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Rental Property Owner Stress During the COVID-19 Pandemic: Results from a Minneapolis, MN Survey

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ABSTRACT

The COVID-19 pandemic has placed a unique strain on the US housing system. Unprecedented job losses combined with a public health imperative to keep people housed pushed policymakers to issue a series of orders pausing residential evictions. These moratoria kept people in their homes but did little to address the underlying housing stresses. In this paper, we document the early impact of the pandemic on private rental housing owners with the results of a new survey. Between December 2020 and January 2021, we surveyed rental property owners in Minneapolis, Minnesota, asking general questions about their businesses and specific questions about how the pandemic has affected their ability to operate rental properties. In this paper, we present a descriptive analysis of the responses. Nearly half of the respondents to our survey reported that the pandemic affected their business in some way. In addition, we find associations between property owner stress and rents, portfolio size, property location, and owning physically-deficient properties. The results of our analysis will be useful for policymakers as they continue to confront the housing challenges brought on by the COVID-19 pandemic.

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Introduction

As it has in countries across the world, the ongoing COVID-19 pandemic placed a unique strain on the US housing system. In March 2020, local and state governments issued a series of public health orders as the virus spread, closing non-essential businesses and directing people to shelter-in-place. Combined with general economic uncertainty, these orders caused businesses to close *en masse*, leading to furloughs and an unprecedented spike in unemployment claims. The economic fallout of the pandemic was immediate, which in turn raised concerns among policymakers that households would miss rent payments and that cities would experience widespread evictions and displacement. Improving housing security is often a goal for policymakers, but the pandemic increased its relevance as keeping people safely housed now had clear implications for public health. The response was a series of

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orders temporarily stopping new eviction fillings. These moratoria essentially froze the housing system, keeping people housed with no concrete long-term solutions to the housing insecurity the pandemic created.

In this paper, we document the pandemic's early impact on the private rental housing system with a survey of property owners in Minneapolis, Minnesota. Minneapolis is a good site for this research, as the pandemic immediately impacted the city's economy, and state and local officials responded with an aggressive set of emergency policies. Between February and March 2020, the unemployment rate in the Minneapolis-St. Paul-Bloomington metropolitan statistical area increased from 3.1 to 11.8% (Statistics, 2021). The governor of Minnesota quickly closed K-12 public schools (March 15), halted indoor dining (March 16), and issued a stay-at-home order (March 25) to slow the virus's spread.[1] On March 23, the governor issued executive order 20–14, prohibiting residential landlords from terminating leases.[2] The moratorium halting residential evictions, which the federal Centers for Disease Control and Prevention order eventually strengthened, lasted until 12 September 2021 (although the moratorium continued to protect certain tenants until 1 June 2022.)[3]

We collected survey responses from rental property owners in Minneapolis between December 2020 and January 2021. We contacted owners via e-mail using the Minneapolis rental property inventory, a database containing information on the characteristics and ownership of nearly all rental properties in the city. Our survey asked questions about the demographic characteristics of residential rental property owners, characteristics of their rental housing businesses, and whether and to what extent the pandemic was affecting their ability to operate their rental property business. Here we present our initial findings, examining the scope of the pandemic's impact on rental property owners and analyzing the demographic and business-model correlates of pandemic stresses.

In our review of the existing literature, we observed that there is relatively little prior research on the backgrounds and experiences of private rental owners (particularly small, non-institutional investors). In most rental housing scholarship, researchers focus on the characteristics and experiences of rental tenants. This is understandable, as policymakers are often most concerned about the housing outcomes of renters. However, private investors own and operate the vast majority of rental housing in the US. In order to understand how rental markets operate and design programs to improve housing outcomes, we must understand private housing providers' demographic and portfolio characteristics, backgrounds, and business models. During the pandemic, this gap became especially problematic, and two other groups launched similar surveys of rental property owners. In this paper, we present our findings from Minneapolis and compare our results and research design with these two other studies to help improve the methodological understanding of rental property owner surveys.

Our survey responses suggest that the COVID-19 pandemic affected the business of many rental property owners in Minneapolis. We ask questions about five different pandemic-related business impacts including increased frequency of rental arrears, premature vacancies, increased overall vacancy, declines in cash flow, and increased difficulty in renting out vacant units. Of the over 1,400 responses we received (representing over 13% of all residential rental property owners in the city), nearly 53% reported that their businesses were affected in at least one of these areas. The most common impact reported was an anticipated decline in cash flow, followed by increased rental arrears, an increase in overall vacancy numbers, and more difficulty leasing vacant units.

In addition, we estimate a series of regressions to examine the demographic and business-related correlates of business stress during the pandemic. Our analysis reveals four general themes. First, owning more rental properties is positively associated with reporting pandemic-related stress. This could be because owners with large portfolios have greater exposure to pandemic-related risk, but it could also suggest differences in the tenant screening, management, or business models of larger rental property operators. Second, we find a strong and consistent association between average rent and pandemic stress, with owners of lower-rent properties more likely to report operational impacts. The health and economic impacts of the pandemic fell disproportionately on lower-income people; thus, it should not be surprising that owners renting to these tenant populations were more likely to experience impacts on their businesses. Third, we find that owning properties in relatively-low income zip codes increases the odds that owners reported various pandemic stresses. Finally, owning a physically deficient property (according to the Minneapolis rental registry) was one of the most consistent predictors of property owner stress during the pandemic.

We make two contributions in this paper. First, we examine how the pandemic impacted rental property owners and how these impacts varied by the business and personal characteristics of owners. The pandemic and resulting policy responses had an unprecedented impact on the private housing system, and the lessons learned from this period can help inform future responses to disasters and other external shocks to housing markets. Second, we test and critically examine a new survey methodology to gather information from rental property owners. Not only do we assess our own method, but we compare our design with that of other similar studies to inform the design of future surveys of residential rental property owners. In this way, we are contributing to a new research agenda within the fields of housing policy and planning that focuses on the owners and operators of private rental housing.

Our paper proceeds as follows. In the next section, we summarize the previous research on rental property owners' demographic characteristics and business models. We then describe our survey and provide validation of our survey responses. Next, we provide a summary of our survey results. Finally, we end our paper with a discussion of the policy implications of our research.

Background

Correlates of property owner stress

Housing researchers frequently consider the role of private property owners in rental markets, yet rarely are owners the central focus of policy-oriented research and evaluations (Garboden & Rosen, 2018). Although analysts generally acknowledge owners' important role in shaping housing outcomes (Mallach, 2007), less frequently do they consider the constraints that shape owners' behavior. Thus, we know a good deal about how property owners' behavior affects housing security through the supply-side of the rental housing market, but relatively little about the factors influencing owners' decision-making and behavior.

A good example of this somewhat counterintuitive treatment of owners in the housing literature comes from recent work on residential evictions. In a subset of this broad

research agenda, scholars seek to understand why some property owners use evictions more than others. Researchers studying these questions have two theories that explain why owners use the eviction process. One group argues that rental owners at the bottom of the market use eviction to profit from the uneven power dynamic between themselves and their tenants (Desmond et al., 2015; Greenberg et al., 2015). These owners know their tenants have few housing options due to limited resources, employment insecurity, and checkered rental histories. They can thus set rents relatively high, leave their properties in poor physical condition, and use the threat of eviction to remove tenants when they try to push for repairs or fall too far into arrears. Under this paradigm, eviction-induced housing insecurity is the business model (Desmond & Wilmers, 2019).

Other researchers suggest that the owner who uses eviction-as-default is an exception and that most owners seek to work with tenants to avoid displacement, only using the eviction process when they have exhausted other options (Balzarini & Boyd, 2020; Raymond et al., 2016). The prevalence of evictions among these owners is not strategic but rather the result of owners' limited resources. Negative housing outcomes are not an intentional business decision but rather caused by the marginal market position of owners, tenants, or both.

The conflict between these two extreme characterizations of the eviction process lies in their treatment of property owners in the eviction system and their assumptions about the property owners' resources. Under the first paradigm, owners have the resources and management expertise to exploit vulnerable tenants. Under the second, owners are vulnerable due to capital constraints and a lack of management and legal experience. These debates highlight the importance of understanding the role and characteristics of rental property owners and those who own and manage rental properties. They are also extremes, which leaves room for a more nuanced exploration of the space between these two poles.

While housing policy researchers often give the characteristics of property owners short shrift, scholars from other fields have placed property owners more central in their research. For example, understanding rental property owners' investment strategies, capitalization, and returns is a common research question among real estate finance and economics analysts (Seay et al., 2018; Özogul & Tasan-Kok, 2020). This literature is broad, and scholars in these fields have studied whether investment returns differ based on geographic portfolio diversity (Feng et al., 2021), management practices (Brown et al., 2008), and asset types (Eichholtz et al., 1995).

Although we frame and measure it differently, we are interested in a similar question about the factors influencing the operation and performance of rental businesses. Instead of measuring property-level and portfolio returns, we use our survey to ask about rental business disruptions at the property and portfolio level during the pandemic. Ultimately, we set out to examine whether certain property owners were more likely to experience pandemic-related operational stress and better understand the constraints that owners face more generally.

Covid-19 and rental housing

There are two ways to think about the connection between the pandemic and the businesses of rental property owners. First, an owner's stress could be an extension of how the pandemic has affected their tenants. If a property owner rents to a population

that experienced a disproportionate share of the economic and health impacts of the pandemic, one would expect that their tenants would experience greater difficulties upholding the terms of their leases and that these owners would feel the effect of the pandemic more strongly. Second, rental owners may have been directly affected by the pandemic. Owners may also face personal health, safety, and employment concerns; and the pandemic, and its attendant health, labor, and economic impacts, could complicate their ability to maintain and manage their portfolios. And these two impacts can occur simultaneously. The pandemic may thus deal a double blow to rental businesses, affecting tenant stability and portfolio management concomitantly.

While the pandemic has affected everyone in society, researchers have demonstrated that the health and economic distress produced by the pandemic were not distributed evenly but amplified preexisting social vulnerability (Chetty, Friedman, Hendren, Stepner, & The Opportunity Insights Team, 2020; Gemelas et al., 2021; Kim & Bostwick, 2020). The risk of experiencing severe health impacts from Covid-19, particularly before the vaccine roll-out, was higher for older populations and those with preexisting medical conditions (Cummings et al., 2020). Low-wage workers, particularly those working in hospitality and other service industries, were more likely to experience layoffs and furloughs during the pandemic (Chetty, Friedman, Hendren, & Stepner, 2020, Jin Cho and Winters). Before the pandemic, researchers had already established that health and economic vulnerability correlate strongly with race and ethnic background (Kawachi et al., 2005). These patterns continued and were amplified during the pandemic (see, for example (Gaynor & Wilson, 2020; Gil et al., 2020; Golestaneh et al., 2020)). And there is substantial evidence that women in general, and women from otherwise disadvantaged groups specifically, face unique challenges in finding secure, safe, and affordable housing (Parker & Leviten-Reid, 2022). We should thus expect that property owners renting to these vulnerable tenant populations are more likely to experience pandemic-related stress. Although we do not measure tenant demographic characteristics in our survey, we do ask about portfolio rents and property location, which may correlate with tenant vulnerability.

