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Abstract

This paper measures multidimensional hardships experienced by Americans during the Covid-19 pandemic. We compile monthly data from the Census's Household Pulse Survey on job insecurity, food insufficiency, housing insecurity, and mental health. Our analysis two years of the pandemic, beginning April 2020 and ending March 2022. We find that 16.3 percent of adults experienced two or more hardships during this time. At the peak of the pandemic, approximately 1 in 5 adults experienced multiple hardships. The most common combination of hardships experienced by Americans during the pandemic were job insecurity and mental health. Multidimensional hardships were more prevalent among Blacks and Hispanics and less so among Whites and Asians. Our results underscore the need to take into account the overlap and interactions between multiple dimensions when designing policies aimed at improving well-being. Aid needs to be targeted towards relief in specific hardships and towards minority communities in order to mitigate the impact of the pandemic on public health.

Keywords: Covid-19, food insufficiency, hardship, housing insecurity, job insecurity, mental health, pandemic, poverty, U.S.

JEL codes: I1, I3, O51

I. Introduction

The United States (U.S.) was one of the hardest hit countries by the COVID-19 pandemic. Nearly a quarter of the cases detected worldwide were accounted for in the U.S. and within a year from March 2020 to April 2021, more than 550,000 had lost their lives.[1] In addition to the number of people dying or battling the disease, an even greater proportion of the population suffered from the resulting economic crisis. In the early months of the pandemic, between March and April 2020, 43 states issued orders directing residents to stay at home and nonessential businesses to close in response to the COVID-19 pandemic.[2] Businesses, large and small, were forced to shut down; unemployment rose to a high of 14.7 percent in April 2020. Millions of Americans lost their jobs, struggled to pay rents, and lined up at food banks to feed their families. In 2020, an estimated 45 million people, or one in every seven individuals, were food insecure (Feeding America, 2021). Along with food insecurity, the number of Americans experiencing housing insecurity also soared. In 2020, the number of households who fell behind at least three months on their mortgage increased 250 percent to over 2 million households (Consumer Financial Protection Bureau, 2021). Even as the economy slowly recovered, with the unemployment rate around 6 percent in March 2021, the toll of the pandemic continued to be felt in other forms. Many Americans continue to suffer from mental health challenges because of financial hardships, illness and death, social isolation, and a remote-virtual work and school environment.

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[1] COVID-19 Death Data and Resources - National Vital Statistics System (cdc.gov)

[2] See States that issued lockdown and stay-at-home orders in response to the coronavirus (COVID-19) pandemic, 2020 - Ballotpedia.

We use a unique dataset to measure multiple hardships experienced by Americans during the COVID-19 pandemic. The Household Pulse Survey (HPS) is a new and nationally representative survey, conducted by the U.S. Census Bureau jointly with other federal agencies. The HPS was launched in April 2020, to compile information on how Americans were faring during the pandemic. We use two full years of data from the start of the survey in April 2020 to March 2022. We compile data on four hardship indicators: job insecurity, food insufficiency, housing insecurity, and mental health. First, we track trends in each hardship over more than a year of the pandemic. Second, we estimate the extent to which Americans faced multiple hardships simultaneously. Experiencing a compound of hardships at the same time affects an individual's quality of life significantly. Stiglitz et. al., (2009) argued that when designing policies, impacts on indicators pertaining to different quality-of-life dimensions should be considered *jointly*, to address the needs of people who are disadvantaged in several domains. Finally, we analyze how hardship levels varied across different population groups since there is growing evidence that the pandemic affected people of color to a greater extent and further accentuated racial disparities.[3]

Previous studies have measured multidimensional poverty in the U.S. during the pre-pandemic years (e.g. Dhongde and Haveman (2017, 2022), Mitra and Brucker (2019), Glassman (2021) and Dhongde and Dong (2022)). However, there have been no such estimates in the U.S. during the pandemic. Dhongde (2020) is the only study which measured multidimensional economic deprivation in the first month of the pandemic. But the data in Dhongde (2020) comes from a

[3] See Villarosa (2020), Kolata (2021) in the New York Times

small survey with 1000 households and covers only a few weeks in April 2020. There have been no other studies, we are aware of, which have used a large household survey to estimate multidimensional hardship in the U.S. over more than a year in the pandemic. Our paper is a first step in this direction.

The paper is organized as follows. In Section 2, we provide details about the data and discuss the hardship indicators used in the analysis. In Section 3, we provide formulae of alternative hardship indices and summarize their estimates. We compare trends in the multidimensional hardship index with those in income poverty and Covid-19 cases. In Section 4 we estimate a linear probability model to test whether individuals belonging to particular racial or ethnic groups had a greater probability of experiencing certain hardships. In Section 5 we discuss some of the limitations of our analysis. Section 6 concludes.

II. Data

2.1. Census Household Pulse Survey

The U.S. Census Bureau, in collaboration with seven other federal agencies launched the Household Pulse Survey (HPS) in April of 2020 to provide real-time effects of the COVID-19 pandemic on peoples' lives. The HPS is the only publicly available household level survey released in the U.S. during the pandemic at such a high frequency (weekly/bi-weekly).[4] It includes more than 3.4 million household respondents. The survey uses a repeated cross-section and not a panel data design. It is representative of the household population aged 18

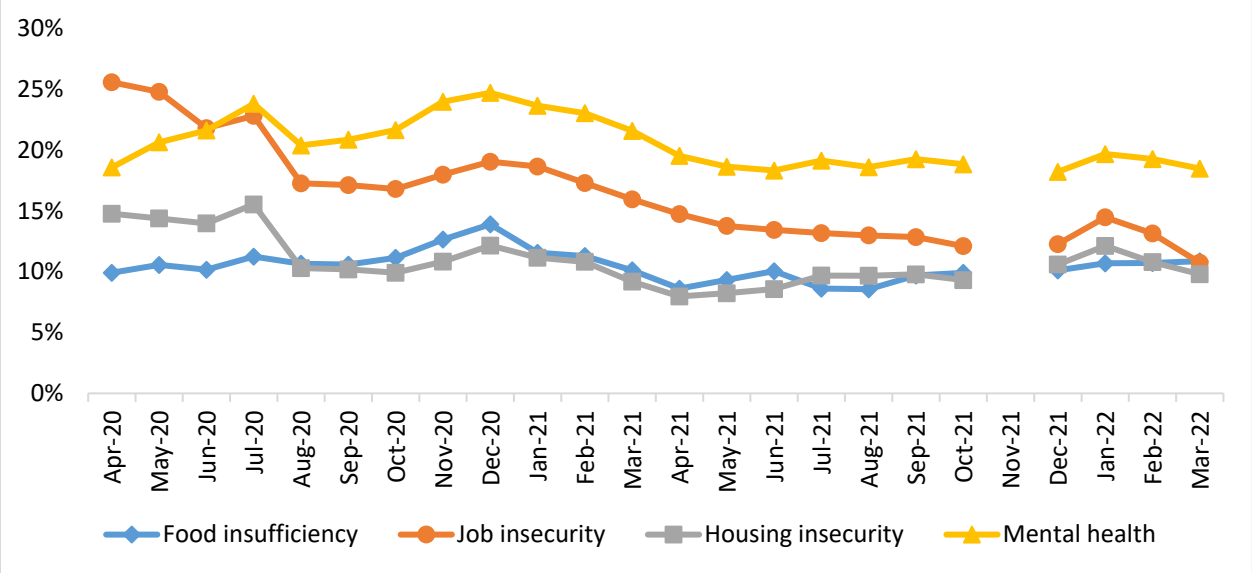
[4] https://www.census.gov/data/experimental-data-products/household-pulse-survey.html

years and over, at the state and national level as well as for the 15 largest Metropolitan Statistical Areas.

