The Cleveland Eviction Study: Downstream Paths of Evictions into Homelessness and Loss of Human Capital

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About the Center on Urban Poverty and Community Development

The Center on Urban Poverty and Community Development (the Poverty Center) works to inform public policy and program planning through data and analysis to address urban poverty, its causes, and its impact on communities and their residents.

Since our founding in 1988, our mission has broadened to understand and address poverty by delving into its human, social, and economic implications as experienced at the levels of the family and community.

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EXECUTIVE SUMMARY

This study uses linked administrative records to examine the disruptive effects of eviction on adults and children in low-income households. The study begins with eviction cases filed in Cleveland Housing Court in 2013-2016. By first linking court fillings with Public Assistance records, we are able to identify low-income adults and children in the household and examine their residential mobility, homeless shelter use, children's school attendance and lead screening through a match with other administrative records. These outcomes are measured for all households in the 8 quarters before and after the quarter of the eviction filing. We also determine for each case whether they received an eviction move-out order or not. Then we conduct a difference-in-difference analysis designed to detect the change in trends following an eviction filing and estimate the difference in trends between the two groups—those that did and did not get an eviction order. This statistical method allows us to control for unobserved, time- invariant individual differences in the effort to pinpoint the impact of an eviction order on subsequent outcomes.

Due to the need to use Public Assistance records for the data linkage, this is essentially a study of low-income households facing eviction. The household heads are predominately female (78%), African American (77%), under 40 years of age (64%) and have children (60%). The landlords (plaintiffs) in these cases include private individuals (43%), corporate owners (29%), public housing authorities (23%) and non-profit or other government entities (5%). The housing units represented in this study are disproportionately located in neighborhoods that score in the top tenth percentile for the nation on the Area Deprivation Index.

In this population, approximately 43% of the households with an eviction filing received an eviction order (as evidenced by a move-out date in the court record). We find that an eviction order results in more frequent and severe disruptions. Based on our models, two quarters after the eviction filing, households with eviction orders had estimated increases in residential mobility that were more than twice those for households without eviction orders. Those evicted from the private rental market are estimated to have increases in quarterly shelter use rates[1] 30% higher than the non-evicted, spending over 60% more days in shelter. This figure was over 100% for families in public housing. Following the eviction filing, all children missed increasing numbers of school days, but the increase was steeper for the eviction ordered group. Children of evicted households had rates of lead testing much lower than those of non-evicted households, despite the extremely high levels of poisoning both groups exhibit.

The study results suggest that policies to prevent eviction orders could mitigate subsequent housing-related hardships in low-income populations facing an eviction filing. The narrow focus of the study on the impact of eviction orders may underestimate the impact of such policies if they also have a dampening effect on eviction filings. [2] Moreover, preventing eviction is likely to have other benefits such as improved health and wellbeing that could not be measured here but are shown in other studies to be impacted by severe housing instability.

[1] Shelter use is understood as ever being in shelter during a given quarter.

[2] A reduction in eviction findings was observed in New York City after the right to counsel was established. Mironova, O. (2019). NYC Right to Counsel: First year results and potential for expansion. Accessed via https://www.cssny.org/news/entry/nyc-right-to-counsel.

1. Introduction

There is a vast and decades-long literature on the implications of housing instability for health and human capital. The pioneering research of sociologist Matthew Desmond has only recently shed light on the experiences of households facing eviction, a severe form of housing instability that is too familiar to low-income renters in the US. In 2016, it is estimated that 9.5% of renter households in the City of Cleveland received an eviction filing and 4.2% were given an eviction order.[3] An important question is whether an eviction is followed by increased housing instability and related problems for those families that are forced to move.

The current report focuses on low-income households that received an eviction filing in Cleveland between 2013 and 2016. By linking eviction court records with Public Assistance, we are able to perform a longitudinal analysis of low-income households receiving an eviction filing. This linkage allows us to identify adults and children in the household and via additional matching, we learn about homeless shelter use for adults, and school attendance and lead testing for children.[4] Using housing court records, we identify whether or not these households received an eviction order (as proxied by having a move-out date in court records).[5] We compare households that had an eviction order with those whose case did not result in an eviction order on preceding and subsequent signs of housing instability, including residential moves, homeless shelter use and disruptions in children's schooling and lead screening. We use difference-in-difference models, designed to estimate the effect of an eviction as the difference in housing stability changes after the filing, between those evicted versus those not evicted.

Findings from the study depict the downward spiral of housing instability for low-income households facing eviction. Residential mobility rises for all households following an eviction filing, but those households that receive an eviction order experience an increase that is significantly higher than those who are not evicted. These mobility rates remain elevated for four quarters after the eviction order is given.

The use of emergency homeless shelter is also higher following eviction. In the year after receiving an eviction order, our models estimate that households in the private rental market have increases in homeless shelter days that are 60% higher compared to households that do not get an eviction order. The disproportionate increase in homeless shelter use is even more extreme for households evicted from public housing. For this population, we see that the increased levels of homeless shelter use remain high

[3] Based on an unpublished analysis of Cleveland Eviction Court records and rental housing units by the authors. We estimate there were 97,892 renter occupied housing units and 9,314 eviction filings in 2016.

[4] The linkage of eviction records to public assistance and other data is facilitated by the Poverty Center's CHILD integrated Data system. The Poverty Center's ChildHood Integrated Longitudinal Data (CHILD) system is a comprehensive integrated data system used to carry out research and evaluation in order to improve child health and wellbeing in Cuyahoga County, Ohio. Our system is nationally recognized as among the oldest and most comprehensive in the country and includes continually updated administrative data from 1989 to the present from 35 administrative systems on more than 640,000 children, for a total of nearly 200 million records in the system. Funding for CHILD comes via grants from Cuyahoga County, the MacArthur Foundation, the City of Cleveland, and others. The CHILD system is used by Poverty Center researchers for research and evaluation of over a dozen projects. See more information about the CHILD data system at https://case.edu/socialwork/povertycenter/data-systems/child-data-system. The lead data used in this report come for the Ohio Department of Health. This should not be considered an endorsement of this study or its conclusions by the Ohio Department of Health.

[5] Of necessity, we use the presence of a move out date in the court record to signify that case resulted in an eviction order. This is explained in greater detail in the third section of this report.

even two years past the eviction order, suggesting that the impact of eviction on housing instability is prolonged.

The analysis of data on children of defendants points to the increasing levels of disruption that families face before and after an eviction filing. The changes in school attendance are particularly stark. Children in grades 7-12 increase absenteeism from missing 15% of school days two years before the filing to 30% of school days two years after the eviction filing on their household. If the household gets a subsequent eviction order, the percent of school days missed increases by another 2%.

Furthermore, children of parents facing an eviction filing exhibit significantly lower rates of recommended lead testing and higher levels of lead in their blood relative to all children born in Cleveland during the same period. Focusing on children born between 2012 and 2015, we find that only about half of children of all defendants are tested for lead by the age of two, and 17.1% of tested children exhibit lead levels above the 5 microgram per deciliter mark. In comparison, 10% of all children in Cleveland born in the same period test above the same mark. The disparities on lead exposure are somewhat greater (17.7%) for those children in households where the eviction filing leads to an eviction order.

This study intentionally focused on a pivotal point in the eviction process, the issuing of an eviction order by the court. All of the low-income households in this study were facing an eviction filing, but those that went on to receive a court order to move out by a specified date became significantly worse off over the next several quarters. Could the eviction order been prevented, it is likely that their increased hardships could have also been mitigated. The kinds of disruptions associated with severe housing instability and the final eviction order in this study, such as homeless episodes, residential instability and chronic school absence, are known to have long term consequences for human development. Although not monetized in this study, such losses of human capital are known to be costly to society, thus furthering the economic argument for mitigation strategies.

2. Findings from Related Literature

Previous studies have found that facing an eviction is associated with detrimental changes in neighborhood quality, health and intensity of use of social services, such as homeless shelters. Desmond & Kimbro [2015][6] use data from the Fragile Families and Child Wellbeing Study Sample to compare outcomes among low-income mothers who self-reported an eviction versus those who did not. Relative to mothers without an eviction experience, mothers that were evicted reported poorer mental and physical health for themselves and their children, as well as more parenting stress. Using data from the Milwaukee Renters Survey, Desmond & Shollenberger (2015) [7] found that households that self-reported forced moves were at increased risk for relocating to a neighborhood with worse social conditions. However, these studies did not distinguish between households that received an eviction filing and those that actually were given an eviction order and move-out date by a court.

Most relevant to the Cleveland study are two that attempt to identify causal effects of a court-ordered eviction on health, social service use, or socio-economic outcomes, among individuals with an eviction

[6] Desmond, M. and Kimbro, R. T. (2015). Eviction's Fallout: Housing, Hardship, and Health. Social Forces, 94(1):295–324.