Rents are only one component of the residential rental property system to consider when assessing tenant vulnerability. In several studies, researchers find that an owner's management experience is an important predictor of housing security. For example, Garboden and Newman (Garboden & Newman, 2012) suggest that, particularly at the bottom of the rental market, experienced owners manage their properties more efficiently, leading to better tenant outcomes. Other researchers find that multifamily rental owners who live in their buildings can better anticipate and preemptively respond to tenant stress (Furman Center for Real Estate and Urban Policy, 2013). Not only does living in one's rental property matter but so does living nearby. Fisher and Lambie-Hanson (2012) compare mortgage defaults between owner-occupiers and local and non-local investors. They find slightly higher default probabilities among investors generally and local investors specifically.

There is also evidence that the size of an owner's portfolio matters for tenant outcomes, as portfolio size impacts property management. Some debate exists about whether larger portfolios lead to better or worse tenant outcomes on balance. On the one hand, owners with larger portfolios may benefit from leasing and management economies of scale (Mallach, 2007; Newman, 2005). These owners may have better systems to screen new renters and more resources to respond preemptively to tenant

hardships. On the other hand, economies of scale may be limited for owners whose rental units are spread out, especially for management and maintenance (Charles, 2020). Owners of large portfolios may thus have more difficulty operating their portfolios, resulting in either increased management costs or neglect. There is some evidence that this is the case for investors in single-family rentals (Immergluck, 2018). Analysts have raised concerns that management inefficiencies among these owners negatively affect neighborhood, property, and tenant outcomes (Immergluck & Law, 2014; Travis, 2019).

Along the same lines, a property owner's financial resources may determine an owner's business model, how they manage their properties, and, ultimately, the experiences of their tenants. Owners with more personal wealth and less debt may spend more on property maintenance and renovations (Brown et al., 2008; Harding et al., 2000). Similarly, they may be better able to work with tenants at risk of breaking the terms of their leases. If an owner relies on rental income to cover debt payments, they may be less willing (or see themselves as unable) to waive or offer reduced rent for struggling tenants (Balzarini & Boyd, 2020; Mallach, 2007).

Relatively few researcher have studied whether other demographic characteristics of property owners are associated with management practices and tenant outcomes. For example, there is no research that examines how an owner's gender influences their management behavior. Existing research on property owner demographics and management primarily focuses on the impact of racial and ethnic backgrounds. There is some evidence that a property owner's race, particularly if they are from the same racial group as their tenants, shapes management practices and tenant interactions (Evans & Porter, 2015; Zannella et al., 2020). For example, Greenberg et al. (2015) find that Hispanic tenants are less likely to face eviction when renting from Hispanic property owners in Milwaukee.

A property owner's race may correlate with housing outcomes if an owner faces discrimination in purchasing or lending markets. During the 2008 housing crisis, for example, lenders steered investors in predominantly Black neighborhoods into riskier mortgage products, and, as a result, those investors were more likely to experience defaults (Rosenblatt & Sacco, 2018). Similarly, Mayer (1985) finds that owners of properties in neighborhoods that are majority households of color have more difficulty accessing debt with favorable terms, leading them to underinvest in property maintenance. Finally, although there has been little research on access to debt for nonwhite real estate investors, there is substantial evidence suggesting that, on average, borrowers of color (although not a monolithic group) face discrimination in residential mortgage markets. This was particularly true in the lead-up to the 2008 housing crisis (Hanson et al., 2016; Ladd, 1998; Steil et al., 2018). Black borrowers were more likely to have purchased homes with risky, sub-prime mortgages and, as a result, more likely to default on their debt (Faber, 2013; Rugh & Massey and, 2010).

Housing research during the pandemic

Although we are still early in our understanding of the pandemic's impact on housing systems (and countless other social and economic systems, for that matter), several other researchers have asked similar questions to those we pose in this study. The immediate health and economic shocks of the pandemic, combined with several local, state, and national eviction moratoria, created an unprecedented housing situation. While there is

little doubt that the pandemic caused housing stress and insecurity, its scope was difficult to observe as the eviction moratoria essentially froze the housing system in place. Researchers, including us, wondered what exactly had been frozen. What was the scope of pandemic-related housing stress and insecurity? How was the pandemic affecting rental property owners, and how were they altering their businesses in response?

While there is certainly more research on these questions forthcoming, there are several recent studies that are particularly relevant to our current project. The first set of studies use an experimental US Census Bureau survey, the Household Pulse (Pulse), which provides weekly estimates of the pandemic's impact on people's physical, economic, nutritional, and housing wellbeing (Williams, 2020). Several researchers used this survey to track, primarily at the national level, housing security during the pandemic. For example, Bushman and Mehipanah (2022) used the Pulse data to track correlations between housing and health outcomes during the early stage of the COVID-19 pandemic. Using responses between April and July 2020, they found strong and consistent associations between physical and mental health and housing tenure, with renters and those with mortgage debt reporting worse health than those who owned their homes outright.

Ong et al. (2022) used Pulse data along with data on Emergency Rental Assistance participation to track differences in tenant housing outcomes across California. They found that between July 2021 and January 2022, 14% of California respondents reported being behind on rent, and 15% believed that they were likely to face eviction within two months. Additionally, they found that these impacts were more likely among low-income and nonwhite households. Manville et al. (2020) combined Pulse data with their own July 2020 survey of tenants in Los Angeles County, California. They found that between May and July 2020, around 10 percent of renters either missed a rent payment or failed to pay their rent in full. Consistent with Ong et al., their survey results indicated that rental housing stress was much more common among low-income households.

In addition to the Household Pulse survey, the US Census Bureau also created an experimental survey of small business owners during this period. The motivation behind the Small Business Pulse was similar to that of the household survey: to produce near real-time data on the ongoing impact of the pandemic on small businesses. The US Census Bureau reports these data at the national and state levels and broken out by NAICS super sector. While several studies have used the Small Business Pulse to track the impact of the pandemic and pandemic-related closures on small businesses (see, for example [Bartik et al., 2020]), none, to our knowledge, have used these data to study the impact of the pandemic on rental businesses specifically. We use these data as a comparison with our survey results; to wit, during December 2020 (during which we were collecting survey responses), approximately 29% of businesses engaged in real estate rental and leasing reported a decline in operating revenues nationally, compared with just 4% reporting an increase and 68% reporting no change.

Although we focus on the impact of housing policy responses to the pandemic on residential rental property owners in the US, there are many similarities in rental markets and thus similarities in the precarity of rental tenants around the world (Malpezzi, 2023). As such, there are likely similarities in how the pandemic impacted tenants and, presumably, rental property owners in countries across the world. For example, Oswald et al. (2022) analyzed a combination of survey data and detailed ethnographic diaries from rental tenants during an early wave of

pandemic lockdowns in Australia. As in the US, federal and local governments in Australia offered a patchwork of tenant and owner relief and protections during the early stages of the pandemic. Yet despite these supports, Oswald et. al.'s analysis showed that many tenants harbored prospective fears about their financial and housing stability. They found that tenure-specific pandemic concerns interacted with universal pandemic anxiety and social isolation resulting in tenants reporting a marked decline in their mental well-being. Byrne and Sassi (2022) reported similar pandemic-related tenant impacts from a more firmly qualitative study they conducted of renters in Ireland.

Except for the Small Business Pulse, the studies described above use the tenant as the unit of analysis rather than the property owner. There are, however, two recent studies where the unit of analysis is the property owner, matching our focus in this study. The first, conducted by de la Campa and Herbert at Harvard's Joint Center for Housing Research and Reina at the University of Pennsylvania's Housing Initiative (hereafter referred to as the JCHS survey), surveyed property owners in 10 American cities (de la Campa et al., 2021). The second is a national survey of rental property owners conducted by Decker (2021) at the University of California Berkeley's Terner Center (hereafter: the Terner Survey).

For the JCHS Survey, de la Campa et al. used a combination of rental registries and Emergency Rental Assistance (ERA) applications to build a contact list of residential property owners. They distributed invitations to participate in their survey via text message and e-mail between February and April 2021. Out of the 58,000 invitations, they received 2,930 partial or complete responses. For the Terner Survey, Decker pulled from a national pool of rental property owners in small and mid-sized US metro areas, using data provided by the real estate investment platform, RoofStock. They sent a total of 93,000 invitations, for which they received a total of 1,690 online responses.

Substantively, the JCHS and Tener survey instruments are quite similar to each other and the one we developed for this study. Both use the property owner as the unit of analysis, focusing primarily on the owner's overall portfolio characteristics. In both the Terner and JCHS surveys, the researchers asked respondents to answer questions about a single property that they see as representative of their overall portfolio.

Both studies documented the impact of the pandemic on property owners' businesses but did so slightly differently. In the JCHS Survey instrument, the researchers ask portfolio questions twice, once for 2019 and again for 2020. For example, to measure rent collections, they asked what proportion of the total rent they charged across their portfolio they received in each of the two years. They then estimate the pandemic's impact by comparing the two years' change in reported rent receipts. This design allows the researchers to create a two-wave panel from a single cross-sectional survey. However, it requires respondents to recall business characteristics from two previous years, a potentially taxing exercise for some owners. The Terner Survey, in contrast, asks these portfolio questions as comparisons. Instead of asking about rent receipts for the two previous years, the researchers ask if receipts are higher or lower than the previous year. As we describe in more detail in the next section, we use a similar method in our instrument.

Although direct comparison between the two surveys is difficult given their idiosyncratic designs, they returned generally consistent results. In the Terner survey, for example, 31% of respondents report earning less than 90% of rent collected in the prior year.

While in the JCHS Survey, 37% of respondents collected less than 90% of total rent in 2020, compared with just 11% in 2019. We reference these results in more detail in our results section as a point of reference for our findings from Minneapolis.

While we ask detailed questions about property owners, their demographic characteristics, their portfolios, and their experiences with their rental property business during the pandemic, our survey captures limited information about tenant characteristics. However, we expect that property owner stress during the pandemic will correlate with the preexisting and pandemic-related vulnerabilities of their tenants. Our study is thus most useful in understanding what demographic, economic, and business model characteristics of property owners correlate with stress during the COVID-19 pandemic. In the next section, we describe our models in detail, followed by a summary of our results. We end with a discussion of the policy implications of our study and areas for future research.

