MANAGEMENT AND BUDGET

Evaluation of Emergency Assistance in Minnesota

Impact of EA Approval on Housing Stability

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Executive Summary

Minnesota's Emergency Assistance (EA) program provides short-term financial help to families with children who face urgent housing crises, such as overdue rent, utility shut-offs, or a security deposit to support a move. Minnesota Management and Budget (MMB) partnered with state and local program staff to conduct an impact evaluation of Emergency Assistance. We examined the effect of receiving EA on families' housing stability. We also explored whether the speed of application processing was associated with differences in outcomes for approved families.

Findings From Primary Analysis: Approval for EA Tends to Promote Housing Stability

In our primary analysis, we focused on how approval for EA affects housing stability. Overall, we find that receiving EA produced statistically significant positive impacts on housing outcomes. Our first outcome was whether families moved at least once in the year after applying for EA. We accounted for differences in families' goals at the time of application. EA was effective both in preventing unintended moves among retention-enabling cases and in facilitating intended moves among move-enabling cases. Approval for EA also reduced more severe forms of housing instability. While there was not a measurable reduction in the probability of eviction, we found that approval for EA reduced the likelihood of experiencing multiple moves over the next year, and that EA reduced a combined measure of severe instability (either an eviction or multiple moves). Together, our results show that approval for EA promotes housing stability.

Housing stability outcomes for approved and denied EA applicants.

Outcome	% within 12 months, approved households	% within 12 months, denied households	Percentage point difference (95% CI)
Any move (retention cases only)	30.4	36.1	-5.7* (-7.9 to -3.5)
Any move (move-enabling cases only)	88.2	45.7	42.4* (38.5 to 46.4)
Eviction (all cases)	3.6	3.8	-0.3 (-1.1 to 0.5)
2+ moves (all cases)	9.5	11.1	-1.6* (-2.7 to -0.5)
Combined instability (all cases)	12.2	13.8	-1.7* (-2.9 to -0.4)

*Note: Statistical significance at p < .05 indicated by *. Retention cases received EA benefits designated for permanent housing, utility shut-offs, foreclosure, or home repairs. Move-enabling cases received EA benefits designated for damage deposits or moving expenses. Combined instability is defined as any eviction judgment or 2+ moves.*

Our results indicate a substantial increase in moves for households approved for funding to aid in moving to different housing, and a moderate reduction in moves for those approved for funding to help stay in their

current housing. For the latter group, we found that about 88% of approved families were able to move compared to less than half of matched denied applicants. This equates to a 42 percentage point increase in the probability of moving (a 93% increase) that was facilitated by EA approval. For retention assistance, which represents a large majority of approved cases, approval reduced the likelihood of at least one move by 5.7 percentage points (a 16% reduction) and multiple moves by 3.8 percentage points (a 37% reduction). Whether EA funds support moving or staying should depend on the family's goals and circumstances. That said, when EA supported a move, it was associated with stronger effects on subsequent housing stability.

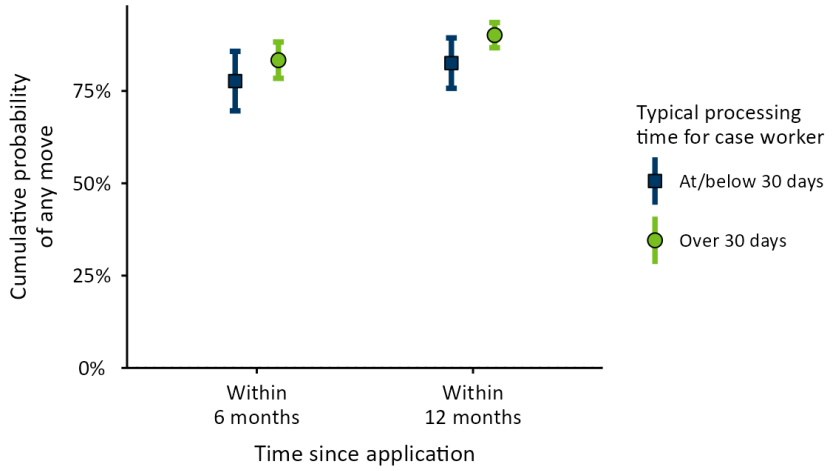
We also find a small but meaningful decrease in instances of severe housing instability, defined as either multiple moves or an eviction judgment. For eviction judgements, we observe reductions in the first six months following application, though the effect did not persist through the full year.

Findings on the Analyses on Subgroups, Application Processing Time, and Healthcare Use

We examined whether EA's effects differed by race, geography, or household composition to assess consistency across populations. We found no systematic differences. Although effect sizes varied modestly, none changed our conclusions: EA approval was typically associated with improved outcomes across all subgroups analyzed.

We also conducted an analysis of application processing times. Concerns about administrative burden in application for residents and staff suggest that longer processing times may be harmful for applicants. To explore this, we compared cases assigned to workers with longer versus shorter average processing times, capturing differences in caseworker practices and case mix as they operate in practice.

Probability of any move among approved move-enabling cases, by average processing time.



Note: this figure focuses on move-enabling cases only.

Contrary to concerns that longer processing times may worsen outcomes, we observed a more nuanced pattern. Outcomes were similar for cases assigned to workers with average processing times of 30 days or more relative to those with shorter average processing times. In cases that received move-enabling assistance, longer average processing times were associated with higher likelihood of a move. This pattern likely reflected differences in caseworker practices that, on average, both increase average processing time and help applicants secure new

housing. This does not suggest that slower processing is preferable; timely action remains essential in many circumstances. Rather, the findings point to the need to better understand which caseworker practices support stronger outcomes. These may include allowing time for document collection, providing more intensive housing search assistance, or coordinating payments in ways that facilitate successful moves.

To assess whether EA approval freed up cognitive or financial resources for other priorities, we examined preventive health care use and found no differences between approved households and the comparison group.

Takeaways and Policy Implications

Our findings indicate that EA improves housing stability for families in crisis. The program helps approved applicants achieve housing outcomes consistent with the purpose of assistance and reduces severe forms of instability, though its effects are limited for rare-but-serious outcomes like eviction judgements. The methods of this analysis compare recipients to applicants who were denied, some of whom were later approved or received other funding. This likely causes our estimates to understate the overall effect of EA.

Importantly, prior descriptive analysis published in 2024 showed the program's approval rate is low: 88% of applicant households were denied in 2023. Along with our impact evaluation, this context informs our interpretation of key opportunities to strengthen the program's reach and effectiveness.

We discuss several options for potential policy and practice improvements borne out by prior evidence, these findings, and discussion with a representative set of state and local partners. These include:

1. Collecting data on the original application reason for all applicants, allowing for deeper understanding of how outcomes link back to why families applied in the first place.
2. Encouraging case workers and applicants to discuss the family's preferences for how they might resolve their emergency in a sustainable way, and to consider whether moving to a new unit is feasible and aligned with applicant preferences, as this tends to, on average, yield increased stability.
3. Collecting qualitative data from caseworkers to identify practices that aid applicants in reaching their preferred housing outcomes.
4. Considering developing policies for when it is appropriate to allow cases to pend for more than 30 days, particularly in situations when additional time may be necessary for a family to complete a move to a new housing unit.
5. Considering expanding access to EA for similarly situated denied families, subject to available resources, given evidence of positive outcomes and ongoing unmet demand.

Taken together, our findings indicate that EA is effective at promoting housing stability among households who are approved for assistance. Our aim in this report is to provide evidence that supports state and local partners as they refine policy and practice and seek to use public resources effectively to support the families in crisis.

Acknowledgments

We would like to thank our partners at the Minnesota Department of Children, Youth, and Families (DCYF) for their time, expertise, and data assistance throughout the formulation and development of this report. Kristen Shouman, Pamela McCauley, Kristen Boelcke-Stennes, and many others have been instrumental in our understanding of the program and the data and have been tremendously helpful in all aspects of the project. We also thank local agency staff from counties, consortia, and Tribal nations (including Anoka, Becker, Beltrami, Blue Earth, Clay, Hennepin, Lake of the Woods, Ramsey, Scott, St. Louis, MNPrairie County Alliance, Red Lake Nation, and White Earth Nation) that have taken time to share insights with us on their experience with EA, provide feedback on our research questions and findings, and help deepen our understanding of EA across Minnesota. Finally, we thank our teammates at Minnesota Management and Budget, including Ben Nguyen, Yuna Loesch, Anna Solmeyer, Sean Barton, and Laura Kramer, for their helpful guidance and support of this project.

About the Team

MMB's Impact Evaluation unit, part of the Results Management team, is a team of data and social scientists that rigorously evaluates state investments and policies to find what works and what does not. We prioritize working with agencies and partners to identify and answer pressing questions and create evidence that is rigorous, relevant, and used by policymakers.

For more information or to learn about current and future areas of study, please visit https://mn.gov/mmb/impact-evaluation or contact ResultsManagement@state.mn.us.

Note on Artificial Intelligence (AI) Usage

Portions of the analysis in this document were drafted with assistance from AI tools including ChatGPT, Claude, Microsoft Copilot, and Google Gemini. Most notably, we used AI to develop and refine code for analysis, identify sources to consider when reviewing literature, interrogate assumptions or blind spots in our interpretations, and consider options for how to communicate results. All AI outputs were reviewed and validated by a human and edited as appropriate. Consistent with state policy, no private or non-public information was entered into an AI tool.

Introduction and Background

Introduction

Housing stability is a cornerstone for the well-being of families across the country. Precarious and unstable housing situations often lead to poor socioeconomic and health outcomes that can extend generations (Sharkey, 2008; Desmond, 2016; Chen et al., 2022; Collinson et al., 2024). Recent research sheds light on the severity of the situation. Lundberg and Donnelly (2019) estimate that 1 in 7 (more than 10%) of children born in large US cities between 1998 and 2000 experienced at least one eviction by the age of 15; the figure was as high as 1 in 4 for children born in deep poverty (Lundberg & Donnelly, 2019).

Minnesota's situation is no exception. Census Bureau estimates from 2024 suggest that about 48% of renters in the state are cost-burdened and that 23% are *severely* cost-burdened, paying more than 30% and 50% of their income on rent, respectively (U.S. Census Bureau, 2024). On top of that, in recent years there have been about 23,500 formal eviction filings annually in Minnesota, though formal eviction filings represent only a portion of all eviction-related displacement (Eviction Lab, 2026; Summers & Steil, 2025). Minnesota's state housing finance agency estimated that the amount required to adequately fund the state's emergency rental assistance need alone would be approximately $350 million dollars per year, far outstripping their estimate of available funding (Minnesota Housing Finance Agency, 2026).

Emergency Assistance (EA) is a stopgap designed to resolve housing crises for low-income Minnesotans, one of the three major programs the state funds. Families with children can apply to EA in times of housing emergency to cover costs like past-due rent, damage deposits, and utility shut-off. In 2023, Minnesota spent $11 million dollars on EA statewide to serve about 5,500 households, though total spending was over $15 million for about 9,000–10,000 households annually before 2020. Inflation-adjusted spending decreased by 44% from 2016 to 2023.

While there is some evidence demonstrating the efficacy of similar programs in different localities across the country, our review of the literature has not found a study that examines a statewide program, like EA. In an earlier phase of this work, our team at Minnesota Management and Budget (MMB) conducted descriptive research around historical trends in spending, program applications and approval, and local policy. This report builds on that prior analysis by focusing on the causal impact of the EA program for applicants. In this study, we look at the effect of EA for approved applicants relative to similarly situated denied applicants on housing outcomes and preventive health care use. We also turn our attention further to the impact of application processing time for approved applicants. Our analysis follows a study design that we preregistered (https://osf.io/6nucf/overview) in fall 2025.

Program Background

Emergency Assistance (EA) is a program administered by Minnesota counties and Tribes to resolve one-time housing and related crises for families with children. In 2003, Minnesota repealed its statewide EA program and gave authority to local agencies (counties, county consortia, and Tribal nations) to develop their own EA

programs, policy, and practices. This new county-administered program is funded by the State through the Minnesota Family Investment Program (MFIP) Consolidated Fund, an allocation to counties to augment their primary cash assistance program. Local agencies can choose to use a portion of their allocation for EA among other optional programs, but it is not required, and they have wide discretion over policy and processes for EA eligibility and payments. Most local agencies limit EA receipt to one time in a 12-month period, though some have stricter or looser requirements.

Because EA is funded through MFIP, Minnesota's cash assistance program for families with dependent children, only families with dependent children or pregnant women are eligible. Though it varies by jurisdiction, EA can typically be used to pay for rent to avoid eviction, mortgage arrears, damage deposits, utilities, and other housing-related emergencies. In addition to verifying the emergency situation and need, caseworkers work with applicants to ensure that funding will resolve the emergency, not just delay it. Across most agencies, applicants work with staff processing their application to reach a sustainable solution to the emergency if there is one, even if that solution is different than the original application reason. For example, a household could apply asking for two months of back rent to prevent an eviction, but in working with a caseworker find a cheaper unit and instead receive EA money for a damage deposit and first month's rent.

The State also administers two similar yet distinct programs, Emergency General Assistance (EGA), for households without dependents, and the Family Homelessness Prevention and Assistance Program (FHPAP) through different agencies and funding streams. Our analysis is focused more narrowly on the EA program.

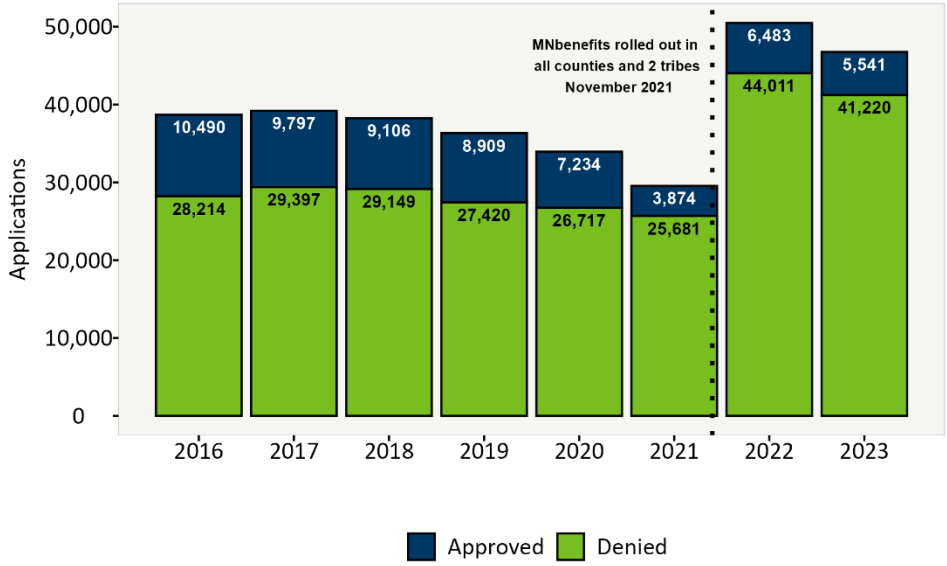
State of Evidence

Descriptive Analysis Findings

Since EA became a county-run program over 20 years ago, there has been little research on its impact on housing stability and under what circumstances it is more or less effective for Minnesota residents.

To better understand the reach, use, and limitations of EA, Minnesota Management and Budget conducted a descriptive analysis of the program in 2024 (Tuttle et al., 2024). The analysis centered on four research questions around application and payment trends, characteristics of approved vs. denied applicants, and variation in local EA policy and programs across counties and Tribal nations. Using administrative data records and information found in local agency EA plans, the analysis identified three primary themes. First, applications for EA increased substantially from 2016 to 2023, as did the denial rate (see Figure 1 below). Second, total inflation-adjusted EA spending across the state decreased by almost half from 2016 to 2023, but average payments per household stayed relatively flat. Third, there are large differences in EA policies across the state—with potentially large implications for participation. Understanding trends in program use is crucial in aligning program goals and practice, but this analysis did not explore the causal impacts of outcomes for participants, which is the focus of the current study.

Figure 1. EA Applications approved and denied by year, 2016–2023.



Prior Literature on EA and Related Programs

While no causal research on Minnesota's EA program exists to date, there is emerging literature on similar emergency programs across the country that may have insights for our context. Generally, findings from studies across different service models of assistance were mixed; some identified beneficial impacts on housing stability and other outcomes, while some found no impact of these programs.

Three notable papers studied the impact of emergency financial assistance in Chicago on housing, health, and crime outcomes. Exploiting random variation in funding availability from a homelessness prevention phone line, researchers found that calling when funds were available caused significant decreases in shelter stays (Evans et al., 2016), as well as arrest rates for violent crimes and homelessness-related crimes (Palmer et al., 2019). However, a study of the same intervention found it had no impact on healthcare use (Downes et al., 2022).

Two recent studies of programs produced inconsistent results. Phillips and Sullivan (2025) examined the impact of random assignment to financial assistance for families and individuals at risk of homelessness in Santa Clara County, California. They found that assistance considerably reduced homelessness for recipients (0.3%) compared to non-recipients (4.1%) (Phillips & Sullivan, 2025). Another paper studied rental assistance programs in four US cities during the pandemic, finding they had little impact on housing stability, homelessness, or eviction, though they increased rent payments and decreased self-reported anxiety (Collinson et al., 2025).

There is some evidence to suggest that application processing time plays a role in the success of emergency programs. A recent conference paper studied a program in Franklin County, Ohio with a similar design to Minnesota's EA program (Alexander et al., 2024); they found that delays in receiving assistance increased the probability of an eviction filing by as much as 47% per weeklong delay (Alexander et al., 2024, p. 15).