[7] Desmond, M., & Shollenberger, T. (2015). Forced displacement from rental housing: Prevalence and neighborhood consequences. *Demography*, *52*(5), 1751-1772.

filing. For example, we can think of the causal effect of evictions on homeless shelter use for a group of individuals with a filing as the difference in average shelter use between the evicted and not evicted*, under the hypothetical scenario that an eviction order is randomly assigned to* individuals. Such an estimate would allow us to assess the potential gains to individuals and society from avoiding a court-mandated forced move *once already faced with an eviction filing*.

Collinson and Reed [2018][8] link Public Assistance records to eviction filings for non-payment of rent in New York City during the 2007-2016 time period. In New York City, eviction filing cases are randomly assigned to courtrooms. The authors estimate an index of leniency for each courtroom based on the observed propensity to issue an eviction order. Leveraging on this practice and the fact that courtrooms seem to exhibit varying degrees of "leniency", they are able to estimate causal effects of eviction order executions for individuals whose eviction judgment may be affected by random courtroom leniency. The authors estimate the causal effects of an eviction order on homeless shelter and social service use as well as labor market outcomes. They find that an eviction order leads to higher rates of homeless shelter use and hospitalizations for mental health. Leveraging on a similar practice of random assignment of cases to judges in Cook County, IL, Humphries et al. [2018][9] estimate the effects of an eviction order on credit finance outcomes. Unlike the New York and Cleveland studies, they include all eviction filings rather than focusing on the low-income population because they rely on credit bureau records rather Public Assistance records for their data linkage. In this mixed income population, they find a small negative effect of an eviction order on credit scores, but clear evidence of financial strain in the run-up to the eviction filing.

3. Cleveland Study Methodology

3.1 Approach to the Analysis

Similarly to the studies mentioned above, the Cleveland study is interested in pinpointing the effect of an eviction order on households' subsequent housing instability and related outcomes. As well, we anticipate that households may have had housing-related difficulties prior to and immediately after an eviction is filed, whether or not the case gets to the point of an eviction order. We also expect that households that end up with an eviction order may differ from those who are filed against but not evicted in ways that cannot be observed but might affect subsequent housing stability. Therefore, focusing on low income households that receive an eviction filing, we look at selected signs of instability for the 8 quarters before and after the filing. We then compare the changes on instability markers before and after filing for the two groups, one of which gets an eviction move-out order and the other which does not. This approach falls within the so-called difference-in-differences methods. It can be considered a rigorous method to isolate and estimate the shift in the trend line due to an eviction move-out order in a population of households that may already have been experiencing some housing hardships. (See appendix sections A1 for further information about the causal model and section A3 for the statistical analysis methods).

[8] Collinson, R. and Reed, D. (2018). The Effects of Evictions on Low-Income Households. Accessed via https://robcollinson.github.io/RobWebsite/jmp_rcollinson.pdf

[9] Humphries, J. E., Mader, N., Tannenbaum, D. and van Dijk, W. (2018). Does eviction cause poverty? Quasi-experimental evidence from Cook County, IL. Preliminary Report. Accessed via https://drive.google.com/file/d/1MV9vAJrnSFyTcAW2qC7M-za7np3KPuq6/view

3.2 Eviction Records Data

The study population consists of low-income households that had an eviction filing in Cleveland Housing Court in 2013-2016. The data for this study come from several types of administrative records. We begin with all eviction filing records in Cleveland Housing Court in 2013 through 2016. For each filing, we have access to information on the names of plaintiffs and defendants, the location of the rental property, the date of the eviction filing, and all scheduled move-out dates. A move-out date appears on the case if the judgment is in favor of the plaintiff *and the plaintiff purchases the writ of restitution*. As stated in the Cleveland Municipal Court Housing Rules: "If judgment is for plaintiff on the eviction, unless otherwise ordered by the Court, the plaintiff may immediately purchase a writ of restitution and schedule a move-out with the Eviction Unit bailiffs".[10]

Unfortunately, we do not have data on the reason for the eviction filing or the amount of rent owed, and the presence or absence of the move-out date is our only proxy for the judgment issued on the case. Thus, we conservatively take the presence of a move-out date as a sign of the judgment being in favor of the plaintiff.

It is important to acknowledge that using the presence or absence of the move-out date is an undercount of both eviction judgments for the plaintiff as well as an undercount of families that move as a result of the eviction filing. There are many scenarios in which a family may have moved as a result of an eviction filing, but that move would not be reflected with a move-out date in the data. In one scenario, if the tenant has vacated the property prior to the hearing and therefore the plaintiff fails to purchase the writ of restitution following the judgment in their favor, we will erroneously classify that case as not receiving an eviction judgment although they were effectively pushed out by the judgment. It is also possible that some non-eviction judgment cases may be associated with an actual move. For instance, the tenant may have moved upon receiving a notice of the eviction filing or the landlord and tenant may have reached an agreement requiring the tenant to move. In each of these scenarios, and in many others, a move-out date will not be registered in court records, yet the tenant could have experienced an unwanted move.

Understanding these limitations in the data, we assume that the tenant received a court order to evict the property only when the filing includes at least one move-out date. The move-out order remains a useful marker given our approach of examining trends in instability before and after the eviction filing and isolating the shift in the trend line that's due to the eviction order. In the rest of the report we refer to this as the occurrence of an *eviction move-out order* or *eviction order* for short.

3.3 Building the Linked Data Set

To build the study data set, we start with all eviction filing records from the Cleveland Municipal Court, Housing Division, from 2013 to 2016. Figure 1 illustrates the linking process. While the eviction data contains about 64,000 records, there are multiple records per person-case. Once the records are cleaned, we arrive at 54,229 person case records, corresponding to about 42,000 case filings.

Since the study requires linking the court records with other agency records, we undertake a match with Public Assistance records as a source of linking information. The names and addresses of defendants at

[10] Cleveland Municipal Court Housing Division Local Rules (Journal entry date, January 28 2019). Accessed on 04/18/2019 via http://www.clevelandhousingcourt.org/pdf_housingcourt/en-us/CMHCLocalRules.pdf

the time of filing allows us to link with monthly records of Public Assistance (PA) in the month of filing and within six months prior to the month of filing. PA data includes Medicaid, the Temporary Assistance for Needy Families (TANF), and the Supplementary Nutrition Assistance Program (SNAP). The PA data can reveal important information such as monthly addresses, data on any children of the defendant, and date of birth and race, which allow linkage with other systems data such as homeless shelter use. Because we link to PA data, we can assume that our linked data includes only low-income households, so that is the population to whom the study can be generalized.

We are able to match records for 21,732 defendant - eviction filings cases to PA data. When more than one adult is associated with the eviction filing, we take the oldest adult under the age of 63 to be the head of household and keep records for one adult per eviction filing case. In this way, we give equal weight to each case filing in the analysis. Most case filings list only one defendant, but 9% of the matched filings are associated with more than one defendant. In a few instances, when the same defendant has two filings in the same month, we take the most recent case and drop the other. This leaves us with 19,748 eviction filing cases, each represented by one head of household.

The same person may appear in multiple records if they were head of household for another eviction seen in our data. The data set on children of defendants include all children of the head of household and other adults in the matched filing records who were under the age of 18 at the time of the eviction filing. Similar to the adult data, a child may appear more than once if their parent has experienced more than one eviction filing. With this understanding, we will loosely refer to heads of household - eviction filing records simply as heads of household.

The data for heads of household is linked to emergency homeless shelter use data from the Homeless Management Information System provided by the Cuyahoga County Office of Homeless Services. This data is linked using defendant's name and date of birth. Residential mobility is calculated from addresses found in the Public Assistance data, and neighborhood quality is tracked at the census block group level by linking to the 2013 Area Deprivation Index.[11] Child identifying information is used to link with school attendance records from the Cleveland Metropolitan School District and some of the surrounding suburbs. Finally, we also link children with lead testing data from the Ohio Department of Health. All linking on names and addresses uses Soundex, a phonetic indexing of name by sound to compensate for some of the inconsistencies found in misspelled names. Fuzzy matching on dates of birth accounts for common data entry errors.

