

THE DUAL NATURE OF RENT GROWTH:
A THEORY-BASED APPROACH TO THE HOUSING CHOICE VOUCHER PROGRAM

Noah Jefferson McDaniel

Submitted to the Department of Urban Studies and Planning
in Partial Fulfillment of the Requirements for the Degree of

Bachelor of Science in Planning

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

May 2020

© 2020 Noah Jefferson McDaniel. All rights reserved.

The author hereby grants to MIT permission to reproduce and to
distribute publicly paper and electronic copies of this thesis
document in whole or in part in any medium now known or
hereafter created.

Signature of Author:
Department of Urban Studies and Planning
May 19, 2020

Certified by:
Devin Michelle Bunten
Assistant Professor of Urban Economics and Housing
Thesis Supervisor

Accepted by:
Cherie Miot Abbanat
Lecturer
Chair, Undergraduate Committee
Department of Urban Studies and Planning

THE DUAL NATURE OF RENT GROWTH:
A THEORY-BASED APPROACH TO THE HOUSING CHOICE VOUCHER PROGRAM

Noah Jefferson McDaniel

Submitted to the Department of Urban Studies and Planning
on May 19, 2020 in Partial Fulfillment of the Requirements for the Degree of

Bachelor of Science in Planning

ABSTRACT

The Housing Choice Voucher program is the largest low-income housing subsidy program in the U.S., serving over 2.2 million households annually. The Department of Housing and Urban Development provides the same subsidy level for program participants, whether new and searching for a unit, or continuing. In its design of the subsidy amount, the Fair Market Rent, HUD negotiates the balance between enabling voucher holders to access better quality housing, and spending efficiently. In this thesis, I argue that the FMR methodology does not recognize the different mechanisms that influence rent for available units, compared to continually occupied units. Through a theoretical model and empirical analysis of a case study in San Francisco, I present a new methodology with two subsidy levels – one for searching voucher holders, and one for continuing voucher holders. This proposal builds on the theory presented and considers the implications for program budget and decision making for the agents involved.

Thesis Supervisor: Devin Michelle Bunten

Title: Assistant Professor of Urban Economics and Housing

Table of Contents

INTRODUCTION.....	4
PURPOSE	5
RESEARCH QUESTION.....	5
ROAD MAP	6
BACKGROUND ON HOUSING CHOICE VOUCHERS.....	6
LITERATURE REVIEW	7
THEORETICAL MODEL.....	8
CONTINUING RENTERS	9
SEARCHING RENTERS	10
AGENT MOTIVATIONS IN CURRENT HCV DESIGN	10
EMPIRICAL ANALYSIS	11
DATA	12
ANALYSIS	12
BRINGING POLICY IN LINE WITH THEORY	15
THE CONTINUING RENTER FMR	15
THE SEARCHING RENTER FMR	16
EFFECTS ON PROGRAM BUDGET	17
POTENTIAL CHANGES IN AGENT DECISION MAKING	18
JUSTICE, FAIRNESS, AND WELFARE	19
CONCLUSION.....	20
REFERENCES	21

Introduction

Approximately 5 million people in 2.2 million households are served every year through the Housing Choice Voucher program (Center for Budget and Policy Priorities, 2017). As the largest low-income housing subsidy program in the U.S., meaningful improvements have the potential to improve the wellbeing of millions of voucher holders. Every year, the U.S. Department of Housing and Urban Development calculates Fair Market Rents, the subsidy amount provided to program participants, using the most recent data available through the American Community Survey. In its design of FMRs, HUD negotiates the balance between enabling voucher holders to access better quality housing, and spending efficiently. But regardless of whether new to the program or continuing, all voucher holders within a given area receive the same subsidy.

The FMR methodology does not recognize the different mechanisms that influence changes in rent for continuing tenants, compared to tenants searching for a unit. The theory of how rents are determined cannot be modeled with a single price. When a lease expires, landlords and tenants renegotiate rent and other terms of contract. While rent often increases for a continuing tenant, there is downward pressure to keep the rent low enough for the renter to stay – the outside option for either party requires spending additional time and money. Tenants incur search costs and moving costs for finding a new home. Landlords still need to pay property tax and maintain a property even when vacant. Available units, on the other hand, are disproportionately more expensive because they tend to be newly constructed or renovated, or have a premium for being vacant. The distribution of available units is not a mirror image of currently rented units.