Several local qualitative studies also inform our understanding of the program. The Workgroup on Expediting Rental Assistance (WERA) gathered input on how rental assistance programs (including EA, EGA, and FHPAP) could reach decisions on applications within two weeks and then make payments within 30 days (Workgroup on Expediting Rental Assistance, 2024, p. 8). One key recommendation was to boost funding (Workgroup on Expediting Rental Assistance, 2024, p. 17). In connection with WERA, after conducting in-depth analysis of community-engaged literature and community convenings on EA and EGA, Research in Action made suggestions to create a centralized application system, revise application forms for ease and accessibility, build on partnerships with community organizations, and improve applicant experiences with staff (Research in Action, 2024). Family Housing Fund (2026) led qualitative analysis with counties on the administration of EA, EGA, and FHPAP; they emphasized the high cost and administrative complexity of processing emergency applications, and the need for additional funds for operating costs and programs overall (Family Housing Fund, 2026).

Our study builds on past research that reached mixed findings across outcomes and study designs. Limitations in the generalizability of past research (from mostly urban contexts around the pandemic) highlight the need for additional analysis. We use administrative data post-pandemic to provide insight on the effects of emergency assistance for a statewide program that spans rural and urban locales after the COVID-19 period.

Partner Engagement

Since the start of this project, we held regular meetings with a working group composed of county and Tribal Nation staff to help us better understand EA. The goal of the working group was to better understand local EA programs and the experiences of front-line workers and applicants, as well as to vet evaluation questions, program understanding, and findings with program experts. Ultimately, our aim in meeting with the group was to ground our analysis in real-world experience and program knowledge and ensure our evaluation findings are used by practitioners to inform program and policy change. We refer to knowledge gained from this group throughout the report to help explain evaluation design decisions and assumptions as well as our findings and conclusions.

Current Study and Evaluation Questions

This study builds on prior evidence and our initial descriptive analysis by examining the impact of EA on approved applicants' housing stability outcomes relative to applicants whose first application during the study period was denied. We used a retrospective matched-cohort design to understand whether there were differences in housing outcomes between approved applicants and matched, similarly situated denied applicants in the year following EA application. Our primary housing outcomes included:

- Any move (defined as any address change)
- Two or more moves
- Eviction judgments (a relatively rare but consequential outcome)
- A combined indicator of serious housing instability (either an eviction judgment or two or more moves)

We analyzed each outcome separately and reported the combined indicator to provide a single, interpretable measure of severe disruption. We also studied impacts of EA on preventive healthcare use as a separate,

exploratory outcome to assess whether resolving a housing emergency might free families' bandwidth to focus on other priorities.

While our primary analysis focused on the impact of approval versus denial on outcomes, we also conducted an exploratory analysis of the effect of application processing time on housing outcomes for approved applicants. In addition to first-order impacts of the EA program (i.e., being approved and receiving financial assistance relative to being denied), partners and practitioners are also interested in the timeliness of assistance for crisis situations, and how variations in the process of resolving applications influences effects on applicants.

Data, Sample, and Methods

Study Design

This evaluation compares outcomes for households whose first application for EA during the study period was approved to similar households whose first application was denied, using administrative records for the year following their EA application (retrospective matched-cohort study). We chose our evaluation questions through deep engagement with partners at the Department of Children, Youth, and Families (DCYF); counties; county consortia; and Tribal nations.

In our primary analysis, we estimated the impact of approval for EA on housing stability. We also estimated the impact of approval for EA on preventive medical care as an exploratory outcome, based on the hypothesis that resolving urgent housing needs might free families to prioritize health care. We conducted subgroup analyses to compare the effects of approval for EA on housing stability across categories of applicant race/ethnicity, geography, and household composition of adults/children. We also conducted an exploratory analysis looking at the effects of approval worker speed on housing stability among applicants approved for EA.

We conducted a matched, statistically adjusted comparison, measuring differences in follow-up outcomes between approved and matched denied applicants. Our models accounted for each household's outcome during the prior year along with other important factors. We modeled the average effect of EA approval among households whose first application during this period was approved. This means our results describe how approval affected the households who received assistance. We reported risk differences (the percentage-point difference in outcome rates between approved and denied applicants) six and 12 months after application. For more details on our matching process and statistical approach for the primary evaluation question, see Appendix 3.

Data Sources

We used administrative data from three sources for this study:

- **MAXIS:** EA application records including approval/denial and payment types, address history, applicant and household demographic and geographic information, other public benefit utilization
- **Medicaid Management Information System (MMIS):** Medicaid enrollment, behavioral/mental health characteristics, preventive health outcomes

- **Minnesota Court Information System (MNCIS):** eviction judgments

Sample and Inclusion Criteria

Primary analysis sample

Our primary analysis included households with at least one adult (18+), and at least one child (aged 0–17) at the time of application. These households applied to the Emergency Assistance program between July 1, 2022, and December 31, 2023, and had not applied for EA within the previous year. The index date was the household's first application in this window. Approval status was defined based on the outcome of the first EA application during the study period. Households whose first application was denied were classified as comparison cases, even if they were later approved during follow-up. We applied several additional exclusions for cases with missing data or no prior public assistance records; details are in Appendix 3.

Matching approach

Families approved for EA may differ from those who are denied in ways that affect housing stability. To make the comparison fair, we used a standard evaluation method called matching. Each approved case was paired with up to two denied cases that were similar on key characteristics, such as region, application timing, prior housing moves, public assistance history, chemical and mental health diagnoses, and household demographics. Matching helped ensure that differences in outcomes were more likely due to EA approval rather than other factors. For more details on our matching process, see Appendix 3. For more information on how we filtered cases before building our matched sample, see Appendix 2.

Outcomes and Measures

We selected outcome measures through close consultation with partners at DCYF and at local agencies. Our primary outcomes measured housing stability over 12 months following EA application:

1. Any move
2. Two or more moves
3. Any eviction judgment
4. A combined indicator of serious housing instability (either an eviction judgment or multiple moves)

Families can apply for EA funding for reasons with differing end goals; some may wish to pay back rent to avoid eviction and thus stay in their current housing, while others may be applying for a damage deposit or first month's rent in a new housing arrangement. Because of this, a change in address may be intended for some families and unintended for others. To account for this contrast in intended outcomes we also ran separate analyses based on payment reasons for approved applicants with similar matched denied applicants.

- Retention: cases that received assistance intended to help families stay in their current housing, and denied cases matched to them
- Move-enabling: cases that received assistance intended to help families relocate to permanent housing, and denied cases matched to them

Retention cases were the most common, comprising over two-thirds of the approved EA cases included in the sample. Retention and move-enabling case types together accounted for 91.6% of all included EA cases, and 90.5% of dollars paid for the included cases. Table 1 below shows some statistics on case counts and payments by case type. Temporary shelter was the most expensive case type, followed by move-enabling and then retention cases. Additional details on payment types and amounts are provided in Appendix 1.

Table 1. Average payment amounts by case type.

EA case type	Average amount	Total EA payments	Number of cases
Temporary shelter	$2,111	$498,079	236
Move-enabling	$1,881	$1,355,904	721
Retention	$1,635	$4,417,713	2702
Other	$1,441	$110,948	77

To explore potential benefits of EA beyond its primary focus on housing stability, we also assessed whether EA approval affected preventive healthcare use (by the household as a whole and by children in the household). This was not a primary focus of the program, but partners were interested in whether EA creates bandwidth for families to focus on other household priorities, such as health care, if their housing needs are resolved.

Table 2. Outcome variables.

Outcome	Primary or Exploratory	Values
Any move	Primary	1 = 1 or more moves 0 = no moves
2+ moves	Primary	1 = 2 or more moves 0 = No more than one move
Eviction judgment	Primary	1 = 1 or more eviction judgments 0 = no eviction judgments
Combined housing instability indicator	Primary	1 = 1 or more eviction judgments and/or 2+ moves 0 = no eviction judgments, and no more than one move
Any preventive healthcare	Exploratory	1 = 1 or more preventive healthcare visit or vaccination 0 = none
Child preventive healthcare	Exploratory	1 = 1 or more child preventive healthcare visit or vaccination 0 = none

Statistical Models

We estimated the effect of EA approval by comparing outcomes for approved households to similar denied households using a matched design with regression adjustment. Outcomes at six and 12 months after application were modeled jointly to estimate percentage-point differences in outcomes over time. To make comparisons fair, we adjusted for the households' pre-application outcomes and for key contextual factors such as region and application timing. The analysis was structured to preserve the matched comparisons between approved and denied households.

Results are reported as percentage-point differences six and 12 months after application. Full details on our statistical approach, including matching and adjustment methods, are provided in Appendix 3. To help illuminate our primary models, we ran additional analyses for some outcomes, such as time-to-event analyses.

Exploratory Processing Time Analysis

We hypothesized that the speed of application processing would affect the likelihood that applicants would attain positive housing stability outcomes. Accordingly, we estimated the impact of assignment of applications to case workers with relatively faster or slower typical application processing times. For this question, we focused on approved applicants only. We estimated effects when applications were decided by case workers who typically resolved cases in 30 or fewer days, compared to applications decided by workers with longer typical processing time. In our work to answer this exploratory evaluation question for the subset of approved applications, we encountered unique sample size limitations and therefore used a modified approach to matching and statistical analysis. Details on our approach are in Appendix 5.

Subgroup Analysis

We also examined the impact of approval across key subgroups:

- Applicant's race/ethnicity
- Geographic region
- Household size

These analyses help identify whether effects vary for different populations. Appendix 7 provides more details on our approach and results.

Results

Descriptive Statistics and Sample Balance

After matching, the approved and denied groups were virtually indistinguishable on all measured characteristics that could influence housing outcomes (Table 3), which helps ensure a fair comparison. An additional table of matched sample characteristics is provided in Appendix 4.

The average applicant age was 35 years, and most applicants (93%) were women. Households typically included two to three children and one to two adults, with very few seniors. Racial and ethnic composition was comparable across the groups of approved and matched denied applicants: about half of applicants were Black/African American, roughly one-third were White, and smaller shares identified as Hispanic/Latina/o/x, American Indian/Alaskan Native, or Asian/Pacific Islander. Public assistance participation and preventive health care use were likewise similar across matched groups. Nearly all households received food assistance, and about 45% had MFIP cash assistance or DWP. Baseline housing patterns were similar across groups. Most families lived in their current housing for more than a year, and the average number of address changes in the prior year was about 0.5 for both groups. Eviction judgments were rare before application (about 1% in both groups).

Table 3: Characteristics of approved and matched denied EA applicants.

Characteristic	**Approved**, N = 3,547	**Comparison**, N = 6,504
Age of applicant, Mean (SD)	35.4 (8.7)	35.4 (8.5)
Female, %	92.9%	92.6%
Married, %	9.9%	10.3%
Limited English proficiency, %	5.8%	5.6%
Applicant Race/Ethnicity, %		
Black/African American	50.1%	49.8%
White	30.3%	31.0%
Hispanic/Latina/o/x	7.9%	7.8%
American Indian/Alaskan Native	4.4%	4.0%
Asian/Pacific Islander/Native Hawai'ian	2.3%	2.3%
Multiple races	4.3%	4.4%
Not reported	0.7%	0.6%
Number of children in household, Mean (SD)	2.39 (1.39)	2.36 (1.40)
Number of adults (18 to 64) in household, Mean (SD)	1.38 (0.63)	1.37 (0.60)
Any senior 65+ in household, %	1.1%	1.1%
Time at baseline address, %		
Less than 90 days	18.2%	18.2%
91 days to 1 year	20.4%	20.4%
Over 1 year	61.3%	61.3%
Number of address changes in baseline year, Mean (SD)	0.55 (0.81)	0.50 (0.76)
Any eviction filing in baseline year, %	4.3%	3.8%
Any eviction judgment in baseline year, %	1.2%	1.2%

Impact of Emergency Assistance on Housing Stability Outcomes

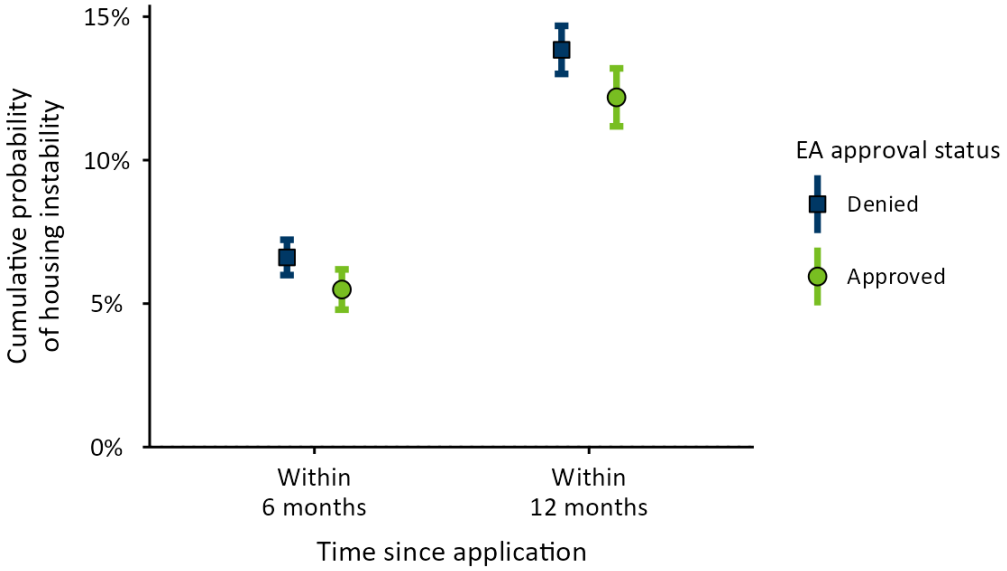
In our results on page 12, we present percentage point risk differences between approved applicants and the matched comparison group of applicants whose first application was denied. We also report the 95% confidence interval (CI). Full estimates, confidence intervals, and additional results are reported in Appendix 10.

Overall housing instability (eviction judgment or multiple moves)

To simplify interpretation, we combined two serious indicators of housing instability, formal eviction judgments and having two or more moves into a single measure. This measure flags households that experienced either outcome, giving us one consolidated measure of housing instability.

Figure 2 below shows results for the combined housing instability indicator, defined as situations when households experienced any eviction judgment or multiple moves in the follow-up period. Approval for EA reduced the combined instability outcome by 1.1 percentage points at six months (95% CI -2.0 to -0.2) and 1.7 points at 12 months (95% CI -2.9 to -0.4). At six months, 5.5% of approved households experienced housing instability, compared with 6.6% of denied households. At 12 months, the corresponding rates were 12.2% and 13.8%, respectively.

Figure 2. Effect of EA approval on housing instability.

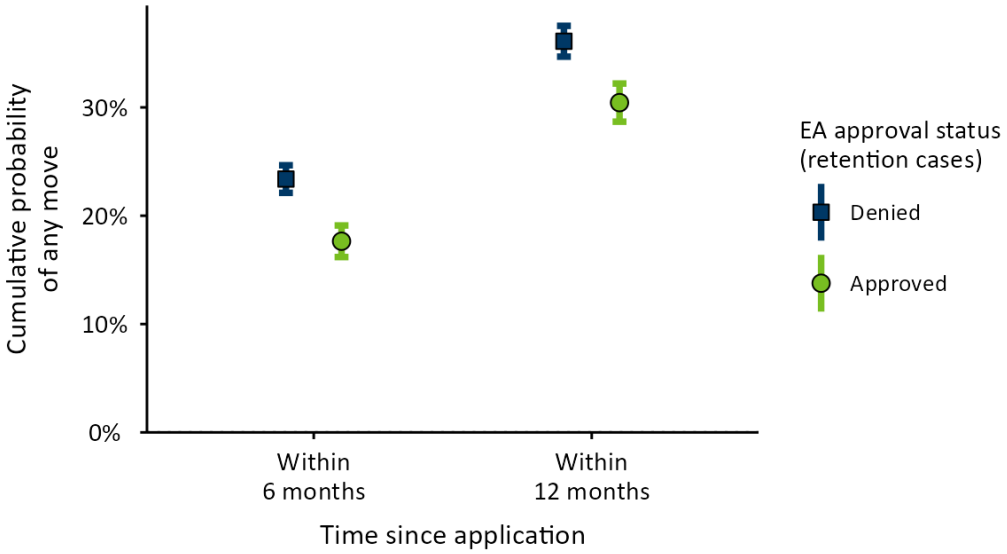


Note: housing instability is defined as any eviction judgment or 2+ moves.

Moves in retention and move-enabling cases

Figure 3 and Figure 4 below shows results by payment type for whether households experienced any move in the follow-up period. Among households approved for housing-retention assistance, EA approval reduced the likelihood of any move by 5.7 percentage points at six months (95% CI -7.6 to -3.9) and 5.7 points at 12 months (95% CI -7.9 to -3.5). By 12 months, 30.4% of households approved for retention assistance had experienced at least one move, compared with 36.1% of matched denied households.

Figure 3. Effect of EA approval in retention cases on any move.

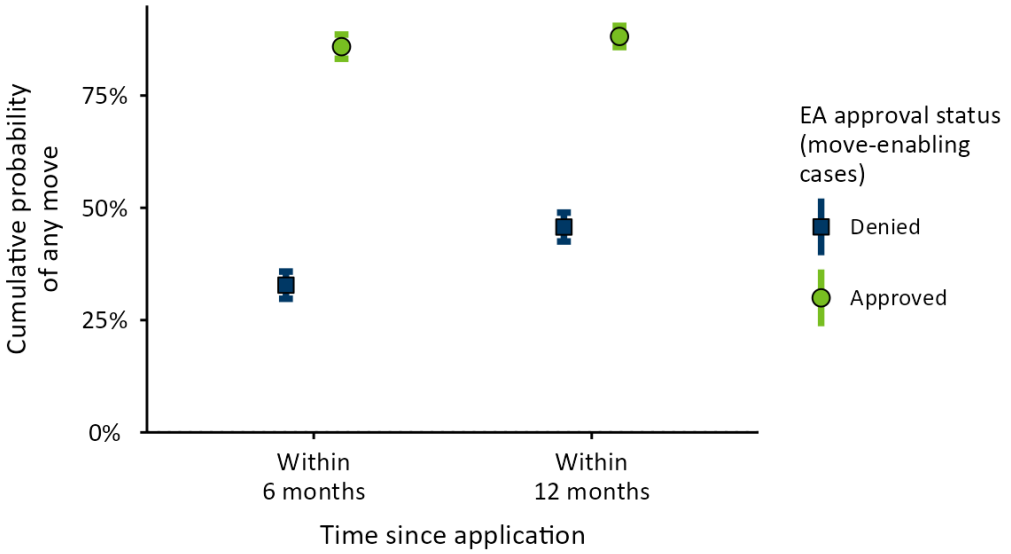


Note: this figure focuses on retention cases only.

