Racial and Ethnic Disparities in Housing Instability during the COVID-19 Pandemic: The Role of Assets and Income Shocks

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April 13, 2021

Abstract

Stable and adequate housing is critical in the midst of a pandemic; without housing, individuals and families cannot shelter in place to prevent the spread of disease. Understanding and combating housing hardships in vulnerable populations is therefore essential to a sound public health response. This study aims to explore the pandemic's disproportionate impacts on housing-related hardships across racial/ethnic groups in the United States as well as the extent to which these disparities are mediated by households' broader economic circumstances; namely, their pre-pandemic liquid asset levels and the experience of COVID-19-related job and income losses. Using a national survey of over 4,000 households, we find that Black and Hispanic respondents were more vulnerable to housing-related hardships during the pandemic than White respondents. These impacts were particularly pronounced in lower-income minority households. For Black respondents, who had much lower levels of pre-pandemic liquid assets than other

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groups, liquid assets acted as a strong mediator of housing hardship disparities between White and Black respondents. On the other hand, neither liquid asset amounts before the pandemic nor employment shocks during the pandemic explain the pandemic's disproportionate impacts on Hispanic families. Our findings imply that housing became less stable for racial/ethnic minority groups as a result of the pandemic. In particular, the observed disparities, as well as the mechanisms driving them, demonstrate the necessity of policies and practices that target support to these economically marginalized groups.

Keywords: COVID-19, Pandemic, Race, Ethnicity, Housing, Foreclosure, Discrimination

1. Introduction

The COVID-19 pandemic and the social distancing interventions enacted to slow its spread have had unprecedented economic effects in the United States. In April 2020 alone, an estimated 20.5 million Americans lost their jobs, increasing the unemployment rate to 14.7 percent (Bureau of Labor Statistics, 2020). Just as COVID-19 mortality and hospitalization rates have disproportionately burdened racial and ethnic minorities (Shah et al., 2020; Townsend et al., 2020), so, too have the economic effects of the pandemic. Early data show racial/ethnic disparities in unemployment during the pandemic, with Hispanic workers suffering especially high job losses (Fairlie et al., 2020; Karpman et al., 2020). Compounding this issue, racial and ethnic minorities tended to hold much lower levels of emergency savings prior to the pandemic—a recent study of nearly a million bank accounts found that, in the years prior to the pandemic, White account owners held roughly two and three times as much in liquid savings as Hispanic and Black account owners, respectively (Farrell et al., 2020). Thus, even as the economic and health burdens of the pandemic fell disproportionately on Black and Hispanic families, these groups were also in a worse position to withstand them financially. As economic burdens and housing hardship frequently go hand in hand, housing impacts may also fall unequally across racial and ethnic lines.

Though always important, stable and adequate housing is even more critical in the midst of a pandemic. Stay-at-home orders have been a core component of the public health response to COVID-19 in the United States. Without housing, individuals and families cannot shelter in place to prevent the spread of disease (Ellen et al., 2020). An increase in residential evictions increases the demand for services at homeless shelters, which may become overcrowded, facilitating viral spread. Housing hardship may also cause families to double up, increasing overcrowding within residential units and making all residents more vulnerable to infection. In addition, housing hardship may operate as a form of chronic stress, weakening immune system responses (Jelleyman and Spencer, 2008; Ross and Squires, 2011).

Understanding and combating housing hardship among vulnerable populations is therefore essential to a sound public health response.

This study aims to explore and explain the disproportionate impacts of the pandemic on housing-related hardships across racial/ethnic groups. For this investigation, we use the Socio-Economic Impacts of COVID-19 Survey from the Social Policy Institute at Washington University in St. Louis. Using logistic regression analysis and mediation models, we find racial and ethnic disparities in housing instability during the COVID-19 pandemic. Compared to non-Hispanic White (hereafter White) respondents, non-Hispanic Black (hereafter Black) and Hispanic respondents disproportionately experienced eviction, mortgage/rent delinquency, and utility bill payment delays. These disproportionate impacts were particularly pronounced among lower-income respondents within these minority groups. Building upon empirical evidence from previous research, we also explore whether disparities in liquid assets and employment shocks explain the pandemic's impacts on Black and Hispanic populations. We find that pre-pandemic liquid asset amounts mediate the disparities in housing-related hardships between White and Black respondents. However, liquid assets do not explain the differential risks between White and Hispanic respondents. We also find limited evidence that employment shocks during the pandemic explain the disproportionate impacts across racial/ethnic groups.

The remainder of this paper is structured as follows. The first section reviews the literature on disproportionate housing-related hardships across racial/ethnic groups and presents our research questions. The second and third sections describe our data sources and empirical strategy, respectively. The fourth section includes a detailed examination of our results. We conclude with a discussion of the implications for scholars and practitioners.

2. Literature Review

2.1. Disproportionate housing hardships across racial/ethnic groups

Large disparities exist in the experience of housing hardship [1] across racial and ethnic groups. Prior research suggests that Blacks and Hispanics are more likely to experience housing hardship, such as eviction (Desmond, 2012; Greenberg et al., 2016; Medina et al., 2020), and mortgage, rent, and utility bill payment delay (Heflin, 2017), than Whites, even after controlling for education and household resources. Medina et al. (2020), for instance, used a spatial data analysis model to demonstrate that evictions were clustered in minority-dominant neighborhoods; residents in these neighborhoods were 66 percent more likely to experience eviction. Based on Survey of Income and Program Participation (SIPP) data, Heflin (2017) found that both Black and Hispanic respondents were more likely to experience rent or mortgage payment delinquency than White respondents.

External financial shocks also generally increase housing hardship, especially for households that are already financially strapped. As incomes decrease and resources are strained, more households have difficulty paying for basic housing needs. Financially distressed homeowners are more likely to experience foreclosure than non-financially distressed homeowners (Niedt and Martin, 2013; Pilkauskas et al., 2012). For example, Niedt and Martin (2013) found that those who reported their finances had recently worsened were approximately 1.5 times more likely to experience foreclosure than those in a comparison group, and more than half of those who had experienced foreclosure had also lost a job in the last two years. At

[1] Varying definitions of housing hardship exist. Some researchers use the term to focus on a family's lack of their own place to live (Neckerman et al., 2016) or issues with the quality of the physical dwelling (e.g., pests, leaks, broken windows, overcrowding, etc.) (Eamon and Wu, 2011), while some use the term to denote problems in making housing-related payments (Heflin, 2017), and others use it to refer to a combination of these concepts (Caswell and Zuckerman, 2018; Long et al., 2003). Often, conceptualizations of housing hardship that focus on housing-related payments, such as missing a rent/mortgage payment or late/skipped payment of a utility bill, are examined as one of the areas within the broader concept of material hardship (Despard et al., 2018; Gjertson, 2016; Heflin, 2016; Mckernan et al., 2009). For the purposes of this paper, we define housing hardship to include foreclosure or eviction; late, skipped, or partially paid rent/mortgage payments; or unpaid utility bills.

the macro-level, Pilkauskas et al. (2012) found that a 1-percentage point increase in unemployment rate is associated with 13 percent and 16 percent increase in the probability of a rent/mortgage/utility bill payment delay or having utilities cut off, respectively.