2.2. Trends in Hardship in Each Indicator

We use the Public Use Files of the HPS which contain individual survey responses to questions to compile information on four hardships: job insecurity, food insufficiency, housing insecurity, and mental health. We identify certain responses from the survey to determine whether an individual experienced hardship in a particular indicator. Appendix Table A1 lists these responses. Figure 1 shows the trend in each hardship indicator between April 2020 and March 2022. Hardship rates typically peaked in July 2020 and then again in December 2020, coinciding with the peak in the number of Covid-19 cases in the U.S.

Figure 1: Extent of Hardship in each Indicator over time



Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022.

***Job insecurity*:** The HPS asks people who reported not having worked in the last 7 days for pay or profit, their reasons for not working. We identify individuals as job insecure if they were not employed, unless they responded that they did not want to be employed at this time, were retired, or were not employed for some other reason not listed in the survey responses. The U.S. Bureau of Labor Statistics estimated that the unemployment rate for people aged 20 and over, peaked in April of 2020 at 14.8 percent and steadily decreased to 4.6 percent in October of 2021. We also found that job insecurity was at a peak in April of 2020 (25.6 percent) and reached its lowest point in March 2022 (10.7 percent). On average, from April 2020 to March 2022, we found that 17.5 percent of the respondents reported being job insecure.

***Food Insufficiency*:** We identify a person as food insufficient if they responded that they live in a household that sometimes or often did not have enough food to eat in the last 7 days (Cumming and Kopparam, 2021, Ziliack 2021). Food insufficiency peaked twice: first in July 2020 at 11.2 percent and then in December 2020 at 13.9 percent. Cumming and Kopparam (2021) estimated about 12 percent of individuals suffered from food insufficiency in December 2020. Despite relief packages, there is evidence that food insufficiency rates have not decreased significantly in 2021 (Schazenbach and Pitts, 2020, Keith-Jennings et al., 2021). By March 2022, we estimate that 10.9 percent of respondents still suffered from food insufficiency.

***Housing Insecurity*:** Individuals living in households who feel that they have little or no confidence in their ability to make mortgage or rent payments next month are considered housing insecure. Similar to other hardships, housing insecurity was highest in July 2020 (15.5

percent); it peaked again in December 2020 (12.1 percent). In the first year of the pandemic, between April 2020 and April 2021, trends in housing insecurity followed trends in job insecurity closely. Though job insecurity continued to decline in the summer of 2021, housing insecurity did not decline as much. Between July 2021 and March 2022 almost 10 percent respondents still faced housing insecurity.

***Mental Health*:** Hardships during the pandemic are not limited to economic factors such as job or housing security but include deterioration of mental health. Shuster et al. (2020) surveyed adults in the U.S. for 10 weeks starting April 2020 and found that the worsening economic impact of Covid-19 increased both depression and anxiety. Ettman et al. (2020) found that the prevalence of depression symptoms in the U.S. was more than 3-fold higher during Covid-19 compared with levels before the Covid-19 pandemic. We consider individuals as deprived in mental health if they were bothered by feeling down, depressed, or hopeless more than half the days in the previous week. Figure 1 shows that since July 2020, the proportion of individuals deprived in mental health was higher than hardship rates in any of other indicator. On average, 20.9 percent of respondents were deprived in mental health. Deprivation in mental health peaked at 23.8 percent in July 2020 and peaked once again at 24.7 percent in December 2020. Even as the economy recovered toward the end of 2021 and into the beginning of 2022, approximately 18.4 percent of individuals still suffered from mental health hardship in March 2022.

III. Multidimensional Hardships

3.1. Measuring Multidimensional Hardship Indices

We follow the standard Alkire and Foster (2011) methodology to estimate multidimensional poverty indices.[5] Let the four hardship be denoted as $(j; j = 1, \dots 4)$ and let us assign equal weights to each hardship $\left(w_j = 1;\ \sum_{j=1}^{4} w_j = 4\right)$. Suppose individual $(i; i = 1 \dots N)$ reported that she has no or only slight confidence that the household will be able to pay next month's rent on time. Then she suffers hardship in housing insecurity and receives a score equal to one $\left(s_{ij} = 1\right)$, or more generally a score equal to the weight assigned to hardship in housing insecurity. If she is not facing hardship in housing insecurity, she receives a score equal to zero $\left(s_{ij} = 0\right)$. Thus, for each individual and each hardship, we assign a zero-one score to indicate the absence or presence of a hardship. For each individual, we add the scores across all four hardships $\left(\ c_i = \sum_{j=1}^{4} s_{ij}\ ; 0 \leq c_i \leq 4\right)$. An individual may have experienced no hardship $(c_i = 0\ )$, only one hardship $(c_i = 1\ )$ or multiple hardships $(c_i = \ 2, 3, 4\ )$. We choose $(k = \ 2\ )$ as a threshold to identify individuals with multiple hardships. Using this threshold, we can find a "censored" score of hardships for an individual $(c_i(k) = c_i\ if\ c_i \geq k;\ c_i(k) = 0\ otherwise)$. Note that using the threshold $(k = \ 2\ )$, an individual with one hardship will receive a censored score of zero and will not be counted among individuals with multiple hardships. The

[5] See Dhongde and Haveman (2022) for a review of literature using the Alkire and Foster (2011) methodology to estimate multidimensional poverty in the United States. For additional examples from other countries, see https://ophi.org.uk/publications/ophi-working-papers/

multidimensional hardship index (MHI) is a headcount index and shows the number of individuals (q) with multiple hardships ($c_i(k) \geq 2$) as a proportion of the total population (n).

$$MHI = \frac{q}{n} \quad (1)$$

A drawback of the MHI is that it does not change if an individual with 2 hardships (so already counted in q) gets worse off and instead, experiences 3 hardships. The average intensity index (ANI) overcomes this drawback by measuring the average hardship score among individuals with multiple hardships (q).

$$ANI = \frac{1}{q}\sum_{i=1}^{n}\frac{c_i(k)}{4} \quad (2)$$

A third index, called the adjusted headcount ratio (AHI), expresses the sum of hardships as a ratio of the maximum possible hardships the population could potentially experience$(n * 4)$. The AHI can also be expressed as a product of the MHI and ANI.[6]

$$AHI = \frac{1}{n}\sum_{i=1}^{n}\frac{c_i}{4} \quad (3)$$

Table 1 shows the monthly estimates of all three indices. During the period, 16.5 percent of adults experienced more than two hardships on average.[7] At the peak of the pandemic, in July 2020, 1 in 5 Americans (20.16%) experienced two or more hardships. Both the incidence and

[6] Standard errors for each of the three indices are calculated using replicate weights in the HPS. The formula is: $SE(X) = \sqrt{\frac{4}{80}\sum_{r=1}^{80}(x_r - x)^2}$where x_r is the estimate using the r[th] replicate weight and x is the estimate using the sample weight.

[7] Upon changing the threshold (k), we estimated that 4.6 percent experienced hardship in three or more indicators $(k = 3)$and only 1.4 percent of surveyed adults experienced all four hardships $(k = 4)$.

the intensity of hardships were high in December 2020. By March 2022, when Covid-19 cases were down, almost 13 percent of Americans still experienced multiple hardships.

Table 1: Monthly Estimates of Indices Measuring Multidimensional Hardships

	Multiple Hardship Index (MHI)		Average Intensity Index (ANI)		Adjusted Headcount Index (AHI)	
	(%)	SE		SE	(%)	SE
April 2020	18.46	0.33	0.611	0.004	11.28	0.21
May 2020	19.41	0.22	0.616	0.002	11.96	0.14
June 2020	18.32	0.20	0.613	0.002	11.23	0.13
July 2020	20.16	0.20	0.616	0.002	12.42	0.13
August 2020	15.76	0.18	0.610	0.004	9.62	0.12
September 2020	15.58	0.16	0.611	0.002	9.51	0.10
October 2020	16.28	0.17	0.606	0.002	9.87	0.11
November 2020	18.03	0.29	0.618	0.003	11.14	0.18
December 2020	19.69	0.21	0.623	0.002	12.27	0.14
January 2021	18.08	0.24	0.614	0.002	11.11	0.15
February 2021	17.17	0.21	0.611	0.003	10.48	0.13
March 2021	15.43	0.22	0.603	0.003	9.31	0.14
April 2021	13.22	0.37	0.600	0.004	7.94	0.23
May 2021	12.88	0.17	0.600	0.002	7.73	0.11
June 2021	13.55	0.18	0.603	0.001	8.17	0.11
July 2021	13.66	0.28	0.595	0.003	8.13	0.17
August 2021	12.89	0.20	0.602	0.003	7.76	0.12
September 2021	13.16	0.19	0.605	0.003	7.96	0.12
October 2021	12.85	0.28	0.604	0.004	7.76	0.17
December 2021	13.10	0.29	0.605	0.005	7.93	0.19
January 2022	14.90	0.30	0.610	0.003	9.09	0.19
February 2022	13.84	0.27	0.607	0.003	8.40	0.17
March 2022	12.90	0.23	0.596	0.003	7.69	0.14
Overall	**16.27**	**0.05**	**0.610**	**0.001**	**9.92**	**0.03**

Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022.