Among households approved for move-enabling assistance, EA approval increased the likelihood of any move by 53.1 percentage points at 6 months (95% CI +49.1 to +57.1) and 42.4 points at 12 months after application (95% CI +38.5 to +46.4). By 12 months, 88.2% of households approved for move-enabling assistance had experienced a move, compared with 45.7% of matched denied households.

Note that differences by assistance type reflect the distinct objectives of retention and move-enabling payments; an increase in moves for the move-enabling type should not be interpreted as a failure.

Figure 4. Effect of EA approval in move-enabling cases on any move.



Note: this figure focuses on move-enabling cases only.

Multiple moves

Across all cases, EA approval reduced the likelihood of having two or more moves by 0.8 percentage points within six months of the application (95% CI -1.5 to -0.1) and 1.6 points within 12 months (95% CI -2.7 to -1.5). This result reflects reduced likelihood of multiple moves among retention cases and increased likelihood of multiple moves among move-enabling cases. Within retention cases, over 12 months multiple moves were 3.8 percentage points less likely for the approved group (95% CI -5.0 to -2.6) than among matched denied cases.

Within move-enabling cases, multiple moves were 5.6 percentage points more likely over 12 months (95% CI +1.6 to +9.5) for the approved group than among matched denied cases. Taken together with the increased likelihood of having any move, this indicates that among move-enabling cases, EA approval results in a large increase in having exactly one intended move—approximately 37 percentage points more likely for approved cases than among matched denied cases.

Eviction judgments

EA approval was associated with a 0.6 percentage point reduction in eviction judgments at six months (95% CI -1.1 to 0.0), with no detectable difference at 12 months (-0.3 percentage points, 95% CI -1.1 to +0.5). At six months, 1.7% of approved households experienced an eviction, compared with 2.3% of matched denied households. At 12 months, the corresponding rates were 3.6% of approved households and 3.8% of denied households.

Subgroup Analyses of Housing Stability Outcomes

We conducted subgroup analyses by race/ethnicity, household composition, and geographic region to assess whether the effects of Emergency Assistance approval on housing stability differed across groups. Across race/ethnicity and household composition, the direction and overall pattern of results were consistent with the main findings, with no consistent evidence of meaningful differences in effects on overall housing instability or eviction.

The mix of retention versus move-enabling cases was correlated with geography, suggesting that factors like policy differences and local needs contribute to variation in the effectiveness of EA programs by region. EA approval was associated with reductions in housing instability across all regions, with larger absolute reductions observed in Greater Minnesota than in the metropolitan area. Notably, in Greater Minnesota, approval for housing retention assistance did not reduce the likelihood of an initial move relative to matched denied cases. Rather, regional differences in overall instability reflected reductions in higher-severity outcomes, not increased housing retention. Detailed subgroup results are provided in Appendix 7.

Exploratory Outcome: Preventive Care Utilization

We examined preventive care utilization (preventive exams or vaccinations received by household members during the follow-up period) as an exploratory analysis to determine if EA approval was associated with downstream changes in household outcomes beyond housing stability.

EA approval did not produce measurable changes in preventive care utilization. Within 12 months, receipt of any preventive care was 0.9 percentage points higher among approved households than among matched denied households (95% CI -0.9 to +2.7), and child preventive care showed a similar difference of 0.9 percentage points (95% CI -0.9 to +2.7). Preventive care utilization was high in both groups (68–69% for any preventive care, including child preventive care in 56–57% of households), and utilization during follow-up closely mirrored baseline utilization.

Exploratory Analysis: Approval Time Variation and Housing Outcomes

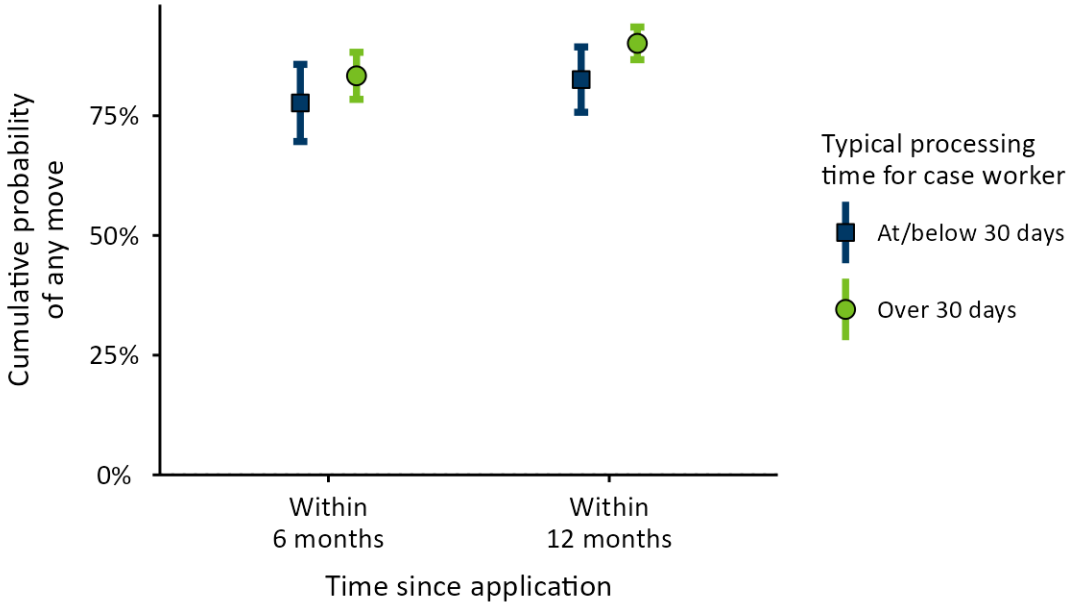
We conducted an exploratory analysis examining housing outcomes by workers' average processing time, recognizing that average processing time reflects a combination of contextual and policy differences across local agencies, the typical complexity of cases assigned to workers, and worker practices, rather than a pure effect of delay for an individual application. Processing time groups were defined relative to a 30-day threshold, which corresponds to an administrative benchmark and reflects batching of approval dates at that point.

Across most outcomes and designs, differences in housing stability by worker average processing time were small and imprecisely estimated. Across most outcomes, there was no consistent evidence that assignment to workers with longer average processing times was associated with differences in housing stability among approved applicants. This was the case for multiple moves, eviction, and the combined housing instability indicator.

One clear exception was observed among move-enabling cases (see Figure 5 below). Approved move-enabling applications handled by workers with average processing times over 30 days had a higher likelihood of completing a move within 12 months than those handled by workers with processing times within 30 days. The predicted probability of any move within 12 months was 90.1% for the over-30-day worker group, compared with 82.5% for the group assigned to faster workers, a difference of 7.6 percentage points (95% CI +0.1 to +15.1).

Detailed results for the exploratory evaluation question are reported in Appendix 11.

Figure 5. Probability of any move within 12 months among approved move-enabling cases, by worker average processing time.



Note: this figure focuses on move-enabling cases only.

Sensitivity Analysis and Robustness Checks

We tested whether our findings could be explained by data limitations or unmeasured differences between approved and denied applicants. These checks addressed concerns about loss to follow-up in MAXIS, move reporting after other household MAXIS benefits end during follow-up, possible differences in move readiness between applicants approved for damage deposit assistance and matched comparison applicants, and the type of assistance matched denied cases would have received if they had been approved. Across all alternative specifications—including censoring cases after MAXIS exit, excluding early movers, and removing denials that signal possible lack of move readiness—the estimated direction and strength of the effects of EA approval remained stable. None of these changes would have materially altered the main conclusions. Details, methods, and figures for our robustness checks are provided in Appendix 8.

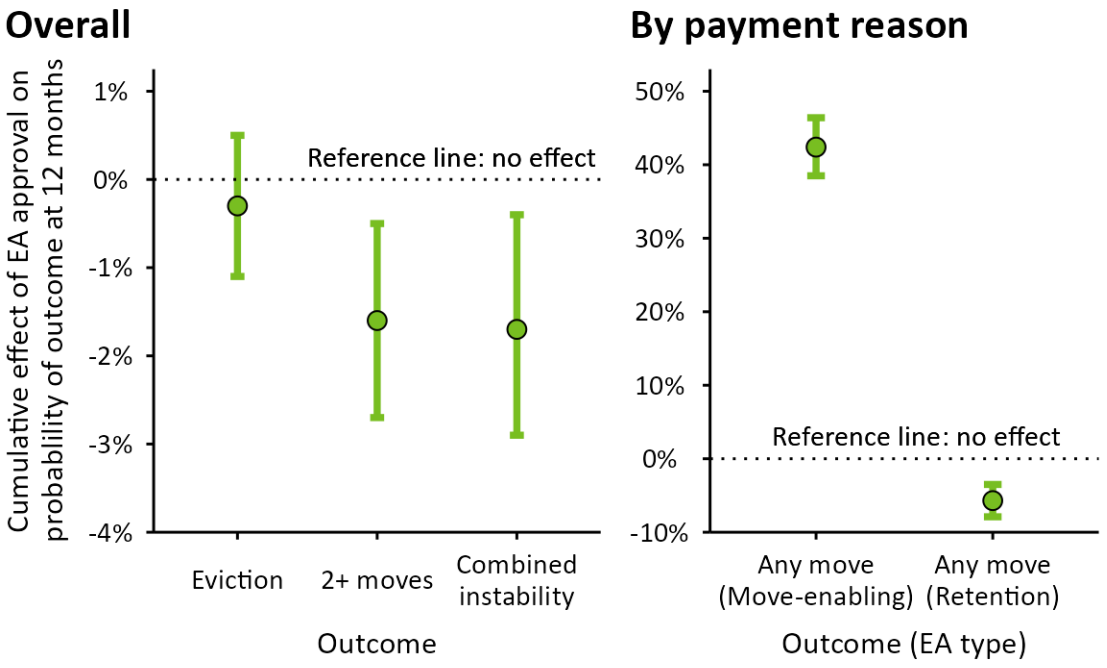
Discussion

Results Overview

Figure 6 below summarizes the results from our primary analysis, which focused on how approval for EA affects housing stability. Overall, we find that for approved applicants compared to similarly situated matched families whose first application was denied, EA is effective both at preventing unwanted moves and at facilitating desired moves in alignment with payment goals. Approval for EA also reduces more severe forms of housing instability. While there was not a measurable reduction in the probability of eviction, we found that approval for EA reduced the likelihood of experiencing multiple moves over the next year, and that EA reduced a combined measure of severe instability (either an eviction or multiple moves). Together, our results show that approval for EA promotes housing stability.

Results for our exploratory outcomes and evaluation questions add some context for how we interpret these results. We find no effect of EA on preventive health care use. For our exploratory evaluation question, we did not find associations between average application processing time and most outcomes. For families seeking to move, we found longer average processing times were associated with successfully completing a desired move.

Figure 6. Cumulative effect of EA approval on housing stability outcomes at 12 months.



Note: housing instability is defined as any eviction judgment or 2+ moves.

Discussion of Results

Overall, EA approval positively impacts housing trajectories in ways that align with the goals of assistance, facilitating intended moves for households approved to relocate and reducing moves for households approved to remain in their current housing. Using a combined measure of rare but serious forms of housing instability, we find that approval for the program produces improved results for families. Our findings indicate that EA meaningfully improves housing stability for many approved applicants during periods of acute housing crisis. Results of the main impact questions are presented in Appendix Table 10.1.

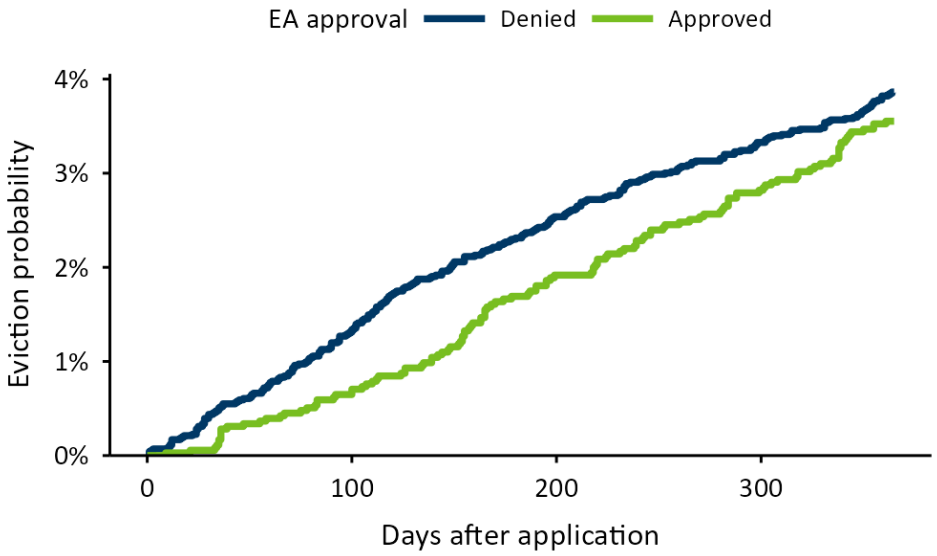
About three-quarters of approved cases use EA funds to help families remain in their current housing (the retention group). For these households, our models suggest EA reduces the likelihood of at least one move by 5.7 percentage points (a 16% reduction) and multiple moves by 3.8 percentage points (37%). Overall, EA appears to prevent a meaningful share of housing instability among families receiving assistance to stay in place.

The impact of EA was especially stark for families that received funding to move to new housing. For this group, we found that about 88% of approved families were able to move compared to less than half of matched denied applicants. This equates to a 42 percentage point increase (a 93% increase) in the probability of moving that was facilitated by EA approval; in social science research, this would be considered a large, positive effect for a program. That said, there is some nuance when interpreting this effect. We cannot directly measure move-readiness at the time of application. In Appendix 8, we examine whether differences in move-readiness could explain our findings and conclude that our impact estimates are unlikely to be driven by unmeasured variation in move-readiness.

For our combined measure of more severe instability, we find that EA brought small but statistically significant reductions in the likelihood of multiple moves or eviction judgments. Further, there is some reason to believe our finding of a modest beneficial effect was an under-estimate, which we discuss further in the Limitations section.

Our results for the two more severe outcomes contextualize the above findings. We find a modest reduction in situations with multiple moves, and no measurable difference in the likelihood of an eviction judgment. While time-to-eviction curves show a noticeable difference in the probability of evictions within the first six months post application (see figure 7 below and Appendix 9), our primary analysis models show no significant effect of EA approval on eviction judgments within a year. We suggest caution in interpreting this finding on its own. Eviction judgments are a very rare outcome (only around 3–4% of the sample in the year after application). In the Limitations section we discuss how formal eviction judgments are only a partial measure of displacement from rental housing. Taken as a whole, our results suggest that EA helps prevent unwanted moves, though it does not have a measurable effect in avoiding the subset of unwanted moves that take place via eviction judgments.

Figure 7. Kaplan-Meier curve showing time to eviction by approval status.



We examined whether EA's effects differed across racial groups, household types, and regions. While effect sizes vary slightly, we find no consistent differences that alter our overall conclusions. EA approval is associated with improved outcomes across the subgroups analyzed (see Appendix 7 for details). Although housing instability differs meaningfully across racial and demographic groups in the broader population, this study focuses on households already experiencing acute crisis and meeting EA eligibility thresholds. Within this higher-risk and economically constrained group, immediate housing needs may be more similar, which may help explain the limited variation in estimated effects across subgroups.

Turning to our exploratory outcomes, we find no evidence that EA affects preventive health care use (see Appendix Table 10.2). While this is not an explicit program goal, conversations with partners and prior research suggest emergency assistance may increase families' bandwidth to address other needs, including preventive care. We hypothesized such an effect but observed no differences between approved and denied applicants. Future qualitative engagement with families who receive EA may help clarify how families respond after receiving assistance.

In an exploratory analysis, we examined variation in EA administration across counties. Prior work showed differences in fund use and verification requirements. Here, we assess whether the relationship between EA approval and housing stability varies by average caseworker processing time. Processing time likely reflects a combination of local policy choices, the burden applicants experience in fulfilling requirements, and variation in caseworker practices. Conversations with local partners indicate that while they generally aim to process applications in fewer days, it is often necessary for caseworkers to take more time to understand a family's situation. Broader discourse around emergency rental assistance in recent years, particularly with the legislatively mandated Workgroup for Expediting Rental Assistance, would suggest that faster application processing is more beneficial for applicants, especially those ultimately approved (Workgroup on Expediting

Rental Assistance, 2024). That is, discourse and sentiment around emergency financial assistance would tend to suggest that, all else equal, longer processing times are harmful for applicants.

Contrary to expectations, however, we find there was little association between average processing time and housing stability outcomes, and in some cases even positive associations (see Appendix Table 11.1). Our analysis does not allow us to determine why exactly longer processing times were associated with completing desired moves. One potential explanation for our findings in the exploratory analysis could be that some caseworkers that take longer may provide more support to families making a housing transition, such as by helping coordinate the payment of a security deposit. This does not imply that increasing the time to approval would improve outcomes; rather, there may be beneficial practices that are more commonly used by those caseworkers who typically take longer to resolve applications. These results, along with context from prior research and local agency partners, indicate that processing time must be centered around the applicant. That is, if a family is in truly urgent need of assistance, caseworkers should work as diligently to process their application as efficiently as they can. If timing is less urgent, however, caseworkers should work with families closely to solve the emergency in the most sustainable way aligned with household goals, even if that means taking additional time to resolve the case.