Recent evidence from the global financial crisis in the late 2000s suggests that Black and Hispanic households are also disproportionately vulnerable to external shocks. An analysis of national SIPP data from 2009-2011 by Zhang and Lerman (2018) found that in the years immediately following the Great Recession Blacks were 16.5 percent and Hispanics were 9.5 percent more likely to be behind on housing, utility, or other bills than Whites. The disproportionate impacts of the crisis have long-lasting implications for housing inequality; Black-dominant neighborhoods exhibited steep property value declines during the crisis and a relatively slow recovery following the crisis as compared to White-dominant neighborhoods (Raymond et al., 2016).

More recent data examine similar patterns of racial and ethnic hardship during the COVID-19 pandemic. Based on a nationally representative sample, Lopez et al. (2020) found disproportionate impacts on minority groups early in the pandemic with respect to employment, rainy day funds, and monthly bill payments. Choi and Pang (2020) use Census Pulse data to estimate delinquency rates across racial and ethnic groups; as of July 2020, both Black and Hispanic homeowners were more than twice as likely to experience mortgage delinquency than White homeowners. Media reports also indicate that minority groups are more at risk for utility shut-off during the pandemic (Duster, 2020; Kowalski, 2020; Tomich et al., 2020).

2.2. Linking racial and ethnic disparities in liquid assets, income, and employment to disparities in housing hardships

Racial and ethnic disparities in housing hardship map on to racial and ethnic disparities in other areas including liquid asset access [2] and stable, high-quality jobs. Due to the legacies of discriminatory institutions, policies, and practices, including slavery, Jim Crow laws, and, more recently, redlining, racial steering, and racially-biased mortgage and hiring practices, Blacks and Hispanics often live in racially and ethnically segregated neighborhoods with poor housing stock and a lack of access to quality education and job opportunities. As a result, these minority groups have been unable to build wealth for themselves or transfer wealth and other assets across generations (Pattillo, 2013; Rich et al., 1993; Rothstein, 2017; Sharkey, 2013). Bayer et al. (2016) also suggest that households with lower levels of savings and wealth may face an increased risk of mortgage delinquency and foreclosure during economic shocks. Likewise, Ren (2020) found that much of the Black-White gap in homeownership exit during the foreclosure crisis can be explained by accounting for racial differences in liquid wealth.

Furthermore, these groups are over-represented in low-wage, less secure, and precarious jobs (Grodsky and Pager, 2001; Huffman and Cohen, 2004; McCall, 2001; Pager and Shepherd, 2008; National Academies of Science Engineering and Medicine, 2020) leaving these populations continually vulnerable to economic instability. Bayer et al. (2016) found that Black and Hispanic homeowners were disproportionately exposed to surging unemployment rates, which made them more vulnerable to foreclosure. This finding is consistent with other research that has found that Black employees are frequently the "first fired" during economic downturns (Brown and Pagan, 1998; Couch and Fairlie, 2010; Freeman et al., 1973). Recent evidence also shows that Black and Hispanic workers were more likely to experience layoffs and pay cuts in the early stages of the pandemic (Klein and Shiro, 2020; Williams, 2020).

[2] In this study, we define liquid assets as cash in hand or assets that can easily be converted into cash in a short amount of time, such as assets in checking and savings accounts.

Taken together, this research indicates that a large-scale economic shock like the COVID-19 pandemic can have far-reaching economic consequences for racial and ethnic minority households that can lead to further disparities in housing hardships within these groups.

3. Theoretical Expectations

We assume the current COVID-19 pandemic is an exogenous financial shock that has led to massive housing-related hardships in US households. Building upon the evidence of previous empirical research, we posit two hypotheses regarding the pandemic's disproportionate impacts on housing-related hardships of across racial and ethnic groups as follows:

Hypothesis 1A*: Black and Hispanic respondents are more likely to experience housing-related hardships during the pandemic than White respondents.*

Hypothesis 1B*: The pandemic's disproportionate impacts across racial/ethnic groups are stronger among lower-income respondents.*

Hypothesis 2A*: Liquid assets mediate the pandemic's disproportionate impacts across racial/ethnic groups.*

Hypothesis 2B*: Job and income losses during the pandemic mediate the pandemic's disproportionate impacts across racial/ethnic groups.*

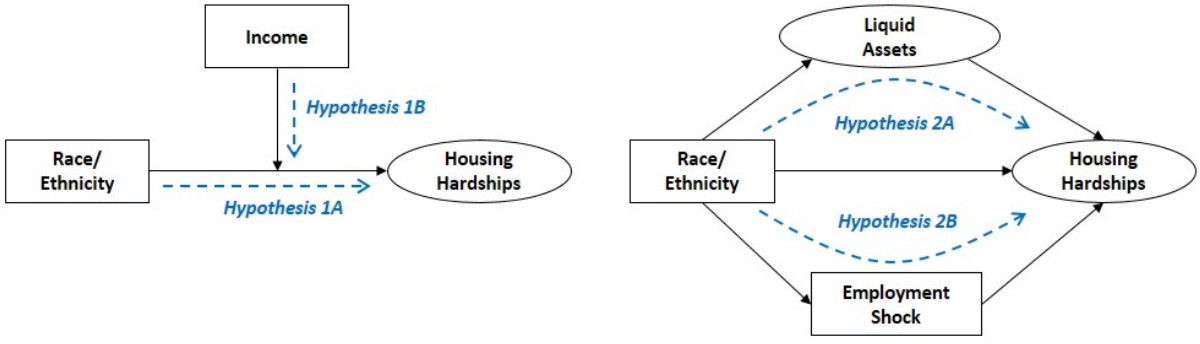

Figure 1: Theoretical Frameworks

4. Data

Data for this study come from the Socio-Economic Impacts of COVID-19 Survey, administered by the Social Policy Institute at Washington University in St. Louis from April 27, 2020, to May 12, 2020 through a large online panel provider. The survey sample was developed using quota sampling techniques to ensure that the sample represented United States demographic characteristics with respect to age, gender, race/ethnicity, and income.[3][4] The survey response rate was 10.8 percent, with 16,200 adults entering the survey. Of these respondents, 8,564 were excluded because they failed to meet quota requirements to ensure national representativeness on the established sampling criteria, 1,541 were excluded because they failed quality checks embedded in the survey, and 51 were excluded due to not meeting the minimum age criteria of 18 years. After these exclusions, 6,044 respondents remained in the sample. Additional checks on the characteristics of this sample revealed that they also approximated the U.S. population in terms of state of residence, homeownership, and other key demographic and financial criteria. For the purposes of this study, respondents who did not provide a response to the items used in this analysis were excluded using listwise deletion. Finally, we limited the sample to homeowners and renters [5]as of the survey period, resulting in a final analytical sample of 4,217 White, Black, and Hispanic respondents.