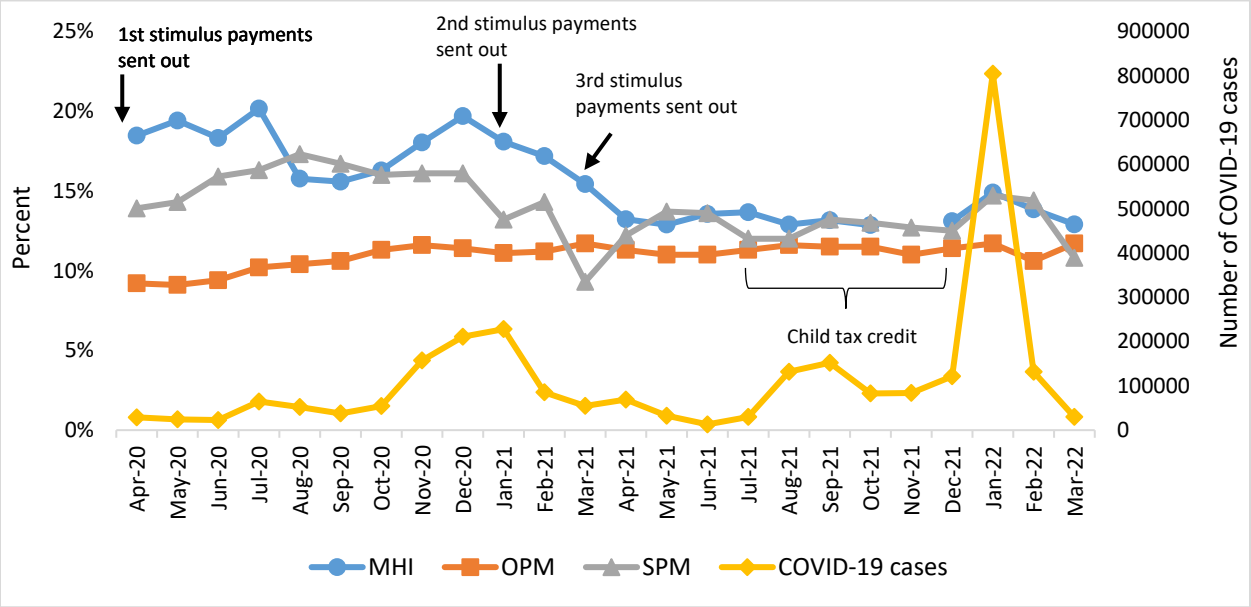
3.2 Trends in the Multidimensional Hardship Index and Income Poverty

In Figure 2, we show trends in income poverty with the trends in the MHI and the number of Covid-19 cases in the U.S. The Official Poverty Measure (OPM) increased from 10.5 percent in 2019 to 11.4 percent in 2020 whereas the Supplemental Poverty Measure (SPM) which takes into account post-tax income that include stimulus payments decreased between 2019 and 2020. The OPM and SPM rates are not published at a monthly frequency by the Census Bureau; hence we use independent estimates of the OPM from Han et al. (2020) and of the SPM from Parolin et al (2020). [8]

Han et al. (2020) found that the monthly OPM rate decreased from 10.9 percent in January-February 2020 to 9.4 percent in April-May-June 2020, largely due to expanded unemployment insurance and the economic impact payments. Parolin et al. (2020) estimated that the monthly SPM rate increased from 15 to 16.7 percent between February 2020 and September 2020 after taking into account the income transfers from the CARES Act.

[8] In Figure 2, MHI, OPM and SPM are expressed in percentages and Covid-19 cases as absolute numbers. The OPM rate used is actually an annual poverty rate that uses rolling 12-month reference periods. The universe for the MHI is adults age 18 and over, while the universe for OPM and SPM is the total U.S. population.

Figure 2: Trends in the MHI, Income Poverty and the Number of Covid-19 cases in the U.S.



Source: MHI is based on authors' calculations from the Household Pulse Survey Weeks 1 through 43. OPM are from Han et al. (2020) and SPM are from Parolin et al (2020). COVID-19 cases are based on mid-month 7-day averages from the CDC.

The first wave of COVID-19 cases in the U.S. peaked in mid-April of 2020. Figure 2 shows that between April and July 2020, the SPM identified between 14 to 16 percent of the population as poor while the MHI identified between 18 and 20 percent of the population as facing multiple hardships. The MHI peaked in July 2020, which coincided with the peak of a second wave of COVID-19 cases in the third week of July 2020. This was the highest value of the MHI, which shows that 20.2 percent of individuals experienced at least two hardships.

Hardship in all four indicators declined between July and August 2020 as seen previously in Figure 1. As a result, the MHI declined from 20.2 percent in July to 15.8 percent in August 2020. Between August and September 2020, the MHI estimates were lower than the SPM estimates

and both identified about 16 percent of the population as deprived/poor in October 2020. The U.S. was hit by a third wave of COVID-19 cases beginning in November 2020. The proportion of people in multidimensional hardship increased from 16.2 percent in October 2020 to about 19.7 percent in December 2020.

Between December 2020 and March 2021, the MHI was higher than both the OPM and SPM. From January 2021 to March 2021, the MHI decreased while the OPM did not alter significantly. This is consistent with previous evidence. Dhongde and Haveman (2017, 2022) found that the multidimensional poverty index recovered much faster than the OPM and the SPM during the recovery period following the Great Recession. From May 2021 to March 2022, the MHI and OPM were fairly stable while the SPM was mostly equal to the MHI rate.

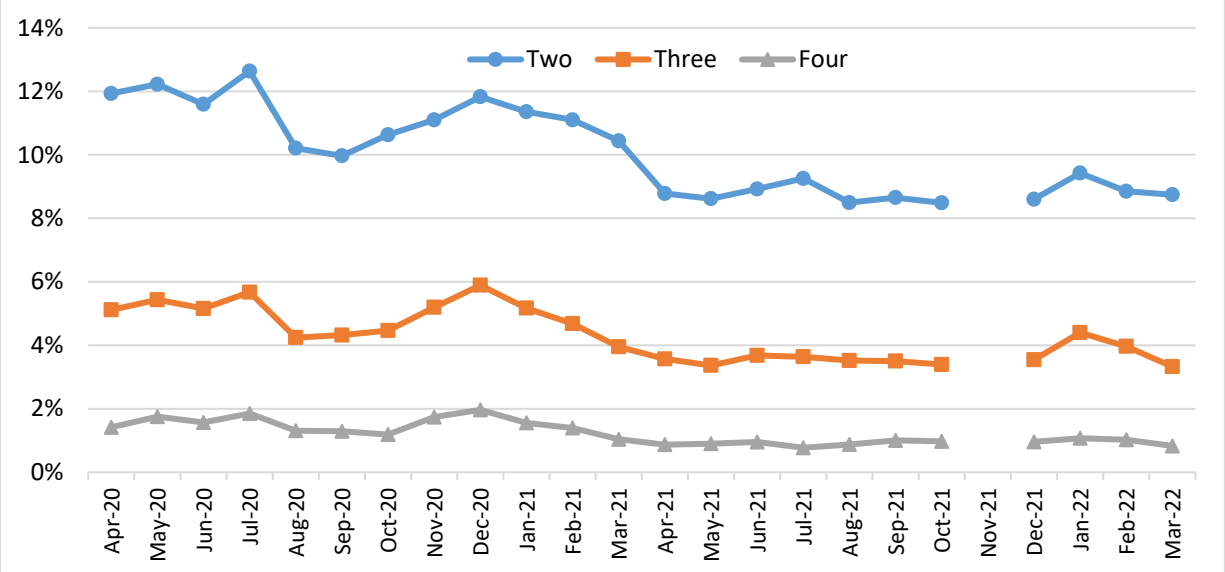
There were three significant government interventions during the pandemic: three rounds of stimulus payments, expanded unemployment insurance, and the child tax credit. The CARES Act (first stimulus) was signed into law on March 27, 2020 and checks began to be sent out on April 15, 2020. We find that hardship declined between May and June. The Consolidated Appropriations Act (the second stimulus) was signed into law on December 27, 2020 and checks began to be sent out on December 29, 2020. We observe a decrease in the MHI and the SPM, but not the OPM, beginning in January. The American Resecue Plan (third stimulus) was signed into law on March 11, 2021 and checks began to be sent out the next day. The SPM and the MHI decrease from February 2021 to March 2021.

