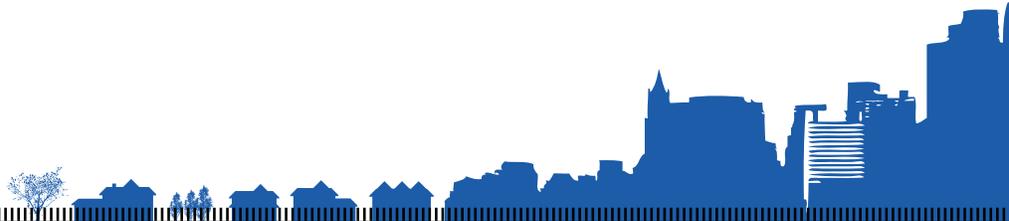


# Improving Fair Market Rents When Rents Are Rapidly Rising

## Implications from Recent Research



**PD&R**



## **DISCLAIMER**

**The contents of this report are the views of the author and do not necessarily reflect the views or policies of the U.S. Department of Housing and Urban Development or the U.S. Government.**



# Improving Fair Market Rents When Rents Are Rapidly Rising

## Implications from Recent Research

Daniel Teles, Alyse D. Oneto, Yipeng Su, and Ananya L. Hariharan  
URBAN INSTITUTE

*Hiren Nisar*  
2M RESEARCH

*July 2022*

Every year, the U.S. Department of Housing and Urban Development (HUD) estimates Fair Market Rents (FMRs), which are used to determine payment standards and rent levels for housing programs. Accurate FMRs play a critical role in determining whether voucher households can secure safe, decent, and affordable housing through the private market. If HUD calculates FMR estimates inaccurately and they do not keep pace with rising rents, families may face limited housing options, need to devote a large portion of their income to housing costs, or fail to find a decent unit to lease with a voucher. With that in mind, our research examines what method HUD should use to calculate FMRs in markets with rapidly rising rents. We identified counties facing rapidly rising rents across the United States, but they are more concentrated in Western states—particularly Montana, North Dakota, Alaska, and Colorado. Our research suggests that improving FMR calculations overall is the best way to improve FMR calculations in areas with rapidly rising rents.

To that end, we calculated six sets of alternative FMRs for U.S. counties and assessed their performance, with promising results. In 2018, the last year for which accurate data are available on rent levels, five of the six alternative FMRs predicted county rents with less error than HUD's FMRs. However, the alternative FMRs—compared with HUD's FMRs—more frequently predicted rents that

were 10 percent lower than actual rents, and the four alternatives with the smallest errors calculated FMRs that were too low in more than one-fourth of counties. We conclude that improvements in FMR calculations are feasible, but we do not consider our proposed alternatives an improvement over historic FMRs. Future efforts to build on this work could integrate additional local data into FMR calculations.

## Background

Congress created the Housing Choice Voucher (HCV) program (formerly known as Section 8) as part of the Housing and Community Development Act of 1974. For the first time, this legislation allowed HUD to provide assistance to households with low incomes to rent from private landlords, thus expanding the volume of housing units available to elderly renters and renters with low incomes or disabilities.

Under the federal HCV program, households identify a rental unit to live in; if the landlord accepts their rental application, they can use their voucher to pay all or a portion of their rent (HUD PD&R, 2021a). Rental units participating in the HCV program first need approval from the local public housing agency (PHA), which inspects the housing unit to verify that it conforms to health and safety standards. The local PHA also determines the level of rent support on the basis of the area's FMR, cost of the rental unit, household size, and household income. If a renter chooses a rental unit that exceeds the HCV's calculated value, the renter pays the difference.

To support the HCV program, HUD must produce FMR estimates that cover the entire country. FMRs approximate the market rate of decent, affordable housing and are calculated at the 40th percentile of the local rent distribution. PHAs use FMRs to determine payment standards for the HCV program and rent levels—such as initial rents and rent ceilings—for many other housing programs, including public housing, Section 8 project-based rental assistance, the Moderate Rehabilitation Single Room Occupancy program, HOME Investment Partnerships, and Emergency Solutions Grants (HUD PD&R, 2021b). Those agencies also use FMRs to determine award amounts for Continuum of Care grantees and rent limits for Continuum of Care funds (HUD PD&R, 2021b).

FMRs play a critical role in helping households with vouchers find and maintain access to safe, decent, and affordable housing through the private market. In places where rent increases outpace FMR estimates, the negative implications of low or inaccurate FMRs may be severe.