[11] The Area Deprivation Index helps us understand and characterize census blocks by their level of socioeconomic disadvantage, including income, education, employment, and housing quality. More information can be found here: https://www.neighborhoodatlas.medicine.wisc.edu/

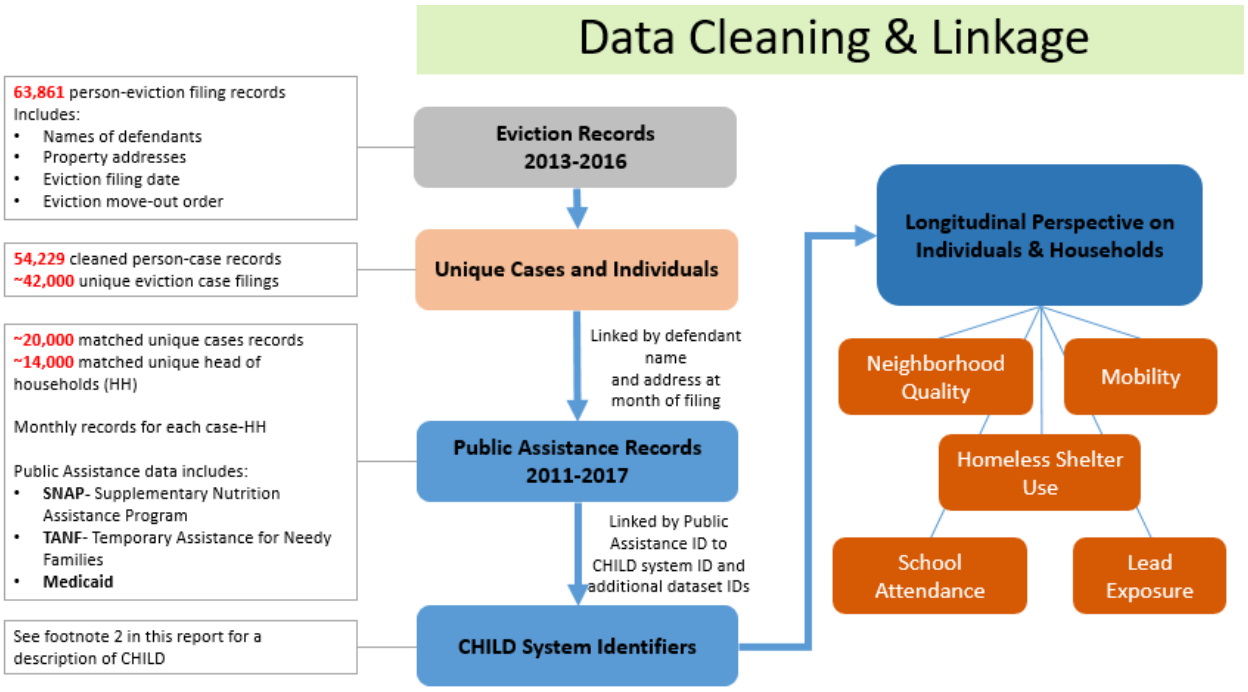


Figure 1: Data cleaning and linking process of eviction records for the City of Cleveland, 2013-2016.

4. STUDY FINDINGS

4.1 Tenant and Landlord Characteristics

Table 1 shows selected characteristics of the study population resulting from the data linkage described above. The average age of head of household is 37 and in 60% of cases households have children under the age of 18 at the time of the filing. Among those that have children, the average number of children per household is 2.1. In most cases the head of household is a woman (78%) and African American (77%). On average, the demographic characteristics for cases that lead to an eviction order (move-out date) and those that do not are very similar.

The rental units involved in these eviction filings are situated in highly distressed neighborhoods as measured by the 2013 Area Deprivation Index (ADI).[12] The average ADI is close to the 89th percentile, with no difference by eviction filing outcome. We also note that the households in this study tended to remain in neighborhoods of similar quality as measured by the ADI even when they moved from one housing unit to another.

[12] The ADI is an index of 17 census variables. See https://www.hipxchange.org/ADI.

	All		Evicted		Not Evicted	
VARIABLES	**M or %**	**sd or N**	**M or %**	**sd or N**	**M or %**	**sd or N**
Total		19,748		8,404		11,344
Age	36.65	11.69	36.64	11.7	36.66	11.68
Prev. case in past year*	24.4%		25.8%		23.3%	
Have children	59.5%		60.1%		59.1%	
Number of children	2.147	1.27	2.17	1.30	2.13	1.26
Age under 25	14.9%		15.1%		14.8%	
Age 25-39	48.9%		48.8%		49.0%	
Age 40-59	32.2%		31.9%		32.4%	
Age 60+	4.0%		4.2%		3.8%	
Gender F	78.4%		77.4%		79.2%	
Gender M	21.6%		22.6%		20.8%	
Race Black	76.6%		74.1%		78.4%	
Race Other-unknown	3.5%		3.4%		3.6%	
Race White	19.9%		22.5%		18.0%	
Area Deprivation Index	88.59	12.85	88.55	12.6	88.61	13.02

Total eviction filings 19,748

*excludes 2013 filings to look back one year

Table 1: Descriptive Statistics for Households of Eviction Filing Cases linked to Public Assistance Data. The Area Deprivation Index is measured at the census block group level.

Table 2 characterizes the landlords involved in the analyzed cases. In 43% of cases, we see a first and last name (First-Last name) for the plaintiff, but are unable to determine if the plaintiff represents a company or an individual. Corporate entities include LLCs, banks, management services and limited partnerships, and represent 29% of eviction filing cases in our linked data. In 23% of cases, the plaintiffs are Public Housing entities, while in 5% of cases, the landlord is a non-profit organization. For these last two landlord types, 33% of eviction filings lead to an eviction move-out order, compared to 47% of cases in the private rental market. When an eviction move-out is ordered, it is scheduled between one to two months after the filing date.

Landlord Type	**Frequency**	**Percent**	**Eviction rate**	**Area Deprivation Index**	**Tenant with previous case in past year**	**Months between filing and move-out**
Public Housing	4,600	23.3%	32.7%	88.99	42.1%	2.02
Nonprofit, Gov.	992	5.0%	34.9%	91.05	37.2%	1.28
Corporate	5,761	29.2%	45.8%	87.10	15.8%	1.34
First-Last name	8,395	42.5%	46.6%	89.08	19.6%	1.29
Total	19,748					

Table 2: Case characteristics by landlord type for eviction filing cases linked to Public Assistance Data. Non-Profit-Govt. includes mainly non-profit housing developers and community development organizations. Corporate includes LLCs, banks, management services and limited partnerships. F&L Name are cases where plaintiff is identified with a first and last name.

4.2 Likelihood of Receiving a Court-Mandated Eviction Order

Eviction orders, as evidenced by an entry of an eviction move-out order, apply to 43% of the eviction filing cases captured in our linked data. Factors associated with a higher risk of an eviction order in our study population are having had a previous filing within the past year and having more than three children.[13] On the other hand, having an eviction filing by a Public Housing Entity or non-profit organization carries a lower risk of getting an eviction order relative to a private entity. While African American heads of household make up the majority of eviction filing cases, among those with a filing, the likelihood of having an eviction move-out order is higher for White heads of household than for African Americans. Similarly, women are much more likely to confront an eviction filing, but among those with a filing, the risk of having an eviction order is higher for men than for women. The key to interpreting these apparently counterintuitive statistical patterns is to note that we are conditioning on individuals with an eviction filing, not the entire population. The relatively few low-income White males that receive an eviction filing may be individuals facing multiple struggles and by no means a representative sample of the population of White males at large.

4.3 Housing Mobility

In this section we examine residential mobility rates in the study population before and after the eviction filings. Through linkage with 2011-2017 Public Assistance data, we are able to assemble quarterly records that flag changes in census blocks of households in a period spanning eight quarters before and after the quarter of the eviction filing. We flag a move in a quarter as 1 if the census block for the household in that quarter has changed relative to the previous quarter, and zero if there is no change in census block. Since individuals may not be continuously enrolled in Public Assistance programs, some data will be missing. However, we are able to flag over 93% of the quarterly records of households with an eviction filing in the period of study.[14]

Using this measure to calculate mobility rates, we compare households with and without an eviction move-out order and plot these rates in Figure 2, where the quarter of filing is set to zero (quarter = 0). For those without an order, we find that 12.2% of households had a move in the quarter of the eviction filing and 16.5% of households experienced a move in the quarter following the filing. Thus, these households experienced a four percentage point increase in their moving rate, even if they did not receive an eviction move-out order. As a general reference, the 2016 Current Population Survey estimates that 11.2% of the U.S. population age 1 and older moved between 2015 and 2016. Our quarterly rate of 12.2% can be considered roughly four times higher than the rate reported for the general population.

Next we look at residential mobility for households that receive an eviction order. This group seems to follow a parallel trend relative to the non-evicted group, but evicted households clearly experience higher levels of mobility throughout the two years preceding the filing. In the quarter of filing, mobility rates for those to be evicted are about two percentage points higher than for the non-evicted group. The difference in mobility rates that precedes the filing cannot be attributed to the subsequent eviction order and must be considered when estimating the effect of an eviction order in the post-filing period.

[13] These associations are derived from a logistic model where the dependent variable is having an eviction move-out order and explanatory variables are race, gender, age category, number of children, observing a previous case in the data, and year of filing. See appendix A2 for regression estimates.