In this thesis, I argue that HUD's current approach to the HCV program does not distinguish between continuing or new voucher holders. The methodology misprices both markets. Rather than offering a larger subsidy for those searching for a unit, HUD splits the difference between continuing and new voucher holders. This singular FMR calculation is then adjusted upward to reflect rents paid by recent movers – but this adjustment is applied to continuing tenants as well. Using data from San Francisco, I provide empirical evidence of this phenomenon. In 2016 the ACS median rent for all units was \$1,632, while a unique data set scraped from Craigslist and newspaper listings suggests the median rent for available units was \$3,650. The FMR for a two-bedroom unit that year was \$2,289, not close enough to the city's

target of the 44th percentile rent, yet considerably larger than the ACS median. I contextualize these findings in the theory of apartment bargaining, search costs, and renovation costs.

Many authors over the history of the HCV program have examined its various policy changes and outcomes for voucher holders. Research on recent changes enabling use of FMRs at the ZIP code level has demonstrated improved spending efficiency (Dastrup et al., 2019; Collinson and Ganong, 2015). Hess et al. (2019) propose the use of data sources in addition to the ACS to improve the accuracy of FMR estimation. Desmond and Perkins (2016) determined the existence of a rent premium on HCV units compared to open market units in the same neighborhood. While many suggest data alternatives for FMR estimation, the underlying theory remains largely uncontested. This thesis contributes to the conversation on improving FMR calculation and further enabling voucher holders to access quality housing. I build on the understanding that FMR can be both too high and too low for tenants, and offer a proposal in line with past research and the theory presented.

Purpose

The HCV program is the largest low-income housing subsidy program in the U.S. As such, changes in its implementation can dramatically influence welfare for millions of Americans. This thesis explores the theory behind the current program design, and how changes in its implementation could improve the efficiency of funding and voucher holder outcomes. By investigating theory, the FMR model can be adapted to better serve the beneficiaries of the program. So long as a policy continues to be implemented, as the HCV program has for decades, it should be continually scrutinized and refined to fulfil its purpose. Theory on rental housing has evolved over time, and the sources of data on rent have expanded. This thesis aims to highlight one way in which thinking about FMRs could be improved.

Research Question

This thesis proposes a theory establishing the different forces that influence rent for continuing and searching renters. Using this economic framework, can HUD improve the allocation of funding and enable voucher holders to access higher-quality housing? In line with the theory presented, this thesis offers a proposal for an adapted FMR methodology. How would the agents involved respond to the proposed program, how would the administrative burden change, and what are the ethical implications?

Road Map

To establish the context of the argument, I provide brief background on the HCV program, including an explanation of how vouchers are allocated, how voucher holders find housing, and how the FMR is calculated. I present the relevant literature on the FMR program, particularly how methodology has been changed to improve funding efficiency. The theoretical model proposes economic factors that define the dual approach to understanding renters, relying on literature to highlight particular mechanisms distinguishing continuing and searching renters. The units which new voucher recipients consider are distinct from those occupied by voucher holders. This fundamental difference is not captured in the current FMR methodology. I additionally describe the preferences and motivations of the agents involved in the HCV program. This is important for understanding how modifications to policy might result in different behavior. To investigate the theory, I provide a case study. I compare multiple sources of data on rent in San Francisco to illustrate how median rent estimates can substantially diverge when they represent the market of continuing renters or the market of searching renters. I then propose a new methodology with a separate FMR for continuing and searching renters. Using the findings from the case study, I describe how the budget for vouchers in San Francisco might change with the proposed methodology. The proposal makes considerations regarding program administration, funding, and its ethical implications. This section offers considerations that HUD would need to make, were it to implement such changes. Finally, I conclude by summarizing findings and describing areas for further study.

Background on Housing Choice Vouchers

As it currently stands, HUD calculates FMRs annually using American Community Survey (ACS) data and the Consumer Price Index (CPI). After the FMR is set, local public housing authorities (PHAs) can choose to adjust it between 90 and 110 percent of the given amount, which increases and decreases the number of vouchers they can allocate, respectively.

Approximately 5 million people in 2.2 million households are served every year (Center for Budget and Policy Priorities, 2017).