Our study sought to improve upon the methods HUD uses to calculate FMRs, with a focus on areas experiencing rapidly rising rents. Although HUD's current estimation approach accounts for regional, metropolitan area, and national trend factors, our research examined whether incorporating timely county-level data could improve FMR estimates in markets with rapidly rising rents.

We began our analysis by proposing a twofold definition of markets with rapidly rising rents: (1) any county that has a 10 percent year-over-year increase in rents, or (2) any high-cost county (in the top quintile nationally) with a 5 percent year-over-year increase in rents. We then explored models that

could leverage local data to forecast whether a county would likely have rapidly rising rents in the future. The models, however, had limited predictive capabilities.

We also used local data to improve the predictive ability of time series models, building on prior work and HUD's current methods. We found that incorporating timely data on vacancies, housing starts, population growth, unemployment, home values, and interest rates can improve the performance of models that forecast rents at the metropolitan and regional levels. We then applied those models to county-level data and calculated six sets of alternative FMRs. Compared with historical data, the alternative FMR estimates tend to outperform HUD-produced FMR estimates over the same period.

This brief highlights key analytical findings and their implications for policy and future research. The full report, *Alternative Fair Market Rents for Local Housing Markets*, provides more detail on our methods and the results of our analyses.

## Where Have Rents Risen Rapidly?

Rents have increased rapidly in many U.S. counties across the country, but forecasting which counties will have rapidly rising rents in any given year is difficult. As described above, our preferred definition for counties experiencing rapidly rising rents includes—

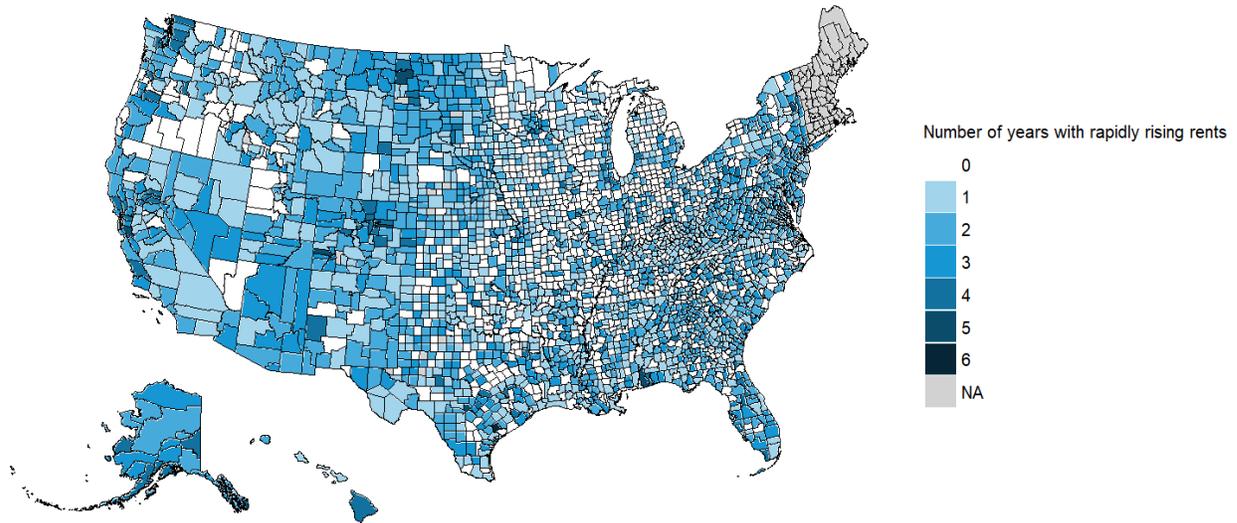
- Counties with rents in the top 20th percentile nationally that experience a rent increase of greater than 5 percent, and
- Counties with rent in the bottom 80th percentile nationally that experience a rent increase of greater than 10 percent.

This definition captures rural or lower-cost areas that see sharp increases in rents in percentage terms, as well as higher-cost areas that see moderate percentage increases in rents that are large in terms of dollar amount for renters.

We found that an average of 19.5 percent of U.S. counties saw rapidly rising rents between 2009 (2009–10) and 2019 (2018–19). Exhibit 1 illustrates the number of years within this period in which counties experienced rapidly rising rents. Those counties are spread across the country but are concentrated in the West—particularly in Montana, North Dakota, Alaska, and Colorado—with fewer counties in the industrial Midwest. Exhibit 1 also captures rising rents in urban areas along the Pacific Coast, which could pose a concern for policymakers and local PHAs.