Data and method

Minneapolis Survey

To examine the impact of the pandemic on rental housing providers, we distributed a survey between November 2020 and January 2021 to owners of one or more rental properties in Minneapolis, Minnesota. Although we discussed several recent exceptions above, most previous survey-based research on private rental housing has focused on tenants rather than property owners. There are likely several reasons for this. First, when policymakers design rental housing programs, their primary goal is to improve the experiences of tenants rather than those of property owners and managers. Surveying tenants about the characteristics and quality of their units, interactions with owners, and financial insecurity is a sensible unit of analysis with this goal in mind.

Second, researchers can infer the full population of rental housing units in a particular place with a well-designed tenant survey. Suppose a study's goal is to understand the characteristics of rental housing in a given geography. In that case, surveying tenants can gather basic information about the rental housing stock, similar to a study representative of either rental units or property owners. But while the coverage may be similar, the information researchers can gather from tenants differs from what property owners can provide. Tenant surveys generally focus on the experiences and financial situations of tenants. Tenants, however, can offer only limited information on the owners and managers of their rental units. Consequently, we know comparatively less about property owners' characteristics, behavior, and financial constraints than we know about their tenants.

Finally, in many past studies, convenience likely plays a role in the decision of researchers to focus on tenants. Property owners are a particularly difficult population to contact (Garboden & Rosen, 2018). Few cities have detailed and complete registries of rental properties, and fewer still contain up-to-date contact information for property owners. Property owners often hesitate to respond to surveys even where contact information is available. This hesitancy partly stems from the preponderance of market research in the real estate industry. Professional market research firms typically compensate respondents; thus, property owners may expect higher compensation than is common in academic and policy-focused research. And while property owners may be used to receiving survey requests, they may worry that their responses will reveal proprietary

information to competitors. Further, rental property owners, particularly those renting at the bottom of the market, may feel that popular and academic portrayals of tenant/property owner interactions represent them poorly. As a group, they may thus be hesitant to provide accurate responses to surveys if they believe the resulting research will add to the perceived stigma of their profession.

Despite these reasons, there is a strong case to be made for surveying property owners in the context of the pandemic and, more generally, to improve our understanding of private rental market dynamics and rental housing stability. While an understandable response to an unprecedented crisis, eviction moratoria placed a unique burden on rental property owners. By preventing property owners from evicting tenants for nonpayment of rent, eviction moratoria shifted the financial burden of the pandemic onto property owners. Later in the pandemic, the Coronavirus Aid, Relief, and Economic Security Act and American Rescue Plan provided some financial support to some property owners. As a result, we are interested in how, if at all, the pandemic affected the businesses of rental property owners overall.

Even outside the context of the pandemic, housing scholars are increasingly interested in studying the characteristics and behavior of rental property owners and managers. In the United States, private property owners operate most rental housing units even among low-income tenants. According to the 2019 American Housing Survey, over 93% of rental units in the US are privately owned and operated. Although there is a substantial literature that documents the experiences and constraints of tenants, we know much less about the motivations, behaviors, and financial situations of property owners. While scholars have documented extreme cases of property owner neglect and abusive behavior, we ultimately know little about how common these types of interactions are and even less about what motivates this type of behavior.

To study how the pandemic affected residential property owners, we used the Minneapolis rental registry database to e-mail owners of rental properties, asking them to complete an online survey. The Minneapolis code of ordinances requires that owners obtain a rental license before renting out their property. Although many cities have rental registry requirements, the Minneapolis ordinance is more comprehensive than most, requiring a valid license to let any property, including single-family and condominium units.[4] The license application requires that property owners provide detailed contact information, including their e-mail addresses. The city of Minneapolis then publishes this information through its open data portal.

We used these e-mail addresses to invite owners to participate in the survey. We designed our survey instrument to gather information on the general characteristics of property owners and their rental portfolios and specific information on how the pandemic has affected their businesses (see the appendix for the full instrument). Because our unit of analysis is the property owner, we weighed the trade-offs between gathering detailed information on individual units within their portfolios and potentially designing too detailed a survey that would drive down response rates. While it would be interesting to be able to link pandemic impacts and property owner responses about the characteristics of individual units, we feared that property owners would need to consult their records to provide this level of detail and either fail to respond or provide incomplete responses. Along the same lines, we include a screening question that is intended to exclude respondents who

are property managers hired by the owner. In the event that a property manager received the survey e-mail, we asked that they forward it to the owner. Our sample thus only includes owners who self-manage their portfolio or those who hire a property manager or management company to oversee the day-to-day operation of their business.

Our survey begins with a detailed series of questions about the property owner and their rental property portfolio. In addition to general demographic information, we ask whether the property owner has other sources of income and how reliant they are on income from their rental property. We then ask a series of questions about their portfolios. To get an idea about the location of their rental properties, we ask for the four zip codes where the owner owns the most properties. Although not a complete inventory of rental locations, these results give us an idea of the neighborhood characteristics of their rental properties.

Unlike the JCHS and Terner studies, we do not ask questions about a single representative property but instead ask about all the properties in the owner's portfolios. These building-level questions include property-level cash flows, vacancies, and building sizes. For example, we ask how many rental properties they own in single-family buildings and in 2–4, 5–10, 11–25, and 25 plus multifamily buildings and the approximate vacancy across each building type. We capture rents at the unit level – asking respondents the number of units they rent in each of five rent bins (i.e., under $750, $751 to $1,000, etc.).

We then ask a series of questions about how the pandemic has affected respondents' rental property businesses. Ideally, to understand the impact of the pandemic, we would survey property owners twice, once before the pandemic began and once after. We would then compare responses between the waves to infer the impact of the pandemic on their rental businesses. Of course, this design would require that we had created our panel before the pandemic, necessitating either luck or perfect foresight, neither of which we possess. As we describe above, in our review of other similar studies, scholars take one of two approaches to capture pandemic impacts in a single survey wave, either asking operations questions twice, once for 2019 and again for 2020 (de la Campa et al., 2021) or asking respondents to compare their portfolios in 2020 to 2019 (Decker, 2021). We followed the latter tack, asking respondents to compare the performance of their portfolios during the pandemic to the previous period.

We ask about impacts across several broad areas, including missed rent, premature vacancies, leasing, and missed rent payments. For each of these impact areas, we ask respondents whether they have experienced them since the start of the pandemic, how common these impacts are, and how the frequency has changed. We also ask whether they have applied and been approved for government assistance programs, sought mortgage relief from their lenders, or postponed maintenance.

We received a total of 1,610 full or partial responses to our survey. We used two criteria to drop responses. First, we excluded 175 records where the respondent completed less than 75% of the survey. Next, we dropped an additional four responses that completed more than 75% of the survey but did so in under four minutes. After these deletions, we are left with 1,431 observations. We did not, however, require that respondents answer all of the questions in the survey. Thus, we estimate our regression models using between 1,139 and 1,159 observations.

Survey representativeness

The validity of our analysis hinges on the representativeness of the property owners who responded to our survey. Ideally, to examine our survey's representativeness, we would compare the characteristics of our respondents with data on the true population of rental property owners in the city. Unfortunately, there is no reliable data source on the population of rental property owners, either at the national level or in Minneapolis. We thus use a second-best validation method to check the representativeness of the underlying registry to the rental housing stock in Minneapolis and then compare how our responses compare to the registry. In other words, we assume that if the registry captures most rental properties in the city, then it must also capture the universe of rental property owners. We can then compare the characteristics of the survey responses to those included in the registry.

In Table 1, we present the results of this comparison. In Panel A, we show the count of rental housing units by the total number of units in the structure based on 2019 one-year ACS estimates against the same breakdown from the rental registry. The registry is very comprehensive. Both in raw counts and proportionally, the registry closely mirrors the ACS estimate of the Minneapolis housing stock.

In Panel B, we compare the registry with our survey responses on a similar breakdown of units in the structure. Again, the self-reported responses we received in our survey match closely with the registry. In Panels C and D, we compare the size of property owner portfolios in the registry with our survey results. This is, admittedly, an imperfect comparison. We can only measure the size of a property owner's portfolio in Minneapolis from the registry. In the survey, however, we ask about all properties in their portfolio, not just those in Minneapolis. We find that in terms of total rental units and number of properties, the portfolios of our survey respondents are larger than those in the registry.

Finally, in Panel E, we compare the self-reported rents in our survey against gross rent estimates from the 2019 one-year ACS. Again, this comparison is imperfect since we did not ask specifically about the property owner's portfolio of Minneapolis rentals. Our survey respondents reported charging higher rents than what the ACS reports for Minneapolis. According to the ACS, 45% of rental units in Minneapolis have gross monthly rents under $1,000, compared to 19% of units owned by our survey respondents. In sum, our results appear representative of Minneapolis property owners based on building size but possibly under-represent property owners with single-unit portfolios and those with low-rent units.[5]

Empirical method

Our primary aim in this analysis is to describe the impact of the COVID-19 pandemic on the businesses of residential rental property owners. We use two primary methods in this paper. In the next section, we show the frequency of pandemic impacts using basic descriptive comparisons. We also explore whether certain property owner characteristics are associated with the various impacts we test in this analysis using regression analysis. We describe our control variables in more detail below, but, to wit: we expect that pandemic impacts will be more likely among certain types of property owners. We use

Table 1. Response validation.

A. Comparing Registry to ACS Estimates Based on Building Types.

	Estimates		Rental Registry	
	Units	Percent	Units	Percent
Single-Family	13,452	13.9%	13,536	13.6%
2 to 4 Units	17,718	18.3%	17,620	17.7%
5 to 9 Units	4,872	5.0%	4,741	4.7%
Over 10 Units	60,873	62.8%	63,921	64.0%

B. Comparing Registry to Survey Responses Based on Building Types.

	Rental Registry		Survey Results	
	Properties	Percent	Properties	Percent
Single-Family	13,536	57.6%	2,085	51.9%
2 to 4 Units	7,483	31.9%	1,450	36.1%
5 to 10 Units	896	3.8%	232	5.8%
11 to 25 Units	957	4.1%	106	2.6%
Over 25 Units	614	2.6%	144	3.6%

C. Comparing Registry to Survey Responses Based on Portfolio Size.

	Rental Registry		Survey Results	
	Owners	Percent	Owners	Percent
One Property	9,278	82.1%	661	51.6%
2 to 4 Properties	1,630	14.4%	485	37.8%
5 to 10 Properties	276	2.4%	83	6.5%
Over 10 Properties	120	1.1%	53	4.1%

D. Comparing Registry to Survey Responses Based on Building Types.

	Rental Registry		Survey Results	
	Owners	Percent	Owners	Percent
One Unit	6,598	58.4%	478	37.3%
2 to 4 Units	3,402	30.1%	489	38.1%
5 to 10 Units	623	5.5%	167	13.0%
Over 10 Units	681	6.0%	148	11.5%

E. Comparing Survey Responses to ACS Estimates Based on Rent.

	2019 1-Year ACS		Survey Results	
	Units	Percent	Units	Percent
Under $1,000	43,306	45.1%	7,406	18.5%
$1,000 to $1,500	29,277	30.5%	14,417	36.0%
$1,501 to $2,000	16,075	16.8%	12,657	31.6%
Over $2,000	7,278	7.6%	5,590	14.0%

simple regression analysis to examine whether certain property owner characteristics are associated with pandemic impacts while controlling for other confounding factors.