Ultimately, EA is a program designed to address one-time housing emergencies for families who may be experiencing a variety of housing stability challenges. With limited funding, about 12% of EA applicants are approved to receive assistance. For approved applicants, EA tends to improve housing outcomes, facilitating intended moves and preventing unintended moves.

Limitations

Below, we describe some key limitations of our analysis. We provide more details and discuss additional limitations in two appendices related to study design (Appendix 3 and Appendix 5).

Reapplication and later approval among denied cases

An important limitation is that about 12% of cases whose first application for EA was denied later reapplied and were approved during the one-year follow-up period, with average time to successful reapplication of approximately 175 days. Our analysis was based around the initial decision, so these later approvals likely reduced housing instability among some denied cases. This crossover of initially denied cases would be expected to reduce observed differences between approved and denied groups, compared to a scenario in which initially denied applicants never successfully reapplied. In other words, the risk profile of the denied group may appear lower than it would have been if all denied cases remained denied. While this limitation reflects real-world program dynamics, it should be considered when interpreting results.

Emergency severity and household goals

This study relied on administrative data and matching methods to compare approved and denied applicants who were similar on observed characteristics. Although we adjusted for many factors related to housing instability, we could not observe all aspects of the housing emergencies that led households to apply. Approved applicants

may have faced more severe crises than denied applicants, in which case our estimates would understate the effect of EA approval. Conversely, if approved households differed in unobserved ways that made them more likely to achieve stability regardless of assistance, our estimates could overstate the effect.

We also did not directly observe applicants' housing goals at the time of application. For approved applicants, we used payment type to distinguish between cases seeking to remain in place and those seeking to move, but payment type reflects how a case was resolved and may not fully capture original intent. For denied applicants, no comparable information was available. As a result, findings by payment type and interpretations of moves as positive or negative outcomes should be viewed with caution.

Alternative crisis assistance and outcome measurement

We could not determine whether denied applicants received assistance from other programs. To the extent that some denied households received alternative forms of support, our results reflect the effect of approval for EA relative to denial of EA, not relative to no assistance at all. In addition, our ability to measure eviction and displacement was limited. We observed formal eviction judgments, but many evictions result in displacement without a formal judgment, and some families leave housing without any court filing. Because many eviction filings had been expunged in recent years, we focused on formal eviction judgments, which were more consistently retained in court records. This approach does not capture informal or settled evictions.

Finally, eviction outcomes depended on linking public assistance and court records without a shared unique identifier. Record linkage relied on names and addresses and may have resulted in some missed or incorrect matches. If missed matches were more common than incorrect matches, observed eviction rates would be lower than true rates, and differences between groups would appear smaller.

Impact of different local policies

One of our goals in this evaluation was to understand the impact of differences in local EA policy and practice on applicant outcomes. While our exploratory application processing time analysis does likely reflect a combination of local policy and agency culture along with worker practices, we did not have adequate data to directly assess how specific policies, such as verification requirements or maximum benefit amounts, are associated with outcomes. DCYF collects EA plans from local agencies, which we used in our descriptive analysis. However, conversations with those agencies indicated that real-world implementation of EA includes significant supervisor flexibility to deviate from written plans when circumstances require it. Because of this, we were not confident that an analysis based on written plans would provide valid estimates of how individual policy elements actually impacted outcomes.

Implications for Evidence-Informed Policy and Practice

In this section, we describe a series of potential changes for policy and practice for state and local policymakers and program staff to consider. These points reflect our finding that EA is, on average, beneficial for applicants who are approved. Our results, in addition to prior literature and conversations with local practitioners and staff,

suggest that changes to policy and practice could broaden the positive impacts of EA and also improve our capacity to more fully understand the program.

It is important to note that while EA shares a basic structure and goals across the state, most rules and practice decisions rest with counties, county consortia, Tribal nations, and frontline staff. Our conversations with several local agencies made it clear that what works in one county or region may not work in another. In this light, we aim to keep our discussion of policy and practice changes broad and adaptable to diverse contexts.

First, we suggest expanding data collection on all EA applications. Our analysis provides valuable insight into the impact of approval for EA, but we lacked key data that would have extended our ability to more fully understand the context of our findings. In particular, no data is systematically collected on the original application reason or the type of housing emergency at hand, only on the payment reason for applications that were approved. Requiring collection on the type of the emergency, the reason for the application, and the goals of the applicant, for both approved and denied applicants, would have allowed for a better matched comparison group and could allow for richer understanding of families' goals and how housing stability outcomes align with these goals. There are several feasible places this data collection could happen, including upon application or in caseworker interviews within local agencies among others.

Our results suggest there may be opportunities to use intake questions about applicant preferences to guide conversations between families and caseworkers about how best to resolve a housing emergency. We find stronger impacts of EA for families approved for move-enabling assistance than for those approved to remain in their current housing. This likely reflects differences in family circumstances and local housing options. In some cases, caseworkers may consider discussing whether a move better aligns with a family's goals. When consistent with family priorities and local availability, using EA funds to support a move may be more likely to produce sustained housing stability. Families should retain agency in this decision, and local agencies should resolve emergencies in ways that reflect family goals and timelines within program rules.

Our findings also point to the value of better understanding caseworker practices. In exploratory analyses, outcomes varied by assigned worker. Among approved move-enabling cases, applicants were more likely to complete a move when assigned to workers with longer average processing times. Administrators should engage caseworkers to understand what practices may contribute to these differences. For example, some workers or families may spend additional time identifying affordable units. Further qualitative inquiry could identify effective practices to adopt more broadly.

Our analysis also points agencies to explore EA policies that permit longer periods in which applications are allowed to remain in the pending status. To the extent that policy limits on maximum days that applications may pend dictate outcomes for applications at certain cutoffs, evidence suggests that increasing the pending time, in certain appropriate circumstances, may allow the applicant household and their case worker the time they need to reach a sustainable resolution to the emergency.

Finally, while federal, state, and local funding are all scarce, this analysis shows that EA is effective and that demand amongst eligible families may exceed supply of funds. Many denied applicants in our matched sample were similar to approved applicants on observable characteristics. Data from our descriptive report indicate

denial rates have risen sharply in recent years as funding has declined when adjusted for inflation (Tuttle et al., 2024, p. 8). We note this with caution, as our analysis cannot directly estimate the effects of expanding access beyond the current participants.

Nevertheless, these results, taken together with prior evidence that denial rates have risen as funding has declined in real terms, are consistent with the view that additional funding could allow more similarly situated households in crisis to achieve housing stability. There are many funding levers that could impact available assistance for families, including direct increases in federal funding (beyond the scope of state or local actors), indirect increases in funding for related programs, or shifts in how local agencies spend Consolidated Fund dollars. If such an expansion of EA occurs, further study would be warranted to assess whether positive housing impacts materialize.

Conclusion

In partnership with local agencies and the Department of Children, Youth, and Families, our team sought to evaluate how Minnesota's Emergency Assistance program affects housing stability and preventive health. This analysis builds on prior work that our team conducted to understand variation in the administration of the program and trends over time. In our evaluation, we estimated the impact of EA for approved applicants relative to the denied, as well as how application processing time was associated with differences in outcomes.

Overall, our findings indicate that EA improves housing stability outcomes among approved applicants relative to similar denied applicants. EA was effective in preventing a substantial portion of unintended moves and was highly effective in helping families complete intended moves. For more severe forms of housing instability, such as moving multiple times within the year, we find that approval for EA brought modest benefits. We did not find evidence that approval for EA affected preventive health outcomes.

In our exploratory analysis of application processing time, we did not find consistent measurable differences when cases were assigned to workers with relatively fast or slow processing times. Among applicants seeking to move to new housing, there appeared to be a higher likelihood of completing a successful move when assigned to a case worker with a longer average processing time. This pattern likely reflected differences in caseworker practices that, in aggregate, both increase average processing time and help applicants secure new housing.

Our findings, together with discussion with state and local practitioners and prior evidence, suggest several policy and practice changes for policymakers, administrators, and local agencies to consider using to bolster the effectiveness of EA for families:

1. Collect data on the original application reason for all applicants, allowing for deeper understanding of how outcomes link back to why families applied in the first place.

2. Encourage case workers and applicants to discuss the family's preferences for how they might resolve their emergency in a sustainable way, and to consider whether moving to a new unit is feasible and aligned with applicant preferences, as this tends, on average, to yield increased stability.

3. Collect qualitative data from caseworkers to identify practices that aid applicants in reaching their preferred housing outcomes.
4. Consider developing policies for when it is appropriate to allow cases to pend for more than 30 days, particularly in situations when additional time may be necessary for a family to complete a move to a new housing unit.
5. Consider expanding access to EA for similarly situated denied families, subject to available resources, given evidence of positive outcomes and ongoing unmet demand.

Our findings indicate that EA promotes housing stability among households approved for assistance. This work not only demonstrates that impact, but also provides rigorous, practical evidence with the potential to strengthen policy and operations and ensure public resources are directed toward approaches proven to improve outcomes for families facing a housing crisis.

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Appendices

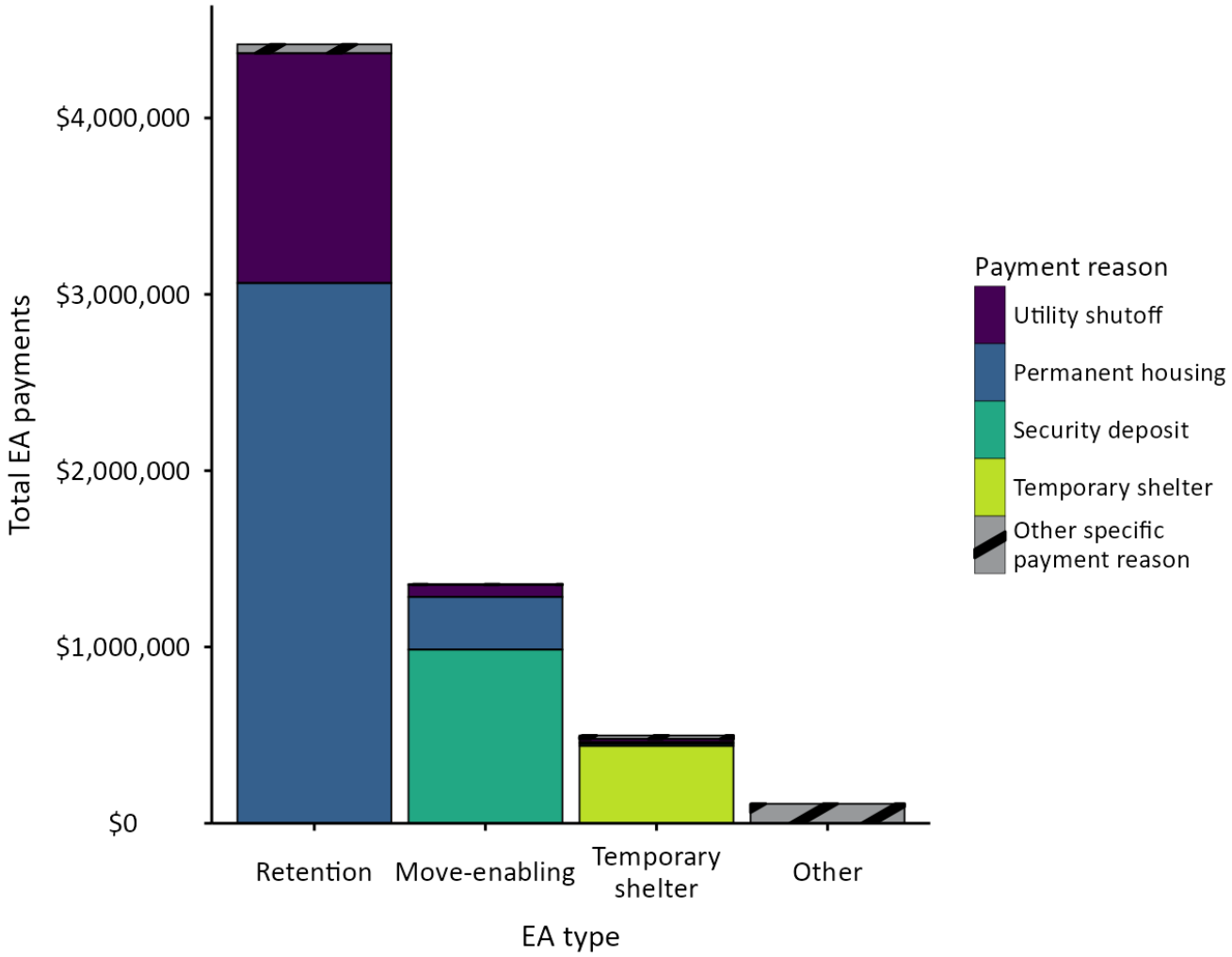
Appendix 1: Additional Details on Payment Reasons

We grouped approved applicants into one of four payment type classifications according to the purpose of the EA payment or payments issued on their behalf. Because more than one payment could be issued per case, we assigned payment type hierarchically according to indications that EA was meant to facilitate housing permanency:

- **Retention:** Payments with the purpose of enabling households to retain current permanent housing. Corresponding payment reasons include foreclosure, home repair, permanent housing, and utility shut-off. Cases also approved for move-enabling or temporary shelter payments were not coded as retention.
- **Move-enabling:** Payments with the purpose of enabling households to secure new permanent housing. Corresponding payment reasons include damage deposit and moving expenses. Cases also approved for temporary shelter payments were not coded as move-enabling.
- **Temporary shelter:** Payments with the purpose of providing short-term shelter but not immediate permanent housing. Corresponding payment reasons include temporary housing and shelter, not family violence.
- **Other:** Households that only received payments not directly tied to housing outcomes were classified as "other" payment types. Corresponding payment reasons include replacement and child care assistance.

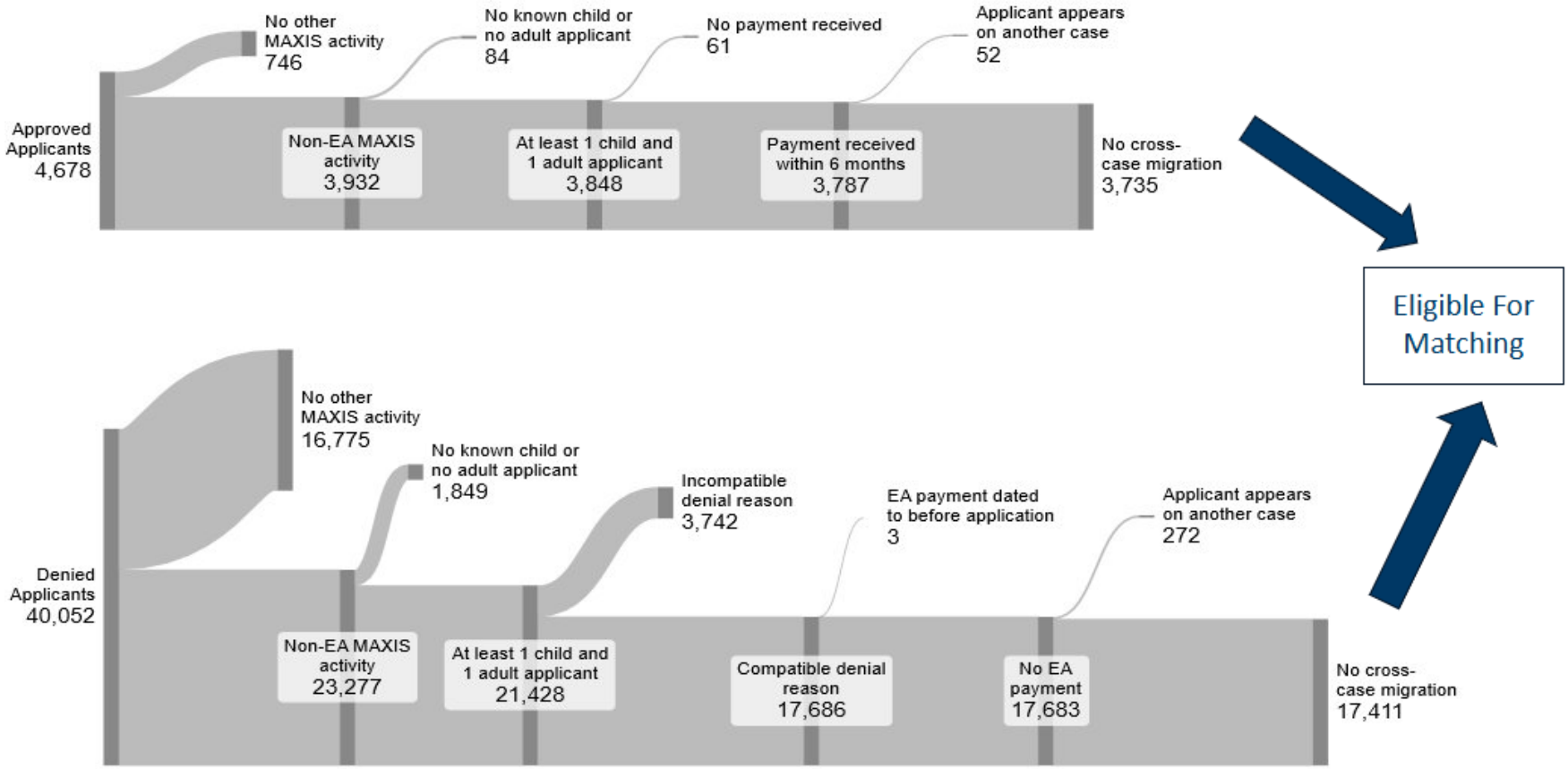
In analyses conducted by payment type, temporary shelter and other payment types were combined due to small numbers and, because these payments lack direct connection to long-term housing permanency, not separately interpreted. Payment amounts associated with each underlying payment reason are shown in Appendix Figure 1.1.