## EXHIBIT 1

### Number of Years in Which Counties Saw Rapidly Rising Rents, 2009–10 to 2018–19



**Note:** The authors define a county as having rapidly rising rents if (1) the county has rents in the top 20th percentile nationally and experiences a rent increase of greater than 5 percent or (2) the county has rents in the bottom 80th percentile nationally and experiences a rent increase of greater than 10 percent.

**Source:** Data are from the Urban Institute analysis of HUD American Community Survey extracts of gross rents from 2009 to 2019 (See Teles et al., forthcoming)

## Hurdles in Designing FMRs Specifically for Places With Rapidly Rising Rents

We explored two sets of models to predict which counties are likely to experience rapidly rising rents. Both sets used publicly available economic and housing data that become available more quickly than reliable data on local changes in rents. More specifically, the models used four predictor variables that we hypothesize are leading indicators of changes in housing supply and demand: vacancy rates, building permits, unemployment rate, and changes in the number of housing units. The first set of models used Boolean algorithms to find thresholds in predictor variables above or below which rents were likely to rise rapidly. The second set of models used a logit regression that assumed the predictors were independently associated with the probability of rapidly rising rents.

Our models showed that places with higher vacancy and unemployment rates were less likely to have rapidly rising rents. However, the models could not accurately predict which counties had rapidly rising rents in a validation sample. None of the models were more accurate than a blanket assumption that no counties would have rapidly rising rents. For example, when we predicted that no counties had rapidly rising rents, we were correct 81 percent of the time. The Boolean models, at best, matched

that level of accuracy by finding thresholds that only a handful of counties ever met. In addition, neither of the preferred logit models surpassed 75 percent accuracy across all counties.<sup>1</sup>

Those findings suggest several avenues for future work in forecasting areas with rapidly rising rents. Future work could examine—

- The functional form of the predictive models and the potential interactions between the predictor variables.
- Interactions between predictor variables or incorporating thresholds into logit, probit, or linear probability models.
- More complex classification schemes—such as Bayesian models, random forests, or other machine learning algorithms—that might yet prove effective at identifying areas with rapidly rising rents.
- A prediction process built on the ARIMA and ARIMAX<sup>2</sup> models that have proven relatively effective at forecasting rent levels.

If future models can accurately predict which areas will see rapidly rising rents, developing separate FMR calculation methods for those markets could provide several advantages. Whether any FMR calculation methods will consistently perform better in areas with rapidly rising rents than in others remains an open question. When we examined the performance of alternative FMRs, we found that all FMR calculations performed worse in areas with rapidly rising rents but found no large differences in relative performance when alternatives were compared with each other or with HUD's FMRs.

## Incorporating Local Data into FMR Calculations

Our research used local data to estimate time series models and apply alternative FMR calculations. We deviated from HUD's process in four ways:

1. We calculated county-specific FMRs, whereas HUD calculates FMRs for HUD metropolitan FMR areas and nonmetropolitan counties.<sup>3</sup>

---

<sup>1</sup> The logit models performed better, reaching about 76 percent accuracy when we limited our analysis to counties in the bottom 80th percentile nationally of rents that we defined as rapidly rising—or counties that experienced a rent increase greater than 10 percent—and excluded all counties in the top 20th percentile of rents. However, the results still failed to surpass the 81 percent threshold needed to improve upon a null assumption that no counties had rapidly rising rents.

<sup>2</sup> An ARIMA model is a time series model defined by an autoregressive (AR) component, a level of integration (I), and a moving average (MA) component. ARIMAX models add “exogenous” (X) predictor variables to an ARIMA model.

<sup>3</sup> HUD also calculates Small Area Fair Market Rents (SAFMRs) at the ZIP Code level in many metropolitan areas.