In our regression analysis, all of the outcome variables are binary measures of whether the respondent indicated that they experienced a pandemic-related impact or not. Because our dependent variable is binary, we estimate binary generalized linear models.[6] We interpret the coefficients as the odds ratio of each coefficient on the outcome in question. Generally, a statistically significant odds ratio larger than one indicates a positive association, while one less than one suggests a negative association between the control and dependent variables.

How has the pandemic affected property owners?

We turn now to a summary analysis of the pandemic's impact on Minneapolis rental property owners. We are primarily interested in whether the pandemic has increased the frequency of various leasing and building operations issues. In our survey, we ask respondents for absolute impacts—e.g., since the start of the pandemic have you had any tenants who have missed rent payments, broken their leases, etc.—and how the frequency of these events has changed during the pandemic. Our outcome variables are dichotomous measures of whether the respondent reported the pandemic increased the frequency or severity of operational and leasing issues. These variables include an increase in the frequency of missed rent payments and premature tenant vacancies (i.e., tenants vacating their unit before their lease expiration), whether vacancy across their portfolio has increased during the pandemic, and whether the pandemic has made it harder to sign new leases. In addition to the frequency questions, we also include a measure of whether they anticipate a decline in cash flow across their portfolio,[7] whether they have deferred maintenance since the pandemic's start, whether the pandemic has made them less satisfied owning rental properties, whether they applied for any government assistance since the start of

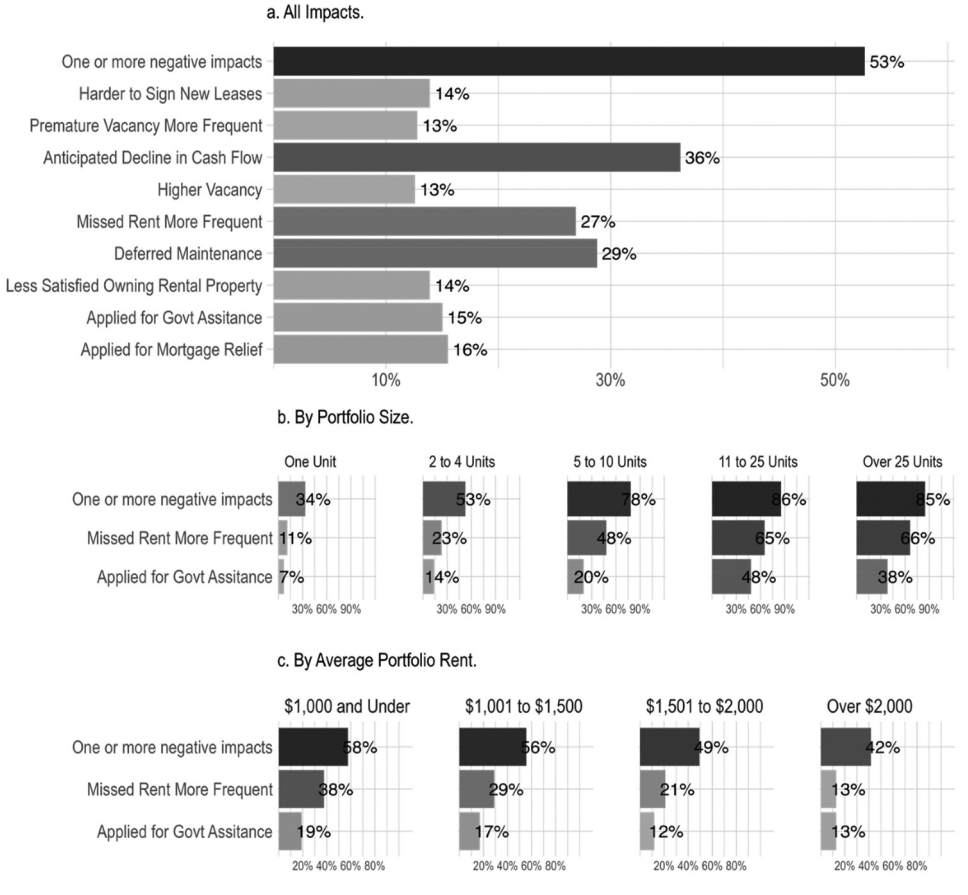

Figure 1. Frequency of Reported Pandemic Impacts.

the pandemic, and whether they have sought any form of mortgage relief. Finally, we also create a dummy variable capturing whether the respondent reported any of the following impacts: missed rent, premature vacancy, overall vacancy, leasing difficulty, or an anticipated decline in cash flow.

In Panel A of Figure 1, we show these outcomes and the proportion of respondents who reported experiencing each impact. Over half (53%) of respondents reported that the pandemic affected their leasing and building operations somehow. The most common reported impact, 36% of all Minneapolis respondents, was an anticipated decline in cash flow. This was followed by an increase in the frequency of missed rent, increased difficulty singing new leases, increased vacancy, and an increase in the frequency of premature vacancies, with 27%, 14%, 13%, and 13% of respondents reporting these impacts, respectively. Additionally, 29% of all respondents reported deferring maintenance since the start of the pandemic, 14% indicated that the pandemic had lowered their satisfaction with owning rental properties, 16% indicated applying for government assistance, and 15% indicated applying for mortgage relief.

These results are generally consistent with the findings of both the Terner and JCHS surveys. Across all cities in the JCHS survey, de la Campa et al. find that owners collecting 90% of yearly rent fell by 30% from 2019 to 2020. In Minneapolis, 19% of respondents reported earning less than 90% of the rent charged, up from 6% in 2019. In the Terner study, Decker reports impacts at the national level. He finds that around 40% of owners reported declining rent collections in 2020. And according to the Small Business Pulse, during the week of NaN Invalid Date NaN, nationwide, 27% of real estate rental and leasing businesses (NAICS code 52) reported a decline in revenue. Given the differences in question format, timing, and geographic scale, none of these comparisons are perfect; but it is generally reassuring that these results align with our findings in Minneapolis.

These impacts did not affect all property owners evenly, however. In the next section, we provide a more detailed analysis of the correlates of pandemic-related impacts on rental property owners. To illustrate the unevenness of the pandemic's impact, we first show how these outcomes vary based on two property owner characteristics – the size of their rental portfolios and the average rent they charge across all their rental units. We present these comparisons graphically in Figure 1. In Panel B, we show differences in frequencies across these eight impact areas by the total size of the property owner's portfolio. Owners of large rental portfolios are more likely to report pandemic impacts than those with only a few rental units. For example, only 11% of single-unit property owners reported that missed rent payments were more common during the pandemic, while 66% of property owners with over 25 rental units reported pandemic-related rent declines.

This finding is consistent with both the findings from the Terner and JCHS studies. We agree with the suggestion by de la Campa et al. that this outcome may be more probabilistic than substantive, since owning more rental units exposes property owners to more tenant-related risk. To illustrate this, suppose that there is a 20% chance that the pandemic will harm a tenant in a way that affects their rental stability. Assume also that this probability is uniform across all tenants (an assumption that likely does not hold since income and exposure to economic risks likely correlate with unit and property types). If this is the case, we should expect that approximately 20% of single-unit property owners would experience some pandemic-related impact on their building operations. For

owners of two rental units, this probability increases to 36%. Again, this example is overly simplified and meant only to illustrate that we should expect portfolio size to correlate positively with risk exposure and, thus, pandemic stress. However, it is also possible that property owners with larger portfolios are more likely to have business models based on renting in certain higher-risk neighborhoods or to tenant populations that experienced higher levels of economic impact during the pandemic.

In Panel C, we show the same outcomes broken out by average rent charged across the property owner's portfolio. There appears to be a negative association between pandemic-related impacts and rent levels. The higher the rent charged across the owner's portfolio, the less likely they are to report having their leasing or operations negatively impacted by the pandemic. For example, among respondents who report charging, on average, over $2,000 a month in rent across their portfolio, 42% reported at least one negative leasing or operational impact since the start of the pandemic. Among respondents who charge less than $1,000 per month on average, 58% reported at least one pandemic impact (recall, for all respondents, 53% reported at least one impact).

The descriptive analysis we have presented thus far highlights two facts. First, the pandemic had a clear and measurable impact on Minneapolis property owners' leasing and building operations. The pandemic has had an unprecedented impact on not only people's health but also their economic well-being. Our results provide clear evidence that these personal and economic stresses have affected the owners of rental properties. Second, our comparisons by portfolio size and average rent suggest that the impacts of the pandemic have not been shared evenly by all property owners. Pandemic-related impacts were more common among property owners with large portfolios and those who own lower-rent units. In the next section, we explore these associations in more detail using a logistic regression model to examine the association between a richer set of property owner characteristics and these pandemic outcomes. This model estimates the probability of the binary independent variable occurring using a set of explanatory variables.

Correlates of pandemic rental property owner stress

Just as the pandemic has had an uneven impact on individuals, our simple descriptive analysis suggests that the pandemic has had a varied impact on owners of rental properties. In this section, we examine the association between pandemic stress and a richer set of property owner characteristics. In total, we model 10 outcomes: whether premature vacancies or missed rent payments become more frequent since the start of the pandemic, whether vacancy across their portfolio has increased, whether it is harder to lease vacant units, whether they anticipate a decline in cash flows, whether the pandemic has made them less satisfied owning rental properties, whether they have deferred maintenance since their start of the pandemic, whether they applied for government assistance during the pandemic, and whether they received mortgage assistance. In addition, we also include a model measuring whether the respondent reported *any* of the first five impacts.

In Table 2, we provide a full list of the control variables we included in our analysis. We control for three broad sets of property owner characteristics-two of which we generate from survey responses and one from the rental registry. The first set is survey questions about the general demographic and socioeconomic characteristics of the property owner.

Table 2. Survey Descriptive Statistics.