A household with a voucher, having made it off of a typically years-long waitlist, will have around three months to find a suitable unit. They must find a landlord willing to accept their voucher, not always an easy task, at a rent level below the FMR. PHAs have choice over a

number of parameters, including the income level of households and the priority of who gets off the waitlist. Voucher holders must have income below 80 percent of area median income, but often have income far lower.

Some PHAs use Small Area FMRs, calculated at the ZIP code level. Rents in large metropolitan areas can vary substantially between neighborhoods. For places with sufficient local-level data, SAFMRs present a more accurate estimation of market rent. Regardless of whether HUD is calculating an FMR or SAFMR, it uses the same methodology. HUD starts with 5-year ACS data and adjusts with a “recent mover factor” and data from the CPI. The recent mover factor is meant to capture the typical increase in rent between tenants due to market conditions and renovations, and the CPI reflects general national trends in inflation.

Starting in Fiscal Year 2020, HUD will use one of three new models to forecast FMR for metropolitan areas nationwide. These new models are designed to better predict actual rents, and allow HUD to set FMRs as close to the 40th percentile rent as possible. Pure time series (PTS) uses previous values of a variable of interest, for instance the local utilities index. Local input model (LIM) uses “local exogenous variables,” such as building permit and employment data. Finally, national input model (NIM) models rent using the BLS Gross Rent Index. For each municipality, HUD will apply whichever model has the lowest root mean square error, when applied to historical data. (Federal Register, 2019).

Literature Review

For the first few decades of the program, FMR was calculated at the metropolitan area level. Recognizing that rents can vary substantially within a city, HUD experimented with Small Area FMRs, calculated at the ZIP code level. Evidence from early demonstrations of SAFMRS suggests that HUD overpaid landlords for units in less expensive neighborhoods, and underpaid in more expensive neighborhoods (Ellen, 2018). To account for spatial heterogeneity in rent, the subsidy amount increases in more expensive areas, and decreases in less expensive areas. By setting the subsidy closer to within-neighborhood rents, SAFMRs enable recipients to move to higher-income areas at no additional cost to the government (Dastrup et al., 2019; Collinson and Ganong, 2015). HUD was over-paying in some areas, and under-paying in others. As a result, the policy change was budget neutral. Since its initial tests HUD has authorized more municipalities to use SAFMRs. But SAFMRs are not a complete solution to the challenges presented.

A review of studies and comparison of rent data sources suggests that additional local adjustment to SAFMRs would produce better estimates of market rent (Hess et al., 2019). The researchers compared FMRs to data from the ACS, realtor data source CoStar, and listings scraped online. After adjusting the data to improve robustness, they found that SAFMRS consistently over- and under-estimated rent in certain Fort Lauderdale, San Antonio, and Seattle. They hypothesize that due to lack of modeled information on local market conditions, tenants are over-subsidized in some neighborhoods within a municipality, resulting in higher landlord profits. In other neighborhoods, tenants are under-subsidized and have access to fewer units. This analysis predates the changes to FMR methodology in 2019.

The distribution of housing within a market is not the same in all places. Some cities, like Detroit, Atlanta, Houston, and Phoenix, have more narrow dispersions of housing quality, where most units are relatively similar in price. New York, San Francisco, Boston, and Los Angeles have wider dispersions, where the difference in price between each tail of the distribution is greater. What this means for HUD is that cities with wider distributions require larger increases in FMR to make higher-cost neighborhoods accessible. Not only is the median rent higher in a place like San Francisco, as compared to Detroit, but the rents are more dispersed (Boeing and Waddell, 2017).

Part of the discrepancy between FMR and market rents may not be due to local factors, but landlord behavior. By comparing similar units within neighborhoods, Desmond and Perkins (2016) find that landlords still overcharge voucher holders relative to market units. They took advantage of a detailed survey of renters in Milwaukee to control for features like square footage, bedrooms, distance to amenities, and term of residence. They determined that landlords charged voucher holders a premium of \$58 per month, amounting to a \$3.8 million loss for Milwaukee yearly. The authors acknowledge that they cannot determine the mechanism behind the premium, but suggest that it could be a result of landlords taking advantage of the limited options to voucher holders. Any model for FMR calculation can be scrutinized and improved, but is inevitably subject to decision making outside the scope of statistics.