The CARES Act also established expanded unemployment insurance benefits that were in place from March 2020 through September 2021. The American Rescue Plan established advanced

child tax credits which were sent out July 2021 through December 2021. This was a period of relative stability for all three measures. We see an increase in both the MHI and SPM in January 2022 as the child tax credit ends and there is a large spike in Covid-19 cases.

In Figure 3, the MHI is separated by respondents with exactly two, exactly three, and exactly four hardships over time. At the first peak of the MHI in July 2020, approximately 12.6 percent of respondents faced two hardships, 5.7 percent faced three hardships, and 1.9 percent faced all four hardships. At the second peak of the MHI in December 2020, approximately 11.8 percent of respondents faced two hardships, 5.9 percent faced three hardships, and 2.0 percent faced 4 hardships.

Figure 3: Respondents with Two, Three, and Four Hardships by Month



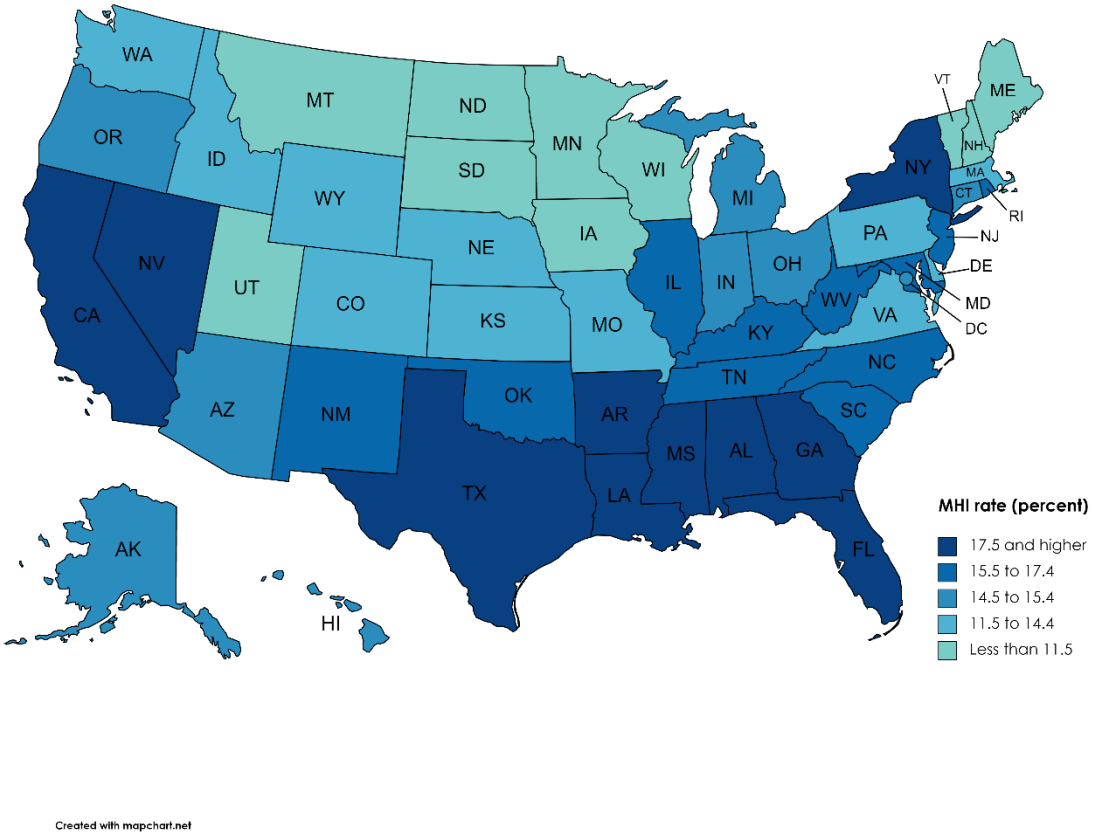
Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022.

3.3 Multidimensional Hardship by States

In Figure 4, we illustrate the statewide distribution of the MHI (average rates for each state are given in Appendix Table A2). We find that the MHI varied from a low of 10.2 percent in Minnesota to a high of 21.1 percent in Mississippi (the U.S. rate is 16.3 percent). Furthermore, three states, Mississippi, Louisiana, and Nevada had MHI rates higher than 20 percent. MHI values were high in the two populous states of California and New York and lowest in the Midwest and upper Northeast. While food insufficiency and housing insecurity were highest in the South, job insecurity was actually highest in the West and mental health hardship was highest in the South and West.[9]

[9] The difference in mental health hardship rates between the South and West regions was not statistically significant.

Figure 4: Statewide Variation in the MHI



Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022. MHI estimates are based on combined microdata from all months.

IV. Multidimensional Hardship by Race and Ethnicity

The Covid-19 pandemic further accentuated racial disparities in the U.S. Inequities in education, income, housing and other socio-economic factors among racial and ethnic minorities deepened during the lockdown. We measure the associations between hardships among individuals belonging to different racial/ethnic groups.

$$Y_{it} = \beta_0 + \beta_1 Race_{it} + \beta_2 Indi_{it} + \beta_3 Hhd_{it} + \beta_4 UI_{it} + \beta_5 Mnth_{it} + \varepsilon_{it} \qquad (1)$$

Equation (1) is a linear probability model, with the dependent variable (*Y*) is alternatively each of the four hardships (Table 1) or a combination of hardships (Table 2). In equation (1), the suffix *i* denotes individuals and *t* denotes the survey month. The vector of individual characteristics (*Indi*) includes age, gender, marital status, and education, and the vector of household characteristics (*Hhd*) includes the presence of children and the number of people in the household and the income of the household. The vector of monthly characteristics (*Mnth*) includes dummy variables for the receipt of economic impact payments and the expanded child tax credit as well as the number of COVID-19 cases each month. The *UI* variable controls the for the generosity of unemployment insurance by state.

In Table 1, we summarize estimates for each hardship. Although there has been a persistent racial gap in the U.S. regarding food hardships (Gundersen and Ziliak 2018), the gap grew especially wider during the pandemic (Ziliack, 2021)**.** We find that non-Hispanic Blacks and Hispanics were the most likely of all racial-ethnic groups to experience food insufficiency. We also find that Hispanics were more likely to experience food insufficiency than non-Hispanic Whites. A report by the Center on Budget and Policy Priorities (2021) also found that Black and Latino adults were about three times as likely as White adults to report that their household did not get enough to eat.