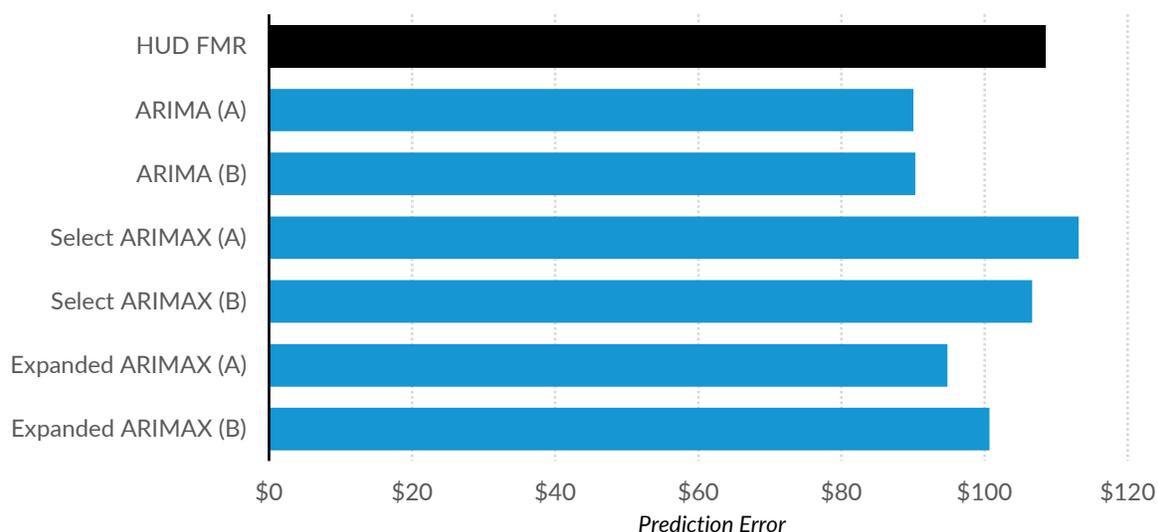
2. We explored the use of additional predictor variables in the time series modeling process, focusing on data that are also available at the county level.
3. We generated FMRs differently. HUD uses the time series estimates to create metro-level, regional, and national forecasts of future rent increases and applies them to local estimates of rent levels. In contrast, we applied the estimated time series models directly to local data series to generate FMR estimates.
4. HUD adjusts FMRs to ensure that they do not fall below the state nonmetropolitan median FMR or lower than 90 percent of the previous year's FMR; we made neither adjustment.

We showed that an ARIMAX model that incorporates data on vacancies, building permits, population growth, unemployment, home values, and mortgage interest rates tends to better predict future changes in gross rent levels than a pure time series ARIMA model using regional and metro-level price data. Adding those predictors to the ARIMAX models could improve the estimation of local trend factors at the county level, even while staying within the basic framework of HUD's current FMR calculation process. Future research should explore refinements to our ARIMA and ARIMAX models. We used lags of predictor variables to account for the timeliness of data releases and educated guesses about long-term relationships between those predictors and the rental market. The ideal number of lags may depend on each geographic area's preexisting conditions and unique trends within those factors. Future research could refine the model's design to predict areas with rapidly rising rents and the ARIMAX models by identifying the number of lags needed to maximize the predictive capability of each variable.

Using those models, we calculated six sets of alternative FMRs for U.S. counties and assessed their performance, with promising results. In the alternative FMR series, the ARIMAX-based FMRs did not always outperform the ARIMA-based FMRs when applied to county data. In 2018—the last year for which we have accurate rent estimates for most counties—the ARIMA-based FMRs produced the series with the lowest prediction error (exhibit 2). That finding is somewhat surprising because ARIMAX models with the local predictors tended to fit regional and metro-level price data better than the ARIMA models. Further research could examine additional predictors and new combinations of predictors and more systematically test the predictive capacity of each.

## EXHIBIT 2

### Prediction Error of HUD's FMRs and Alternatives Applied to U.S. Counties (in Dollars), 2018



**Notes:** The exhibit displays root mean squared prediction errors calculated between forecasted FY 2018 FMRs and the actual 40th percentile gross rents for two-bedroom units in 2,613 U.S. counties. "HUD FMR" refers to FMRs that were in effect in 2018. Methods used to calculate alternative FMRs can be found in the full report, *Alternative Fair Market Rents for Local Housing Markets*.

