues. Once other household characteristics were controlled for select outcomes, only rent/mortgage differences remained.

Several of the control variable effects are noteworthy. For instance, only households on the margins of poverty (138–250 percent FPL) had greater odds of increasing credit card debt and using long-term savings, suggesting that the financial impacts, as well as coping strategies, related to the COVID-19 pandemic varied across the income spectrum. Results also showed an elevated risk of hardship for households based on number of children, race and ethnicity, and employment status, though not consistently across outcomes. For several indicators (depletion of regular savings, use of long-term savings, and struggles paying utility/housing bills), the risk of hardship was especially pronounced among Black respondents relative to their White counterparts. These results contribute to scholarship on the myriad of racial and ethnic disparities related to the COVID-19 pandemic (Alsan, Chandra, and Simon 2021; Huang et al. 2021).

Additionally, while there is an expectation that nonmetropolitan communities will experience greater COVID-19 consequences in the long run, some studies have indicated that the initial impact of the COVID-19 pandemic may have created more difficulties for urban communities (Cho, Lee, and Winters 2020a, 2020b; Albrecht 2021; Cuadros et al. 2021). The effects of the shutdown were not uniform across industry sectors. Many white-collar and knowledge workers in urban areas were able to adjust by working from home. The urban influence effects on rent/mortgage probably reflect the disparities in rent/mortgages amounts across urban influence categories.

The economic shutdown was most impactful in leisure/entertainment, retail trade, transportation, and energy (particularly oil/gas following a significant drop in energy demand). Rural America, in contrast, has a much lower concentration of high impact COVID-19 industries. Rural economies are largely comprised of primary sector (agriculture, mining, and forestry), transformative sectors (meat processing, and light manufacturing), and amenity-based employment. Our study found similar experiences with financial hardship across noncore, micro, and metro counties after accounting for individual and household characteristics. A notable exception was higher odds of issues paying rent/mortgage for households in metro areas. In supplemental analyses, we found higher odds of job loss, furlough/reduce work hours, and moving in with a friend or relative for households in metro counties compared to similar households in noncore counties, though caution is warranted in interpreting these findings due to small cell sizes. What is needed is research that explores the urban influence effects postpandemic. We need to collect data and examine if these metro households are still experiencing greater financial hardships.

This study has limitations. First, the measure of disability is not able to capture important dimensions of disability status, such as severity, duration, and specific type of disability (e.g., visual) for each household member. Disability measurement influences estimates of disability prevalence, as well as disparities in outcomes (Heflin, Altman, and Rodriguez 2019; Amilon et al. 2021). Second, the survey does not provide information on which household member has a disability. These are important considerations for understanding the pathways connecting disability and financial hardships from COVID-19 (Gundersen and Ziliak 2018). Nonetheless, a strength of our measure is that it includes the disability status of all household members, children as well as adults.

Third, this study is cross-sectional and cannot assess the time-varying nature of disability and hardships (Myers et al. 2020). It is possible that financial hardships due to the pandemic exacerbated or led to disability among household members. Still, an established literature indicates that PWD are more vulnerable to negative outcomes during and after disasters compared to people without disabilities (PWOD). While a major strength of our study is identifying risk factors associated with COVID-19 hardships, we were unable to assess the mechanisms behind the observed associations. We suspect that factors such as prepandemic income/assets and health care expenditures are important mechanism

linking disability status and financial hardship (Huang et al. 2010). Households with sufficient savings can use financial reserves to stave off material hardship, while those without savings may struggle to meet basic needs. Fourth, the sample is limited to households enrolled in the MTY program, which limits generalizability. For example, the sample excludes older adults with disability living alone, a most vulnerable group (Choi, Carr, and Namkung 2022; Flowers and Dean 2020). Finally, it is possible that measures of hardship related to use of savings and employment were not relevant to all respondents (e.g., households without prepandemic savings), which we were unable to assess.