[3]Research has demonstrated that online, non-probability samples using Qualtrics panels generate samples that closely approximate those of the General Social Survey, which is considered the gold standard in survey administration (Zack et al., 2019).

[4]Although the Washington University in St. Louis institutional review board established that this study was not human subjects research, researchers still obtained informed consent from participants prior to administering the survey.

[5]We exclude those who neither owned their home nor paid rent. These respondents comprised 5.3 percent of the entire sample.

5. Methods

This study explores and explains the disproportionate impacts of the COVID-19 pandemic on housing hardships across racial/ethnic and income groups. We measure housing-related hardships (e.g., eviction and foreclosure, mortgage and rent delinquency, and utility bill payments) during the pandemic using the following survey questions:

- **[Eviction/foreclosure]** In the last three months, was anyone in your household forced to move by a landlord or bank when you did not want to?
- **[Rent/mortgage delinquency]** In the past three months, have you or someone in your household not paid the full amount of the rent or mortgage because you could not afford it?
- **[Utility payment delay]** In the past three months, have you or someone in your household skipped paying a bill or paid a bill late due to not having enough money?

Given that the survey was administered from late April to mid-May, the timeframe covered by these measures—three months prior to the date of the survey—allows us to observe hardships that occurred specifically within the first months of the pandemic.

We are interested in the relationship between race/ethnicity, income, and housing hardships. To identify respondents' race and ethnicity, the survey asked respondents to indicate if they identified as White/Caucasian, Black/African American, Asian, Native American/-Pacific Islander, or some other race. Respondents could select multiple options. The survey also asked whether a respondent considered themselves Hispanic or Latino/a/x. Of the two survey questions, the question regarding Hispanic origin is dominant over the race question. That is, those who consider themselves Hispanic or Latino/a/x were coded as Hispanic or Latino/a/x regardless of their racial identity. Due to a limited sample size for certain racial and ethnic identifications, we focus on three racial/ethnic groups: White, Black, and Hispanic or Latino/a/x.

To measure income, the survey asked respondents to report their total pre-tax household income in 2019, inclusive of all sources. This question allows us to identify households' income prior to any income fluctuations caused by the COVID-19 pandemic. As the cost of living varies across geography as well as family size, we constructed the income groups in this study as a function of households' total income in 2019, household size, and the US Department of Housing and Urban Development (HUD)'s measure of area median income (AMI) at the county level (US Department of Housing and Urban Development, 2020). We then use this measure to identify lower-income and higher-income respondents. The lower-income group includes those whose annual household income is 120 percent adjusted AMI or less—a common definition of low- to moderate-income.[6] [7] All others are included in the higher-income group.

Finally, this study aims to explore the mediation effects of liquid assets before the pandemic and employment status changes during the pandemic on the relationship between race/ethnicity and housing hardships. To construct the liquid asset amount indicator, we utilize self-reported asset measures from the survey. Specifically, we define liquid assets as being assets held in checking accounts (or money market accounts), savings accounts, and as cash (or pre-paid cards); our liquid asset measure is therefore the sum of assets held in these forms. We asked respondents to report the value of their different liquid assets currently, and the value of these assets 3 months ago. As this study is interested in the relationship between the pre-pandemic level of liquid assets and housing hardships, we used the retrospective asset measures to construct our liquid asset variable. To address extreme outliers, we winsorized the asset amounts at the upper 99th percentile. To construct our measure of employment shocks during the pandemic, we used two survey questions asking, "[h]ave you

[6]HUD defines income groups as follow: 0-30% of AMI: Extremely low-income family; 30-50% of AMI: Very low-income family; 50-80% of AMI: Low-income family; 80-120% of AMI: Moderate-income family; 120-170% of AMI: Middle-income family; and 170% or above: High-income family.

[7]We group low- and moderate-income groups together because families in those groups tend to face high levels of housing-related hardships even in a healthy economy (Barakova et al., 2003; Grinstein-Weiss et al., 2015, 2007; Rosenthal, 2002; Santiago and Galster, 2004)

lost a job or lost income as a result of the COVID-19 pandemic?" and "[h]as your spouse lost a job or lost income as a result of the COVID-19 pandemic?" If a respondent answered yes to either of these, they were considered to have experienced a household-level employment shock.

In addition to the measures of race/ethnicity, income, liquid asset amount, and employment shocks during the pandemic, our empirical models take into account housing status (i.e., whether respondents own their home, with or without a mortgage, or pay rent) and demographic characteristics (gender, age, marital status, educational attainment, and the number of dependents).

5.1. Empirical model design

5.1.1. Disproportionate pandemic impacts on racial/ethnic groups by income

This paper aims to explore the disproportionate pandemic impacts on housing hardships across racial/ethnic and income cohorts. As the housing-related hardship variables are binary, we employ a set of logistic regression models as follows:

$$\ln(\frac{Pr(Y_i = 1)}{1 - Pr(Y_i = 1)}) = \beta_0 + \beta_1 x_i^{race} + \beta_2 x_i^{income} + \beta_3 x_i^{race} \times x_i^{income} + \mathbf{X}_i\gamma + \alpha_{division} \quad (1)$$

where the probability of a housing hardship of individual i, $Pr(Y_i = 1)$, is the function of race/ethnicity, x_i^{race}, income cohort, x_i^{income}, and the interaction of race/ethnicity and income indicators as well as a set of covariates, $\mathbf{X}_i$, including demographic characteristics. To account for geographic heterogeneity in the pandemic's economic impacts, each empirical model also considers geographic fixed effects as well as standard errors clustered at the Census division level. For the sake of simplicity, we report the predicted housing hardships of each combination of race/ethnicity and income cohorts.[8]