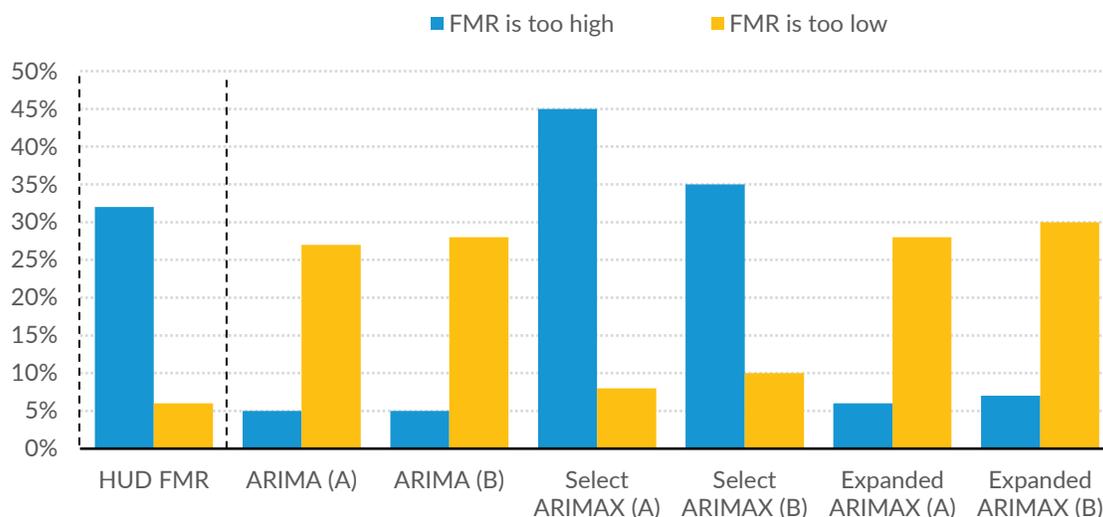
**Source:** Teles et al., forthcoming

In 2018, five of the six alternative FMRs were more accurate than HUD's FMRs using predictive error (exhibit 2); in 2017, four of the alternatives had lower prediction errors than HUD's FMRs; and in 2019 and 2020, for which we have data on fewer counties, all six sets of alternative FMRs were more accurate than HUD's FMRs. Those results generally held in metropolitan and nonmetropolitan areas and in counties experiencing rapidly rising rents.

When FMRs were more than 10 percent off from actual rents, HUD more frequently set FMRs too high, whereas our alternatives more frequently predicted FMRs that were too low. The four alternatives that were most accurate across all counties in 2018 set FMRs too low for between 27 and 30 percent of the counties, but HUD's FMRs were too low in only 6 percent of counties (exhibit 3). HUD's policies of raising FMRs up to a state minimum and ensuring that they do not drop below 90 percent of the previous year's FMRs likely limit the number of times that FMRs are set too low while sacrificing potential improvements in accuracy.

### EXHIBIT 3

#### Percentage of Counties in Which Actual Rents Were Not Within 10 Percent of HUD's FMRs and Alternatives, 2018



**Notes:** The exhibit displays the percentage of counties for which 40th percentile gross rents for two-bedroom units were less than 90 percent of HUD's two-bedroom FMRs and alternatives, labeled as "FMR is too high," and the percentage of counties for which 40th percentile gross rents for two-bedroom units were more than 110 percent of HUD's two-bedroom FMRs and alternatives, labeled as "FMR is too low." More information on the authors' methods to calculate alternative FMRs can be found in their full report, *Alternative Fair Market Rents for Local Housing Markets*.

**Source:** Teles et al., forthcoming

Although our alternatives tended to be more accurate than FMRs produced by HUD—at least when looking across counties—these methods would also have created additional barriers for families with vouchers. We therefore conclude that improvements in FMR calculations are feasible, but we do not consider the proposed alternatives an improvement when compared to historic FMRs.

Even with those caveats, our research suggests that FMRs can be predicted at a local level by predicting changes in rent locally rather than by applying regional inflation and trend factors. A similar process can be applied to ZIP Codes to calculate Small Area Fair Market Rents (SAFMRs). Although many of the predictor variables are not available at the ZIP Code level, the ARIMA model could be applied to an imputed ZIP Code-level gross rent series. Future work could examine estimating county- or ZIP Code-specific ARIMA and ARIMAX models.

## Conclusion

The importance of accurate FMRs cannot be overstated. FMRs that fail to keep up with rising rents can limit families' housing choices, hinder the ability of new entrants into the voucher program to find eligible rental units, and increase housing instability. Our research shows that rents have risen rapidly in many U.S. counties; however, we find that forecasting which counties will have rapidly rising rents

in any given year is difficult. In addition, the county-level FMRs that we developed performed relatively well compared with HUD's FMRs, including the 2020 FMRs that HUD calculated using local and regional trend factors. Improving FMR calculations overall appears to be the best path to improve FMR calculations in areas with rapidly rising rents. HUD could take steps to improve FMR calculations by calculating FMRs at the county level using local data, as we did, although the agency should consider which policies are needed to safeguard against FMRs that are set too low. As an alternative, HUD could incorporate local data and generate more local trend factors while staying within the basic framework of its current FMR calculation process.