Appendix Figure 1.1. Payment reasons by EA type.



Appendix 2: Filters to Sample Before Matching

Appendix Figure 2.1. Filters for approved and denied applicants to ensure an appropriate sample for matching.



We excluded cases if:

- They had already applied for EA within the prior 12 months, or
- No other MAXIS activity (applications or benefits) occurred in the prior 12 months, or
- The applicant appeared on a different EA case within the study window and on or after their original application date, or
- The application was approved but no EA payment was recorded within six months before or after the application date, or
- The application was denied but a payment was recorded within the six months before the application date, or
- The application was denied for a reason incompatible with any approved case (i.e., cost effectiveness, no eligible child, noncitizen, or eligible for another program).

Appendix 3: Study Design for Primary Analysis

This appendix describes the design and analytic methods used to estimate the impact of EA approval on housing and preventive healthcare outcomes. We described our analysis plan in our preregistration (https://osf.io/6nucf/overview) (Tuttle et al., 2025). We used propensity score matching to construct a comparison group of denied applicants similar to approved applicants on observed baseline characteristics, followed by regression adjustment to estimate treatment effects within matched sets.

What we measured

Our target estimand was the average treatment effect among the treated (ATT): the impact of approval for Emergency Assistance (EA) among households who received assistance.

To estimate the ATT, we compared approved households with denied households that were as similar as possible to the group of approved households, on observed characteristics prior to the index date (the first date when a household applied during the period from July 1, 2022, to December 31, 2023). Households with more than one application during the study period were indexed to their first application.

Sample selection

As described in Appendix 2, we excluded cases for a variety of reasons related to how households appeared in public assistance application records. These exclusions were chosen to:

- Select for basic EA eligibility criteria,
- ensure unambiguous approval status, and
- increase the likelihood that housing outcomes would be observable in administrative data.

After exclusions, 3,736 of 4,678 approved cases, and 17,410 of 40,052 denied cases, were eligible for matching.

Propensity score matching

We conducted nearest-neighbor propensity score matching without replacement, allowing up to two denied households to match to each approved household.

The propensity score was estimated using a generalized linear model including the following types of characteristics, among others:

- Household size and composition
- Housing history
- Prior public assistance use
- Demographic characteristics
- Baseline health indicators

We required that denied households exactly match approved households on four variables:

- Region category
- Calendar quarter when the application was submitted
- Category for count of moves in the baseline period (0, 1, or 2+)
- Duration of housing tenure at the time of the application (1 to 30 days, 31 to 90 days, 91 to 365 days, 1-2 years, or over 2 years)

Following Austin (2011), we matched on the logit of the propensity score with a caliper width of 0.2 standard deviations of the logit (Austin, 2011, pp. 150, 155, 160–161). Denied households that did not meet this criterion were excluded from the study.

Of the 3,736 approved cases that were eligible for matching, we successfully matched 3,547 (a 94.9% match rate). Allowing up to two denied cases per approved case, 6,504 denied cases were included for a final ratio of 1.83 to 1.

In our matched sample, all covariates were balanced at the threshold 0.1 for absolute standardized mean differences (and, indeed, at a more strict threshold of 0.05). Consistent with Nguyen et al. (2017) we used 0.1 as the threshold to assess covariate balance (Nguyen et al., 2017).

Our identification strategy assumes that, conditional on observed covariates used in matching and regression adjustment, outcomes for approved and denied applicants would have followed similar trajectories in the absence of EA approval.

Appendix 4 provides full balance diagnostics.

Outcome measurement

We measured all outcomes over the 365-day time period beginning with date of the EA application. Moves reported on the day of the EA application were treated as baseline events due to the bundling of address updates with the application itself.

We report cumulative outcomes and effect estimates at six and 12 months.

Primary housing outcomes included:

- Any move
- Two or more moves
- Eviction judgment
- Combined housing instability (eviction or 2+ moves)

We also explored preventive healthcare utilization.

Construction of housing outcomes

Moves were identified using changes in residential address recorded in public assistance administrative data. To avoid classifying minor updates (such as spelling corrections or street name variants) as moves, we defined an

address change as any change in the residential street address number and/or 5-digit ZIP code. For example, if a household's recorded address changed from 123 Main Street, 55998, to 125 Main Street, 55998 (or to any address in a different ZIP code), this was classified as a move. Conversely, an address change to 123 Mane Street, 55998, would not be classified as a move, because the street address number and ZIP code remained the same.

If a case had no permanent address (often recorded in data as "General Delivery" or "Homeless") we recorded a change of address if the person updated to a residence with a street address number or if the ZIP code associated with their case changed. Transitions between a permanent address and "General Delivery" or "Homeless" status were also classified as moves.

Because address updates may occur when applicants make system contact, rather than on the actual date of the residential change, we treated address changes with the same date as the application as baseline events and excluded them from follow-up measures.

We identified eviction judgments through record linkage with Minnesota Judicial Branch data using household adults' names (including common nickname variants), street address number, and 5-digit ZIP code. Because no shared unique identifier exists across systems and spelling variants of names are quite common, linkage of names relied on probabilistic ("fuzzy") matching procedures. We applied linkage procedures uniformly to approved and denied households.

As described in the limitations section, this approach may result in some missed matches; however, assuming linkage error did not differ systematically between approved and denied applicants, any resulting misclassification would likely bias estimated effects toward zero.

Through engagement with the Minnesota Judicial Branch, we concluded that recent changes to expungement policy make it more plausible for us to estimate effects on eviction judgments rather than filings. We requested aggregate data on eviction cases by judgment type and expungement status. We found that since 2020, cases with a formal eviction judgment were expunged about 3.7% of the time, while cases with other outcomes such as when cases settled or when cases were dismissed had much higher rates of expungement (26.8% for cases that settled and 50.3% for cases that were dismissed). To avoid estimating impacts on outcomes with evident missing data concerns, we chose to focus our analysis on cases with formal eviction judgments rather than the broader pool of eviction filings.

Construction of preventive healthcare outcomes

We identified preventive healthcare utilization using Minnesota Health Care Programs claims data via the Medicaid Management Information System (MMIS), linked to household members in the study population. For our analysis of preventive healthcare outcomes, we focused on two categories of services: (1) vaccinations and (2) preventive medical exams (including well-child visits and adult preventive care).

To identify vaccinations, we searched for claims with ICD-10 diagnosis code Z23 (encounter for immunization) and procedure codes corresponding to vaccine administration and vaccine products (including COVID-19 vaccine codes). For preventive exams, we identified claims with ICD-10 codes indicating general adult or pediatric

preventive visits (e.g., Z00.00, Z00.129) and procedure codes for comprehensive preventive medicine services (e.g., 99381–99397) or federally qualified health center encounter codes (e.g., G0466–G0468, T1015).

Claims were included if the service date fell within the baseline period (365 days prior to the EA application date) or the follow-up period (365 days after the EA application date). The unit of analysis was the household, consistent with the housing stability outcomes. For each household, we aggregated services across all linked individuals and created indicators for:

- Any preventive care (vaccination or exam)
- Child preventive care (vaccination or exam for individuals <18 years)

Regression models adjusted for baseline preventive healthcare utilization to account for pre-existing differences in care-seeking behavior, and household size to account for differences in the number of individuals contributing to the household-level outcome.

To avoid misclassification due to the shift from Medicaid to Medicare (which would not be observed in MMIS), we excluded services for individuals identified as seniors (age 65+). Because MMIS coverage was nearly universal among matched cases (97%+ households), absence of a claim was treated as no observed service rather than as missing data. We excluded periods after a household had a recorded move out of Minnesota from preventive healthcare analyses.

Payment reason categorization

A key consideration is that households apply to EA for different reasons. Whether a move is a positive or negative outcome depends on the household's goals. To reflect this, we report overall effect estimates as well as effects among groups based on the payment reason for approved cases:

- **Retention cases:** payments indicating households were seeking to remain in their current housing (e.g., permanent housing, foreclosure, utilities, or home repair). We interpreted these cases as households seeking to avoid any move during the follow-up period.
- **Move-enabling cases:** payments indicating households were seeking to secure new permanent housing (e.g. security deposit or moving expenses). We interpreted these cases as households seeking a single, permanent move during the follow-up period.
- **Temporary shelter/other cases:** Temporary housing, shelter, and uncommon payment types not directly related to housing permanency (included in overall results but not analyzed separately due to small counts).

Because payment type is defined only for approved households, we imputed the payment reason of each approved household to its matched denied households. This enabled estimation of payment reason-specific treatment effects.

Appendix 1 provides additional details on classification procedures.

For most of our outcome variables, payment types were not relevant to the desirability of the outcome: we assume that any eviction judgment is harmful, and that it is similarly a negative sign for housing stability if a household engages in multiple moves within a year. Our combined housing instability outcome (defined as any eviction and/or 2+ moves) is similarly constructed to have a consistent interpretation for households regardless of payment type.

For the remaining outcome (any move), payment types are an important consideration for whether moves should be interpreted as a positive or negative outcome for a household. While a move would be a positive outcome for a household when the county used EA funds to pay for a security deposit (a "move-enabling" case), a move would be a negative outcome for a household when the county used EA funds to pay for past due rent (a "retention" case). Through nearest-neighbor matching, each treated household was matched to up to two comparison households. Payment types, such as payments for security deposits or permanent housing, were defined only for approved households. Accordingly, we imputed the payment type from each approved household to the two corresponding comparison group households. This allowed us to generate payment type-specific estimates for the effects of EA on any move, distinguishing between when any move should be interpreted as a positive outcome (for move-enabling cases) or negative outcome (for retention cases).

Statistical analysis

We used a matched analysis of covariance (ANCOVA) approach to estimate the effect of EA approval among approved applicants. The unit of analysis was the household (EA case). We compared follow-up outcomes between approved and matched denied households using regression models adjusted for the corresponding baseline outcome and key context factors:

- Any move and 2+ moves: adjusted for the baseline count of moves.
- Eviction judgment: adjusted for the timing of the most recent baseline eviction (if any).
- Combined housing instability (eviction or 2+ moves): adjusted for both the baseline count of moves and the timing of any baseline eviction.
- Preventive healthcare outcomes (exploratory): adjusted for baseline preventive healthcare utilization and household size.

All statistical models included application quarter and region of the state as covariates to account for variation in housing market characteristics. For payment reason-specific analyses (retention, move-enabling, other), we allowed effects and adjustments to vary by payment reason by interacting approval status and all model covariates with payment reason. We estimated treatment effects (how approval for EA affects outcomes) within six months and within 12 months. Statistical analysis was conducted with the R package "geepack" (Halekoh et al., 2005) applying weights generated via the matching procedure, with standard errors clustered by match ID (the approved and corresponding two matched denied households) to account for anticipated correlated outcomes within matched sets.

When possible, we specified ANCOVA models with a binomial distribution (outcomes were 0 if the outcome did not happen and 1 if the outcome did happen) and identity link function. These models produce percentage-point differences in average outcomes ("risk differences"). For the least common binary outcome, evictions, and

some specifications of another rare outcome, 2+ moves, binomial-identity models did not consistently converge. Accordingly, in some cases, we elected to run models with Gaussian identity links (we essentially estimated linear probability models). GEE estimators remain consistent even if the working correlation structure is mis-specified. An implication is that for those specifications, we allowed for the possibility of estimating probabilities that fall outside the bounds of 0–100%.

Under the linear identity-link specification, an ANCOVA model that adjusts for the baseline value of the outcome yields estimates similar to a two-period difference-in-differences (DID) estimator when treatment groups are balanced at baseline. Given the close baseline balance achieved through matching, the ANCOVA and DID approaches yield substantively equivalent estimates in this setting.

We assessed statistical significance of the main effect of EA at six and 12 months using a joint test of the treatment and treatment-by-time terms in each model with a $P < 0.05$ threshold. Treatment effects are reported as percentage-point risk differences at six and 12 months after application.

Limitations of primary analysis

To conduct this analysis, we integrated administrative data on public assistance, healthcare, and eviction court records. The strengths and limitations of our analysis largely depended on the data available in those systems. Our matching approach allowed us to compare approved applicants to denied applicants who were similar on a robust set of observed characteristics, including demographics, public assistance history, and prior housing tenure. However, like all analyses using administrative data, our study was limited to the characteristics and outcomes captured in those systems. We could not observe all factors that may have differed between approved and denied applicants and were limited in the outcomes we could measure.

In particular, we did not observe applicants' housing preference at the time they applied for EA. We had information on payment reasons for approved applicants, which we used to distinguish between retention cases, move-enabling cases, and those that were approved for other kinds of payments. However, the payment issued when the case was resolved may not have reflected the applicant's original preference. For denied applicants, we had even less information about preferences, since no payment—and hence no payment reason—occurred. As a result, our analyses by payment type may include some misclassification of payment intent. In Appendix 8, we examined how this limitation could affect our findings. While uncertainty about preferences likely affected the precision of results by payment type, under reasonable assumptions about what true preferences may have been it would not change the overall qualitative interpretation of our results.

We were also unable to observe the specific nature and severity of the housing emergency that led denied applicants to apply. We adjusted for many factors that likely relate to crisis severity, including recency and duration of public assistance use, recent moves, and recent mental health or chemical dependence diagnoses. However, even after accounting for these characteristics, approved applicants may have faced more severe emergencies on average than denied applicants. If so, their underlying risk of housing instability would have been higher, and our estimates would understate the effect of EA approval. By contrast, if approved households were more likely to achieve stability regardless of assistance, our estimates could overstate the effect. This could

have happened if they were better able to navigate assistance systems or perceived by case workers as having stronger potential for stabilization. Administrative data alone do not allow us to fully resolve these possibilities.

An important limitation is that about 12% of cases initially denied for EA were later approved during the follow-up period, with average time to successful reapplication of approximately 175 days. Our analysis uses an intent-to-treat approach based around the initial decision, so these later approvals likely reduced housing instability among some denied cases. This crossover could reduce observed differences between approved and denied groups, compared to a scenario in which initially denied applicants never successfully reapplied. That is, the risk profile of the denied group may appear lower than it would have been if all denied cases remained denied. While this limitation reflects real-world program dynamics, it should be considered when interpreting results.

A related limitation was that we did not know whether denied applicants received assistance from alternate funding sources, such as other programs like the Family Homeless Prevention and Assistance Program (FHPAP). We suggest that this is a reason to believe that our findings on the effectiveness of EA may be understated. We found that the approved group had better outcomes than the matched comparison group of denied applicants. Since some denied applicants in the comparison group likely received alternate forms of assistance, our estimates of the benefits of approval for EA may have been even larger if we had compared to a group that received no assistance.

Data availability also limited our ability to measure displacement of tenants from rental housing comprehensively. While we observe formal eviction judgments, many eviction filings result in displacement without a court entering a formal judgment, often with the understanding that the tenant will vacate the property to keep an eviction off their record. In addition, families are often displaced from their housing without any formal eviction process at all. It is plausible that EA could affect either or both of these processes. Indeed, local partners report that it is common for families to apply for EA before landlords file an eviction.

Through engagement with the Minnesota Judicial Branch, we learned that many eviction filings have been expunged over the past several years, whereas relatively few formal eviction judgments were expunged. If households approved for EA were more likely to seek or obtain expungement, then the use of eviction filings as an outcome could result in differentially missing data across groups. Because filings were often expunged, we estimated effects using formal eviction judgments (which were more consistently retained). As a result, our analysis does not capture informal or settled evictions and may understate EA's effect on preventing displacement that occurs outside of formal judgments.

An important connected limitation relates to the linkage of public assistance and court records. Because no common unique identifier exists between MAXIS and court eviction data, we relied on record linkage using household names (including common nickname variants), street address number, and ZIP code. We did not require exact matching on apartment unit numbers. As a result, some true eviction records may not have been captured (false negatives) and it is even possible that some eviction records may have been incorrectly linked to applicants (false positives). If missed matches were substantially more common than incorrect matches, as seems likely, observed eviction risk would be lower than the true risk. Assuming linkage quality did not differ systematically between approved and denied applicants, this type of outcome misclassification would tend to understate the effect of EA on eviction risk.

Appendix 4: Balance After Matching, Primary Analysis

Appendix Table 4.1. Standardized Mean Differences between approved and matched denied applicants.