	Mean/ Proportion	N	Median	Min	Max
Pandemic Impacts					
Missed rent more frequent? (1 = Yes)	27%	1,424	–	0	1
Higher vacancy? (1 = Yes)	13%	1,394	–	0	1
Anticipated decline in cash flow? (1 = Yes)	37%	1,410	–	0	1
Premature vacancy more frequent? (1 = Yes)	13%	1,421	–	0	1
Harder to sign new leases? (1 = Yes)	14%	1,409	–	0	1
At least one of the above impacts? (1 = Yes)	53%	1,431	–	0	1
Deferred maintained? (1 = Yes)	29%	1,418	–	0	1
Less satisfied owning rental property? (1 = Yes)	14%	1,407	–	0	1
Applied for state or federal assistance? (1 = Yes)	16%	1,417	–	0	1
Applied for mortgage relief? (1 = Yes)	15%	1,410	–	0	1
Owner/Business Characteristics					
Male? (1 = Yes)	57%	1,418	–	0	1
Under 35? (1 = Yes)	17%	1,417	–	0	1
Over 65? (1 = Yes)	15%	1,417	–	0	1
Black? (1 = Yes)	4%	1,403	–	0	1
Has other job? (1 = Yes)	78%	1,418	–	0	1
College Degree? (1 = Yes)	87%	1,420	–	0	1
Over 50% of income from operating rental properties? (1 = Yes)	11%	1,408	–	0	1
Income under $50k? (1 = Yes)	15%	1,356	–	0	1
Income over $125k? (1 = Yes)	44%	1,356	–	0	1
Hires a property manager or management company? (1 = Yes)	18%	1,420	–	0	1
Has debt on properties? (1 = Yes)	82%	1,431	–	0	1
Owned rental properties for less than 3 years? (1 = Yes)	20%	1,421	–	0	1
Owned rental properties for more than 15 years? (1 = Yes)	26%	1,421	–	0	1
Owns property in one of 5 poorest zip codes in Mpls? (1 = Yes)	22%	1,422	–	0	1
Owns property in one of 5 least-white zip codes in Mpls? (1 = Yes)	19%	1,422	–	0	1
Lives out of state? (1 = Yes)	11%	1,430	–	0	1
Lives in Minneapolis? (1 = Yes)	55%	1,430	–	0	1
Owns any Tier 2 or 3 Properties? (1 = Yes)	10%	1,428	–	0	1
Total rental properties	3.1	1,431	1	1	284
Total Cash Flow	$25,240	1,212	$3,750	$0	$1,800,024
Average Rent	$1,387	1,401	$1,250	$750	$2,250

We include dichotomous measures of sex (57% of respondents are male), age (17% are under 35 and 15% are over 65), income (15% earn less than $50,000 per year from all sources, 44% earn over $125,000),[8] employment (78% have other employment), financial reliance on their rental properties (for 11%, over 50% of their income comes from their rental portfolio), race (4% are Black), and education (87% have a college degree).

Next, we include self-reported characteristics of their rental businesses. We include measures of ownership length (20% have owned rental properties for less than three years, while 26% have owned properties for more than 15 years), the total number of properties in their rental portfolio (mean 3.1, median 1), the total cash flow across their portfolio (mean $25,240, median $3,750), the average rent they charge across their portfolio (mean $1,387, median $1,250),[9] whether they have any outstanding mortgage debt (82% have debt), and whether they contract a property manager (18% hire or contract property managers).

We create two dummy variables based on the zip codes where respondents reported owning properties. To do so, we use 2019 ACS estimates to identify the five poorest zip codes (based on median household income) in Minneapolis and the five zips where the lowest proportion of the population is white. We then create two dummy variables based

on whether the respondent reported owning a property in one of the low-income and nonwhite zips. 22% of respondents reported owning a property in one of the five lowest-income zips, and 19% owned a property in the least-white zips. There is a good deal of overlap between the nonwhite and low-income zip codes. Three zip codes belong to both the low-income and nonwhite zip code groups. As a result, in our regression analysis, to avoid multicollinearity, we use only the low-income variable. Using the nonwhite dummy instead returns generally consistent results.

Finally, we link the survey responses to the Minneapolis rental registry to create a measure of how close property owners live to their rental properties (54% live in Minneapolis, while 11% live out of state) and whether they own any properties listed in the 2nd or 3rd tiers of the registry (10% own tier 2 or 3 properties). Tier 2 properties have some documented issues affecting safety and habitability, while tier 3 properties have several documented issues, more than one of which poses an immediate threat to renter health and safety.

In Tables 3 and 5 we present the results of our regression analysis. While all of our outcome variables are measures of how the pandemic impacted the businesses of rental property owners, there are conceptual differences between the models in Tables 3 and 5. All of our outcome variables are self-reported (and subjective), however the outcomes in Table 3 reflect disruptions to the owner's business that are largely out of the owner's

Table 3. Regression Results, Pandemic Disruptions.

	Dependent Variable:											
	(1)		(2)		(3)		(4)		(5)		(6)	
	One or More Impact		Premature Vacancy (More Freq.)		Missed Rent (More Freq.)		Higher Vacancy		Leasing Units Harder		Decline in Cash Flow	
	OR[1]	*p-value*[2]	*OR*[1]	*p-value*[2]	*OR*[1]	*p-value*[2]	*OR*[1]	*p-value*[2]	*OR*[1]	*p-value*[2]	*OR*[1]	*p-value*[2]
Male?	1.20	.16	0.92	.666	1.14	.402	1.30	.192	1.11	.574	1.16	.251
Black?	1.41	.36	0.58	.324	1.40	.368	1.64	.279	0.62	.388	0.92	.821
Under 35?	1.01	.938	1.21	.442	0.83	.397	0.59	.089	**1.63**	**.038***	0.90	.586
Over 65?	0.73	.17	**0.41**	**.023***	**0.47**	**.007****	0.60	.132	**0.36**	**.016***	0.90	.644
Other Job?	0.88	.492	0.87	.593	0.96	.855	0.76	.299	0.90	.707	0.90	.588
College Degree?	0.82	.344	0.77	.35	**0.51**	**.002****	0.68	.161	1.22	.523	0.71	.092
Hires Manager?	**1.45**	**.037***	0.76	.289	1.13	.564	1.46	.119	0.86	.556	**1.53**	**.017***
Has Debt?	0.89	.529	1.11	.704	1.02	.91	0.78	.327	0.96	.875	0.85	.35
Owned <3 Years?	**0.64**	**.009****	0.67	.132	**0.64**	**.04***	**0.54**	**.045***	**0.59**	**.039***	**0.69**	**.041***
Owned >15 Years?	0.73	.065	0.84	.462	0.77	.175	1.12	.637	0.84	.464	0.91	.567
Out of State?	0.71	.138	**1.90**	**.033***	0.66	.118	1.37	.332	1.36	.327	0.75	.21
Live in Mpls?	0.92	.552	1.21	.368	**0.65**	**.008****	**1.65**	**.021***	1.23	.316	0.93	.615
Over 50% of Income From Rentals?	1.65	.078	1.59	.132	1.15	.611	1.29	.426	1.65	.116	**1.67**	**.036***
Income <50k?	1.20	.368	1.35	.308	1.32	.222	0.97	.93	0.63	.171	1.10	.629
Income >125k?	0.91	.534	**1.56**	**.039***	0.95	.758	**1.57**	**.041***	1.39	.106	1.18	.267
Total Properties	**1.19**	**.000*****	**1.05**	**.002****	**1.08**	**.000*****	1.02	.142	1.02	.069	**1.04**	**.028***
Owns Property in 5 Poorest Mpls Zips?	**1.78**	**.001*****	1.10	.687	**2.01**	**.000*****	1.17	.506	1.43	.093	**1.46**	**.018***
Any Tier 2 or 3?	**2.01**	**.007****	1.13	.682	**2.81**	**.000*****	**2.01**	**.012***	0.82	.527	1.29	.261
Total Cash Flow	1.00	.461	1.00	.121	1.00	.166	1.00	.223	1.00	.213	1.00	.579
Average Rent	**0.97**	**.045***	0.96	.089	**0.91**	**.000*****	1.00	.984	0.98	.375	**0.96**	**.031***
Observations	1,142		1,139		1,142		1,126		1,132		1,137	

Notes: OR[1]*= Odds Ratio; p-value*[2]*= *p < 0.05; **p < 0.01; ***p < 0.001.*
p-values based on robust standard errors;? Indicates binary variable.

control. Those in Table 5 whether the owner deferred maintenance, whether the pandemic lowered their satisfaction owning rentals, and whether they applied for any government or mortgage relief – capture underlying pandemic stress but also include a degree of volition. Presumably, if an owner defers maintenance or applies for mortgage assistance, they are doing so because their businesses have been negatively impacted. These outcomes require not only existing stress but also a subsequent response by the owner. We thus discuss the models in Tables 3 and 5 separately.

Owner characteristics and leasing and operational impacts

Although there is some variation between models in Table 3, a few general themes emerge from this analysis. The first, which confirms what we found in the descriptive analysis, is that leasing and operations impacts appear positively correlated with portfolio size during the pandemic. Even after controlling for a more robust set of property owner characteristics, our models suggest a positive association between the number of properties in an owner's portfolio and several pandemic operational impacts. For example, each additional property added to a respondent's portfolio suggests an 8% increase in the odds they report experiencing an increase in missed rent payments during the pandemic.

Our models suggest some consistent associations between owner demographics and pandemic-related outcomes. For example, we find a negative (and statistically significant) association between older owners, having a college degree, living in Minneapolis, and reporting that tenants missed rent payments more frequently during the pandemic. Although the significance varies from model to model, the sign on these coefficients remains consistent across the models predicting the various pandemic stresses.

We find evidence that owner characteristics are associated with the leasing and operational stresses we model in Table 3. We control for two socioeconomic characteristics in our models: race and income. We include two income variables in our models: whether the owner's total income is under $50,000 per year or over $125,000. While the low-income dummy variable is generally positively associated with pandemic stresses, it is not statistically significant in our regressions. The high-income dummy, however, is also positively associated with the odds of reporting negative pandemic outcomes and is significant in the premature vacancy and higher vacancy models. Although the Black dummy variable is consistently associated with increased odds of pandemic stresses, this variable is not significant in any of the models.

Characteristics of owners' businesses affect leasing and operational impacts

While the relationship between owner demographic characteristics and pandemic-related stress is complicated, the relationship between portfolio characteristics and reported stress is much clearer. Owning at least one low-quality, tier 2 or 3 property is one of the strongest and most consistent predictors of reporting pandemic stress. Owning a tier 2 or 3 property, for example, increases the odds of reporting one or more leasing or operational impacts by over 200%. Owning a property the city has flagged as distressed is also associated with anticipated declines in cash flows, increased vacancy, and more frequent missed rent payments.

Table 4. Bivariate Associations Between Property Locations and Pandemic Disruptions.