[8]Full logistic regression model results are available in Table A1

5.1.2. Mediation effects of asset/savings amounts

Building upon evidence from previous empirical studies, we assume that the pandemic's disproportionate impacts on housing hardships across racial/ethnic groups are at least partly associated with varying liquid assets of these groups. To measure the mediation impacts of liquid assets, we employ Buis (2010)' model to estimate direct and indirect effects in a logit model. Using the model, we decompose total effects of racial/ethnic attributes on housing hardships into direct (i.e., race/ethnicity to housing hardships) and indirect (i.e., race/ethnicity to asset/savings amount to housing hardships) effects as follows:

$$\underbrace{\frac{Odds_{(Black,asset|Black)}}{Odds_{(White,asset|White)}}}_{Total} = \underbrace{\frac{Odds_{(White,asset|Black)}}{Odds_{(White,asset|White)}}}_{Indirect} + \underbrace{\frac{Odds_{(Black,asset|Black)}}{Odds_{(White,asset|Black)}}}_{Direct} \tag{2}$$

$$\underbrace{\frac{Odds_{(Hisp,asset|Hisp)}}{Odds_{(White,asset|White)}}}_{Total} = \underbrace{\frac{Odds_{(White,asset|Hisp)}}{Odds_{(White,asset|White)}}}_{Indirect} + \underbrace{\frac{Odds_{(Hisp,asset|Hisp)}}{Odds_{(White,asset|Hisp)}}}_{Direct} \tag{3}$$

Here indirect effect estimates the relative odds of housing predicted hardship risk of a minority group over the counterfactual housing hardship risk of the minority group if it had the asset distribution of White homeowners. That is, $Odds_{(Black,asset|Black}$, for example, the odds of having experience of a housing hardship for black homeowners, while $Odds_{Black,asset|White}$ is the counterfactual odds of a housing hardship experience for black homeowners if they had the same distribution of assets as the white group. If the relative odds ratio is greater than one, the asset amounts positively mediate the association between the race/ethnicity and a housing hardship. To compute standard errors for the decomposed effects, we use bootstrap with 1,000 iterations. In addition to the decomposed effects, we also estimate the size of the indirect effect relative to the total effect. Note that all the mediation models in this study also control for all the covariates in the logistic models above as well as annual

family income in 2019. The data analysis in this study was conducted using Stata16(**?**), and we used a threshold of $p < .05$ to assess statistical significance.

6. Empirical findings

6.1. Descriptive analysis

Table 1 reports summary statistics on model variables for entire sample as well as by racial/ethnic group. Overall, these findings indicate that the pandemic has worsened housing problems in the United States. We found that 3.2 percent of respondents were forced to move by a bank or a landlord, 7.8 percent were having difficulty keeping up with their mortgage or rent payment, and 11.7 percent skipped paying a utility bill or paid a bill late during the early stage of the pandemic. These figures are much higher than those in 2019 when, according to CoreLogic's report (2019), 0.4 percent of homeowners were foreclosed upon. Given that not all foreclosed homeowners are evicted, we can still easily infer that an eviction rate of 3.5 percent is much higher than that of the previous year. The 7.8 percent of mortgage or rent delinquency rate in our survey is also notable, as this is much higher than the 4.5 percent delinquency rate in 2019 (CoreLogic, 2019).

Table 1: Summary statistics of variables in use

	(1) Overall	(2) White	(3) Black	(4) Hispanic
Housing-related hardships:				
Eviction	3.2%	3.2%	1.9%	4.2%
Mortgage/rent delinquency	7.7%	6.9%	9.5%	9.3%
Utility payment delay	11.6%	10.0%	16.9%	13.4%
Race/Ethnicity:				
White	67.0%	100.0%		
Black	13.9%		100.0%	
Hispanic	19.0%			100.0%
Income[a]:				

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Table 1 – continued from previous page

	(1) Overall	(2) White	(3) Black	(4) Hispanic
Very low income, AMI=[0, 50)	21.4%	19.4%	29.5%	22.3%
Low income, AMI=[50, 80)	18.6%	17.8%	21.6%	19.1%
Moderate income, AMI=[80, 120)	20.7%	19.0%	21.5%	26.0%
Middle income, AMI=[120, 170)	17.5%	18.4%	14.0%	16.9%
High income, AMI=[170,)	21.9%	25.4%	13.5%	15.7%
Liquid assets[b]:				
Liquid asset amount ($, median)	$5,500	$7,250	$1,800	$4,000
Job/income shock:				
Lost job/income	28.4%	29.3%	22.5%	29.5%
Gender:				
Female	49.4%	42.6%	69.2%	58.9%
Age:				
18-25	10.8%	14.7%	3.1%	2.6%
25-34	18.6%	20.6%	11.2%	16.8%
35-44	16.7%	14.1%	19.1%	24.0%
45-54	18.1%	17.4%	19.4%	19.3%
55+	35.9%	33.2%	47.2%	37.2%
Marital status:				
Married	52.5%	53.9%	38.7%	57.9%
Single, never married	32.9%	34.0%	36.1%	26.5%
Single, separated/divorced/widowed	14.6%	12.1%	25.2%	15.6%
Educational Attainment:				
High school/GED or lower	73.8%	74.7%	76.8%	68.2%
Some college/Certificate/Associate's degree	12.7%	12.0%	13.3%	14.7%
Bachelor's degree	9.9%	10.2%	7.0%	11.1%
Graduate or professional degree	3.6%	3.0%	2.9%	6.0%
Dependents:				
No dependents	12.0%	11.2%	13.6%	13.7%
1	30.8%	28.3%	36.3%	35.5%
2	31.4%	32.6%	27.9%	29.6%
3+	25.8%	27.8%	22.1%	21.2%
Homeownership:				

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Table 1 – continued from previous page

	(1) Overall	(2) White	(3) Black	(4) Hispanic
Own home, with mortgage	42.2%	41.4%	40.0%	46.3%
Own home, without mortgage	27.4%	30.4%	20.6%	22.0%
Rent home	30.4%	28.2%	39.4%	31.6%
N	4,217	2,827	587	803

Reference categories are underlined.

[a] Areal Median Income (AMI) were estimated in 2019 at the country level; in the regression analysis, income groups are broken into two groups (Very low-, Low-, and Moderate- income group vs. Middle- and High-income group).

[b] In the regression analysis, liquid asset amounts are winsorized at upper 99th percentile.

Housing-related hardships during the pandemic vary somewhat depending upon racial/ethnic identity and income. Figure 2 indicates that families in minority groups were more vulnerable to housing-related hardships than White families during the pandemic. In comparison with White respondents, Hispanic respondents were 1.3 to 1.4 times as likely to experience eviction, delinquency, and utility bill payment delay. Likewise, Black respondents were 1.4 and 1.7 times more likely to be behind in paying their mortgage/rent and utility bills than White respondents, respectively. Interestingly, Black respondents were less likely to be evicted during the pandemic.

Figure 3 shows that families in the low and moderate-income (LMI) cohort were more likely to experience housing-related hardships than higher-income families during the pandemic; in comparison with the higher income group, respondents in the lower income group were 1.3, 2.5 and 3.0 times more likely to experience eviction, rent and mortgage delinquency, and utility payment delay. The relatively small eviction gap across the income groups does not imply that the pandemic's impacts are constant across income groups. Instead, given that eviction happens typically 150 to 180 days after the first missing payment, this gap may widen as the pandemic is prolonged.