[14] Here, we refer to all uncensored quarters. Evictions occurring in 2016 will have quarters 5-8 censored in the post eviction period due to our lack of 2018 Public Assistance data.

We obtain quarterly estimates of this effect using a difference-in-differences model that formally accounts for differences in mobility at the time of filing across groups, differences in the calendar quarter of filings, and time-invariant individual case characteristics that could be associated with mobility. Estimates are provided in Appendix A2.

According to the model, the largest difference occurs two quarters after the filing quarter (quarter = 2). For the non-evicted, the estimated moving rate increases by 3.4 percentage points relative to the quarter of filing. But for the evicted, the moving rate increases an additional 4.2 percentage points, more than double the increase experienced by the non-evicted. It takes four full quarters for the effect of the eviction to fade out, at which point, the difference in mobility for the evicted and the non-evicted returns to pre-filing levels.

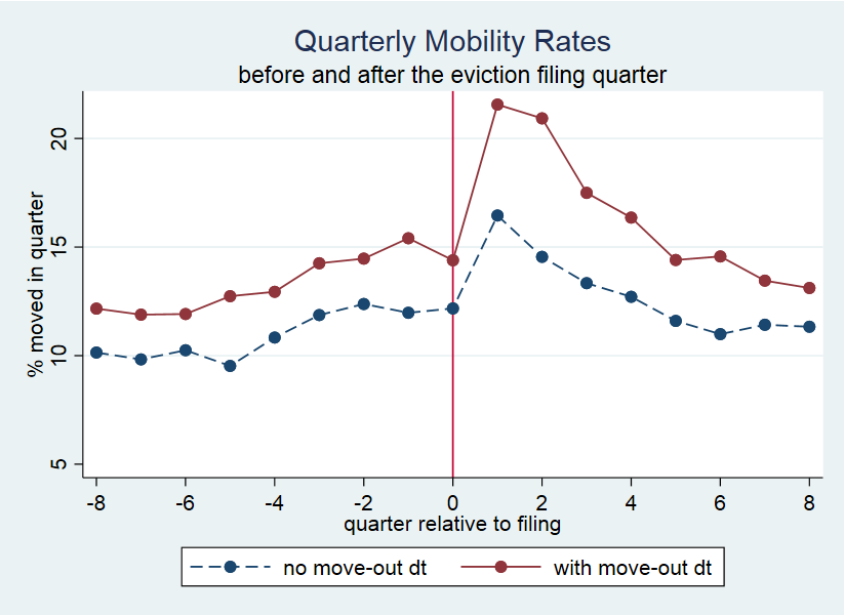


Figure 2: Raw quarterly mobility rates for heads of household with an eviction filing in the City of Cleveland 2013-2016 linked to Public Assistance records. Quarter of filing is zero.

4.4 Use of Emergency Homeless Shelter among Heads of household

We examine the trends in patterns of shelter use for all heads of household who are served an eviction notice between 2013 and 2016. We focus on the quarterly rate of individuals ever using emergency homeless shelter and the average days in shelter, two years before and after the filing. The analysis is done separately for Public Housing eviction filing cases, as these households have, in general, higher levels of housing instability and homeless shelter use.

We call attention to the fact that every person seeking shelter in Cleveland is assessed via a Coordinated Assessment Program[15] for interventions that may prevent shelter use. These interventions include family reunification, short-term rental assistance, landlord-tenant mediation, and community referrals. At the same time, a few shelter programs in Cleveland do not report to HMIS. These facts are relevant when

[15] Information on Coordinated Intake accessed at https://www.frontlineservice.org/central-intake-homeless-prevention-and-diversion/ and http://ohs.cuyahogacounty.us/en-US/information-homeless.aspx on 06.13.2019

interpreting our findings since the lack of evidence of emergency shelter use does not imply that a person facing eviction may not have required and even used other emergency housing services. Furthermore, it is possible that errors in administrative data entry, not resolved through our cleaning and linking process, may prevent us from matching records for the same individual across eviction filing and shelter use data. This would lead to an undercount of individuals using emergency shelter, and thus, an underestimation of the rate of shelter use. However, since we expect these undetected matches to be independent of the time period or eviction outcome, we can rely on the relative comparability of rates within individuals over time and across evicted and non-evicted groups.

Figure 3 shows the trends in quarterly homeless shelter use rates for cases with and without an eviction order. This rate is defined as the share of individuals in our population ever using emergency shelter in a given quarter. Because some households using shelter services may do so shortly after they receive an eviction filing notice, we take shelter use in the month (not quarter) of filing as baseline.

For non-Public Housing cases, we see a higher use of shelter among the evicted relative to the non-evicted, several quarters prior to the eviction filing. In order to account for this pre-existing difference among groups, we estimate a difference-in-differences model with individual case and quarter of filing fixed effects. We present the model in Appendix A2. Results from our model show that one year after the filing, the rate of shelter use for evicted households increases 30% more than the rate for those without an order, relative to the pre-filing period.

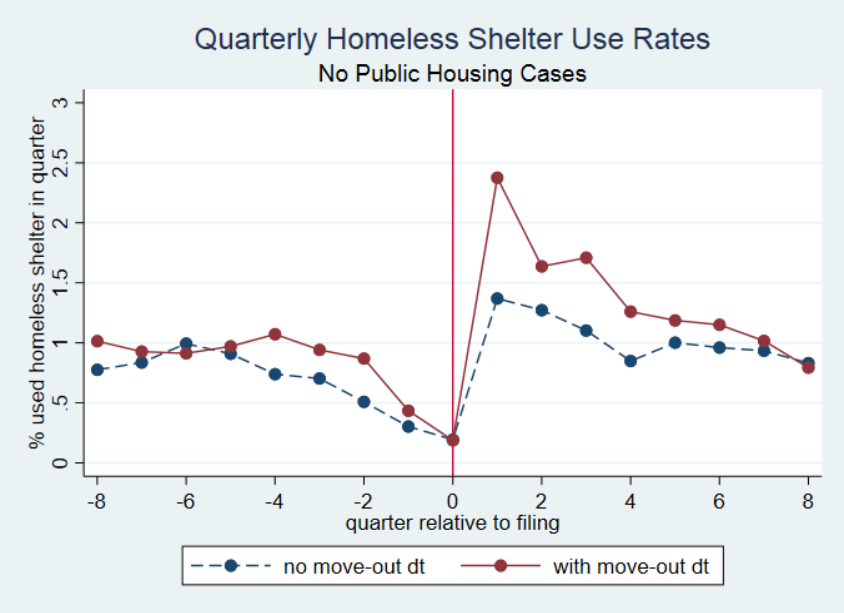


Figure 3: Raw quarterly rate of heads of household with an eviction filing using emergency homeless shelter, with zero denoting the month of filing. Public Housing cases excluded. Eviction filings in the City of Cleveland 2013-2016 linked to Public Assistance and HMIS records.

The higher instability of Public Housing households faced with an eviction filing is evident in Figure 4. In this group, about 2% of evicted households were in a homeless shelter 8 quarters prior to the filing. Shelter use gradually declines as we approach the eviction filing. By the quarter after the filing, close to 2.5% of evicted households utilize homeless shelters. Based again on a difference-in-differences model, we find that in the year after the filing, homeless shelter use rates for the evicted increase 60% more than

for households that do not get an eviction order. Furthermore, over the next two years, these households continue to experience significantly higher levels of homelessness relative to those not evicted.

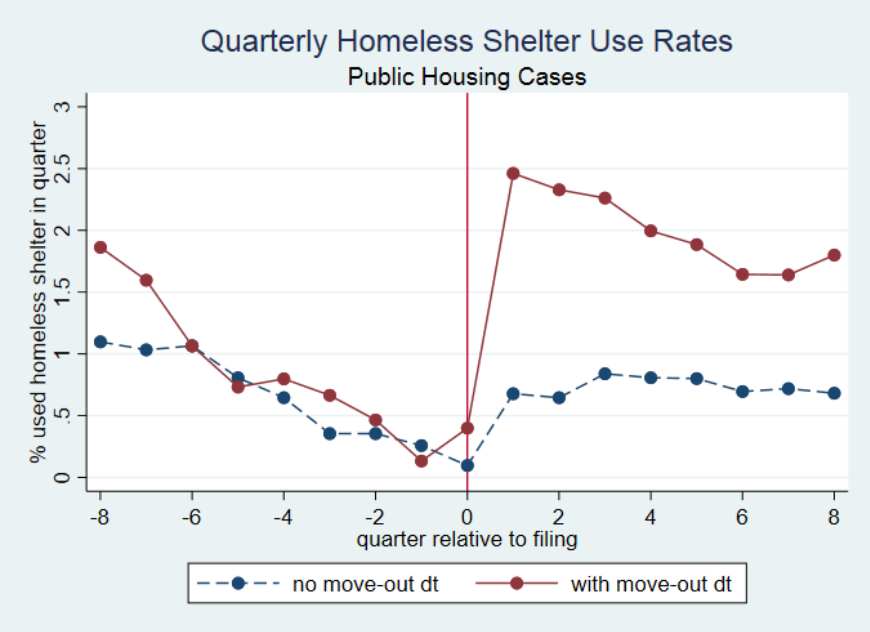


Figure 4: Raw quarterly rate of heads of household with an eviction filing using emergency homeless shelter, with zero denoting the month of filing. Public Housing cases only. Eviction filings in the City of Cleveland 2013-2016 linked to Public Assistance and HMIS records.