	Owns Property in One of Minneapolis's 5 Lowest Income Zip Codes					Owns Property in One of Minneapolis's 5 Least White Zip Codes				
	Yes (318)		No (1,104)			Yes (268)		No (1,154)		
	N	%	N	%	Sig.	N	%	N	%	Sig.
Missed rent more frequent? (1 = Yes)	**147**	**46%**	**238**	**22%**	**<.001**	**136**	**51%**	**249**	**22%**	**<.001**
Higher vacancy? (1 = Yes)	54	17%	126	12%	0.015	37	14%	143	13%	0.489
Anticipated decline in cash flow? (1 = Yes)	**156**	**50%**	**362**	**33%**	**<.001**	**134**	**51%**	**348**	**34%**	**<.001**
Premature vacancy more frequent? (1 = Yes)	52	16%	130	12%	0.04	40	15%	142	12%	0.257
Harder to sign new leases? (1 = Yes)	58	18%	148	13%	0.022	46	17%	153	13%	0.108
At least one of the above impacts? (1 = Yes)	**223**	**70%**	**529**	**48%**	**<.001**	**192**	**72%**	**560**	**49%**	**<.001**
Deferred maintained? (1 = Yes)	101	32%	301	28%	0.216	85	32%	326	28%	0.275
Less satisfied owning rental property? (1 = Yes)	60	19%	139	13%	0.009	**57**	**22%**	**142**	**12%**	**<.001**
Black Owner (1 = Yes)	**28**	**9%**	**19**	**2%**	**<.001**	**27**	**11%**	**20**	**2%**	**<.001**
Owner Income Under $50k (1 = Yes)	96	30%	285	26%	0.131	90	34%	291	25%	0.008

Similarly, increasing the average rent a property owner charges across their portfolio reduces the odds of various pandemic outcomes. Each $100 increase in average rent, for example, suggests a 3% reduction in the odds that the owner reported at least one leasing or operational impact during the pandemic. Similarly, a $100 increase in average rent is associated with a 9% reduction in the odds reported an increase in the frequency of missed rent payments.

We also include a dummy variable measuring whether the respondent reported owning properties in the five lowest-income zip codes in Minneapolis. The coefficient in all

Table 5. Regression Results, Pandemic Responses.

	Dependent Variable:							
	(1) Less Satisfied		(2) Deferred Maintenance		(3) Applied for Govt Assistance		(4) Applied for Mortgage Assistance	
	OR1	*p-value2*	*OR*[1]	*p-value*[2]	*OR*[1]	*p-value*[2]	*OR*[1]	*p-value*[2]
Male?	0.92	.652	0.90	.438	1.12	.563	0.84	.299
Black?	1.29	.567	1.78	.098	1.16	.741	1.49	.327
Under 35?	0.89	.654	0.80	.256	0.69	.196	**1.53**	**.047***
Over 65?	0.88	.693	**0.59**	**.038***	0.92	.8	**0.33**	**.007****
Other Job?	0.83	.448	0.69	.055	**2.32**	**.004****	1.07	.785
College Degree?	0.66	.112	0.73	.135	**0.55**	**.02***	**0.61**	**.045***
Hires Manager?	1.54	.059	0.86	.427	1.40	.165	0.71	.17
Has Debt?	1.34	.264	**1.75**	**.007****	1.66	.069	–	–
Owned <3 Years?	0.88	.592	0.83	.328	**0.46**	**.01****	1.19	.407
Owned >15 Years?	0.70	.135	0.74	.096	0.88	.557	0.89	.616
Out of State?	0.54	.052	0.87	.571	0.91	.782	1.12	.706
Live in Mpls?	**0.61**	**.01****	1.11	.494	1.31	.181	1.04	.838
Over 50% of Income from Rentals?	1.36	.33	1.10	.699	**2.91**	**.000*****	1.31	.382
Income <50k?	1.44	.173	1.36	.137	1.25	.43	1.32	.272
Income >125k?	1.20	.369	0.77	.1	1.35	.155	0.87	.485
Total Properties	1.00	.922	1.00	.703	**1.08**	**.000*****	1.01	.35
Owns Property in 5 Poorest Mpls Zips?	1.11	.645	0.90	.555	1.28	.258	1.29	.216
Any Tier 2 or 3?	**2.23**	**.002****	1.11	.66	1.41	.218	1.50	.131
Total Cash Flow	1.00	.725	**1.00**	**.008****	1.00	.28	1.00	.175
Average Rent	0.95	.062	0.96	.057	**0.94**	**.025***	1.04	.062
Observations	1,133		1,139		1,139		1,137	

Notes: OR[1]*= Odds Ratio; p-value*[2]*= *p < 0.05; **p < 0.01; ***p < 0.001.*
p-values based on robust standard errors;? Indicates binary variable.

models is above one (suggesting a positive relationship) and statistically significant in the one or more impact, missed rent, and the anticipated decline in cash flow models. To explore this relationship further, in Table 4 we examine a simple bivariate relationship between our various outcome variables and whether the respondent owns a property in the five lowest-income and least-white zip codes. Consistent with the regression results, we generally find that owning at least one rental in a low-income and nonwhite zip code increases the likelihood that the respondent reported pandemic stresses. We also compare owner race, income (whether they have incomes below $50k), and rental property location. We find that Black owners are more likely to own rentals in low-income and low-white zip codes, but no clear association between an owner reporting an income below $50k annually and property location. This paints a complicated picture of the associations between owner's income, race, the neighborhood characteristics where they own rentals, and reported stress during the pandemic. We discuss these implications in greater detail in the conclusions section.

In most models in Table 3, owners who hire a manager to operate their property, or contract with an outside property manager are more likely to report pandemic stresses. An owner who is not self-managing, for example, is associated with a 53% increase in the odds they anticipate a decline in cash flow. Relatedly, our models suggest that length of ownership matters for pandemic outcomes. A respondent who reports owning properties for fewer than 3 years is consistently associated with decreased odds of various pandemic outcomes. While not statistically significant, owning properties for over 15 years is also associated with decreased odds of pandemic stresses.

Owner responses to pandemic stress

The models we have discussed so far capture direct impact on property owner's businesses. In our final set of models, our outcomes are related to owners' responses to pandemic stresses. In Table 5, we present the results of four additional models predicting whether respondents indicated foregoing property maintenance during the pandemic, whether they applied for any government assistance, whether they sought mortgage relief, and whether the pandemic has made them less satisfied owning rental properties.

Both the deferred maintenance and satisfaction models are consistent with the results we discuss above. Having debt on their properties is positively associated with the odds they deferred maintenance since the start of the pandemic, as is the total reported cash flow. Our models suggest a negative association between an owner living in Minneapolis and the odds that they became less satisfied owning rental properties during the pandemic. We find a positive association between owning at least one poor-quality, tier 2 or 3 property and a decline in satisfaction.

Finally, in columns 3 and 4 in Table 5, we show the results for the models predicting whether the owner applied for government assistance and mortgage relief. These outcomes are unique from the others in our regression analysis since they indicate not only pandemic-related stress but also the owners' response to it. Especially for the government aid question, it may indeed measure more of the latter than the former, since some programs at this point in the pandemic were fairly open-ended. For example, the Paycheck Protection Program, a forgivable grant program enacted as part of the CARES act, only required that applicants attest to their need for the grant, and not document any

specific business disruption. These outcomes may thus represent the interaction between pandemic stress and having the resources, knowledge, and necessary connections to take advantage of available assistance.

In the government assistance regression, our model suggests a positive relationship between having another source of income, earning over 50% of their income from rental properties, the total number of properties in their portfolio, and the odds they applied for some form of government assistance. There are also negative and significant associations between the odds the respondent applied for assistance and having a college degree, owning properties for less than three years, and average portfolio rent. In the mortgage assistance models, we find that the under-35 age group is positively associated with the odds of applying for mortgage assistance, and both the college degree and over-65 groups have positive associations.

Discussion

As during past economic shocks and disasters, the COVID-19 pandemic has amplified preexisting housing insecurity (Comerio, 2014; Dickerson, 2017). Unlike in previous disasters, however, housing stress during the pandemic has been difficult to observe externally. During the early stages of the pandemic, a combination of local, state, and federal policies halted evictions but failed to forgive missed payments or provide significant relief to property owners. In this paper, we examine how the pandemic affected the businesses of rental property owners in Minneapolis, Minnesota. Our new and timely survey allowed us to examine correlates of stress, which will help inform policymakers as they develop responses to help affected rental housing providers.

We collected survey responses from licensed owners of residential rental properties in Minneapolis, MN at the end of 2020. From the responses to our survey, we find that the pandemic had broad impacts on the businesses of rental property owners. Over half of the respondents, 53%, reported that their businesses had been impacted somehow. The most commonly reported impact was an anticipated decline in cash flow (36%), followed by more frequent missed rent (27%). And between 13 and 14% of respondents thought the pandemic had made it harder to sign new leases, caused an increase in premature vacancies, and led to an increase in vacancy across their portfolio. In response to these stresses, 29% of respondents had deferred maintenance, 14% became less satisfied with owning rental properties, 15% had applied for some form of government assistance, and 16% had applied for mortgage relief.

We find that, broadly, pandemic-related business and operational stress was associated with four sets of property owner characteristics. The first is portfolio size – owning more properties increased the likelihood an owner reported a negative pandemic impact. Partly, we suspect this is because owning more properties exposes owners to more risk, but this association may also reflect differences in how large and small holders manage their properties. Owners of smaller portfolios may dedicate more time to tenant screening and remain in better contact with their tenants. This more personal management style may allow smaller holders to anticipate tenant hardship better and preemptively respond to avoid some of the negative outcomes we measure in our survey. We find further evidence of this possibility in the positive association we found between respondents

who reported stress and those who hired a property manager to handle day-to-day operations. This is consistent with Furman Center for Real Estate and Urban Policy (2013) findings that owners who live in their buildings interact with tenants differently than those who live elsewhere. A more direct and personal connection with tenants may engender sympathy for tenant hardships or provide property owners with more information to manage their properties.

This association between portfolio size and stress can also help policymakers respond to the pandemic. In response to fears that the eviction moratoria would eventually lead to widespread tenant default and evictions, the federal government allocated nearly $47 billion to emergency rental assistance. Although there was some variation from state to state in how the program was administered, tenants had to apply for assistance covering back rent and utility payments in most places. Because the onus was on the tenant to apply, advertising the program was important. Our results suggest that program administrators should communicate the program's availability with high-risk tenants and owners with large rental portfolios. The positive association between portfolio size and pandemic stress, particularly more frequent rent delinquencies, suggests that these owners may be an effective conduit to connect struggling tenants with assistance.