Figure 4 shows that respondents in minority groups held much smaller amounts of liquid assets than White respondents before the pandemic. Of the three racial/ethnic groups, Black respondents reported the lowest liquid assets; the median liquid asset amount of Black respondents ($1,800) was almost one-fourth that of White respondents ($7,250; *cf.* Hispanic respondents: $4,000). Interestingly, Black respondents were less likely to have a COVID-19-related job or income loss during the first three months of the pandemic (22.7 percent) than White (29.4 percent) or Hispanic (30.4 percent) respondents.

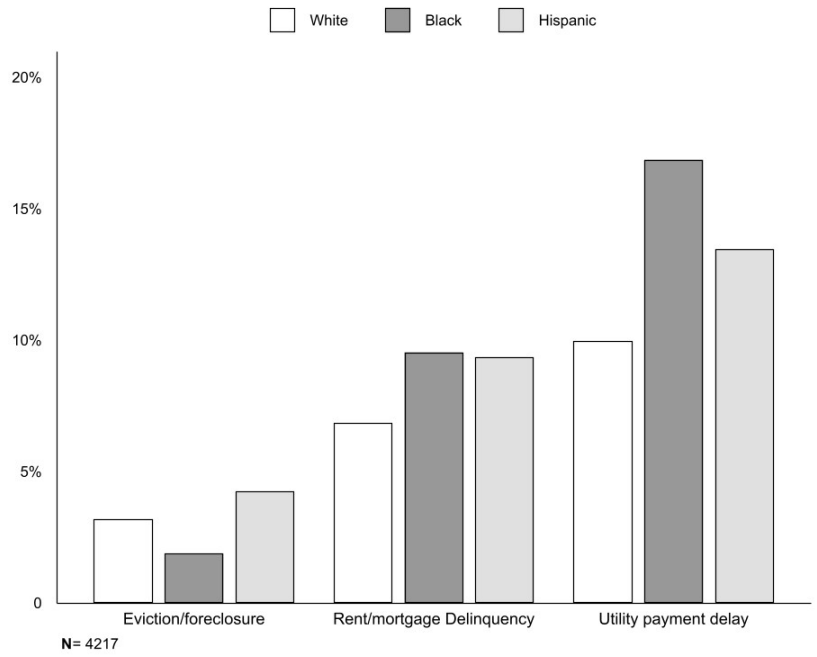

Figure 2: Housing hardships during the pandemic, by Income

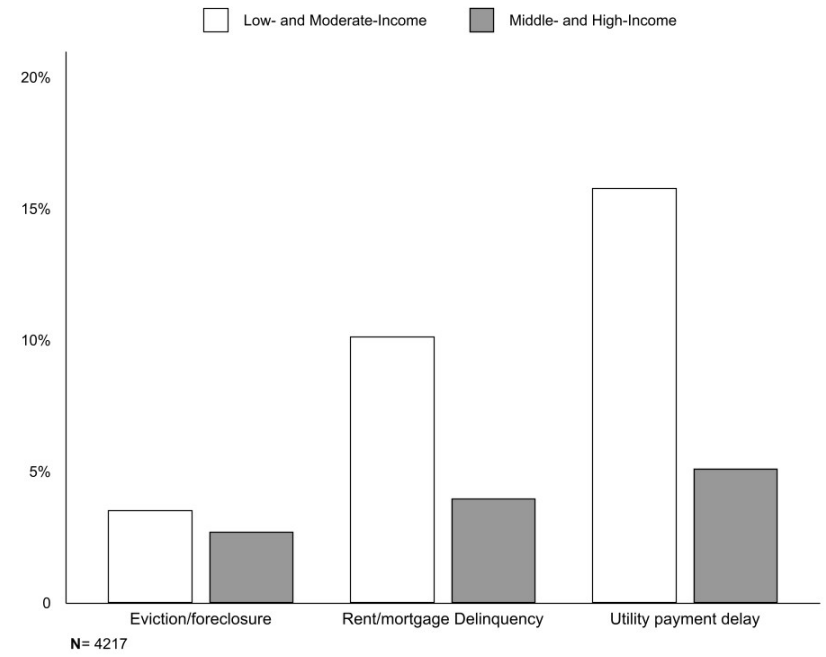

Figure 3: Housing hardships during the pandemic, by Race/Ethnicity

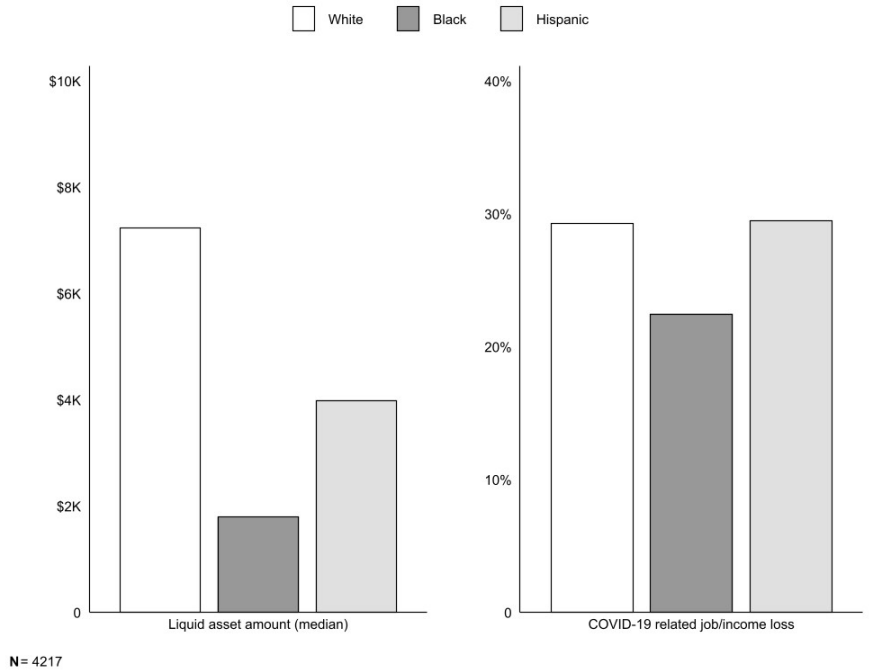

Figure 4: Liquid asset amount and job/income loss, by race/ethnicity

6.2. Explanatory analysis

6.2.1. Disproportionate pandemic impacts for racial/ethnic groups by income

Simple comparisons of housing hardships across income and race/ethnicity cohorts may be biased due to heterogeneity across the cohorts in terms of observable and unobservable characteristics. To address potential bias on observable characteristics, we employ a set of logistic regression models to control for demographic characteristics as well as geography at the Census division level.