In Figure 5 we see a very consistent pattern when estimating the average days in homeless shelter. (See Appendix A3 for some estimates of the costs of homeless shelter days in this population). Based on results from our model presented in Appendix A2, prior to the eviction filings, for cases not involving public housing, homeless shelter use and days are not significantly different for households with and without an eviction move-out order. But after the filing and through the subsequent three quarters, households with an eviction order spend a significantly greater number of days in homeless shelter compared to those for whom the eviction does not lead to an eviction order. Our model estimates that in the year following the filing those with an eviction outcome experience a 60% higher increase in shelter days than those without an eviction order.

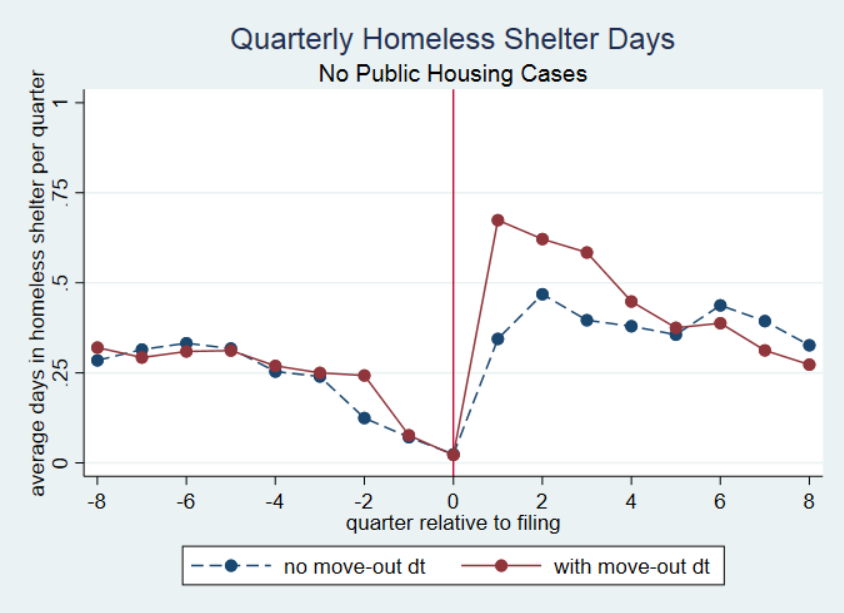


Figure 5: Raw average quarterly days in emergency homeless shelter by heads of household with an eviction filing before and after the month of filing (zero). Public Housing cases excluded. Eviction filings in the City of Cleveland 2013-2016 linked to Public Assistance and HMIS records.

We perform a similar analysis of days spent in homeless shelter among public housing residents and present raw averages in Figure 6. It is important to note that 47% of non-public housing cases end up with an eviction order but for cases of households in public housing, the eviction move-out order rate is lower, at 33%. However, homeless shelter stays for households evicted from public housing are longer lasting and more disparate from the public housing residents that are not evicted. For example, in the quarter following eviction, the households with eviction orders spend four times more days in shelter compared to those that are not evicted and this disproportionate use of shelter days continues for many quarters.

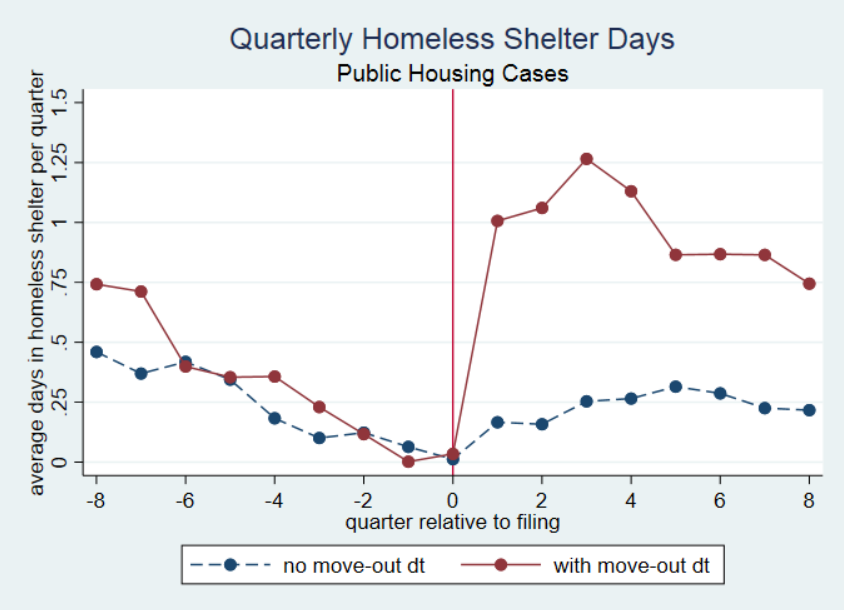


Figure 6: Raw average quarterly days in emergency homeless shelter by heads of household with an eviction filing before and after the month of filing. Public Housing cases only. Eviction filings in the City of Cleveland 2013-2016 linked to Public Assistance and HMIS records.

4.5 School Attendance for Children of Households Facing an Eviction

We examine the impact of eviction on children's school attendance. Missing more than 10% of school days is considered by experts as chronic absence.[16] We are able to identify children of the head of household and other adults listed in the filing, in Public Assistance records and CHILD records. While we cannot guarantee that all of these children lived with their parents at the time of the filing, we are certain about their age at the time of the filing. Thus, we include only offspring who were under the age of 18 at the time of filing.

We focus on school attendance in the period ranging from two school years before and after the year of filing. Within that range, we are able to obtain at least three years of attendance for 60% of children-case filings.[17] Children who attend a private or charter school in Cleveland and some surrounding suburbs are not included. Comparisons are made by the child's grade level in the year of the eviction filing (kindergarten through 6th grade and 7th – 12th grade) and by those with and without an eviction move-out order.

We present raw averages in Figure 7. Children in 7th to 12th grade at the time of filing start with an average share of missed day of about 15% a year prior to the filing. In the year of the eviction filing the rate has increased to 20% and those in households with an eviction move-out order have a share of absent days 2.3 percentage points higher relative to children in households without an eviction move-out order.

We also examined school attendance in children in lower grade levels. Children in the lower grade levels, Kindergarten to 6th grade, had a similar share of absent days, around 12%, in the year prior to filing. The share of absent days increases only slightly in the year after the filing and children of households with an eviction order only experience a 0.6 percentage point difference in absent days relative to children of households in cases without an eviction move-out order (not shown).

[16] Ohio has adopted this definition of chronic absence. http://education.ohio.gov/Topics/Student-Supports/Chronic-Absenteeism

[17] Attendance in the second year post eviction will be censored for children of parents with a filing in 2016 since we have attendance data up until the 2018 school year.

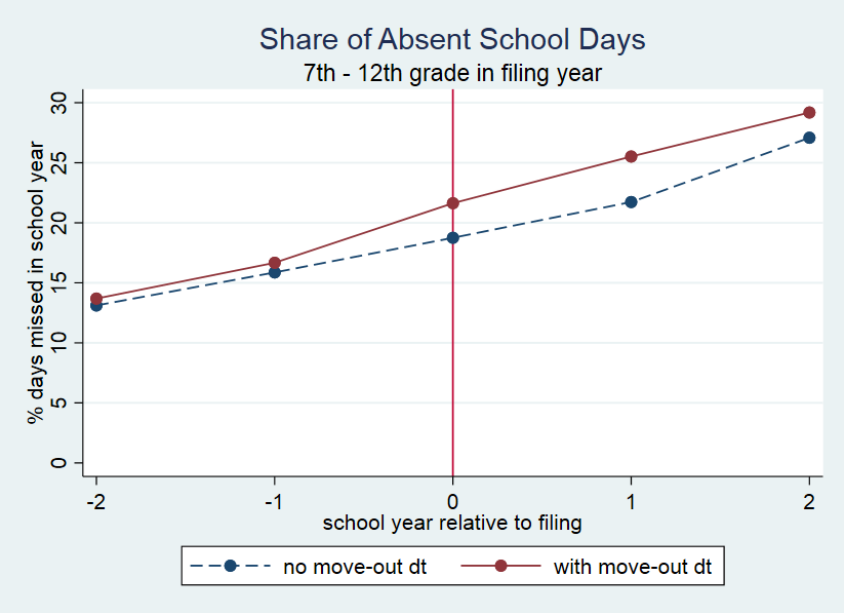


Figure 7: Raw share of school days missed by children of parents with an eviction filing in the two school years preceding and succeeding the filing (zero). Children in 7th to 12th grade only. Eviction filings in the City of Cleveland 2013-2016 linked to Public Assistance and data from Cleveland Metropolitan School District and select suburbs.