Second, we find a strong negative association between the average rent of a property owner's portfolio and pandemic stresses. This should not be surprising since there is mounting evidence that the economic, health, and social harm produced by the pandemic did not fall evenly across society, but were concentrated among lower-income households (Chetty et al., 2020; Cho et. al. 2021.; Manville et al., 2020). Our results suggest that this disproportionate impact on lower-income households caused downstream impacts on the owners supplying relatively low-rent housing. This is important, as in many cities, including Minneapolis, the supply of low-cost, privately-owned housing was shrinking before the pandemic. In markets where prices are rising, owners of low-cost rentals feel pressure to renovate or redevelop their buildings to take advantage of higher market rents, or to sell to a new investor with the capital to reposition the property (Schuetz, 2020). If these owners experienced concentrated financial losses during the pandemic, it could accelerate the attrition-through-redevelopment of privately-owned, unsubsidized affordable units. Whether and to what extent these pandemic-related impacts affect the supply of privately owned low-cost housing is a worthy topic for future researchers.

Third, owning rentals in zip codes that are relatively low-income with higher percentages of people of color increases the odds of reporting various operational and leasing issues during the pandemic. Our research also suggests that Black rental owners are more likely to own rentals in these areas. Because of the sample validation challenges that we noted earlier in this paper, the ability of any study to generalize on the relationship between pandemic stress, owner characteristics, and property location is limited. Furthermore, our focus on property owners required we forewent detailed information on individual properties in owners' portfolios. The associations we report here between property location and stress are based on whether respondents reported owning any properties in zip codes that were predominantly populated by low-income, communities of color and do not require that the respondent identifies such a property as representative of their portfolio. While the Minneapolis registry does provide us with information about the quality of the properties, we do not know the detailed characteristics such as square footage or the number of bedrooms, nor do we know the characteristics of the

tenants who occupy them. Finally, we do not know why owners purchased properties in these neighborhoods or how it relates to their overall business model or access to capital. The motivations of and constraints faced by owners from historically underrepresented groups as well as property owners at the bottom of the rental market are important topics for future researchers.

Fourth, owning distressed tier two or three properties is the strongest and most consistent correlate of pandemic-related stress. As with the association between stress and rents, this may reflect that owners of distressed properties tend to rent to tenants disproportionately affected by the pandemic. Whatever the underlying cause, however, policymakers should be aware of and concerned about the pandemic's impact on owners of distressed properties. Most directly, the fact that these owners were more likely to report pandemic-related impacts to their business may augur future deterioration in unit quality.

Surprisingly, however, we did not find an association between owning distressed properties and deferring maintenance during the pandemic. Perhaps these owners are more sensitive to concerns about their properties' quality and thus less likely to respond truthfully to these questions. Or, these owners may have planned little maintenance to begin with, and thus had less potential maintenance to defer. More optimistically, this result could highlight the effectiveness of Minneapolis's rental ordinance and code enforcement practices, even when owners face operational and financial stressors. Tier two and three properties are those the city has flagged for more frequent inspections and higher renewal fees. Despite owners of these properties reporting more pandemic stresses, they were not more likely to defer maintenance. Forgoing maintenance for these owners may simply not be an option if they know the city will catch any disinvestment in future inspections.

Finally, in our analysis of correlates of owners who sought government assistance or mortgage relief, we find evidence that owners were applying for aid out of necessity. Reporting that rental income comprises over 50% of their income is positively associated with the odds of having applied for government aid. We also find a negative association between portfolio rent and applying for assistance. Finally, we find that new owners (who presumably do not have a lot of experience managing rentals) were less likely to apply for assistance. We cannot capture whether owners did not feel they needed aid, did not qualify for available assistance programs, were unaware that help was available, or lacked the administrative capacity to apply for assistance. During disaster responses and subsequent recoveries, it is important to know how to get aid to affected owners and the impact this aid has on their businesses and their tenants. We plan to address this question in future iterations of this study.

This analysis presented evidence of the pandemic's impact on owners of rental properties in Minneapolis. In addition to the questions we have highlighted in this section, there is still a lot we do not know about the long-term effects of the pandemic on rental properties. We administered our survey when the eviction moratoria were still in effect and before congress approved the emergency rental assistance (ERA) program. Understanding whether the stressors we identify in this relatively early phase of the pandemic have lasting impacts on the rental housing market and the effectiveness of the ERA and moratoria are important questions for future research.

Not only was the scope of this analysis constrained by the timing of our survey, but basing our analysis on a single wave of a survey itself limits the opportunities for analysis.

The findings we have presented here are descriptive. Though we identify several associations between pandemic stress and property owner characteristics, we can only speculate on why these associations exist. Comparing our instrument to those created for the Terner and JCHS surveys provides some insights into how to improve owner surveys in the future. For example, we found the JCHS team's decision to ask about the proportion of rental income that went uncollected in a given year was a clever addition. While in our analysis, we are left using relative frequency comparisons (e.g., rental arrears were much more common), the JCHS team can provide more objective comparisons based on proportional thresholds (e.g., owner collected less than 90% of rent).

Finally, in examining owner stress during the pandemic, we focus primarily on operational and income-related impacts. While we argue that many owners, particularly smaller-scale and less professional operators, are quite sensitive to income and operational concerns, this is not the only way owners earn investment returns. In addition to annual cash flow, for example, property owners may purchase properties as a tax shelter, as a future redevelopment opportunity, or as a way to speculate on future land value appreciation. While some of these returns are affected by operating costs and cash flows – appraisers value income-producing properties based on the cash flow they produce – future research on property owners should better capture this wide range of potential investment motivations.

Limitations aside, in this study, we not only provide timely information on the impact of the pandemic on the business of private rental property owners, but we also contribute to a new research agenda that uses property owner surveys to understand the businesses and decision-making of, as well as the constraints facing private rental owners. While our focus is on rental property owners operating in the fragmented web of regulations and incentives that form the US private housing system, our work also contributes to studies on how the pandemic has affected private rental housing outside the US. Given that there is still much to know about the pandemic's housing impacts generally, we encourage future researchers to explore variations in these impacts across different counties to better understand how rental regulations and supports affect housing precarity.

The similarity in the findings between this study and two other recent property owner surveys provides an excellent foundation for what we hope will be a growing subfield of inquiry. Our methods and our results can help inform future researchers interested in designing surveys to understand the businesses of rental property owners with small portfolios. Although we provide a general comparison with the questions and format of the other surveys, we do not undertake a full assessment of potential property owner survey methodologies. We encourage future researchers to examine how differences in question format and wording, contact strategies, and compensation impact response rates and the representativeness of respondents.

This study is part of a larger, mix-methods research project that will address some of these shortcomings. We followed up our survey with in-depth property owner interviews, asking the more nuanced, causal questions that we cannot examine with the standalone survey. In addition to a planned second wave of our survey, we anticipate that our qualitative analysis will add substantive texture to our understanding of the pandemic's impact on rental property owners.

Notes

1. https://www.mprnews.org/story/2021/03/06/timeline-covid-19-minnesota
2. https://www.leg.mn.gov/archive/execorders/20–14.pdf
3. https://www.kare11.com/article/news/state/some-minnesota-renters-protected-federal-eviction-moratorium-ends/89-de1915cc-6993-458c-9b54-bc3625b71fb7
4. See https://www2.minneapolismn.gov/business-services/licenses-permits/rental-licenses/ for information on the rental licensure process.
5. We considered weighting our survey to make it more representative of the population of Minneapolis owners. Unfortunately, we do not have any data on the population in question. We could, of course, create weights based on the characteristics of the rental housing stock, but our unit of analysis is of rental owners, not rental units.
6. We use the "GLM" command in the "stats" package in R, with a logit link. We report our models with robust standard errors, which we estimate using the "summ" command in the "jtools" package (Long, 2019).
7. This question is somewhat different from the rest of our outcomes, as we ask respondents to anticipate the outcome, rather than assess the impact to-date. We do so out of necessity, since we administer our survey in December 2020, within both the calendar and financial year of the start of the pandemic. We considered asking about cash flow impacts in the current month, but we were worried that we would not capture the full extent of the pandemic, since some of the initial pandemic impacts may have improved by December 2020.
8. In the survey, we ask about the respondents' total income in buckets (e.g., under $30,000, $30,000–$49,999, etc.). For our analysis, we re-coded these responses into high- (over $125,000) and low-income (under $50,000) dummy variables. Changing these cut-points does not dramatically alter our results.
9. For both the rent and cash flow, in our survey we ask these questions in buckets (e.g., how many units do you own where you charge between $750 and $1,000 in rent, etc.). To create the portfolio-wide averages, we take the midpoint of each bucket and multiply by the number of units they report owning in that bucket. Using instead percentage measures of low/high rent/cash flow properties yields similar results.

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References

Balzarini, J., & Boyd, M. L. (2020). *Working with them: Small-scale landlord strategies for avoiding evictions*. https://doi.org/10.1080/10511482.2020.1800779

Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E., Luca, M., & Stanton, C. (2020). The Impact of Covid-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences*, *117*(30), 17656–17666. https://doi.org/10.1073/pnas.2006991117

Brown, R. M., Schwann, G., & Scott, C. (2008). Personal residential real estate investment in Australia: Investor characteristics and investment parameters. *Real Estate Economics*, *36*(1), 139–173. https://doi.org/10.1111/j.1540-6229.2008.00210.x

Bushman, G., & Mehipanah, R. (2022). Housing and health inequities during Covid-19: Findings from the national household pulse survey. *Journal of Epidemiol Community Health*, *76*(2), 121–127. https://doi.org/10.1136/jech-2021-216764

Byrne, M., & Sassi, J. (2022). Making and unmaking home in the Covid-19 pandemic: A qualitative research study of the experience of private rental tenants in Ireland. *International Journal of Housing Policy*, 1–20. https://doi.org/10.1080/19491247.2022.2037176

Charles, S. L. (2020). The financialization of single-family rental housing: An examination of real estate investment trusts' ownership of single-family houses in the Atlanta metropolitan area. *Journal of Urban Affairs*, *42*(8), 1321–1341. https://doi.org/10.1080/07352166.2019.1662728

Chetty, R., Friedman, J. N., Hendren, N., & Stepner, M. (2020). *The economic impacts of COVID-19: Evidence from a new public database built using private sector data*. National Bureau of Economic Research.