Variable Name	Mean Approved	Mean Denied	Standard Mean Difference
Distance	-1.29	-1.29	0.00
Education level 1 (less than high school diploma)	0.18	0.18	0.02
Education level 2 (high school diploma)	0.58	0.58	0.00
Education level 3 (some college or more)	0.21	0.22	-0.01
Education level (unknown)	0.02	0.02	0.00
Applicant sex (Female)	0.93	0.93	0.01
Applicant sex (Male)	0.07	0.07	-0.01
Applicant has limited English proficiency (spoken or written language other than English or needs interpreter)	0.06	0.06	0.00
Applicant doesn't have limited English proficiency (spoken or written language other than English)	0.94	0.94	0.00
Applicant race/ethnicity (Asian/Pacific Islander/Native Hawai'i)	0.02	0.02	0.00
Applicant race/ethnicity (American Indian/Alaskan Native)	0.04	0.04	0.01
Applicant race/ethnicity (Black/African American)	0.50	0.50	0.00
Applicant race/ethnicity (Hispanic or Latina/o/x)	0.08	0.08	0.01
Applicant race/ethnicity (Multiple races)	0.04	0.04	0.00
Applicant race/ethnicity (Not available)	0.01	0.01	0.01
Applicant race/ethnicity (White)	0.30	0.31	-0.01
Applicant mental health diagnosis or procedure (any)	0.46	0.46	0.01
Minimum days from diagnosis of serious mental illness (1 to 30)	0.02	0.02	0.00
Minimum days from diagnosis of serious mental illness (31 to 90)	0.04	0.04	0.00
Minimum days from diagnosis of serious mental illness (91 to 180)	0.06	0.06	-0.01
Minimum days from diagnosis of serious mental illness (181 to 365)	0.37	0.37	0.01

Variable Name	Mean Approved	Mean Denied	Standard Mean Difference
Minimum days from diagnosis of serious mental illness (not applicable)	0.51	0.51	-0.01
Mental health diagnosis, severe	0.29	0.28	0.01
Other significant mental health diagnoses	0.47	0.46	0.01
Mental health services indicating higher level of need (any)	0.05	0.05	0.01
Housing tenure at the time of application (1 to 30 days)	0.12	0.12	0.00
Housing tenure at the time of application (31 to 90 days)	0.07	0.08	0.00
Housing tenure at the time of application (91 to 365 days)	0.21	0.21	0.00
Housing tenure at the time of application (1 to 2 years)	0.33	0.33	0.00
Housing tenure at the time of application (Over 2 years)	0.27	0.27	0.00
Evictions in the baseline period (within 90 days)	0.00	0.00	0.00
Evictions in the baseline period (91 days or longer)	0.01	0.01	0.00
Evictions in the baseline period (no eviction)	0.99	0.99	0.00
Substance Use Disorder diagnosis (any)	0.03	0.03	0.01
Substance Use Disorder diagnosis indicating active dependence	0.02	0.02	0.01
Substance Use Disorder class (Alcohol)	0.02	0.01	0.01
Substance Use Disorder class (Cannabis)	0.01	0.01	0.00
Substance Use Disorder class (Hallucinogen/Sedative)	0.00	0.00	0.00
Substance Use Disorder class (None)	0.96	0.96	-0.01
Substance Use Disorder class (Opioid)	0.01	0.01	0.01
Substance Use Disorder class (Other/Multiple)	0.00	0.00	-0.02
Substance Use Disorder class (Stimulant)	0.01	0.00	0.00
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (< 1 month)	0.01	0.01	0.01

Variable Name	Mean Approved	Mean Denied	Standard Mean Difference
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (1 to 3 months)	0.02	0.02	0.01
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (3 to 6 months)	0.03	0.03	0.01
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (6 to 12 months)	0.40	0.39	0.01
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (none)	0.55	0.56	-0.02
Food assistance start date within prior year (< 1 month)	0.01	0.01	-0.01
Food assistance start date within prior year (1 to 3 months)	0.05	0.05	0.00
Food assistance start date within prior year (3 to 6 months)	0.06	0.06	0.00
Food assistance start date within prior year (6 to 12 months)	0.67	0.68	-0.01
Food assistance start date within prior year (none)	0.21	0.20	0.02
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (0 months)	0.55	0.56	-0.02
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (1 to 2 months)	0.04	0.04	0.00
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (3 to 6 months)	0.09	0.09	0.01
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (7 to 11 months)	0.11	0.11	0.00
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (12+ months)	0.21	0.20	0.02
Food assistance months in prior year (0)	0.06	0.06	0.02
Food assistance months in prior year (1 to 3)	0.09	0.08	0.00
Food assistance months in prior year (4 to 6)	0.09	0.08	0.01
Food assistance months in prior year (7 to 11)	0.26	0.27	-0.01

Variable Name	Mean Approved	Mean Denied	Standard Mean Difference
Food assistance months in prior year (12+)	0.50	0.50	0.00
Quarter of application 1 (July to Sep. 2022)	0.26	0.26	0.00
Quarter of application 2 (Oct. to Dec. 2022)	0.15	0.15	0.00
Quarter of application 3 (Jan. to Mar. 2023)	0.12	0.12	0.00
Quarter of application 4 (Apr. to June 2023)	0.15	0.15	0.00
Quarter of application 5 (July to Sep. 2023)	0.19	0.19	0.00
Quarter of application 6 (Oct. to Dec. 2023)	0.13	0.13	0.00
Day of quarter (1 to 92)	44.70	44.99	-0.01
Number of children in household (1)	0.32	0.33	-0.01
Number of children in household (2)	0.29	0.29	-0.01
Number of children in household (3)	0.21	0.20	0.01
Number of children in household (4+)	0.19	0.18	0.01
Age of youngest child (0 to 2)	0.33	0.33	-0.01
Age of youngest child (3 to 5)	0.24	0.24	0.01
Age of youngest child (6 to 12)	0.30	0.30	0.00
Age of youngest child (13 to 17)	0.13	0.13	0.00
Seniors (any)	0.01	0.01	-0.01
Difference between age of oldest person and age of applicant (0)	0.86	0.86	0.00
Difference between age of oldest person and age of applicant (1 to 9)	0.11	0.11	-0.01
Difference between age of oldest person and age of applicant (10+)	0.04	0.03	0.01
Age of applicant	35.39	35.35	0.00
Marital status of applicant	0.10	0.10	-0.01
Exam ratio, children: preventive exam person-days per children 0-17 (0)	0.46	0.46	0.00
Exam ratio, children: preventive exam person-days per children 0-17 (> 0 to 1)	0.43	0.43	0.00
Exam ratio, children: preventive exam person-days per children 0-17 (> 1 to 2)	0.07	0.07	-0.01

Variable Name	Mean Approved	Mean Denied	Standard Mean Difference
Exam ratio, children: preventive exam person-days per children 0-17 (> 2)	0.03	0.04	-0.02
Vaccination ratio, children: vaccination person-days per child 0-17 (0)	0.55	0.55	0.00
Vaccination ratio, children: vaccination person-days per child 0-17 (> 0 to 1)	0.34	0.34	0.00
Vaccination ratio, children: vaccination person-days per child 0-17 (> 1 to 2)	0.08	0.08	0.00
Vaccination ratio, children: vaccination person-days per child 0-17 (> 2)	0.03	0.03	-0.01
Adult vaccination ratio (0)	0.71	0.71	0.01
Adult vaccination ratio (> 0 to 1)	0.21	0.22	-0.01
Adult vaccination ratio (> 1)	0.07	0.07	0.00
Adult vaccination ratio (not applicable)	0.00	0.00	-0.01
Vaccination ratio, adults: vaccination person-days per adult age 18-64 (0)	0.81	0.81	0.00
Vaccination ratio, adults: vaccination person-days per adult age 18-64 (> 0 to 1)	0.19	0.19	0.00
Vaccination ratio, adults: vaccination person-days per adult age 18-64 (> 1)	0.00	0.00	-0.01
Preventive health visits in the last 90 days (0)	0.68	0.68	0.00
Preventive health visits in the last 90 days (1)	0.20	0.20	0.00
Preventive health visits in the last 90 days (2+)	0.12	0.12	0.00
Number of adults age 18-64 (0)	0.00	0.00	-0.01
Number of adults age 18-64 (1)	0.69	0.68	0.00
Number of adults age 18-64 (2)	0.27	0.27	0.00
Number of adults age 18-64 (3+)	0.04	0.04	-0.01
Count of household adults with significant mental health diagnosis or service (0)	0.51	0.51	-0.01
Count of household adults with significant mental health diagnosis or service (1)	0.45	0.44	0.01
Count of household adults with significant mental health diagnosis or service (2+)	0.05	0.05	0.00

Variable Name	Mean Approved	Mean Denied	Standard Mean Difference
Baseline moves category (0)	0.60	0.60	0.00
Baseline moves category (1)	0.27	0.27	0.00
Baseline moves category (2+)	0.13	0.13	0.00
Region of application submission (Hennepin or Ramsey)	0.15	0.15	0.00
Region of application submission (five other metro counties)	0.53	0.53	0.00
Region of application submission (central)	0.10	0.10	0.00
Region of application submission (northern)	0.09	0.09	0.00
Region of application submission (southern)	0.13	0.13	0.00

Appendix 5: Study Design for Exploratory Processing Time Analysis

Broadly, when analyzing differences in housing stability outcomes by application processing time, we followed the same type of approach as described in connection with our primary analysis (in Appendix 3). This section highlights key differences in our approach to our exploratory evaluation question. This analysis focused only on approved households, since we aimed to understand how housing stability outcomes varied when comparing applicants whose cases were approved by workers who tended to approve cases relatively quickly or slowly.

One key choice in our exploratory analysis was to define application processing time as the leave-one-out median of time to decision by local case worker. We made this choice to address the problem of reverse causality. It would be problematic to model housing stability outcomes as a function of the exact number of days from submission to decision for a particular household. Unobserved household-specific characteristics could have driven the speed with which that case could be resolved. As a result, a measure of a household's exact processing time would not be a clear treatment. An estimate based on exact processing time would blur the desired treatment estimate (how housing stability outcomes vary by processing time) with a nuisance parameter: the effect of household characteristics on their own processing time.

Instead, we used a leave-one-out measure.[1] For a particular household, we identified the EA case worker (from MAXIS) and calculated the case worker's median number of days from application submission to decision for all cases other than the case for that particular household. When running these calculations, we included both approved and denied cases for that case worker. We did not see substantially different average differences in worker processing time by approval status, and including denied cases in the calculation allowed for more precise estimates. Our leave-one-out approach allowed us to categorize processing time as relatively fast or slow while sidestepping the problem of reverse causality. Following WERA goals for emergency rental assistance programs to fully process applications within 30 days, we used a threshold of 30 days to categorize cases by worker average processing time.

What we measured

For the exploratory analysis, our target estimand was the average treatment effect (ATE): the estimated difference in outcomes between households whose case workers had typical processing times at or below 30 days and those with processing times above 30 days, among EA applicants whose workers saw 10 or more cases during the study period. This differed from the primary analysis, where our target estimand was the average

[1] Researchers have used leave-out measures in the context of instrumental variables (IV) research designs focused on topics ranging from child welfare (Doyle, 2007) to consumer bankruptcy (Dobbie & Song, 2015). In our evaluation, we do not use an IV design, but incorporate the insight that leave-out measures may be "highly predictive of…decisions, but uncorrelated with case…characteristics" (Dobbie et al., 2018, p. 203). Our approach is more similar to a continuous treatment event study (Callaway et al., 2024). In our case, we took the dosage (a continuous measure of worker-specific leave-one-out median time to decision) and assigned a threshold to define high and low dosage groups.

treatment effect on the treated (ATT). For the exploratory evaluation question, we were interested in differences by application processing time over the full sample of approved applicants, rather than just for the group with relatively faster or slower average processing times.

To estimate the ATE, we compared approved households whose case workers had relatively fast processing times (at/below 30 days) with approved households whose case workers had relatively slow processing times (over 30 days) that were as similar as possible on observed characteristics prior to the index date (the first date when a household applied during the period from July 1, 2022, to December 31, 2023). These characteristics included household size and composition, housing history, past public assistance use, demographic factors, and baseline health.

Sample selection

The sample size for the exploratory analysis was considerably smaller: 3,287 approved households were eligible for matching in the exploratory analysis, as opposed to 3,736 approved and 17,410 denied households in the primary analysis. For the exploratory analysis, we restricted the sample to approved applicants whose case worker saw at least 10 total cases, to ensure the measure of typical processing time was meaningful. Because of this, we excluded about 12% of approved applicants. Of the 3,287 approved households eligible for matching in the exploratory analysis, 1,310 cases had a worker with typical application processing time at/below 30 days, and 1,977 cases had a worker with typical application processing time over 30 days.

Propensity score matching

For the exploratory matching model, we used full matching rather than nearest-neighbor matching. In our primary analysis, we required that matched pairs exactly match on certain key characteristics, including region, calendar period, and duration of housing tenure. For the smaller exploratory sample, imposing these same restrictions when running nearest-neighbor matching models led to poor coverage of the pool of units eligible for matching. To address this challenge, we estimated the propensity for assignment to a higher (≥30 days) versus lower (<30 days) average processing time category using a random forest model. We then applied full matching based on the estimated propensity score, deriving weights to improve covariate balance between the processing time groups. This choice dramatically improved coverage of the pool of households eligible for matching. After matching the sample included 1,159 of 1,310 households with processing time at/below 30 days, and 1,853 of 1,977 households with processing time above 30 days. We also attempted to match relative to a 14-day threshold but found that the matched sample only included about half of the applicants with processing time above 14 days. As a result, we focused on the 30-day model, as it had comparatively more validity relative to the overall pool of approved applicants.

Our matching covariates differed slightly in the exploratory analysis. Since the sample for our exploratory analysis was entirely households that were approved for EA, all households had a known payment type. This meant that we could require households above and below the processing time threshold to exactly match on payment type (move-enabling, retention, or other). We coarsened several categories to group together more units and allow for adequate variation. While we still required an exact match on duration of housing tenure and measures of calendar time and geography, we used six-month calendar periods rather than calendar quarters,

and we used a coarsened region variable with fewer categories (Hennepin & Ramsey Counties; five remaining metro counties; Greater Minnesota). All but four of 121 covariate levels were balanced at a threshold of 0.1 units of absolute standardized mean difference. There were slight imbalances after matching on the portion of the calendar quarter that had elapsed, two of the education levels, and age. Overall, we concluded that the exploratory model produced adequate balance, though not to the same extent as in the primary analysis. Appendix 6 below shows standardized mean differences for the exploratory matching model with a 30-day threshold.

Outcome measurement

We used the same measures of housing stability as in the primary analysis. For reasons described below, for the exploratory analysis we do not characterize these estimates as causal, but rather as differences in outcomes associated with processing time.

When estimating differences on housing stability, difference between our approach in the exploratory and primary analyses was that in the exploratory analysis, we used Gaussian rather than binomial specifications. We made this decision to ensure that models would converge while maintaining the same fixed effects that we had identified as important to appropriately model housing stability outcomes. This meant that we essentially ran linear probability models for the exploratory analysis, estimating probabilities of binary outcome variables without imposing the restriction that estimates and confidence intervals would have to be bounded by the limits of 0% and 100%.

Limitations of exploratory analysis

Results related to average application processing time were less robust than our primary analysis. This exploratory evaluation relied on matching among the smaller set of approved applicants, which reduced statistical precision. In addition, because the sample was smaller within strata of geographic region and other characteristics, some results were influenced by relatively small numbers of cases that received greater weight in the matching procedure.

A related limitation of this matching approach was that some households were assigned relatively high or low weights. For the 30-day model, weights ranged from just above 0 to about 60. This meant that some households had relatively low influence on treatment effect estimates, while other households had particularly high influence on our estimates. This means that our exploratory results should be interpreted with some caution, as our results were likely sensitive to the inclusion or exclusion of small groups of households.

Another limitation to the exploratory analysis is conceptual. Unlike approval for EA, assignment to a worker with a faster or slower average processing time does not have a clear interpretation as a treatment. Processing time likely reflects a mix of average case complexity, staffing levels, local policies, and worker practices. For this reason, we avoid using the language of cause and effect when interpreting these results. Instead, we view any differences as highlighting practices that may be associated with longer processing times, but that do not necessarily require longer processing times to implement.

Appendix 6: Balance After Matching, Exploratory Analysis

Appendix Table 6.1. Standardized Mean Differences between applicants approved by case workers with typical processing time below 30 days and matched applicants with processing time above 30 days.

Variable Name	Mean, at/below 30 days	Mean, over 30 days	Standard Mean Difference
Distance	0.388	0.384	0.013
Education level 1 (less than high school diploma)	0.293	0.181	0.112
Education level 2 (high school diploma)	0.492	0.610	-0.118
Education level 3 (some college or more)	0.187	0.189	-0.002
Education level (unknown)	0.027	0.020	0.008
Applicant sex (Male)	0.068	0.053	0.015
Applicant has limited English proficiency (spoken or written language other than English or needs interpreter)	0.948	0.957	-0.009
Applicant race/ethnicity (Asian/Pacific Islander/Native Hawai'i)	0.017	0.026	-0.010
Applicant race/ethnicity (American Indian/Alaskan Native)	0.034	0.043	-0.009
Applicant race/ethnicity (Black/African American)	0.595	0.515	0.080
Applicant race/ethnicity (Hispanic or Latina/o/x)	0.061	0.057	0.005
Applicant race/ethnicity (Multiple races)	0.040	0.051	-0.011
Applicant race/ethnicity (Not available)	0.005	0.004	0.000
Applicant race/ethnicity (White)	0.248	0.304	-0.057
Applicant mental health diagnosis or procedure (any)	0.481	0.457	0.024
Minimum days from diagnosis of serious mental illness (1 to 30)	0.014	0.016	-0.002
Minimum days from diagnosis of serious mental illness (31 to 90)	0.065	0.029	0.037
Minimum days from diagnosis of serious mental illness (91 to 180)	0.035	0.054	-0.019
Minimum days from diagnosis of serious mental illness (181 to 365)	0.399	0.379	0.020
Minimum days from diagnosis of serious mental illness (not applicable)	0.487	0.521	-0.035
Mental health diagnosis, severe	0.312	0.296	0.017

Variable Name	Mean, at/below 30 days	Mean, over 30 days	Standard Mean Difference
Other significant mental health diagnoses	0.485	0.456	0.029
Mental health services indicating higher level of need (any)	0.104	0.042	0.062
Housing tenure at the time of application (1 to 30 days)	0.102	0.102	0.000
Housing tenure at the time of application (31 to 90 days)	0.068	0.068	0.000
Housing tenure at the time of application (91 to 365 days)	0.200	0.200	0.000
Housing tenure at the time of application (1 to 2 years)	0.349	0.349	0.000
Housing tenure at the time of application (Over 2 years)	0.281	0.281	0.000
Evictions in the baseline period (within 90 days)	0.008	0.002	0.005
Evictions in the baseline period (91 days or longer)	0.017	0.009	0.008
Evictions in the baseline period (no eviction)	0.975	0.989	-0.014
Substance Use Disorder diagnosis (any)	0.046	0.032	0.014
Substance Use Disorder diagnosis indicating active dependence	0.039	0.038	0.001
Substance Use Disorder class (Alcohol)	0.032	0.012	0.020
Substance Use Disorder class (Cannabis)	0.006	0.008	-0.002
Substance Use Disorder class (Hallucinogen/Sedative)	0.000	0.000	0.000
Substance Use Disorder class (None)	0.950	0.944	0.005
Substance Use Disorder class (Opioid)	0.009	0.011	-0.002
Substance Use Disorder class (Other/Multiple)	0.000	0.003	-0.003
Substance Use Disorder class (Stimulant)	0.003	0.022	-0.019
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (< 1 month)	0.004	0.008	-0.004
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (1 to 3 months)	0.018	0.014	0.004