Non-Hispanic Blacks and Hispanics were also more likely to face job insecurity and housing insecurity than non-Hispanic Whites. Enriquez and Goldstein (2020), who also used data from the HPS, reported that Latinx respondents fared worse than Whites in terms of job loss. However, we found that non-Hispanic Whites were more likely than non-Hispanic Blacks and Hispanics to experience hardship in mental health. Ettman et al. (2020) found that among non-

Hispanic Whites, the prevalence of depression symptoms during the pandemic rose by 18 percentage points.

Among the control variables, we find that among all age groups, young adults, aged 18 to 29, were more likely to experience hardship in mental health. Seniors, aged 60 and above, had a lower probability of experiencing any of the four hardships, compared to young adults. Compared to men, women were more likely to experience job insecurity, housing insecurity and mental health but less likely to experience food insufficiency. Respondents living with children were more likely to face hardships such as job insecurity, food insufficiency, and housing insecurity. On the other hand, respondents without children in the household were more likely to experience hardship in mental health hardship. Cooney and Shaefer (2021) found that adults with children reported food insecurity and housing hardship at a rate 70 to 100 percent higher than adults without children. Overall, the probability of experiencing any given hardship decreased with higher education and greater income.

The coefficients at the end of the table indicate the correlations between the timing of government interventions and changes in covid cases as well as the difference in state unemployment insurance generosity with each hardship measure.

There is suggestive evidence that the second EIP payment (December 2020) may have helped with housing insecurity. However, it was also correlated with higher job insecurity and mental health hardship. There is also suggestive evidence that the third EIP payment (March 2021) may have helped with job insecurity, food insufficiency, and housing insecurity. However, it was also

correlated with higher mental health hardship. While the EIP payments had mixed results, there is suggestive evidence that the child tax credit helped with hardship in all four measures.

The relationship of the hardship measures with COVID-19 cases and UI generosity were also mixed. Higher monthly COVID-19 cases was associated with higher food insufficiency and mental health hardship and lower job insecurity. States with more generous UI benefits had lower food insufficiency and mental health hardship and higher job insecurity and housing insecurity.

Table 1: Individual Hardships by Race and other Demographic Features

	Job Insecurity	Food Insufficiency	Housing Insecurity	Mental Health
White, Non-Hispanic		Reference Group		
Black, Non-Hispanic	4.02***	6.36***	7.50***	-2.47***
	(0.18)	(0.15)	(0.19)	(0.18)
Asian, Non-Hispanic	2.24***	-1.50***	3.74***	-3.29***
	(0.22)	(0.15)	(0.19)	(0.20)
Other race, Non-Hispanic	3.45***	4.81***	3.65***	3.84***
	(0.24)	(0.21)	(0.17)	(0.26)
Hispanic	3.24***	2.85***	6.35***	-2.08***
	(0.17)	(0.14)	(0.15)	(0.16)
Age 18-29		Reference Group		
Age 30 to 39	3.25***	2.63***	4.18***	-3.11***
	(0.26)	(0.17)	(0.16)	(0.21)
Age 40 to 49	2.33***	3.22***	4.73***	-5.34***
	(0.26)	(0.19)	(0.17)	(0.22)
Age 50 to 59	2.99***	0.54***	2.46***	-8.00***
	(0.24)	(0.17)	(0.19)	(0.20)
Age 60 to 69	-1.21***	-3.45***	-2.45***	-13.92***
	(0.26)	(0.16)	(0.17)	(0.22)
Age 70 and above	-9.24***	-6.17***	-5.82***	-18.66***
	(0.27)	(0.19)	(0.20)	(0.23)
Male		Reference Group		
Female	2.64***	-0.19**	0.54***	2.46***
	(0.09)	(0.09)	(0.09)	(0.12)
No Children under 18 In the household		Reference Group		

Children under 18 in the household	1.90*** (0.15)	1.00*** (0.11)	2.16*** (0.14)	-3.19*** (0.14)
Number of people in hh	0.78*** (0.04)	0.79*** (0.03)	0.19*** (0.04)	0.60*** (0.04)
Second EIP	1.08*** (0.24)	-0.08 (0.20)	-0.54** (0.22)	1.20*** (0.27)
Third EIP	-3.11*** (0.27)	-1.17*** (0.28)	-3.23*** (0.24)	1.83*** (0.33)
Child tax credit	-5.06*** (0.11)	-1.85*** (0.12)	-1.75*** (0.10)	-2.89*** (0.15)
Log covid cases	-0.61*** (0.06)	0.74*** (0.05)	0.07 (0.06)	1.05*** (0.07)
Log UI generosity	0.44*** (0.11)	-0.29*** (0.09)	0.28** (0.10)	-0.28** (0.10)
Constant	30.50*** (1.21)	19.38*** (0.99)	16.15*** (1.03)	26.98*** (1.20)
No of observations	3,394,858	3,394,858	3,394,858	3,394,858
Adjusted R-sq.	0.0745	0.1029	0.0852	0.0586

Note: *p<0.10, **p<0.05, ***p<0.01 Tests whether result is different from zero at the 90, 95, and 99 percent confidence level, respectively. Parenthesis shows replicate weight standard errors. Observations missing demographic data were omitted. Categorical marital status, income, and education variables were included in the regression but coefficients were omitted.
Source: All regressions based on Household Pulse Survey between April 2020 and March 2022.

There is some evidence in the literature on the association between the four hardships we consider. Ganson et. al. (2021) found that job insecurity during the pandemic led to increased anxiety and depression among young adults in the U.S. Sampson et. al. (2021) found that during the pandemic financial stressors (job loss, decreases in pay, trouble paying bills) led to changes in health risk behavior (less exercise, sleep, and healthy eating; more smoking/vaping and drinking alcohol) among women. We do not find very strong correlation between any two hardships. The correlation between hardship in dimensions ranges from 0.14 for mental health and job insecurity to 0.29 for food insufficiency and housing insecurity (see Table A3 in the Appendix).

We test whether a particular combination of hardships was more prevalent among the population and among individuals belonging to certain racial and ethnic groups. In Table 2, we re-estimate equation (1) where the dependent variable is now a combination of hardships. The coefficients on the control variables are given in Appendix Table A4. The most common combination of hardships experienced by Americans during the pandemic were job insecurity and mental health hardship. This combination affected about six percent of the overall population and 32 percent of the MHI population**.**

Compared with non-Hispanic Whites, non-Hispanic Blacks and Hispanics were significantly more likely to face multiple hardships (MHI). In particular, non-Hispanics Blacks and Hispanics were more likely to face job insecurity and food insufficiency, job and housing insecurity, food insufficiency and housing insecurity, and housing insecurity and mental health hardship. Dhongde (2020) also found that more than 37 percent of Hispanics reported hardship in two or more indicators and 8 percent reported hardship in all four indicators of economic deprivatio.

Table 2: Multidimensional Hardships by Race

Hardship in	Job + Food Insufficiency	Job + Housing Insecurity	Job + Mental Health	Food + Housing	Food + Mental health	Housing + Mental health	MHI (2+ hardships)
White, Non-Hispanic				Reference Group			
Black, Non-Hispanic	2.37***	2.75***	0.06	2.80***	1.14***	2.80***	6.24***
	(0.12)	(0.12)	(0.13)	(0.11)	(0.11)	(0.11)	(0.18)
Asian, Non-Hispanic	-0.47***	1.04***	-0.54***	-0.54***	-1.40***	-0.54***	0.57**
	(0.09)	(0.12)	(0.14)	(0.08)	(0.12)	(0.08)	(0.23)
Other race, Non-Hispanic	1.62***	1.48***	1.40***	1.82***	2.37***	1.82***	5.58***
	(0.13)	(0.12)	(0.18)	(0.15)	(0.16)	(0.15)	(0.22)
Hispanic	1.23***	2.40***	-0.29**	1.54***	-0.10	1.54**	4.37***
	(0.10)	(0.11)	(0.11)	(0.09)	(0.11)	(0.09)	(0.19)
				Controls			
Individual	Y	Y	Y	Y	Y	Y	Y
Household	Y	Y	Y	Y	Y	Y	Y
Monthly	Y	Y	Y	Y	Y	Y	Y

State	Y	Y	Y	Y	Y	Y	Y
				Percent of population			
Overall population	3.99*** (0.03)	4.24*** (0.03)	5.86*** (0.04)	3.98*** (0.03)	4.77*** (0.03)	3.98*** (0.03)	16.27*** (0.05)
MHI population	21.64*** (0.16)	25.80*** (0.14)	32.17*** (0.18)	24.23*** (0.18)	26.33*** (0.19)	24.23*** (0.18)	100.00
No of observations	3,394,858	3,394,858	3,394,858	3,394,858	3,394,858	3,394,858	3,394,858
Adjusted R-sq	0.0500	0.0445	0.0355	0.0467	0.0460	0.0467	0.1198

Note: *p<0.10, **p<0.05, ***p<0.01 Tests whether result is different from zero at the 90, 95, and 99 percent confidence level, respectively. Parenthesis shows replicate weight standard errors. Observations missing demographic data were omitted.
Source: All regressions based on Household Pulse Survey between April 2020 and March 2022.