4.6 Lead Testing and Poisoning for Children of Households Facing an Eviction

As described earlier in this report, we see that low-income households that receive eviction filings live in relatively disadvantaged neighborhoods, with an Area Deprivation Index close to the 89th percentile. Due to the prevalence of old and deteriorated housing in such areas, a large share of children are at risk of lead poisoning. According to the Ohio Department of Health,[18] state law requires all healthcare providers to administer blood lead tests to children if they are enrolled in Medicaid, live in a high-risk ZIP code, or have other specified risk factors. Testing is required at ages 1 and 2, and up to age 6 if not tested previously.

Virtually all of the City of Cleveland falls within the ZIP code areas defined as being at high-risk for lead exposure, suggesting that most children should be tested around their first year of age. However, a substantial number of children do not meet this requirement. As seen in Table 3, among all children born in Cleveland between from 2012 and 2015, 65.9% had been tested by the end of their second year. By the age of two, 9.9% of children have a confirmed test reading at or above 5 micrograms per deciliter.[19]

[18] https://odh.ohio.gov/wps/wcm/connect/gov/6ba9ce85-93a8-4fb9-aa8f-05cc8cd1ba53/Lead-Testing-Requirements-and-Zip-Codes.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-6ba9ce85-93a8-4fb9-aa8f-05cc8cd1ba53-msoRcRh

[19] Calculations by the Center on Urban Poverty and Community Development, Case Western Reserve University, based on Birth Certificate Records and Lead Testing Records provided by the Ohio Department of Health.

Children born in Cleveland, 2012-2015			
Confirmed Lead Testing	**All**	*Children of parents with 2013-2016 eviction filings linked to Public Assistance*	
		No Move-out Date	**With Move-out Date**
% tested by age 2	65.9%	52.6%	48.5%
% tested above 5 µg/dl	9.9%	17.1%	17.7%
% tested above 10 µg/dl	3.0%	5.6%	5.9%

Table 3. Lead testing and results for children born in Cleveland between 2013 and 2015. Calculations based on data from Birth Certificate Records and Lead Testing Records provided by the Ohio Department of Health.

We find that lead testing is lower and lead poisoning is considerably higher for children of households with an eviction filing born in the same period (2012-2015). If the household had an eviction filing in 2013-2016, but the case does not have an eviction move-out order, the share of children-cases with testing by 24 months was 52.6%, lower than the 65.9% rate estimated for Cleveland. When the eviction filing leads to an eviction move-out order, only 48.5% of children-cases had a recommended lead test.
Among all children tested, 17.1% of those in cases without an eviction move-out order are found positive (above 5) while 17.7% of tests for children of household heads with an eviction move-out order are lead positive, between 7 to 8 percentage points higher than the average for Cleveland. These comparisons suggest that children of families who receive an eviction filing are at higher risk of poisoning and may be receiving fewer services due to lower chances of being tested. The risk is somewhat elevated for children in households that get an eviction order.

5. CONCLUSIONS

Starting with eviction filing records in Cleveland from 2013 to 2016, we construct a longitudinal portrayal of households from the two years prior to the eviction filing to two years after the filing along key outcomes of interest. The individual-level longitudinal perspective, unveiled through data linkage to Public Assistance records, allows us to track housing mobility rates, emergency homeless shelter use and length of emergency shelter stays for heads of household. We are also able to track a few indicators of disruption for children of these households, specifically rates of school attendance and lead testing around the time of the eviction filing. Strictly speaking, due to the need to rely on Public Assistance records for linkage purposes, the results are applicable to the low-income population.

Our analysis shows that low-income households facing eviction live in neighborhoods ranked among the most disadvantaged in the city and the nation as a whole. Housing instability, as measured by quarterly moving rates, exacerbates for all households after a filing, but the impact is higher for those with a resulting eviction order. These elevated mobility rates last up to three quarters past the eviction filing, contributing to high residential turnover in these neighborhoods.

For households in the private rental market, patterns in use of emergency homeless shelters tell a similar story. In the year following the eviction filing, households receiving an eviction order are significantly worse off as compared to those not evicted. Our models estimate that the average days spent in emergency shelter increase 60% more for the evicted than the non-evicted, relative to shelter days in the pre-filing period.

Our study also uncovers particularly high levels of housing instability faced by Public Housing tenants with an eviction filing. The analysis suggests that those eventually receiving an eviction order are more housing unstable than those not so ordered, even two years before the current filing they faced. For these households, emergency homeless shelter use remains elevated post eviction and persists for the entire two-year period we measure, whereas the non-eviction ordered households seem to stabilize at lower levels of shelter use. This analysis is not able to document services provided as part of the Coordinated Assessment Program that precedes and works to avoid placement in emergency shelter, but it is likely that some households in both groups may be helped to avoid entering homeless shelters by these services. By looking only at shelter stays, this study able to capture only a portion of the effect of eviction on the entire homelessness system

An eviction filing also seems to negatively impact school attendance for children, particularly in the grades 7-12. The numbers of days missed reaches almost 30% two school years after the filing, well exceeding Ohio's definition of chronic absence (i.e. <10% of enrollment days) and somewhat higher than for children of non-evicted households. Relative to a comparable cohort of children in Cleveland under the age of two, we find that children of parents with an eviction filing have a much higher incidence of elevated lead levels but a lower rate of testing. These disparities suggest that children touched by the eviction process are at an elevated risk for lead exposure, yet are less likely to be tested and treated in a timely fashion. Altogether, the study depicts the downstream pathways in housing instability for low-income households facing an eviction filing. It documents the subsequent residential mobility, disruptions in schooling for their children, and tracks their higher incidence of lead poisoning. Furthermore, it attempts to isolate the impact on households of receiving an eviction order rather than some other resolution of their eviction case that was filed in court. *The longitudinal comparative analysis suggests that extreme housing instability, and particularly the use of emergency homeless shelters, could be reduced for tenants even after an eviction filing, if an eviction order were avoided.*

Policies such as a right to legal counsel for tenants in housing court, mediation, and emergency assistance programs have the potential to reduce the risk of an eviction order for households that face an eviction filing. Based on the findings of this study, we would expect such policies to lead to lower rates of residential instability, homelessness and related family disruptions in the low-income renter population facing eviction in Cleveland. Moreover, there are likely to be benefits with respect to other outcomes for health and wellbeing that could not be measured in this study.

However, it is important to note that low-income households in Cleveland face considerable challenges related to housing affordability and quality, and that those that find themselves in housing court are especially vulnerable. We found excessive levels of housing instability, lead poisoning, and school disruptions even among those who avoided an eviction order. This suggests the need to simultaneously address the weaknesses in our social safety net and housing programs. More efficient and coordinated systems could help in preventing the threat of eviction and in providing more stable and healthy environments for families to thrive.

Finally, this study is focused specifically on one point in the process, that is, the potential eviction move-out order and its effects. However, it does not investigate the impact of more systemic changes that might ensue from a right to legal counsel. For example, in New York City, the right to legal counsel was associated with an 11% reduction in eviction filings.[20] A narrow focus on eviction move-out order may underestimate the total impact on the eviction process.