Figure 5 compares the predicted probabilities of housing hardships for White and Black families by income group. In the higher income group, the risks of the three housing hardship indicators are not significantly different at the 0.05 level between White and Black respondents after controlling for covariates. In the LMI group, however, the risks of delinquency and utility bill payment delay are significantly different between the two racial/ethnic groups; compared to White respondents in the LMI cohorts, LMI Black respondents were 1.4 times more likely to be both delinquent on housing payments (9.2% vs. 12.9%) and utility bill payments (13.0% vs 18.5%) and the differences are significant at the 0.05 and the 0.001 level, respectively.

The relationship between income and housing hardships for White and Hispanic respondents (Figure 6) was somewhat different from those between White and Black respondents. Our empirical models show one significantly different housing hardship risk between the two ethnic groups—LMI Hispanic respondents were more than twice as likely as LMI White respondents to be forced to move by mortgage lenders or landlords (3.1% vs. 6.5%) and the difference is significant at the 0.05 level. The risks of mortgage/rent and other bill payment delinquencies for the two ethnic groups are almost identical within income groups, however.

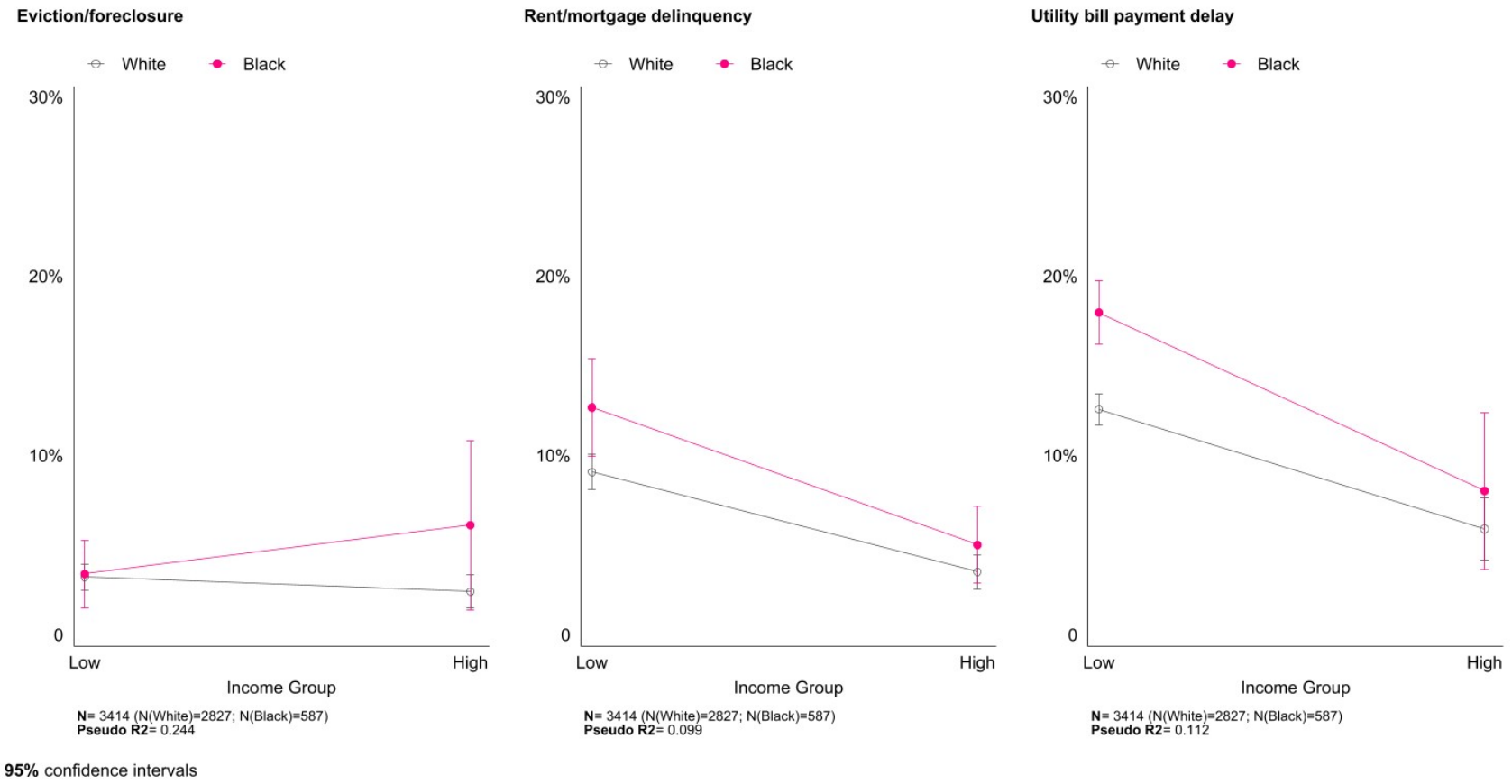

Figure 5: Predicted housing hardship risks, White and Black

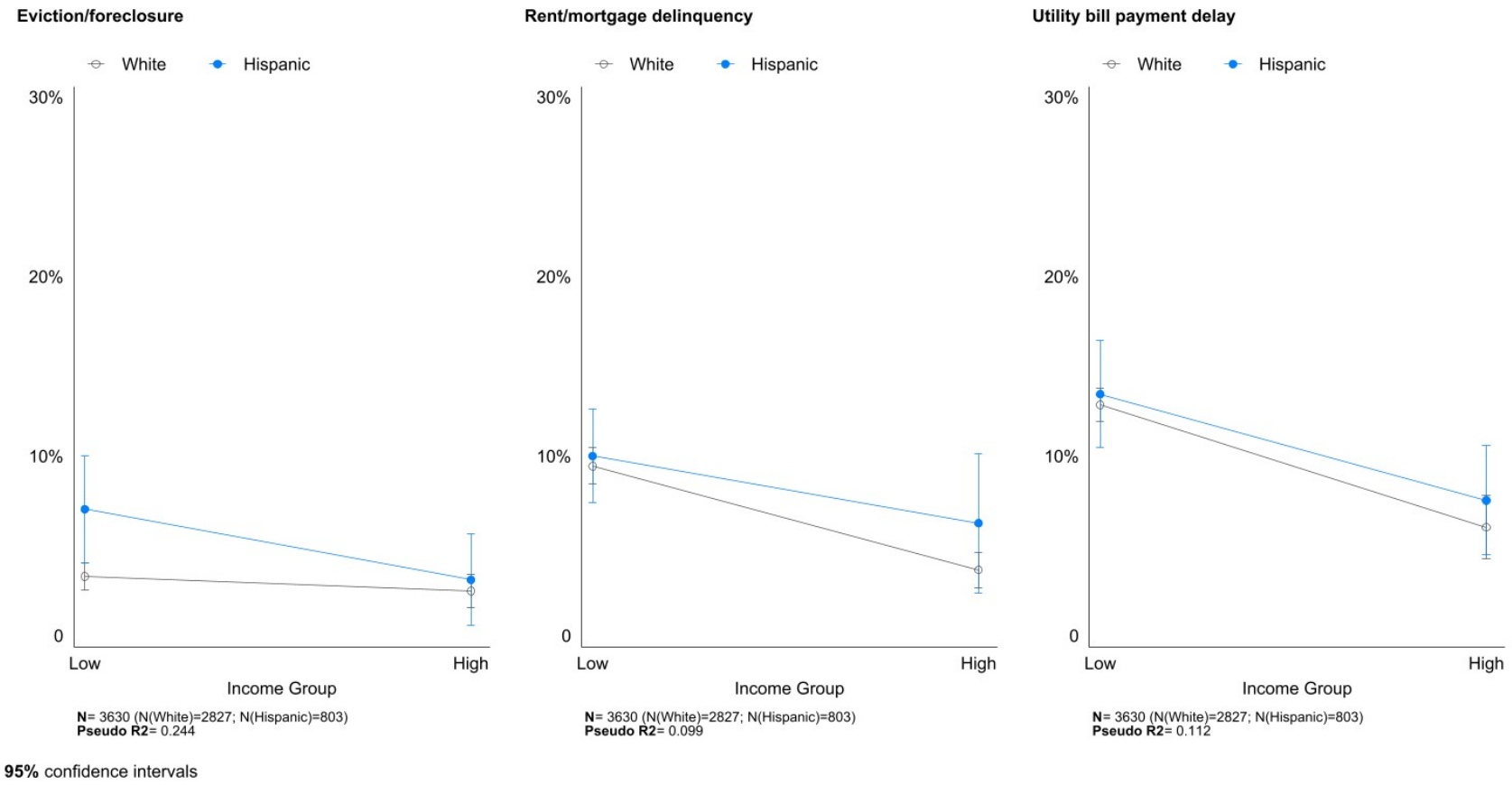

Figure 6: Predicted housing hardship risks, White and Hispanic

6.2.2. Mediation effects of liquid assets and employment shocks

Skin color itself, of course, does not determine housing hardship risks during the pandemic. Rather, we hypothesize that pre-existing disparities in liquid asset amounts prior to the pandemic and employment shocks during the pandemic could be two key pathways in the relationship between race/ethnicity and housing hardship risks. Panel A in Table 2 reports the estimated indirect mediation effects of liquid asset amount on the association between race/ethnicity and housing hardships. Notably, the indirect effects of race/ethnicity through the liquid asset pathway were highly significant in the models comparing White and Black respondents; the indirect effects explain 45.9 percent, 25.8 percent, and 27.1 percent of the estimated disproportionate pandemic impacts on eviction, mortgage/rent delinquency, and utility bill payment delay, respectively. Of the three, the latter two are statistically significant. Interestingly, the indirect effects are small and insignificant when we compare White and Hispanic respondents: the indirect effects represent 8.7 percent, 15.2 percent, and 21.5 percent of the total effects on eviction, mortgage/rent delinquency, and utility bill payment delay, respectively.

Panel B in Table 2 reports estimated indirect mediation effects of job and/or income losses during the pandemic. Overall, the indirect effects of race/ethnicity through the job/income loss pathway were not significant in the models comparing White and Black respondents as well as those comparing White and Hispanic respondents. In comparing White and Black respondents, the relative contributions of the indirect effect on the total effect are negative. The negative contribution indicates that the employment change during the pandemic "offset" the disproportionate impacts on housing hardships across racial/ethnic groups. Though the sizes of the negative contributions seem substantial, the indirect effects of the job/income loss are not highly significant; the negative contribution of the indirect income effects is significant when it comes to the delay in mortgage/rent delinquency and utility bill payment.