Cho, S. J., Lee, J. Y., & Winters, J. V. (2021). Employment impacts of the Covid-19 pandemic across metropolitan status and size. *Growth and Change*, *52*(4), 1958–1996. https://doi.org/10.1111/grow.12540

Comerio, M. C. (2014). Disaster recovery and community renewal: Housing approaches. *Cityscape*, *16*(2), 51–68. https://doi.org/10.4324/9781315404264-14

Cummings, M. J., Baldwin, M. R., Abrams, D., Jacobson, S. D., Meyer, B. J., Balough, E. M., Aaron, J. G., Claassen, J., Rabbani, L. R. E., Hastie, J., Hochman, B. R., Salazar-Schicchi, J., Yip, N. H., Brodie, D., & O'Donnell, M. R. (2020). Epidemiology, clinical course, and outcomes of critically Ill adults with Covid-19 in New York City: A prospective cohort study. *The Lancet*, *395*(10239), 1763–1770. https://doi.org/10.1016/S0140-6736(20)31189-2

Decker, N. (2021). The uneven impact of the pandemic on the tenants and owners of small rental properties. *Terner Center for Housing Innovation*. UC Berkeley. July, 13.

de la Campa, E., Reina, V. J., & Herbert, C. (2021). *How are landlords faring during the Covid-19 pandemic? Evidence from a national cross-site survey*. Joint Center for Housing Studies.

Desmond, M., Gershenson, C., & Kiviat, B. (2015). Forced relocation and residential instability among urban renters. *Social Service Review*, *89*(2), 227–262. https://doi.org/10.1086/681091

Desmond, M., & Wilmers, N. (2019). Do the poor pay more for housing? Exploitation, profit, and risk in rental markets. *The American Journal of Sociology*, *124*(4), 1090–1124. https://doi.org/10.1086/701697

Dickerson, A. M. (2017). Hurricane Harvey and the Houston housing market. *Texas Law Review*, *96*, 102.

Eichholtz, P. M. A., Hoesli, M., MacGregor, B. D., & Nanthakumaran, N. (1995). Real estate portfolio diversification by property type and region. *Journal of Property Finance*, *6*(3), 39–59. https://doi.org/10.1108/09588689510101676

Evans, D. N., & Porter, J. R. (2015). Criminal history and landlord rental decisions: A New York quasi-experimental study. *Journal of Experimental Criminology*, *11*(1), 21–42. https://doi.org/10.1007/s11292-014-9217-4

Faber, J. W. (2013). Racial dynamics of subprime mortgage lending at the peak. *Housing Policy Debate*, *23*(2), 328–349. https://doi.org/10.1080/10511482.2013.771788

Feng, Z., Pattanapanchai, M., McKay Price, S., & Sirmans, C. F. (2021). Geographic diversification in real estate investment trusts. *Real Estate Economics*, *49*(1), 267–286. https://doi.org/10.1111/1540-6229.12308

Fisher, L. M., & Lambie-Hanson, L. (2012). Are investors the bad guys? Tenure and neighborhood stability in Chelsea, massachusetts. *Real Estate Economics*, *40*(2), 351–386. https://doi.org/10.1111/j.1540-6229.2011.00317.x

Furman Center for Real Estate and Urban Policy. (2013). Maintenance and investment in small rental properties: findings from New York City and Baltimore. Retrieved from http://furmancenter.org/files/MaintenanceandInvestmentSmallRentalProperties_WorkingPaper_15NOV2013.pdf

Garboden, P. M. E., & Newman, S. (2012). Is preserving small, low-end rental housing feasible? *Housing Policy Debate*, *22*(4), 507–526. https://doi.org/10.1080/10511482.2012.697909

Garboden, P. M. E., & Rosen, E. (2018). Talking to Landlords. *Cityscape: A Journal of Policy Development and Research*, *20*(3), 281–291. https://www.jstor.org/stable/26524885

Gaynor, T. S., & Wilson, M. E. (2020). Social vulnerability and equity: The disproportionate impact of Covid-19. *Public Administration Review*, *80*(5), 832–838. https://doi.org/10.1111/puar.13264

Gemelas, J., Davison, J., Keltner, C., & Ing, S. (2021). Inequities in employment by race, ethnicity, and sector during Covid-19. *Journal of Racial and Ethnic Health Disparities*, *9*(1), 350–355. https://doi.org/10.1007/s40615-021-00963-3

Gil, R. M., Marcelin, J. R., Zuniga-Blanco, B., Marquez, C., Mathew, T., & Piggott, D. A. (2020). Covid-19 pandemic: Disparate health impact on the Hispanic/Latinx population in the United States. *The Journal of Infectious Diseases*, *222*(10), 1592–1595. https://doi.org/10.1093/infdis/jiaa474

Golestaneh, L., Neugarten, J., Fisher, M., Billett, H. H., Reyes Gil, M., Johns, T., Yunes, M., Mokrzycki, M. H., Coco, M., Norris, K. C., Perez, H. R., Scott, S., Kim, R. S., & Bellin, E. (2020). The association of race and Covid-19 mortality. *EClinicalMedicine*, *25*, 100455–55. https://doi.org/10.1016/j.eclinm.2020.100455

Greenberg, D., Gershenson, C., & Desmond, M. (2015). Discrimination in evictions: Empirical evidence and legal challenges. *Harvard Civil Rights-Civil Liberties Law Review*, *51*(1), 115–15.

Hanson, A., Hawley, Z., Martin, H., & Liu, B. (2016). Discrimination in mortgage lending: Evidence from a correspondence experiment. *Journal of Urban Economics*, *92*, 48–65. https://doi.org/10.1016/j.jue.2015.12.004

Harding, J., Miceli, T. J., & Sirmans, C. F. (2000). Do owners take better care of their housing than renters? *Real Estate Economics*, *28*(4), 663–681. https://doi.org/10.1111/1540-6229.00815

Immergluck, D. (2018). Renting the dream: The rise of single-family rentership in the sunbelt metropolis. *Housing Policy Debate*, *28*(5), 1–16. https://doi.org/10.1080/10511482.2018.1460385

Immergluck, D., & Law, J. (2014). Investing in crisis: The methods, strategies, and expectations of investors in single-family foreclosed homes in distressed neighborhoods. *Housing Policy Debate*, *24*(3), 568–593. https://doi.org/10.1080/10511482.2013.850733

Kawachi, I., Daniels, N., & Robinson, D. E. (2005). Health disparities by race and class: Why both matter. *Health Affairs*, *24*(2), 343–352. https://doi.org/10.1377/hlthaff.24.2.343

Kim, S. J., & Bostwick, W. (2020). Social vulnerability and racial inequality in Covid-19 deaths in Chicago. *Health Education and Behavior*, *47*(4), 509–513. https://doi.org/10.1177/1090198120929677

Ladd, H. F. (1998). Evidence on discrimination in mortgage lending. *Journal of Economic Perspectives*, *12*(2), 41–62. https://doi.org/10.1257/jep.12.2.41

Long, J. A. (2019). Jtools: Analysis and Presentation of Social Scientific Data. R package version 2.0.0. https://cran.r-project.org/package=jtools

Mallach, A. (2007). *Landlords at the Margins: Exploring the Dynamics of the One-to Four-Unit Rental Housing Industry*. *Prepared for Revisiting Rental Housing: A National Policy Summit*. Harvard University, Joint Center for Housing Studies.

Malpezzi, S. (2023). Housing affordability and responses during times of stress: A preliminary look during the Covid-19 pandemic. *Contemporary Economic Policy*, *41*(1), 9–40. https://doi.org/10.1111/coep.12563

Manville, M., Monkkonen, P., Lens, M., & Green, R. K. (2020). *Covid-19 and renter distress: Evidence from Los Angeles*. UCLA: The Ralph and Goldy Lewis Center for Regional Policy Studies.

Mayer, N. (1985). The impacts of lending, race, and ownership on rental housing rehabilitation. *Journal of Urban Economics*, *17*(3), 349–374. https://doi.org/10.1016/0094-11908590056-7

Newman, S. J. (2005). *Low-end rental housing: the forgotten story in baltimore's housing boom* (Vol. 1). The Urban Institute.

Ong, P. M., Gonzalez, S. R., & Nazario, P. (2022). *Housing insecurity persists for renters of color amid the Covid-19 pandemic*. UCLA.

Oswald, D., Moore, T., & Baker, E. (2022). Exploring the well-being of renters during the Covid-19 pandemic. *International Journal of Housing Policy*, *23*(2), 1–21. https://doi.org/10.1080/19491247.2022.2037177

Özogul, S., & Tasan-Kok, T. (2020). One and the same? A systematic literature review of residential property investor types. *Journal of Planning Literature*, *35*(4), 475–494. https://doi.org/10.1177/0885412220944919

Parker, B., & Leviten-Reid, C. (2022). Pandemic precarity and everyday disparity: Gendered housing needs in North America. *Housing and Society*, *49*(1), 10–37. https://doi.org/10.1080/08882746.2021.1922044

Raymond, E., Miller, B., Lucas, M., & Pokharel, S. (2016). *Corporate landlords, institutional investors, and displacement: eviction rates in single- family rentals Richard Duckworth federal reserve bank of Atlanta corporate landlords, institutional investors, and displacement: eviction rates in single-family rent*. 2016-4. FRB Atlanta community and economic development discussion paper. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2893552

Rosenblatt, P., & Sacco, S. J. (2018). Investors and the geography of the subprime housing crisis. *Housing Policy Debate*, *28*(1), 94–116. https://doi.org/10.1080/10511482.2016.1242021

Rugh, J. S., & Massey and, D. S. (2010). Racial segregation and the American foreclosure crisis. *American Sociological Review*, *75*(5), 629–651. https://doi.org/10.1177/0003122410380868

Schuetz, J. (2020). *To improve housing affordability, we need better alignment of zoning, taxes, and subsidies*. Brookings Institution. https://www.brookings.edu/wp-content/uploads/2019/12/Schuetz_Policy2020_BigIdea_Improving-Housing-Afforability.pdf

Seay, M. C., Anderson, S. G., Carswell, A. T., & Nielsen, R. B. (2018). Characteristics of rental real estate investors during the 2000s. *Journal of Financial Counseling & Planning*, *29*(2), 369–382. https://doi.org/10.1891/1052-3073.29.2.369

Steil, J. P., Albright, L., Rugh, J. S., & Massey, D. S. (2018). The social structure of mortgage discrimination. *Housing Studies*, *33*(5), 759–776. https://doi.org/10.1080/02673037.2017.1390076

Travis, A. (2019). The organization of neglect: limited liability companies and housing disinvestment. *American Sociological Review*, *84*(1), 142–170. https://doi.org/10.1177/0003122418821339

U.S. Bureau of Labor Statistics, U.S. Department of Labor. 2021. Local Area Unemployment Statistics. On the internet. https://www.bls.gov/lau/

Williams, J. D. (2020). *New census bureau products track Covid-19's effects* Congress. In Focus. https://crsreports.congress.gov/product/pdf/IF/IF11594

Zannella, L., Clow, K., Rempel, E., Hamovitch, L., & Hall, V. (2020). The effects of race and criminal history on landlords' (un)willingness to rent to exonerees. *Law and Human Behavior*, *44*(4), 300–310. https://doi.org/10.1037/lhb0000419