[20] Mironova, O. (2019). NYC Right to Counsel: First year results and potential for expansion. Accessed via https://www.cssny.org/news/entry/nyc-right-to-counsel

APPENDIX

A1. Modeling the Effects of Eviction

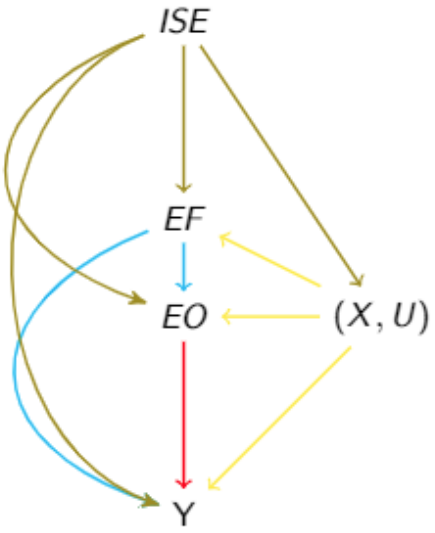
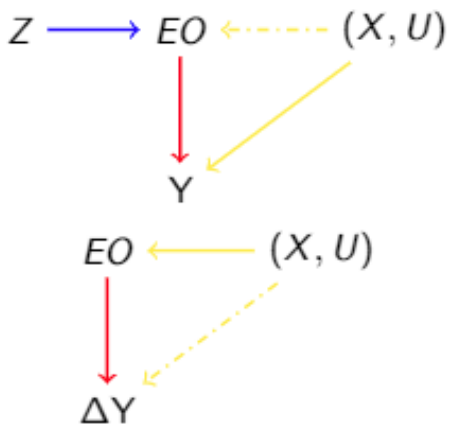


Figure A1.1



Figures A1.2 (top) and A1.3 (bottom)

Figure A1.1 shows three simplified graphical models of the effects of an eviction order (EO) on outcome Y, where Y can denote homeless shelter use, for instance. Societal institutions, the social safety net and the economy are denoted by ISE. (X,U) are observed and unobserved individual level characteristics influencing housing instability and outcome Y. For instance, X can include employment, while U may include health. EF represents an eviction filing and EO an eviction order with a scheduled eviction move-out order. All arrows represent a direct causal effect flowing in the direction of the arrow.

Undeniably, societal institutions, the social safety net and the economy influence employment, health, the ability to pay rent, the result of a potential eviction filing, and outcome Y. The access to low-income housing programs and segregation in the housing market flow through the (dark green) causal arrows emanating from ISE and are the context under which the eviction process operates. Acknowledging the system as a whole is relevant to the design of preventive interventions and policies for housing stability. Estimating the effects of an eviction filing (light blue causal arrows) is a difficult but relevant task to tackle, as the receipt of an eviction notice increases household stress, insecurity, and the filing can stay in the tenant's records affecting their subsequent rental options. However, matching low-income renters with and without a filing on relevant observable characteristics (X) is not sufficient to estimate the effect of a filing. Even after matching, relevant unobserved confounders such as health and social network supports remain, biasing any causal estimates of a filing EF on outcome Y. Most likely, individuals with unobserved health issues will find it harder to pay rent and will be more likely to receive a filing. Consequently, we will be unable to distinguish the effect of an eviction filing from the effect of health issues (yellow arrow from U to Y) on outcomes.

Another important measure, further along the path of housing instability, is the effect of an eviction order (EO) on outcome Y (causal red arrow). It pertains to individuals who have already received an eviction

filing and as such, are experiencing already high levels of distress. We represent this model by Figure A1.2. By leveraging the random assignment of cases to more or less lenient courtrooms or judges, researchers use an Instrumental Variables approach to virtually simulate the random assignment of leniency to cases. In this manner, it is possible to estimate the effect of an eviction order on outcomes, free from the confounder U, for the subpopulation whose eviction case judgment may be affected by court leniency (Z).

An alternative approach to estimating the effects of an eviction order is a difference-in differences model, illustrated in Figure A1.3. This approach assumes that the effect of unobserved confounders, such as health issues, is additive and does not change in and around the time of an eviction filing. With those arguably strong assumptions, we are able to remove confounding due to unobserved individual characteristics by comparing *changes* in outcomes over time (Δ Y) for those with and without an eviction order (EO).[21]

This is the approach we undertake in our study. The City of Cleveland Housing Court is presided by one judge and eviction cases are handled by six magistrates. Thus, we are unable to leverage random assignment of cases to estimate causal effects. We can, however, compare changes in outcomes over time for households with and without an eviction order, being cautious of the strong assumptions implied when interpreting results as causal effects.

Estimating the effects of an eviction order (proxied by a move-out date) for households with an eviction filing is relevant to policy because it allows us to assess gains to households and society from offering interventions to reduce the chance of an eviction after the court filing. Legal interventions such as Right to Counsel and programs that offer low-interest lending to tenants have the potential to prevent the continued downward spiral of housing instability for some households, without unintended negative consequences to the supply of low-income rental units.

[21] Both, Collinson and Reed [2018] and Humphries et al. [2018] use the instrumental variables approach as their main model and a difference-in-differences approach as an alternative to their main specification.

A2. Estimation

Logistic regression model estimation of the likelihood of receiving an eviction order (Table A2.1)

The data represent eviction case filings in the City of Cleveland 2013-2016 linked to Public Assistance records. Variables correspond to the head of household associated with the eviction filing. The model uses data for 2014-2016 eviction filings to allow looking back one year for a previous case filing.

Table A2.1: Dependent variable: Eviction order		
VARIABLES	**coef**	**se**
previous case in past year	0.326***	(0.0423)
male	0.161***	(0.0464)
race other; unknown	-0.0721	(0.0981)
race white	0.143***	(0.0447)
age at filing 25-39	-0.0173	(0.0536)
age at filing 40-59	-0.0719	(0.0602)
age at filing 60+	0.0913	(0.103)
has kids	0.0855**	(0.0409)
ADI above 80th perc.	0.0127	(0.0493)
Landlord: Nonprofit, Gov.	0.259***	(0.0951)
Landlord: Corporate	0.710***	(0.0519)
Landlord: first, last name	0.734***	(0.0493)
year = 2015	-0.0258	(0.0415)
year = 2016	0.0471	(0.0435)
Constant	-1.028***	(0.0799)
Observations	13,751	

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Difference-in-differences models to estimate the effect of an eviction order on mobility (Table A2.2)

We use quarterly panel data to flag moves of head of households associated with eviction case filings in the City of Cleveland 2013-2016 and receiving Public Assistance. A move is defined as an observed change in Census Block relative to the previous quarter.

We estimate the following panel difference-in-differences model, where *y* is the outcome of interest, *i* indexes cases and *q* is quarter relative to the quarter of filing.

$$y_{iq} = \sum_{\substack{t=-8 \\ t\neq 0}}^{8} \beta_t \mathbb{1}_{[t=q]} + \sum_{\substack{t=-8 \\ t\neq 0}}^{8} \gamma_t \mathbb{1}_{[t=q]} \times \mathbb{1}_{[ev_i=1]} + \sum_{k_0}^{K} \delta_k \mathbb{1}_{[d_i(q_0+q)=k]} + \alpha_i$$

Here, $\mathbb{1}_{[t=q]}$'s are quarter-relative-to-quarter of filing dummies, ranging from 8 quarters before the filing (q = - 8) to 8 quarters after the filing (q = 8).
The model also includes an interaction with $\mathbb{1}_{[ev=1]}$, an indicator for eviction, which takes the value of 1 when the case had an eviction move-out order and zero otherwise. Thus, the γs are parameters for quarterly eviction effects. Calendar quarter fixed effects (not shown in table A.2.2) are $\mathbb{1}_{[k]}$'s where k_0=2011q1 and K=2017q4. The α_i's are case-level fixed effects and α_0 is a constant.

In the second quarter after filing, households without an eviction order see an increase in mobility rates of 3.37 percentage points (coefficient for dummy (q = 2)) relative to the filing quarter, whereas households with eviction orders experience an additional increase of 4.2 percentage points (coefficient for interaction term (q = 2)#eviction). This represents a 124% larger increase in mobility rates of evictees relative to non-evictees.

Table A2.2: Dependent Variable: Moved in quarter		
VARIABLES	**coef**	**se**
qdiff = -8	-0.0315***	(0.00519)
qdiff = -7	-0.0304***	(0.00497)
qdiff = -6	-0.0237***	(0.00476)
qdiff = -5	-0.0307***	(0.00458)
qdiff = -4	-0.0139***	(0.00445)
qdiff = -3	-0.00869*	(0.00456)
qdiff = -2	-0.00236	(0.00456)
qdiff = -1	-0.00414	(0.00449)
qdiff = 1	0.0480***	(0.00488)
qdiff = 2	0.0337***	(0.00477)
qdiff = 3	0.0243***	(0.00479)
qdiff = 4	0.0219***	(0.00472)
qdiff = 5	0.0142***	(0.00483)
qdiff = 6	0.0133***	(0.00484)
qdiff = 7	0.0205***	(0.00496)
qdiff = 8	0.0203***	(0.00513)
(qdiff = -8)#(eviction)	-0.00860	(0.00762)
(qdiff = -7)#(eviction)	-0.00467	(0.00740)
(qdiff = -6)#(eviction)	-0.00846	(0.00721)
(qdiff = -5)#(eviction)	0.00752	(0.00714)
(qdiff = -4)#(eviction)	-0.00602	(0.00693)
(qdiff = -3)#(eviction)	-0.000738	(0.00716)
(qdiff = -2)#(eviction)	-0.00230	(0.00725)
(qdiff = -1)#(eviction)	0.0113	(0.00730)
(qdiff = 1)#(eviction)	0.0297***	(0.00790)
(qdiff = 2)#(eviction)	0.0420***	(0.00783)
(qdiff = 3)#(eviction)	0.0182**	(0.00768)
(qdiff = 4)#(eviction)	0.0121	(0.00743)
(qdiff = 5)#(eviction)	0.00328	(0.00751)
4(qdiff = 6)#(eviction)	0.0101	(0.00750)
(qdiff = 7)#(eviction)	-0.00618	(0.00761)
(qdiff = 8)#(eviction)	-0.00773	(0.00765)
Constant	0.0420***	(0.00402)