V. Limitations

There are a few caveats to keep in mind regarding limitations to the data used in our analysis. First, while samples were large and representative, the sampling frame was limited to housing units that had a cell phone or e-mail address. Secondly, while there was detailed information on the respondent, there was limited information on other household members. Third, there is a low response rate throughout the survey. Since those who chose to respond were not likely to be a random segment of the population some bias is introduced in our estimates. Although the response patterns differed across key demographic groups, the Census Bureau's weighting strategy helped to mitigate some of this nonresponse bias (Peterson and Toribio, 2021). [10]

Additionally, there were a number of questions about hardship indicators that had missing responses. The average non-response rates among the four hardship indicators were as follows: mental health (12.85 percent), food insufficiency (7.38 percent), job insecurity (1.33 percent)

[10] While the Census Bureau adjusted weights in the Pulse Survey to account for non-response, weighting mitigates rather than eliminates non-response bias. See 2020_HPS_NR_Bias_Report-final.pdf (census.gov) for more information on non-response bias in the HPS.

and housing insecurity (0.77 percent). There are a variety of methods in the literature to adjust for missing responses when measuring multidimensional poverty (Alkire et al., 2015). We found that individuals with missing responses in the HPS were more likely to be younger, male, with children in the household, non-white, Hispanic, and less educated (Table A5 in the Appendix). Hence removing observations with missing responses would lead to a biased sample. Another method is to either treat a missing response as indicative of no hardship (lower bound) or treat a missing response as indicative of hardship in an indicator (upper bound). We provide estimates of our hardship index using both upper and lower bounds (Table A6 in the Appendix). In the analysis in the paper, we took a more nuanced way to deal with missing responses. We imputed the number of hardships an individual experienced by estimating a multiple ordered logit model using age groups, gender, presence of children in the household, race and Hispanic origin, education, state of residence, and month of survey.

The HPS collected detailed information on the indicators we included in our analysis, namely job and housing insecurity, food insufficiency and mental health. However, household incomes were only collected in categories and it did not compile consistent information on individuals' health status. The HPS was launched with a specific goal of compiling information on individuals' and households' well-being during the pandemic. The first round of the survey was conducted in April 2020. While this was a laudable effort at collecting data during the pandemic, there was no data available in a single survey in the pre-pandemic years. Hence we could not analyze the extent to which the incidence of individuals suffering from any hardship changed with the onset of the pandemic. In Figure A2 in the Appendix, we compile data on each of the hardships from different data sources in the pre-pandemic years and compare

those with trends during the pandemic years; with the caveat that the pre and post pandemic trends are not exactly comparable.

VI. Conclusions

The Covid-19 pandemic resulted in more than 550,000 Americans losing their lives and a staggering 30 million plus Americans testing positive to the virus within the first year of the pandemic. In addition to the public health crisis, the pandemic and the resulting lockdown also led to a severe economic crisis in the country. In this paper we used micro-level survey data to estimate on a monthly basis, the extent of multiple hardships experienced by Americans over the first year and a half of the pandemic.

We found that non-Hispanic Blacks and Hispanics were more likely than non-Hispanic Whites to experience hardships in food insufficiency, housing and job insecurity. Non-Hispanic Whites and younger adults were more likely to experience hardship in mental health than Non-Hispanic Blacks and Hispanics and older adults, respectively. However, our main emphasis was on measuring the overlap and interactions between multiple hardships. We found that overall 16.3 percent of Americans experienced two or more hardships. The trends in the hardship index tracked the number of Covid-19 cases. At the peaks of the pandemic, in July 2020 and December 2020, as many as 20 percent experienced multiple hardships. The most common combination of hardships experienced by Americans during the pandemic were job insecurity and mental health hardship. People living in the South and West had a higher proportion of multiple hardships while those in the Midwest had the lowest proportions.

Our analysis spanned two years of the pandemic, beginning April 2020 and ending March 2022. During this time, a majority of states passed lockdown measures (April 2020), there were two peaks in the daily number of cases (July 2020 and January 2021), and several federal relief packages were announced. The Family First Coronavirus Response Act (FFCRA) was signed into law on March 18, 2020, the Coronavirus Aid, Relief and Economic Security (CARES) was signed into law on March 27, 2020, the Consolidated Appropriations Act passed in December 2020, and the American Relief Plan became law in March 2021. We found that multidimensional hardships tended to rise with the peaks in the number of cases and decline with the introduction of relief packages.

The pandemic, unfortunately is not yet over. There are new variants of the virus which continue to affect public health. Americans will continue to face hardships, and in particular, those who belonging to minority communities are especially more vulnerable. In order to avert a public health crisis, more resources will need to be targeted to help these communities tide through these difficult times. As more data becomes available, we hope to continue providing policy makers with a clearer picture of how the pandemic affected Americans' quality of life.

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Appendix Tables

Table A1: Hardship Indicators and Average Percent of Individuals with Hardship

Hardship Indicator	Survey Question	Possible Responses	Hardship
Job insecurity	Asked of people who responded that they have not worked for pay or profit in the last 7 days. What is your main reason for not working for pay or profit?	1) I did not want to be employed at this time **2) I am/was sick with coronavirus symptoms** **3) I am/was caring for someone with coronavirus symptoms** **4) I am/was caring for children not in school or daycare.** **5) I am/was caring for an elderly person.** **6) I am/was sick (not coronavirus related) or disabled** 7) I am retired **8) My employer experienced a reduction in business (including furlough) due to coronavirus pandemic** **9) I am/was laid off due to coronavirus pandemic** **10) My employer closed temporarily due to the coronavirus pandemic** **11) My employer went out of business due to the coronavirus pandemic** 12) other reason **13) I was concerned about getting or spreading the coronavirus**	17.5
Food Insufficiency	In the last seven days, which of these statements best describes the food eaten in your household?	1) Enough of the kinds of food (I/we) wanted to eat 2) Enough, but not always the kinds of food (I/we) wanted to eat **3) Sometimes not enough to eat** **4) Often not enough to eat**	10.6
Housing Insecurity	How confident are you that your household will be able to pay your next rent or mortgage payment on time?	**1) No confidence** **2) Slight confidence** 3) Moderate confidence 4) high confidence 5) Payment is/will be deferred	11.3
Mental health issues	Over the last 7 days, how often have to been bothered by feeling down, depressed, or hopeless?	1) Not at all 2) Several days **3) More than half the days** **4) Nearly every day**	20.9
MHI	N/A	Defined as deprivation in at least 2 out of 4 indicators	16.3

Note: Questions and response come from the Household Pulse Survey between April 2020 and March 2022. Responses in bold are included in the hardship measure.