Variable Name	Mean, at/below 30 days	Mean, over 30 days	Standard Mean Difference
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (3 to 6 months)	0.029	0.032	-0.003
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (6 to 12 months)	0.517	0.461	0.055
Minnesota Family Investment Program/Diversionary Work Program: start date within prior year (none)	0.432	0.485	-0.053
Food assistance start date within prior year (< 1 month)	0.015	0.010	0.005
Food assistance start date within prior year (1 to 3 months)	0.034	0.057	-0.023
Food assistance start date within prior year (3 to 6 months)	0.086	0.061	0.025
Food assistance start date within prior year (6 to 12 months)	0.582	0.662	-0.080
Food assistance start date within prior year (none)	0.283	0.209	0.073
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (0 months)	0.432	0.485	-0.053
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (1 to 2 months)	0.037	0.032	0.005
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (3 to 6 months)	0.106	0.088	0.018
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (7 to 11 months)	0.100	0.124	-0.024
Minnesota Family Investment Program/Diversionary Work Program: duration of coverage (12+ months)	0.326	0.271	0.054
Food assistance months in prior year (0)	0.050	0.060	-0.009
Food assistance months in prior year (1 to 3)	0.059	0.083	-0.024
Food assistance months in prior year (4 to 6)	0.096	0.079	0.017
Food assistance months in prior year (7 to 11)	0.219	0.231	-0.012
Food assistance months in prior year (12+)	0.575	0.547	0.028
Quarter of application 1 (July to Sep. 2022)	0.227	0.251	-0.024

Variable Name	Mean, at/below 30 days	Mean, over 30 days	Standard Mean Difference
Quarter of application 2 (Oct. to Dec. 2022)	0.179	0.155	0.024
Quarter of application 3 (Jan. to Mar. 2023)	0.110	0.135	-0.026
Quarter of application 4 (Apr. to June 2023)	0.173	0.147	0.026
Quarter of application 5 (July to Sep. 2023)	0.189	0.192	-0.004
Quarter of application 6 (Oct. to Dec. 2023)	0.122	0.119	0.004
Day of quarter (1 to 92)	48.357	43.782	0.175
Number of children in household (1)	0.316	0.330	-0.014
Number of children in household (2)	0.258	0.257	0.001
Number of children in household (3)	0.179	0.229	-0.050
Number of children in household (4+)	0.247	0.184	0.063
Age of youngest child (0 to 2)	0.330	0.352	-0.022
Age of youngest child (3 to 5)	0.255	0.233	0.022
Age of youngest child (6 to 12)	0.309	0.302	0.007
Age of youngest child (13 to 17)	0.106	0.113	-0.008
Seniors (any)	0.007	0.010	-0.004
Difference between age of oldest person and age of applicant (0)	0.860	0.876	-0.016
Difference between age of oldest person and age of applicant (1 to 9)	0.109	0.092	0.017
Difference between age of oldest person and age of applicant (10+)	0.031	0.032	-0.001
Age of applicant	34.410	35.486	-0.128
Marital status of applicant	0.075	0.110	-0.034
Exam ratio, children: preventive exam person-days per children 0-17 (0)	0.487	0.490	-0.003
Exam ratio, children: preventive exam person-days per children 0-17 (> 0 to 1)	0.404	0.422	-0.018
Exam ratio, children: preventive exam person-days per children 0-17 (> 1 to 2)	0.086	0.057	0.029
Exam ratio, children: preventive exam person-days per children 0-17 (> 2)	0.022	0.030	-0.008

Variable Name	Mean, at/below 30 days	Mean, over 30 days	Standard Mean Difference
Vaccination ratio, children: vaccination person-days per child 0-17 (0)	0.528	0.589	-0.061
Vaccination ratio, children: vaccination person-days per child 0-17 (> 0 to 1)	0.401	0.311	0.090
Vaccination ratio, children: vaccination person-days per child 0-17 (> 1 to 2)	0.047	0.078	-0.031
Vaccination ratio, children: vaccination person-days per child 0-17 (> 2)	0.024	0.023	0.002
Vaccination ratio, adults: vaccination person-days per adult age 18-64 (0)	0.682	0.718	-0.035
Vaccination ratio, adults: vaccination person-days per adult age 18-64 (> 0 to 1)	0.261	0.221	0.040
Vaccination ratio, adults: vaccination person-days per adult age 18-64 (> 1)	0.056	0.059	-0.003
Vaccination ratio, adults: vaccination person-days per adult age 18-64 (not applicable)	0.000	0.002	-0.002
Exam, adults (any) (0)	0.853	0.828	0.025
Exam, adults (any) (1)	0.147	0.170	-0.024
Exam, adults (any) (not applicable)	0.000	0.002	-0.002
Preventive health visits in the last 90 days (0)	0.640	0.701	-0.062
Preventive health visits in the last 90 days (1)	0.196	0.197	-0.001
Preventive health visits in the last 90 days (2+)	0.164	0.102	0.062
Number of adults age 18-64 (0)	0.000	0.002	-0.002
Number of adults age 18-64 (1)	0.686	0.680	0.006
Number of adults age 18-64 (2)	0.279	0.279	0.001
Number of adults age 18-64 (3+)	0.034	0.039	-0.005
Count of household adults with significant mental health diagnosis or service (0)	0.487	0.521	-0.035
Count of household adults with significant mental health diagnosis or service (1)	0.471	0.421	0.050
Count of household adults with significant mental health diagnosis or service (2+)	0.043	0.058	-0.015
Baseline moves category (0)	0.630	0.630	0.000

Variable Name	Mean, at/below 30 days	Mean, over 30 days	Standard Mean Difference
Baseline moves category (1)	0.257	0.257	0.000
Baseline moves category (2+)	0.113	0.113	0.000
Region of application submission (Hennepin or Ramsey)	0.150	0.150	0.000
Region of application submission (five other metro counties)	0.593	0.593	0.000
Region of application submission (central)	0.080	0.060	0.020
Region of application submission (northern)	0.055	0.135	-0.080
Region of application submission (southern)	0.122	0.062	0.059
Payment type (retention)	0.751	0.751	0.000
Payment type (move-enabling)	0.205	0.205	0.000
Payment type (temporary shelter)	0.038	0.038	0.000
Payment type (other)	0.006	0.006	0.000
Region (Hennepin or Ramsey)	0.150	0.150	0.000
Region (five other metro counties)	0.593	0.593	0.000
Region (greater Minnesota)	0.257	0.257	0.000
Six-month period	1.905	1.905	0.000

Appendix 7: Additional Details on Subgroup Analyses

For subgroup analyses, we used MAXIS to identify demographic characteristics of applicant households. We conducted subgroup analysis focused on race, household size, and geography.

Race was defined by applicant race (Black/African American, White, Other racial/ethnic groups combined for analytic stability). While disaggregation of individual racial and ethnic categories was our preference, several groups were combined to ensure stable and precise effect estimation. The combined category includes Asian/Pacific Islander, American Indian/Alaska Native, Hispanic/Latina/o/x, and multiracial applicants. This analytic grouping does not imply conceptual similarity among the combined groups.

We defined household size categories based on the number of adults and children in the household at the time of application: one adult and one child, one adult and two or more children, two or more adults and one child, or two or more adults and children.

For geographic subgroup analysis, we grouped applications into three regions based on where the application was submitted: Greater Minnesota (all county and tribal administrations outside the seven-county metro area), "metro core" counties (Hennepin and Ramsey), and "metro collar" counties (Anoka, Carver, Dakota, Scott, and Washington).

For race and household size analyses, we added the subgroup to the exact matching model and simplified the timing (quarters were combined into six-month periods) and geography (three regions) variables. For the geographic subgroup analysis we used the same model as in the primary analysis but combined the three Greater Minnesota regions into a single broader subgroup after matching.

Race/ethnicity

We examined whether estimated effects of EA approval differed by race/ethnicity. Among denied applicants, overall housing instability was similar across racial groups (Black/African American, White, Other racial/ethnic groups combined for analytic stability) at both six and 12 months, although residential mobility (any move) differed more noticeably by race.

Across outcomes, we found no consistent evidence that the effect of EA approval on overall housing instability or eviction differed meaningfully by race. For movement outcomes, patterns by race were broadly consistent with the main findings: housing-retention assistance was associated with fewer moves, and move-enabling assistance with more moves, across racial groups. Observed differences in the overall effects of EA by race appear primarily driven by differences in the distribution of payment types (i.e., retention versus move-enabling) rather than systematic differences in responsiveness to assistance.

Household composition

We examined whether the association between EA approval and housing outcomes differed by household composition (one versus two or more adults and one versus two or more children). Baseline residential mobility

differed modestly by household size among denied applicants, with higher mobility among single-adult households, and similarly higher incidence of combined housing instability among single-adult households.

Across household compositions, effects of EA approval were directionally consistent with the main findings. Housing-retention assistance was associated with reduced likelihood of moving, while move-enabling assistance was associated with increased likelihood of planned moves, for all household types. We found no consistent evidence that the effect of EA approval on overall housing instability or eviction differed meaningfully by household composition.

Estimates for households with two adults and one child were less stable due to small sample size and possible heterogeneity of risk (for example, both a parent and grandparent living with a minor child, and a parent living with a minor child and an adult child could be included).

Geographic region

EA approval was associated with reductions in housing instability across all regions, with larger absolute reductions observed in Greater Minnesota than in the metropolitan area (either Hennepin-Ramsey or the five Metro Collar counties). In part, this reflects the greater prevalence of retention payments in Greater Minnesota, which are protective against multiple moves.

Notably, we did not observe a reduction in first moves among cases approved for housing retention payments in Greater Minnesota relative to matched denied cases. Residential mobility among denied retention cases was somewhat lower in Greater Minnesota than in the metro area, but not dramatically so. Differences in estimated effects therefore appear to reflect not only underlying mobility patterns, but also variation in payment type composition and risk mixture across regions.

For more severe outcomes, including multiple moves and eviction judgments, estimated effects were modest and directionally similar across regions, with no clear evidence of meaningful regional variation in the effects of EA approval.

Appendix 8: Sensitivity Analysis and Robustness Checks

We tested whether our findings could be explained by quirks in administrative data or unmeasured differences between approved and denied applicants. These checks address four main concerns raised by partners and our internal review.

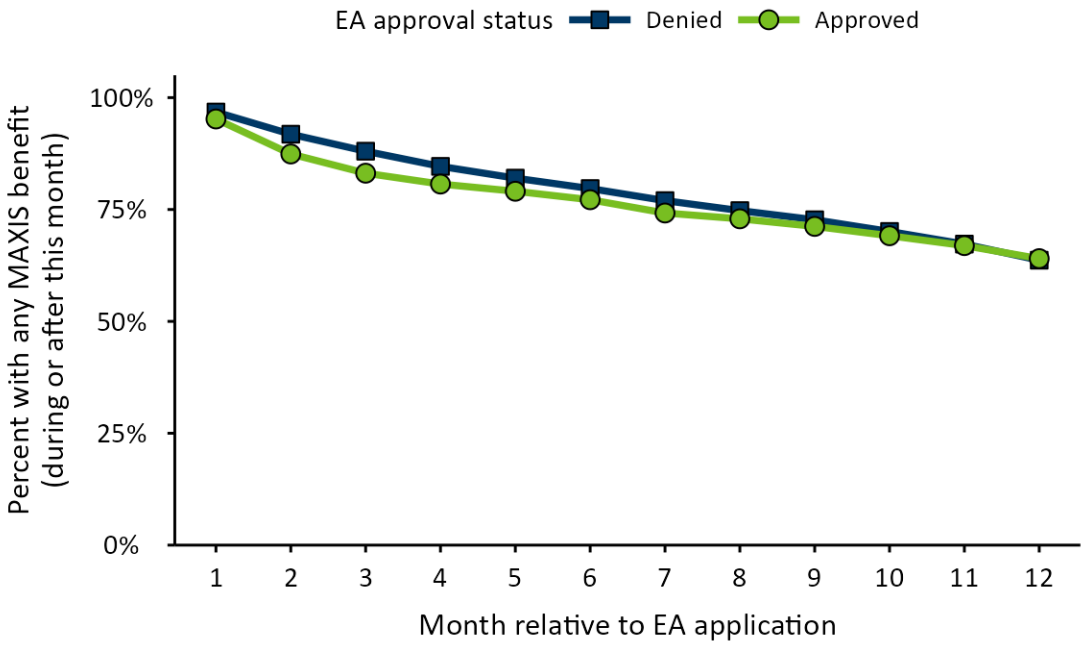
Loss to follow-up in MAXIS

If approved and denied applicants drop out of the MAXIS system at different rates, we might miss moves for one group more than the other.

What we did: Compared MAXIS activity over 12 months and re-estimated effects after censoring cases when they lost contact.

What we found: Approved and denied applicants remained similarly visible in MAXIS (Appendix Figure 8.1), and censoring did not change effect estimates. This suggests attrition is not biasing results.

Appendix Figure 8.1. Proportion of all EA cases with subsequent MAXIS activity by month relative to EA application.



Moves after MAXIS exit

If households move after leaving MAXIS, we could undercount moves.

What we did: Checked for address changes after the last recorded benefit month.

What we found: A small share of moves occurred after benefits ended, but patterns were consistent with the main findings. This indicates that loss of visibility does not explain EA's effects.

Differences in move readiness

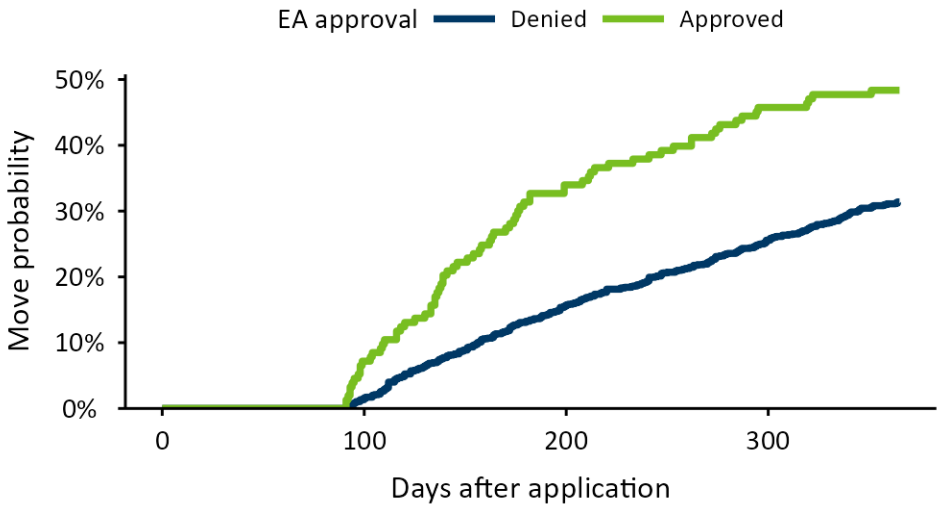
Households applying for damage deposits or other move-enabling reasons are usually required to have a draft lease or letter of intent from a landlord to be approved, meaning that they are likely already very close to securing housing. We cannot observe whether denied applicants also had this documentation, so we cannot directly measure the effect that move-readiness may have had on our estimates. This raises the concern that the approved applicants in our sample were more prepared to move than matched denied applicants.

What we did:

- Excluded moves within 30–90 days of application to remove very early movers.
- Removed denied cases coded as "Verification" denials (likely missing lease documents).

What we found: EA approval continued to show a strong effect even after these exclusions. For example, among households that had not moved by 90 days, approved move-enabling cases were still about 50% more likely to move by 12 months than similar denied cases (Appendix Figure 8.2). Excluding verification denials barely changed the effect size (41.7 vs. 41.3 percentage points). These results suggest EA's impact is not driven by pre-existing readiness.

Appendix Figure 8.2. Kaplan-Meier curve showing probability of a move for move-enabling applications, restricted to first moves occurring after 90 days.



Note: this figure focuses on move-enabling cases only, and situations with moves only after 90 da

Misclassification of payment type (Quantitative Bias Analysis)

One limitation of the administrative data is that payment type is only observed for approved cases. We do not observe the type of assistance sought by denied applicants, nor can we know with certainty whether the payment type received by approved applicants reflects their initial housing goal at application.

For denied cases, we infer the type of assistance they would have received by matching them to similar approved applicants based on baseline characteristics. If denied applicants differed from their matched approved counterparts in the type of assistance they would have received, estimates by payment type could be affected.

What we did: To assess the implications of this uncertainty, we conducted a Quantitative Bias Analysis (QBA) focused on potential misclassification of payment type among denied applicants. Using approved cases only, we tested how accurately payment type could be predicted from the same characteristics used in our matching process, to roughly estimate how well we could infer the payment types denied applicants would have received if approved. We then examined a range of plausible scenarios in which some denied applicants were assumed to have housing goals that differed from those of their matched approved counterparts, reflecting that housing goals may be mixed or may change during the application and approval process.