Observations	269,365
Number of cases	19,686
Calendar quarter FE	YES
R-squared	0.009
F-test	189.6
Prob > F	0
Robust standard errors in parentheses **** p<0.01, ** p<0.05, * p<0.1*	

Mobility rate at baseline (filing quarter) - Non-evicted cases		
N	**Mean**	**Std. Dev.**
10870	0.122	0.33

Difference-in-differences models to estimate the effect of an eviction order on emergency shelter utilization (Tables A2.3 & A2.4)

Arguably, the incidence of homeless shelter use in the months preceding the eviction filing will be close to zero, as households are occupying the rental unit from which they are being forced to move. Thus, we exclude the quarter of filing and the previous quarter from the analysis.

Shelter use in the four quarters prior to this period serves as the baseline period (year 0). This baseline period allows us to compare households with and without a subsequent eviction order prior to filing and account for pre-filing differences in both groups. We estimate the effect of an eviction order on shelter use in two subsequent periods: Year 1 comprises four quarters following the quarter of filing and Year 2 includes the fifth through eighth quarters following the quarter of filing.

In table A.2.3 the dependent variable is the incidence of shelter use in a given quarter, where quarters are defined relative to the quarter of filing. The analysis is performed separately for Public Housing cases and non-Public Housing cases.

Focusing on non-public housing cases, we see that relative to the baseline period, the incidence of shelter use in any quarter within year 1 increases by 1.16 percentage points (coefficient for dummy year 1), from 2.9% to 4.15% for those cases without an eviction order. That figure is 0.35 percentage points higher for households with eviction orders, representing a 30% difference in shelter use rate increases relative to non-evictees. The effect of an eviction is substantially stronger for cases involving Public Housing. Here, the increase in shelter use for the evicted is more than double that for the non-evicted.

Table A2.3: Dep. Var. Ever sheltered in quarter				
	No Public Housing		**Public Housing**	
VARIABLES	**coef**	**se**	**coef**	**se**
Year 1	0.0116***	(0.00157)	0.00575***	(0.00212)
Year 2	0.0151***	(0.00213)	0.00794***	(0.00307)
Year 1 #eviction	0.00355**	(0.00153)	0.0140***	(0.00342)
Year 2 #eviction	-0.000791	(0.00148)	0.00956***	(0.00339)
Constant	0.0237***	(0.00376)	0.00641**	(0.00288)
Observations	173,718		53,364	
Number of cases	15,152		4,600	
Calendar quarter FE	YES		YES	
Overall R2	0.000219		0.00288	
F-test	5.348		2.321	
Prob > F	0.00		0.00	
Robust standard errors in parentheses **** p<0.01, ** p<0.05, * p<0.1*				
Counts of sheltered in quarter over baseline year - Non-evicted				
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**
	0.029	0.240	0.022	0.198

In table A.2.4 the dependent variable is number of shelter days in a given quarter, where quarters are relative to the quarter of filing. The analysis is performed separately for Public Housing cases and non-Public Housing cases. In the baseline year households for cases without an eventual eviction spend on average 0.94 days in shelter. Throughout the first year after the filing quarter, shelter use increases by 0.38 to 1.32 days. But for those with an eviction outcome, there is an additional 0.61 increase in the post filing year, which represents a 60% difference in shelter day increases relative to non-evictees.

Households in Public housing who are not evicted do not see an increase in shelter utilization relative to the baseline year. However, those that are evicted from Public housing increase shelter utilization by 3.3 days in the following year and by almost 2 days (1.97) the subsequent year.

Table A2.4: Dep. Var. Shelter days in quarter				
	No Public Housing		**Public Housing**	
VARIABLES	**coef**	**se**	**coef**	**se**
Year 1	0.380*	(0.203)	-0.0227	(0.284)
Year 2	0.218	(0.213)	0.114	(0.312)
Year 1 #eviction	0.613*	(0.319)	3.332***	(0.847)
Year 2 #eviction	-0.174	(0.303)	1.969**	(0.848)
Constant	1.005**	(0.404)	0.856	(0.586)
Observations	173,718		53,364	
R-squared	0.002		0.005	
Number of cases	15,152		4,600	
Calendar quarter FE	YES		YES	
F-test	2.989		1.317	
Prob > F	0.00		0.123	
Robust standard errors in parentheses **** p<0.01, ** p<0.05, * p<0.1*				
Sheltered days in quarter over baseline year- Non-evicted				
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**
	0.94	11.36	0.75	10.60

A3. Cost Estimates of Use of Emergency Homeless Shelter

We are interested in assessing the operational costs of emergency homeless shelter use incurred by families who face an eviction. Based on estimates provided by two social agencies in Cleveland that offer emergency shelter, the estimated cost is $160 per family/night. Our linked data only represents eviction filing cases of households with Public Assistance records, accounting for only about half of all cases. Thus, we realize that we will be significantly underestimating costs of emergency shelter use. We should bear in mind that emergency shelter is often the last resource of individuals and families facing homelessness. Coordinated Intake[22] is the first point of contact for those seeking shelter. We are not considering the cost of interventions offered through Coordinated Assessment, such as mediation for family reunification, short-term rental assistance, landlord-tenant mediation, and community referrals. Furthermore, our calculations do not include temporary shelter provided by social networks or shelters not reporting through the Homeless Management Information System.

Nevertheless, the following exercise provides a general sense of the relative magnitude of costs incurred by households whose eviction filing leads or not to a scheduled move-out. For this analysis, we no longer distinguish between public and private rental cases. Consistent with our analysis, we assume that 5000 households receiving Public Assistance are filed for eviction in Cleveland in a given year, and 43% of these cases have an eviction move-out order assigned.

We collapse the quarterly data into two periods. The Pre-filing period consists of 8 quarters prior to the quarter of filing, and the Post-filing period includes 8 quarters after the quarter of filing.
Based on our analysis, when the case does not stipulate an eviction move-out order, 3.0% of household heads use emergency homeless shelter in the pre-filing period and 3.7% use shelter in the post-filing period. However, when the filing has an eviction move-out order, 3.9% of household heads use homeless shelter in the pre-filing period and 6.1% use shelter in the post-filing period.

When averages are taken across all households, including those with no shelter use (zero days), we see that *on average* –in the absence of a move-out date- each household with a filing contributes 2 days in emergency shelter in the 8 quarters preceding the filing and 2.6 days in the post-filing period. For households with an eviction move-out order, *average* emergency shelter use goes from 2.2 in the pre filing period to 4.2 days post filing (see Table A3.1).

Using the per family-per night cost of $160.00, we calculate costs of shelter use for the hypothetical 5000 families facing eviction in the 8 quarters before and after the filing (Table A3.1). In the period after the filing, the cost of shelter by families without an eviction move-out order is $1,189,289, representing an additional cost of $289,385 relative to the cost in the pre-filing period. But the increased cost of shelter post filing is higher for families who have an eviction move-out order. Their cost goes from $765,190 pre-filing to $1,444,104 post filing, an increase of $678,914. Compared to costs incurred by an equal number of households that do not have an eviction move-out order, we see that the increased yearly cost of shelter use after the filing is of $460,606 more for families with a scheduled date to move.

[22] Information on Coordinated Intake accessed at https://www.frontlineservice.org/central-intake-homeless-prevention-and-diversion/ and http://ohs.cuyahogacounty.us/en-US/information-homeless.aspx on 06.13.2019

Table A3.1	Households (N)	Avg. days Pre-filing period	Avg. days Post-filing period	Period change in average shelter days	Cost Pre-filing	Cost Post filing
Not evicted	2850	1.97	2.61	0.63	$899,904	$1,189,289
Evicted	2150	2.22	4.20	1.97	$765,190	$1,444,104
Total	5000					
Evicted/non Evicted Difference				**1.34**		
Added cost for evicted households relative to non-evicted						**$460,606**

Table A3.1. Calculated costs of shelter use incurred by a hypothetical group of 5000 families eight quarters before and after the quarter of filing (Pre-filing and Post filing). Eviction rates and shelter use were estimated by our linked data of eviction filings and Public Assistance records for Cleveland 2013-2016.