Coupled with existing research, our findings have policy relevance for periods of economic shock and recovery efforts for vulnerable households. The results suggest that a substantial share of households with school-aged children struggled to meet basic needs, such as food and housing, during the early months of the COVID-19 pandemic, and that these challenges were exacerbated based on the disability and health status of household members. These findings align with recent evidence that PWD spent their CARES Act economic impact payments on immediate needs, such as food and housing costs, while PWOD were more likely to spend it on second-order expenditures, such as debt reduction (McGarity and Morris 2022). Future relief efforts should consider an increased amount of economic and food resources for PWD and their households to address these needs.

The findings for food insecurity are especially concerning. The pandemic increased disparities in food insecurity based on disability status, at least partially driven by food access and delivery issues (Friedman 2021). Each respondent household received home delivered boxes of food through the MTY program—a program shown to reduce food insecurity among participating families, especially those in rural areas (Anderson et al. 2022). Yet, we found increased vulnerability based on the disability and health status of household members. Food insecurity is especially concerning for children given the negative health and developmental consequences linked with food insecurity (Gundersen and Ziliak 2015). Additional food resources through the MTY program and other existing food assistance programs, such as the Supplemental Nutrition Assistance Program , can help alleviate food insecurity among school-aged children, especially during the summer and future emergencies similar to the COVID-19 pandemic (Anderson et al. 2022). Increased food assistance can free up resources for other basic needs, such as housing costs, and a household's capacity for building financial stability (e.g., via debt reduction and increased savings).

Overall, our study contributes to an emerging literature on the effects of the COVID-19 pandemic, filling an important gap in the literature on the financial experiences of households residing in metropolitan and nonmetropolitan areas of the United States. The results suggest that the early stages of the pandemic took a serious financial toll on vulnerable households, especially those including PWD. These families likely had to make difficult trade-offs between securing basic needs (e.g., sufficient food) and ensuring long-term financial stability (e.g., retaining savings and avoiding credit card debt). Accordingly, it is imperative to have in place effective action structures of disaster relief that are disability inclusive and that target vulnerable households at the onset of the next emergency akin to the COVID-19 pandemic.

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Table 4: Logistic regressions for COVID-19 financial hardships, odds ratios reported (N= 2,552)

	Food Insecure	Credit Card Debt	Long term Savings	Delayed Purchase	Regular Savings	Gas/ Electric	Rent/ Mortgage
Disability status							
None (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 condition	1.40 **	1.17	1.17	1.28 *	1.41 **	1.75 ***	1.42 **
2 conditions	1.81 ***	1.78 ***	1.90 ***	1.70 ***	1.83 ***	1.89 ***	1.61 ***
3 conditions	2.90 ***	1.70 **	1.83 **	1.89 **	2.41 ***	2.12 ***	1.65 **
Race and ethnicity							
White (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Black	0.93	1.20	1.99 ***	1.19	1.34 *	1.68 ***	1.42 *
Hispanic	1.12	1.12	1.17	1.10	1.24	0.95	1.10
Native American, Alaska Native	1.29	0.71 *	0.97	0.90	1.07	1.31	1.05
Other racial and ethnic groups	1.09	1.25	1.75 ***	1.05	1.29	1.29	1.04
Single-parent household	0.93	0.96	0.69 **	0.78 *	1.05	0.95	1.02
Poverty status							
<=138 FPL (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
138% to 250% FPL	0.55 ***	1.69 ***	1.75 ***	1.18	0.79 *	0.51 ***	0.66 ***
>250% FPL	0.22 ***	1.35	1.37	0.97	0.36 ***	0.16 ***	0.25 ***
Number of children							
1 (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	1.19	1.13	1.04	1.13	1.23	1.35 *	1.26
3 or more	1.16	1.30 *	1.28	1.34 *	1.40 *	1.62 ***	1.74 ***
Employed	0.90	1.56 ***	1.25 *	1.08	1.05	0.97	1.04
County type							
Noncore (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Micro	0.84	1.18	1.09	0.92	0.91	0.97	0.89
Metro	1.12	1.20	1.22	1.19	1.26	1.00	1.32 *

*p<=.05; **p<=.01; ***p<=.001