Table A2: Statewide Estimates of Overall MHI

States	Average MHI (SE)	States	Average MHI (SE)
Alabama	17.88 (0.30)	Montana	11.02 (0.27)
Alaska	14.89 (0.28)	Nebraska	11.62 (0.26)
Arizona	15.36 (0.26)	Nevada	20.56 (0.30)
Arkansas	17.60 (0.33)	New Hampshire	10.56 (0.22)
California	19.02 (0.18)	New Jersey	16.54 (0.25)
Colorado	13.09 (0.24)	New Mexico	17.26 (0.35)
Connecticut	14.52 (0.22)	New York	18.38 (0.26)
Delaware	14.34 (0.28)	North Carolina	15.69 (0.28)
District of Columbia	15.34 (0.31)	North Dakota	11.30 (0.27)
Florida	18.27 (0.26)	Ohio	14.99 (0.31)
Georgia	17.77 (0.32)	Oklahoma	17.08 (0.31)
Hawaii	15.44 (0.35)	Oregon	14.61 (0.21)
Idaho	11.67 (0.20)	Pennsylvania	14.15 (0.24)
Illinois	15.82 (0.24)	Rhode Island	15.68 (0.33)
Indiana	14.95 (0.23)	South Carolina	16.50 (0.32)
Iowa	11.44 (0.24)	South Dakota	10.78 (0.31)
Kansas	12.84 (0.23)	Tennessee	16.75 (0.31)
Kentucky	16.96 (0.30)	Texas	19.20 (0.20)
Louisiana	20.76 (0.34)	Utah	11.16 (0.18)
Maine	11.22 (0.29)	Vermont	10.51 (0.31)
Maryland	15.60 (0.23)	Virginia	13.57 (0.23)
Massachusetts	12.74 (0.19)	Washington	13.17 (0.20)
Michigan	14.83 (0.22)	West Virginia	16.31 (0.30)
Minnesota	10.24 (0.20)	Wisconsin	10.83 (0.22)
Mississippi	21.08 (0.35)	Wyoming	12.44 (0.31)
Missouri	14.14 (0.28)		

Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022.

Table A3: Correlation between Hardship Indicators

	Food insufficiency	Mental health	Housing insecurity	Job insecurity
Food insufficiency	1			
Mental health	0.20	1		
Housing insecurity	0.29	0.17	1	
Job insecurity	0.18	0.14	0.19	1

Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022. Note: Data from all months was combined together to create correlations.

Table A4: Multidimensional Hardships by other Demographic Features

Hardship in	Job + Food Insufficiency	Job + Housing Insecurity	Job + Mental Health	Food + Housing	Food + Mental health	Housing + Mental health	MHI (2+ hardships)
Age 18-29				Reference Group			
Age 30 to 39	1.83***	2.07***	0.87***	1.87***	0.94***	1.87***	1.80***
	(0.13)	(0.14)	(0.17)	(0.11)	(0.13)	(0.11)	(0.25)
Age 40 to 49	1.78***	1.81***	0.47**	2.17***	1.08***	2.17***	1.18**
	(0.13)	(0.14)	(0.17)	(0.13)	(0.16)	(0.13)	(0.22)
Age 50 to 59	0.98***	0.99***	0.19	0.55***	-0.22*	0.55***	-1.17***
	(0.14)	(0.14)	(0.18)	(0.12)	(0.13)	(0.12)	(0.23)
Age 60 to 69	-1.14***	-1.01***	-2.43***	-1.58***	-2.55***	-1.58***	-7.58***
	(0.13)	(0.13)	(0.18)	(0.11)	(0.13)	(0.11)	(0.21)
Age 70 and above	-2.40***	-2.47***	-5.02***	-2.67***	-3.76***	-2.67***	-12.95***
	(0.14)	(0.13)	(0.19)	(0.12)	(0.15)	(0.12)	(0.24)
Male				Reference Group			
Female	-0.09	0.26***	0.74***	-0.03	-0.03	-0.03	1.36***
	(0.07)	(0.05)	(0.07)	(0.05)	(0.06)	(0.05)	(0.11)
Married				Reference Group			
Widowed	0.16	-0.91***	0.27	-0.12	0.86***	-0.12	0.35
	(0.12)	(0.11)	(0.16)	(0.12)	(0.15)	(0.12)	(0.23)
Divorced	1.40***	0.44***	1.81***	0.94***	2.21***	0.94***	3.37***
	(0.08)	(0.09)	(0.09)	(0.08)	(0.09)	(0.08)	(0.15)
Separated	4.59***	3.30***	4.37***	4.73***	5.63***	4.73***	10.74***
	(0.32)	(0.36)	(0.24)	(0.28)	(0.39)	(0.28)	(0.49)
Never married	1.05***	0.10	1.80***	0.48***	1.44***	0.48***	2.76***
	(0.10)	(0.13)	(0.12)	(0.11)	(0.11)	(0.11)	(0.17)
No Children under 18 In the household				Reference Group			
Children under 18 in the household	0.12	1.10***	-0.52**	0.33***	-0.08	0.33***	0.98***
	(0.08)	(0.08)	(0.10)	(0.08)	(0.09)	(0.08)	(0.13)
Number in hh	0.33***	0.12***	0.35***	0.14***	0.40***	0.14***	0.73***
	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)
No High school degree				Reference Group			
High school degree	-2.88***	-1.86***	-1.38***	-1.92***	-2.59***	-1.92***	-7.73***
	(0.18)	(0.18)	(0.23)	(0.17)	(0.18)	(0.17)	(0.27)
Some college education	-3.97***	-2.25***	-1.40***	-2.45***	-3.20***	-2.45***	-9.33***
	(0.17)	(0.18)	(0.23)	(0.15)	(0.17)	(0.15)	(0.28)
College degree or higher	-4.95***	-3.41***	-3.38***	-3.54***	-4.67***	-3.54***	-14.68***
	(0.17)	(0.17)	(0.22)	(0.16)	(0.18)	(0.16)	(0.27)
Less than $25,000				Reference Group			
$25,000 to $34,999	-3.94***	-2.77***	-3.72***	-2.46***	-3.77***	-2.46***	-6.65***
	(0.16)	(0.17)	(0.18)	(0.18)	(0.15)	(0.18)	(0.23)

$35,000 to $49,999	-5.42*** (0.12)	-4.22*** (0.15)	-5.06*** (0.15)	-4.03*** (0.16)	-5.26*** (0.14)	-4.03*** (0.16)	-10.65*** (0.22)
$50,000 to $74,999	-6.38*** (0.13)	-5.48*** (0.15)	-6.25*** (0.15)	-5.63*** (0.15)	-6.60*** (0.12)	-5.63*** (0.15)	-14.06*** (0.21)
$75,000 to $99,999	-7.05*** (0.12)	-6.47*** (0.13)	-7.02*** (0.13)	-6.65*** (0.14)	-7.67*** (0.12)	-6.65*** (0.14)	-16.91*** (0.20)
$100,000 to $149,999	-7.49*** (0.12)	-7.29*** (0.14)	-7.69*** (0.14)	-7.34*** (0.14)	-8.22*** (0.12)	-7.34*** (0.14)	-19.02*** (0.24)
$150,000 to $199,999	-7.62*** (0.13)	-7.60*** (0.13)	-8.16*** (0.14)	-7.47*** (0.14)	-8.39*** (0.13)	-7.47*** (0.14)	-20.01*** (0.22)
$200,000 and above	-7.52*** (0.14)	-7.79*** (0.13)	-8.46*** (0.14)	-7.44*** (0.14)	-8.23*** (0.13)	-7.44*** (0.14)	-20.44*** (0.21)
Second EIP	0.20 (0.13)	-0.14 (0.16)	0.29 (0.17)	-0.20 (0.15)	0.01 (0.17)	-0.20 (0.15)	0.73*** (0.24)
Third EIP	-1.28*** (0.18)	-1.84*** (0.16)	-1.05*** (0.19)	-1.43*** (0.16)	-0.84*** (0.20)	-1.43*** (0.16)	-2.42*** (0.30)
Child tax credit	-1.49*** (0.07)	-1.51*** (0.06)	-2.00*** (0.08)	-1.22*** (0.07)	-0.95*** (0.08)	-1.22*** (0.07)	-3.78*** (0.13)
Log covid cases	0.17*** (0.03)	-0.18*** (0.03)	0.03 (0.03)	0.17*** (0.03)	0.38*** (0.03)	0.17*** (0.04)	0.41*** (0.67)
Log UI generosity	-0.02 (0.06)	0.20*** (0.06)	-0.09 (0.06)	0.02 (0.06)	-0.29*** (0.05)	0.02 (0.06)	-0.16 (0.11)
Constant	8.94*** (0.69)	9.49*** (0.66)	12.65*** (0.79)	7.65*** (0.64)	10.85*** (0.72)	7.65*** (0.64)	31.96*** (1.40)

Note: *p<0.10, **p<0.05, ***p<0.01 Tests whether result is different from zero at the 90, 95, and 99 percent confidence level, respectively. Parenthesis shows replicate weight standard errors.
Observations missing demographic data were omitted.
Source: All regressions based on Household Pulse Survey between April 2020 and March 2022.