Theoretical Model

Why should the distribution of rents for occupied units differ from the distribution of rents currently paid for available units? Both downward pressure on occupied unit rent and upward

pressure on available unit rent cause this discrepancy. While there are certainly market-specific factors that influence the degree of difference in rent, the theory applies broadly.

Continuing Renters

When the term of lease for a rented unit expires, the tenants and landlord have the opportunity to renegotiate rent. In some cases, rent may not increase at all. Using data from 1974 to 1981, Genesove (2003) observed that 36% of continually occupied units saw no change in nominal rent, compared to 14% of units with tenant turnover. Finding new tenants comes at a cost to landlords, which is factored into the new rent. A tenant and landlord have already spent considerable time and energy to find a match, and the surplus generated would be lost by failing to renegotiate. The landlord may need to increase rent to account for growing costs, but faces downward pressure because they do not want to push away the tenant. If the surplus generated by negotiating is sufficiently high, neither will want to walk away from continuing the rental agreement. Additionally, it may be easier to keep rent unchanged when there is a personal relationship between the two parties due to the discomfort of discussing finances.

For tenants, the alternative to renegotiation is search costs for finding a new unit, moving costs, and the less tangible but real costs of stress and uncertainty. While landlords search for a new tenant, they continue to pay maintenance costs, administrative fees, and property taxes. As vacancy continues, the landlord is increasingly pressured to cover those costs by increasing the rent for the next tenant. Landlords are incentivized to retain a continuing tenant in order to avoid those costs, even if they are not able to increase rent market rates.

The outside option for tenants will vary between markets. One way to think about the alternative is as a marginal increase in demand for local housing. In the short run, increase in demand for housing will not be compensated with increase in supply. Housing is expensive and time-consuming to build. Supply-inelastic markets will see larger increases in price in response to a demand shock compared to elastic markets. In an inelastic market, tenants will pay a premium to find a new unit because the price responds more to new demand. Much of the increase in rent price in the most expensive cities in the U.S. can be attributed to supply-constriction due to regulation (Glaeser et al., 2005). This suggests that in such supply-constricted cities renters will have a greater incentive to stay in a unit, as the options on the market are more expensive, relative to cities where construction is more prevalent.

Searching Renters

Available units can be relatively more expensive for a number of reasons. Newly constructed units tend to be more expensive because they feature new amenities and have not depreciated. Similarly, units may be renovated in between tenants, especially for substantial fixes that cannot be completed while occupied. In order to cover the cost of renovation, rent increases. New housing is not necessarily added proportionately to the distribution of rents. Especially in places with extensive regulation, or speculation, developers may disproportionately construct luxury and high-end housing, with little added to the stock of affordable housing. Because of extensive fixed costs due to regulation, high-end housing is the most profitable option to build, and affordable housing becomes available only through subsidized construction or filtering.

Regional market-specific effects also likely contribute to more expensive available units. For instance, seasonality influences how long a unit is visible before it goes off the market. Especially for voucher holders, who have limited time to search for a viable unit, seasonal limitations on availability could lead to options that trend towards being more or less expensive, depending on time of year. There is also an effect from the duration of tenancy. If a unit is more affordable relative to comparable units, it is likely that it will be occupied for longer, and vacant less frequently. Conversely, over-priced units will stay on the available market longer, and thus be over-represented in a sample of available units. In markets where housing demand exceeds supply, the “best deals” may turn around in the span of weeks.

Asking rents will be higher in some municipalities with rent control. While the features of rent control regulations vary from city to city, many allow landlords to raise rent to market rate while a unit is vacant. The longer a tenant remains in a unit, seeing only a modest increase annually, the larger the gap between the rent paid and the market rate. As a result, median rent for a municipality with rent control will be smaller than would otherwise be expected. Rent regulated cities with tight housing markets – e.g. New York or San Francisco – were found to have the largest disparities between rent data scraped from Craigslist and the ACS (Boeing et al., 2020).