Table 2: Mediation effect of liquid asset and employment shock amounts

	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
	Black to White			Hispanic to White		
	Eviction	Delinquency	Utility Bill	Eviction	Delinquency	Utility Bill
Panel A: Liquid asset amount before the pandemic						
Total effect	1.578	1.814***	1.832***	2.218**	1.410	1.297*
	(0.514)	(0.245)	(0.194)	(0.610)	(0.306)	(0.169)
Indirect effect	1.239***	1.164***	1.176***	1.072**	1.054**	1.058**
	(0.036)	(0.031)	(0.027)	(0.025)	(0.019)	(0.019)
Direct effect	1.280	1.556**	1.555***	2.069**	1.338	1.227
	(0.437)	(0.235)	(0.164)	(0.563)	(0.275)	(0.146)
Indirect effect/Total effect	45.9%	25.8%**	27.1%***	8.7%	15.2%	21.5%
Panel B: Job/income loss during the pandemic						
Total effect	1.377	1.646***	1.672***	2.025**	1.336	1.250
	(0.400)	(0.224)	(0.174)	(0.536)	(0.276)	(0.160)
Indirect effect	0.920***	0.908***	0.915***	1.003	1.003	1.003
	(0.023)	(0.022)	(0.021)	(0.028)	(0.032)	(0.031)
Direct effect	1.497	1.813***	1.827***	2.020**	1.332	1.247*
	(0.424)	(0.225)	(0.185)	(0.508)	(0.266)	(0.149)
Indirect effect/Total effect	-26.2%	-19.4%*	-17.3%**	0.4%	1.0%	1.3%

Exponentiated coefficients reported for total/indirect/direct effects

Bootstrap standard errors in parentheses

Gender, marital status, number of dependents, educational attainment, home ownership and division fixed effects are controlled.

* p <0.05, ** p<0.01, *** p <0.001

7. Discussion

Our survey results suggest that, while the entire US population is facing increased housing risk, Black and Hispanic populations are bearing these risks disproportionately. Though these groups have been more vulnerable to the pandemic's impacts on housing hardships, the extent of these impacts vary by group. For instance, Hispanic LMI respondents reported a higher eviction rate than Black LMI respondents (7.0 percent vs. 3.4 percent), but were less likely to experience mortgage/rent delinquency (10.0 percent vs. 12.6 percent) and utility payment delinquency (13.5 percent vs. 18.0 percent). Notably, eviction-to-delinquency rates vary across racial/ethnic groups; the eviction-to-delinquency rate of Hispanic respondents is 0.70, which is far higher than White (0.35) and Black (0.27) respondents. Given the time involved in the delinquency-foreclosure-eviction process, as well as Federal efforts to rescue financially-distressed homeowners such as the Home Affordable Refinancing Program (HARP) and the recent Hardest Hit Funds (HHF) program, the small gap between eviction and delinquency rates of the Hispanic LMI population is surprising. This idiosyncrasy may indicate that current foreclosure/eviction prevention measures do not work particularly well for the Hispanic population. Given the continuing economic distress caused by the pandemic, it seems highly likely that many Hispanic homeowners will disproportionately suffer from housing instability during the pandemic without additional intervention.