Our research shows that using more precise local data and focusing on smaller geographies could improve FMR calculations. HUD's shift toward increased use of SAFMRs makes such local data even more important. Many of the datasets used in this study, for example, provide county-level but not ZIP Code-level information. As housing searches, job searches, and permitting continue to shift online, more data collection could help develop more accurate FMR calculations in the near future.

## Authors

**Daniel Teles** is a senior research associate in the Metropolitan Housing and Communities Policy Center at the Urban Institute. His research examines policies and programs that strive to increase access to decent, affordable housing, support community and economic development, or strengthen the nonprofit sector. He has contributed to the *Journal of Regional Science*, *Journal of Economic Inequality*, *Housing Policy Debate*, *Cityscape*, *Journal of Housing Research*, *Handbook of Research on Nonprofit Economics and Management*, and the Lincoln Institute of Land Policy's Significant Features of the Property Tax database.

**Alyse D. Oneto** is a research associate in the Metropolitan Housing and Communities Policy Center. Her research focuses on homelessness, housing policy, and community development. While at Urban, her work has focused on evaluations of supportive housing programs and several studies focusing on federal housing policy, including the cost-effectiveness and project-based voucher components of the retrospective Moving to Work evaluation, HUD's Mobility Demonstration, the Housing Discrimination Study Pilot on Source of Income, and a mixed-methods evaluation on the impact of state and local laws on preventing discrimination against people with a Housing Choice Voucher.

**Yipeng Su** is a research associate in the Metropolitan Housing and Communities Policy Center. Her research interests include housing, transportation, economic development, and the intersection between urban planning and technology. She holds a master's degree in public administration from New York University's Robert F. Wagner Graduate School of Public Service.

**Ananya Hariharan** is a research analyst in the Metropolitan Housing and Communities Policy Center. Her research interests include housing affordability, economic mobility, race and ethnicity, and political psychology. She holds a Bachelor of Arts in political science with a minor in economics from Wellesley College.

**Hiren Nisar** is the director of analysis and senior economist in the Social, Behavioral, and Methodological Sciences Research practice area at 2M Research. His core focus areas include applied economics and econometrics, public policy, and large-scale data analysis and modeling. At 2M, Dr. Nisar leads the HUD portfolio of projects. Dr. Nisar has led multiple HUD-funded evaluations, including a study examining the factors associated with landlord participation in the Housing Choice Voucher program and one estimating indicators for self-sufficiency, economic opportunity, and financial stability for HUD-assisted populations. Another completed study examined the housing market and economic factors that predict homelessness in a community. Before joining 2M, Dr. Nisar was a senior analyst/PhD economist at Abt Associates for more than 6 years.

## Acknowledgments

This report was funded by the U.S. Department of Housing and Urban Development. The authors are grateful to HUD and to all our funders, who make it possible for the Urban Institute to advance its mission.

The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts. Further information on the Urban Institute's funding principles is available at <https://www.urban.org/about/our-funding>.

Many people reviewed and contributed to this report. The authors appreciate the feedback and support that Adam Bibler and Marie Lihn, the government technical representatives for this project, and Kurt G. Usowski provided throughout the study. Lydia Lo and Jein Park provided valuable research assistance. We thank our technical adviser Dr. Christina Stacy of the Urban Institute. We also thank our reviewers, Dr. A. Bowen Garrett and Alena Stern of Urban, for their support in designing this work.

## References

Teles, Daniel, Alyse D. Oneto, Yipeng Su, Ananya L. Hariharan, and Hiren Nisar. Forthcoming. *Alternative Fair Market Rents for Local Housing Markets*. Washington, DC: U.S. Department of Housing and Urban Development and the Urban Institute.

U.S. Department of Housing and Urban Development Office of Policy Development and Research (HUD PD&R). 2021a. "Fair Market Rents."

<https://www.huduser.gov/periodicals/ushmc/winter98/summary-2.html>.

———. 2021b. "Fair Market Rents (40th Percentile Rents)."

<https://www.huduser.gov/portal/datasets/fmr.html>.

U.S. Department of Housing and Urban Development  
Office of Policy Development and Research  
Washington, DC 20410-6000



April 2023