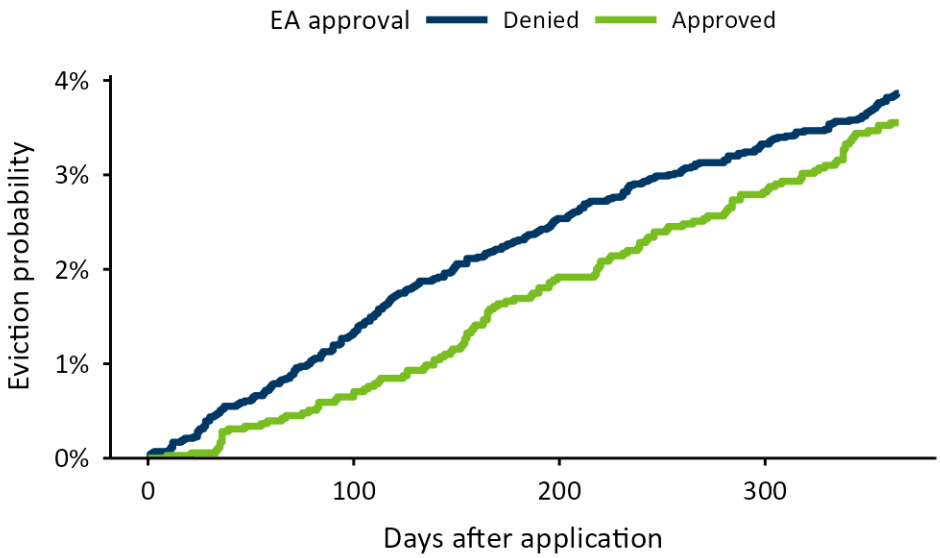
What we found: Across realistic scenarios, the payment type-specific results were stable and slightly attenuated relative to the original results but remained directionally consistent and of similar magnitude. Retention-related approvals continued to show a modest reduction in moves and move-enabling approvals continued to show a large increase in the likelihood of a single move followed by subsequent stability. The qualitative conclusions did not change under reasonable assumptions about ambiguity in payment type.

Summary of sensitivity analyses

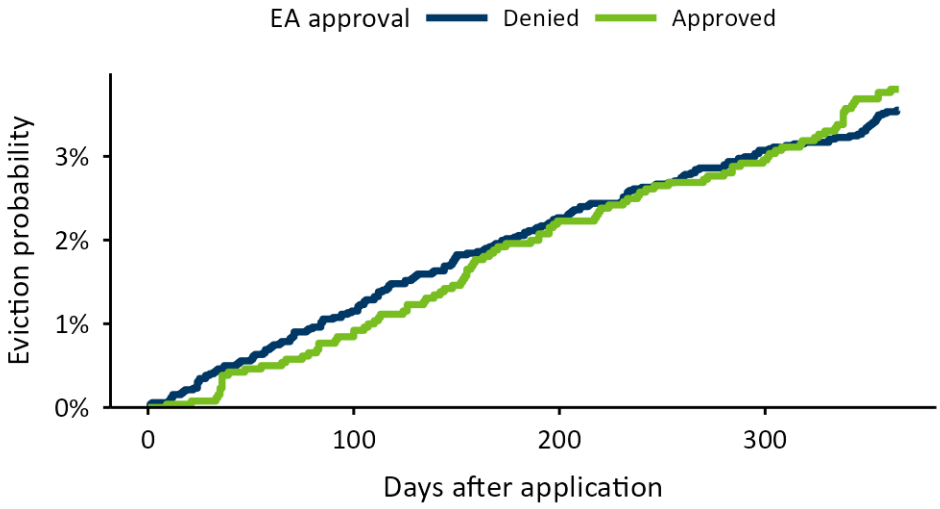
Across all checks, the estimated effects of EA approval remained stable in direction and approximate strength. These analyses increase confidence that EA's observed impacts are not artifacts of data limitations or unmeasured differences between groups.

Appendix 9: Additional Figures

Appendix Figure 9.1. Kaplan-Meier curve showing time to eviction by approval status (all case types).

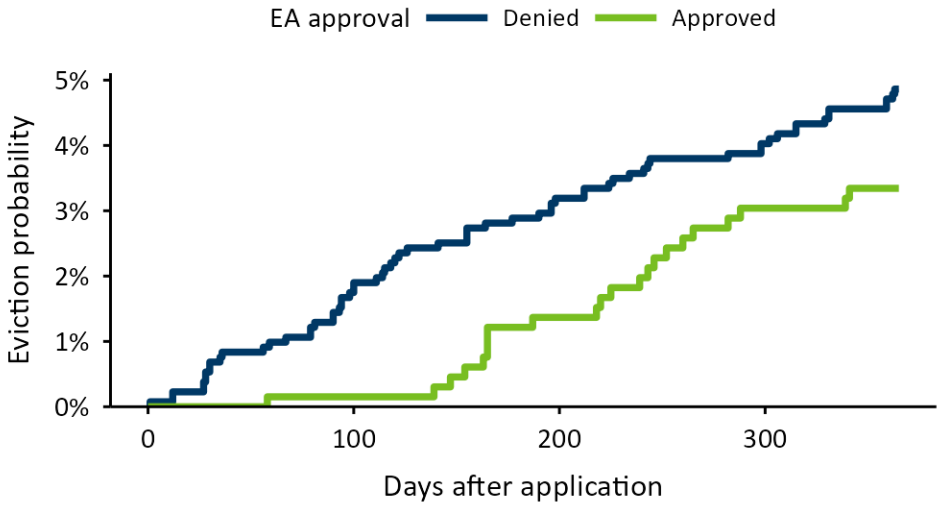


Appendix Figure 9.2. Kaplan-Meier curve showing time to eviction (retention case type only).



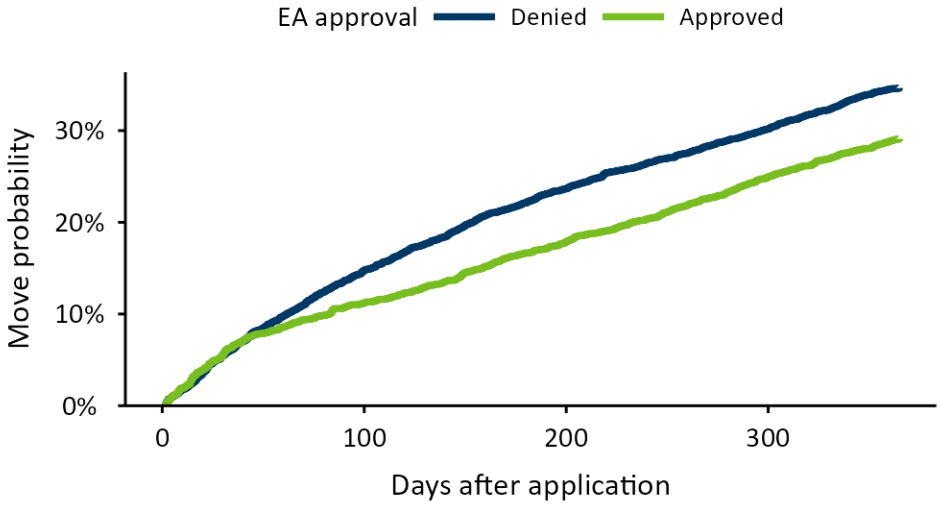
Note: this figure focuses on retention cases only.

Appendix Figure 9.3. Kaplan-Meier curve showing time to eviction (move-enabling case type only).



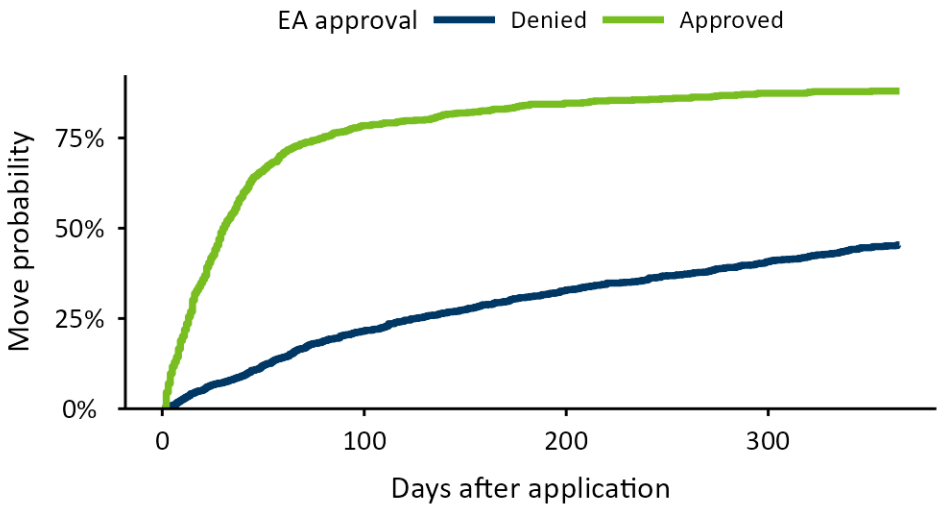
Note: this figure focuses on move-enabling cases only.

Appendix Figure 9.4. Kaplan-Meier curve showing time to first move (retention case type only).



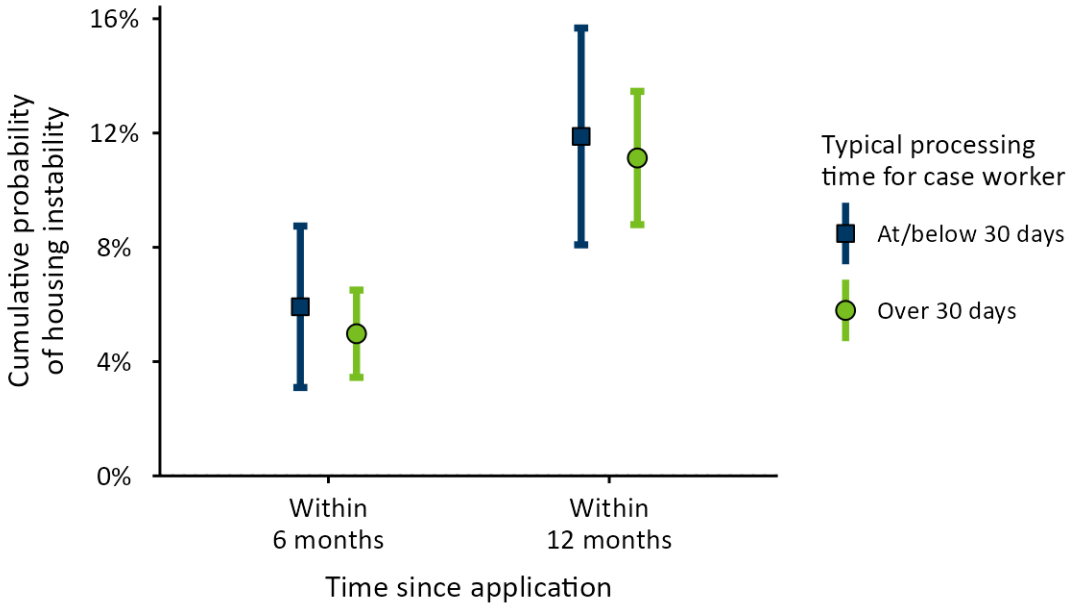
Note: this figure focuses on retention cases only.

Appendix Figure 9.5. Kaplan-Meier curve showing time to first move (move-enabling case type only).



Note: this figure focuses on move-enabling cases only.

Appendix Figure 9.6. Effect of application processing time over thirty days on combined housing stability indicator.



Note: housing instability is defined as any eviction judgment or 2+ moves.

Appendix 10: Detailed Results Tables for Primary Evaluation Question

Table 10.1: Results for primary evaluation question: estimated means and treatment effects for approved and denied groups

Outcome	Payment Group	6 Month Mean Approved (95% CI)	6 Month Mean Denied (95% CI)	6 Month Effect (95% CI)	6 Month *P* value	12 Month Mean Approved (95% CI)	12 Month Mean Denied (95% CI)	12 Month Effect (95% CI)	12 Month *P* value
Any move (%)	Retention	17.6% (16.2% to 19.1%)	23.4% (22.1% to 24.7%)	-5.7 (-7.6 to -3.9)	< 0.001	30.4% (28.7% to 32.2%)	36.1% (34.7% to 37.5%)	-5.7 (-7.9 to -3.5)	< 0.001
Any move	Move-enabling	85.9% (83.2% to 88.6%)	32.8% (29.8% to 35.8%)	53.1 (49.1 to 57.1)	< 0.001	88.2% (85.8% to 90.5%)	45.7% (42.5% to 48.9%)	42.4 (38.5 to 46.4)	< 0.001
2+ moves (%)	Overall	3.8% (3.2% to 4.4%)	4.7% (4.1% to 5.2%)	-0.8 (-1.5 to -0.1)	0.022	9.5% (8.6% to 10.4%)	11.1% (10.4% to 11.9%)	-1.6 (-2.7 to -0.5)	0.005
2+ moves	Retention	1.9% (1.3% to 2.4%)	3.9% (3.3% to 4.5%)	-2.0 (-2.7 to -1.2)	< 0.001	6.5% (5.6% to 7.5%)	10.3% (9.4% to 11.3%)	-3.8 (-5.0 to -2.6)	< 0.001
2+ moves	Move-enabling	9.2% (6.8% to 11.6%)	6.6% (5.0% to 8.2%)	2.6 (-0.3 to 5.5)	0.079	19.8% (16.5% to 23.0%)	14.2% (11.9% to 16.5%)	5.6 (1.6 to 9.5)	0.005
Eviction (%)	Overall	1.7% (1.3% to 2.1%)	2.3% (1.9% to 2.7%)	-0.6 (-1.1 to -0.0)	0.047	3.6% (2.9% to 4.2%)	3.8% (3.3% to 4.3%)	-0.3 (-1.1 to 0.5)	0.482
Eviction	Retention	2.0% (1.5% to 2.5%)	2.0% (1.6% to 2.4%)	0.0 (-0.7 to 0.6)	0.915	3.9% (3.2% to 4.6%)	3.6% (3.0% to 4.1%)	0.3 (-0.6 to 1.2)	0.521
Eviction	Move-enabling	1.1% (0.2% to 1.9%)	2.7% (1.7% to 3.8%)	-1.7 (-3.0 to -0.3)	0.014	2.9% (1.5% to 4.3%)	4.4% (3.1% to 5.8%)	-1.5 (-3.5 to 0.4)	0.113
Instability (%)	Overall	5.5% (4.8% to 6.2%)	6.6% (6.0% to 7.2%)	-1.1 (-2.0 to -0.2)	0.013	12.2% (11.2% to 13.2%)	13.8% (13.0% to 14.7%)	-1.7 (-2.9 to -0.4)	0.010

Note: Housing instability is defined as any eviction judgement or 2+ moves. Effects represent percentage point differences in risk (Approved - Denied). Negative values indicate fewer events among approved cases relative to denied; positive values indicate more events.

Table 10.2: Results for exploratory preventive healthcare question: estimated means and treatment effects for approved and denied groups

Outcome	Payment Group	6 Month Mean Approved (95% CI)	6 Month Mean Denied (95% CI)	6 Month Effect (95% CI)	6 Month *P* value	12 Month Mean Approved (95% CI)	12 Month Mean Denied (95% CI)	12 Month Effect (95% CI)	12 Month *P* value
Any preventive care (%)	Overall	49.5% (48.0% to 51.0%)	49.3% (48.2% to 50.5%)	0.2 (-1.8 to 2.1)	0.860	69.2% (67.8% to 70.6%)	68.3% (67.3% to 69.4%)	0.9 (-0.9 to 2.7)	0.325
Any child preventive care (%)	Overall	39.5% (38.1% to 41.0%)	38.8% (37.7% to 39.9%)	0.7 (-1.1 to 2.5)	0.435	57.4% (56.0% to 58.8%)	56.5% (55.4% to 57.6%)	0.9 (-0.9 to 2.7)	0.320

Note: Preventive care is defined as any encounter for vaccination or preventive medical exams (including well-child visits and adult preventive care). Effects represent percentage point differences in risk (Approved - Denied). Negative values indicate fewer events among approved cases relative to denied; positive values indicate more events.

Appendix 11: Detailed Results Table for Exploratory Evaluation Question

Table 11.1: Results for exploratory evaluation question: estimated means and differences for the groups with typical worker processing time over 30 days versus at or below 30 days

Outcome	Payment Group	6 Month Mean, ≤ 30 days (95% CI)	6 Month Mean, > 30 days (95% CI)	6 Month Difference (95% CI)	6 Month *P* value	12 Month Mean, ≤ 30 days (95% CI)	12 Month Mean, > 30 days (95% CI)	12 Month Difference (95% CI)	12 Month *P* value
Any move (%)	Retention	20.9% (14.3% to 27.6%)	15.1% (11.8% to 18.4%)	-5.8 (-13.3 to 1.6)	0.124	37.8% (27.0% to 48.6%)	28.3% (24% to 32.6%)	-9.5 (-21.1 to 2.1)	0.108
Any move	Move-enabling	77.7% (69.6% to 85.7%)	83.3% (78.4% to 88.2%)	5.7 (-3.6 to 15.0)	0.233	82.5% (75.7% to 89.4%)	90.1% (86.7% to 93.5%)	7.6 (0.1 to 15.1)	0.049
2+ moves (%)	Overall	4.1% (1.8% to 6.3%)	2.8% (2.0% to 3.5%)	-1.3 (-3.7 to 1.1)	0.289	8.7% (5.8% to 11.7%)	8.3% (6.3% to 10.2%)	-0.5 (-4.0 to 3.1)	0.788
Eviction (%)	Overall	2.1% (0.3% to 3.8%)	2.2% (0.8% to 3.5%)	0.1 (-2.1 to 2.3)	0.921	3.9% (1.3% to 6.5%)	4.0% (2.1% to 5.9%)	0.1 (-3.1 to 3.3)	0.950
Instability (%)	Overall	5.9% (3.1% to 8.7%)	5.0% (3.4% to 6.5%)	-0.9 (-4.2 to 2.3)	0.565	11.9% (8.1% to 15.7%)	11.1% (8.8% to 13.5%)	-0.8 (-5.2 to 3.7)	0.740

Note: Housing instability is defined as any eviction judgement or 2+ moves. Differences represent percentage point differences in risk (assigned to a worker with average processing time >30 days minus ≤30 days). Negative values indicate fewer events among cases with longer average worker processing time relative to shorter; positive values indicate more events.