Why have minority families been disproportionately affected by the pandemic? Our empirical results suggest that the mechanisms of the pandemic's impacts vary between Black and Hispanic groups. Disparities in pre-pandemic liquid assets at least partially explain the relatively high housing risks among Black families. The partial mediation effect of pre-pandemic liquid assets on the disproportionate housing hardships faced by Black families imply that the current disparities are, to some extent, a function of pre-existing economic inequities. Over the years, wage disparities, homeownership disparities, unequal access to affordable financial products and services, asset limits in public programs, and myriad other

major and minor factors left Black families less able to build up the type of emergency savings buffers that are the lynchpin of economic security. The disparate exposure to housing hardships during large-scale economic crises like the COVID-19 pandemic is just one result of this intergenerational economic inequality.

On the other hand, neither liquid asset amounts nor COVID-19-related employment/income shocks explain why Hispanic families were more likely to experience housing-related hardships during the pandemic. Though we do not examine them in this study, historical and contemporary forms of racial/ethnic discrimination, as well as discrimination by immigration status, may also contribute to the housing hardship disparities we see among Hispanic households. In particular, some Hispanic families may have been in a relatively vulnerable housing situation prior to the pandemic. This could be a function of discriminatory mortgage lending practices, characteristics specific to the communities where Hispanic families live, or other individual or societal factors. Lack of access to government services may be another reason for their disproportionate housing hardship experiences during the pandemic. Poor access to social services in the Hispanic population has been attributed to the immigration status of the population, a lack of adequate information due to language barriers, and discrimination at both institutional and individual levels (Einstein and Glick, 2017). Yet regardless of the specific mechanisms driving these disparities, our findings clearly indicate that large minority groups in the U.S. are not only exposed to all the risks and hardships that accompany housing instability, but are also likely facing the disproportionately high risks of COVID-19 infection that may accompany the inability to effectively shelter in place. Understanding the particular needs of these groups and taking positive steps to address both the disparate burdens placed on them during the pandemic, as well as the pre-pandemic inequities that led to these disparities, will be essential to forming an effective pandemic response both now and in the future.

8. Conclusion

Infection and eviction (as well as other housing-related hardships) are inseparable. The COVID-19 infection rate is largely determined by its reproductive number (R0); if R0 is below one, then the infection will eventually diminish in the population. Otherwise, it will keep spreading. Social distancing is a key practice that minimizes the R0 through reducing the frequency and duration of contact individuals have with each other (Sen-Crowe et al., 2020). The most powerful and effective way to keep social distancing is, obviously, by staying home.

Though pharmaceutical companies have released promising results on coronavirus vaccines, the complete eradication of the virus seems quite distant now. Tedros A. Ghebreyesus, the head of the World Health Organization, anticipates that a vaccine would not by itself stop the pandemic (Hart, 2020). Some experts think that the pandemic could last until the end of 2021 (Sanchez, 2020). The disparities in housing hardships we observed in our study may widen as the pandemic is prolonged, particularly if the economic effects of the pandemic continue to drain families' liquid asset reserves. Given this, policies aimed at promoting employment or that provide benefits to the already-employed will likely not be enough. Families in general, and minority families in particular, can benefit from policies that seek to provide continuing financial support so families can offset the often unavoidable economic costs of the pandemic, such as expansions of the Economic Impact Payments offered through the recent CARES Act or continuing, unconditional cash support. Going forward, identifying and addressing the causes of liquid asset gaps across racial and ethnic groups, such as income inequality, homeownership disparities, and limited access to affordable financial services for racial and ethnic minorities, will be essential to helping these families better withstand future economic shocks.

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Table A1: Logistic regression results (Odds ratio reported)

	(1) Eviction	(2) Delinquency	(3) Utility
Income:			
High	0.719	0.351***	0.419***
	(0.226)	(0.051)	(0.073)
Race/ethnicity:			
Black	1.064	1.491*	1.570***
	(0.226)	(0.051)	(0.073)
Hispanic	2.554*	1.070	1.057
	(0.977)	(0.197)	(0.141)
Income x Race/ethnicity:			
High x Black	2.891+	0.983	0.898
	(1.795)	(0.135)	(0.395)
High x Hispanic	0.507	1.670	1.208
	(0.390)	(0.670)	(0.322)
Gender:			
Female	0.286***	0.667***	1.092
	(0.057)	(0.060)	(0.075)
Age:			
25-34	0.652	1.299	1.108
	(0.237)	(0.275)	(0.225)
35-44	0.391+	1.202	0.988
	(0.196)	(0.355)	(0.130)
45-54	0.106***	0.867	1.108
	(0.045)	(0.198)	(0.149)
55+	0.018***	0.432**	0.551+
	(0.013)	(0.136)	(0.186)
Marital status:			
Single, never married	0.714	1.014	1.075
	(0.159)	(0.156)	(0.270)
Single, separated/divorced/widowed	0.839	1.462*	1.242+
	(0.494)	(0.248)	(0.152)
Educational attainment:			

Continued on next page

Table A1 – continued from previous page

	(1) Eviction	(2) Delinquency	(3) Utility
Some college/Certificate/Associate's degree	1.065	1.000	0.914
	(0.274)	(0.145)	(0.098)
Bachelor's degree	0.748	0.616*	0.515***
	(0.208)	(0.129)	(0.095)
Graduate or professional degree	1.681+	0.831	0.560**
	(0.502)	(0.123)	(0.104)
Number of dependents:			
1	4.093***	2.246***	1.836**
	(1.213)	(0.316)	(0.416)
2	4.584***	2.431***	2.559***
	(0.960)	(0.317)	(0.524)
3+	1.819	1.643**	2.188*
	(0.699)	(0.303)	(0.769)
Home ownership:			
Own home, free and clear	1.473*	0.685+	0.748**
	(0.282)	(0.144)	(0.080)
Pay rent	0.688	0.787	1.586***
	(0.200)	(0.142)	(0.121)
Constant	0.126***	0.114***	0.181***
	(0.053)	(0.036)	(0.046)
Observations	4217	4217	4217
Pseudo R2	0.244	0.099	0.112
AIC	919.8	2079.9	2702.7
BIC	970.5	2130.7	2753.5

Exponentiated coefficients;

Standard errors in parentheses; Std. Err. adjusted for 9 clusters in division (Division FE omitted)

+ p <0.10, * p <0.05, ** p <0.01, *** p <0.001