Table A5: Difference between item responders and item non-responders population

	Missing responses		No missing responses		Difference	
	Population percent	SE	Population percent	SE	Population percent	SE
Age 18 to 29	24.69	0.13	15.53	0.03	*9.16	0.13
Age 30 to 39	18.48	0.11	18.56	0.04	-0.07	0.12
Age 40 to 49	15.64	0.09	17.03	0.03	*-1.39	0.09
Age 50 to 59	15.57	0.09	17.49	0.04	*-1.91	0.10
Age 60 to 69	14.76	0.10	18.28	0.04	*-3.52	0.11
Age 70 and above	10.86	0.08	13.13	0.03	*-2.26	0.09
Female	50.91	0.13	51.79	0.03	*-0.88	0.13
Children in hh	43.68	0.13	37.53	0.07	*6.15	0.15
White, NH	54.33	0.12	64.59	0.03	*-10.26	0.12
Black, NH	14.18	0.09	10.75	0.02	*3.43	0.09

Asian, NH	5.87	0.06	5.07	0.02	*0.79	0.07
Other, NH	3.87	0.05	3.71	0.02	*0.16	0.05
Hispanic	21.75	0.12	15.87	0.03	*5.88	0.12
Less than HS	12.47	0.12	7.31	0.04	*5.15	0.12
High school	35.31	0.13	29.58	0.04	*5.73	0.13
Some college	29.83	0.11	30.53	0.03	-0.07	0.11
College	22.40	0.08	32.58	0.02	*-10.18	0.08

Note: * indicates difference from zero is significant at the 90 percent confidence level.
Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022.

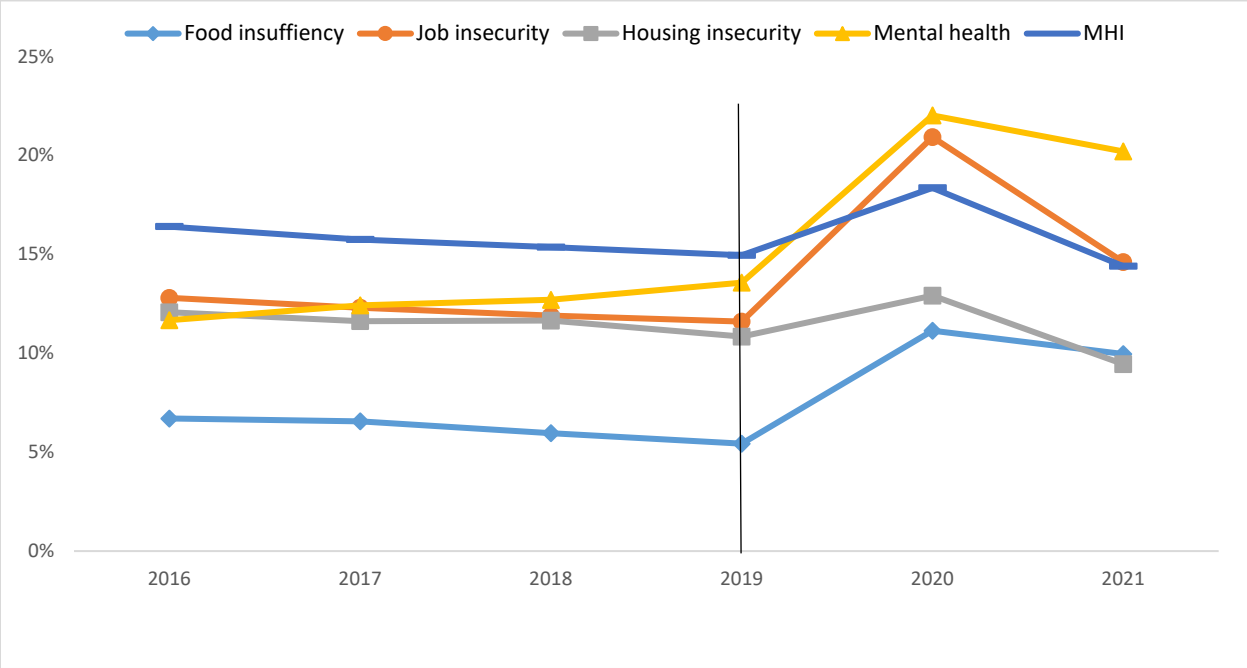
Table A6: MHI rates using Alternative Imputations for Missing Responses

	MHI Lower bound		MHI Imputed		MHI Upper bound	
	Pop. %	SE	Pop. %	SE	Pop. %	SE
April 2020	16.40	0.29	18.46	0.33	20.67	0.33
May 2020	17.33	0.24	19.41	0.22	22.05	0.21
June 2020	16.53	0.19	18.32	0.20	20.80	0.19
July 2020	18.37	0.21	20.16	0.20	22.75	0.21
August 2020	12.23	0.19	15.76	0.18	26.86	0.25
September 2020	12.21	0.15	15.58	0.16	26.05	0.19
October 2020	12.57	0.17	16.28	0.17	26.58	0.22
November 2020	13.81	0.23	18.03	0.29	29.29	0.30
December 2020	15.28	0.19	19.69	0.21	30.30	0.23
January 2021	13.55	0.20	18.08	0.24	30.13	0.26
February 2021	13.04	0.16	17.17	0.21	29.08	0.25
March 2021	11.26	0.17	15.43	0.22	28.54	0.25
April 2021	9.29	0.31	13.22	0.37	28.26	0.35
May 2021	9.63	0.17	12.88	0.17	27.16	0.23
June 2021	10.14	0.15	13.55	0.18	28.09	0.23
July 2021	10.83	0.27	13.66	0.28	25.34	0.33
August 2021	10.25	0.17	12.89	0.20	24.90	0.22
September 2021	10.35	0.16	13.16	0.19	25.49	0.23
October 2021	10.02	0.26	12.85	0.28	25.79	0.37
November 2021	-	-	-	-	-	-
December 2021	10.60	0.25	13.10	0.29	24.01	0.34
January 2022	12.48	0.28	14.90	0.30	23.60	0.36
February 2022	11.14	0.24	13.84	0.27	24.20	0.31
March 2022	9.94	0.20	12.90	0.23	26.39	0.32
Overall	13.20	0.05	16.27	0.05	25.50	0.06

Source: Authors' calculations based on Household Pulse Survey between April 2020 and March 2022.

Appendix Figures

Figure A1: Trends in Hardship Indicators in Pre-Pandemic Years



Source: We compile data on hardship indicators in the pre-pandemic years from different sources, since the HPS data is available only from April 2020.

1) Housing insecurity: Gross rent or monthly owner cost equal to or in excess of 50% of household income among adults 18 and above (American Community Survey)
2) Food insufficiency: Food bought didn't last and we didn't have enough money to get more in the last 30 days (Current Population Survey – Food Security Supplement)
3) Job insecurity: Based on economic security dimension of the Multidimensional Deprivation Index (Glassman 2021). Defined by unemployment or living in a household with a tenuous connection to the labor market (American Community Survey)
4) Mental health: Percent of population experiencing not good mental health days between 14 and 30 days in the previous month (Behavioral Risk Factor Surveillance System)
5) MHI: The Census Multidimensional Deprivation Index (Glassman 2021).