Agent Motivations in Current HCV Design

The design of the HCV program balances the motivations and preferences of the actors involved – landlords, voucher holders, PHAs, and HUD. In order to enable voucher holders to find higher quality housing, HUD pays a premium to landlords. In the current scheme, overpaying landlords

less would mean that tenants would have more difficulty finding suitable housing. By targeting the FMR at market rents, rather than contracted rents for comparable occupied units, landlords are incentivized to participate. This opens up more housing opportunities for voucher holders as a whole. In effect, the current FMR design splits the difference between the contracted rent of continuing tenants and the rent for available units.

How do landlords decide whether participate in the program? Garboden et al. (2018) emphasize that landlords consider the counterfactual tenant who they could rent to on the open market. By surveying landlords in Baltimore, Dallas, and Cleveland, they develop an understanding of the underlying motivations for landlords, and how they differ between markets. Financial incentives are a primary motivator. Particularly for landlords who typically rent to low-income tenants, the program offers a more stable cashflow. The alternative to participation may mean late and inconsistent payment. The local housing and employment characteristics are also important. In Baltimore, the FMR greatly exceeds what the median renter would be able to pay, so renting to voucher holders is considerably more profitable for some landlords. Landlords also consider administrative burdens. Inspections from the local PHA can mean more maintenance costs, and paperwork for a new voucher tenant can add costly vacant time. Higher administrative costs mean landlords are less incentivized to participate.

Voucher holders have a limited amount of time to find a suitable unit. It must meet the quality standards of the PHA. If the state allows source of income discrimination, the landlord must be willing to accept the voucher holder. And unless the voucher holder is willing to pay more, it must be within the FMR threshold. Because of these limitations, in addition to the typical search and moving costs, voucher holders may need to compromise on other preferences for housing quality and location. Furthermore, there is an incentive to stay in a subsidized unit because of the added challenges, even when it may be otherwise better to move.

Empirical Analysis

I chose San Francisco for the case study because of the data available, and because it is a familiar subject of discussion for rental housing. A recent analysis of rent control in San Francisco uses a public data set of rent gleaned from San Francisco Chronicle and Craigslist listings (<https://github.com/ericfischer/housing-inventory/>) provided by Eric Fischer (Diamond, McQuade, and Qian, 2019). The comparison also includes data from the ACS, Zillow, Federal

Reserve Economic Data (FRED), and FMR. I describe the differences between each source of data and how the theoretical model can be applied to understand trends in rent over time. They are plotted over a nineteen-year period in San Francisco, with the exception of one source including surrounding areas. Not all sources are observed for the entire period of time.

Data

The 5-year ACS is used as the baseline to calculate FMR. It includes all household sizes and both recent movers and continuing tenants.

The Fischer data are collected from newspaper and Craigslist listings. They represent all household sizes and reflect available units at the time the data was collected. It does not indicate, however, when the unit was rented and if the rent changed between being listed and the final rental agreement.

The two-bedroom FMR is obtained from HUD, for the entire San Francisco area. While the FMR is larger for units with more beds, I chose the two-bedroom figure because two- or three-bedroom units constitute the plurality of rented units in San Francisco, at 38 percent.

The FRED index is the residential rent CPI for the San Francisco-Oakland-Hayward metropolitan area. Data from San Francisco only was not available. It is a smoothed estimate of inflation in housing prices, which has been indexed to census data for June 2018.

Zillow provides a “Zillow Rent Index,” constructed using a three-month moving average of median rents, to filter out noise. The ZRI is available for multifamily (5+ units) buildings, condos, and single-family rentals. Buildings with 5+ units constitute 64.2% of units in San Francisco (ACS, 2018). While this thesis does not touch on condos, I include the multifamily/condo/SFR ZRI timeseries for the sake of comparison (Zillow, 2012).

Analysis

The data sources are compared in Figure 1. It is immediately apparent that there are significant differences between them. In 2016, the ACS median rent is \$1,632, while the Fischer median rent is \$3,650. Unfortunately, not all data sources are observed for the entire time period. Each source shows constant growth, with a few exceptions. The downturn in prices during and after the Financial Crisis of 2007-08 are apparent in the Fischer data, but not in the FMR or FRED index. The Zillow data are also more volatile, presumably due to the nature of its construction – a smoothed time series of listings without significant adjustment. There is a substantial jump in

FMR between 2016 and '17. HUD made changes to the FMR methodology in 2017 to improve statistical accuracy and better reflect local information (HUD, 2017). This is presumably the reason for the jump.

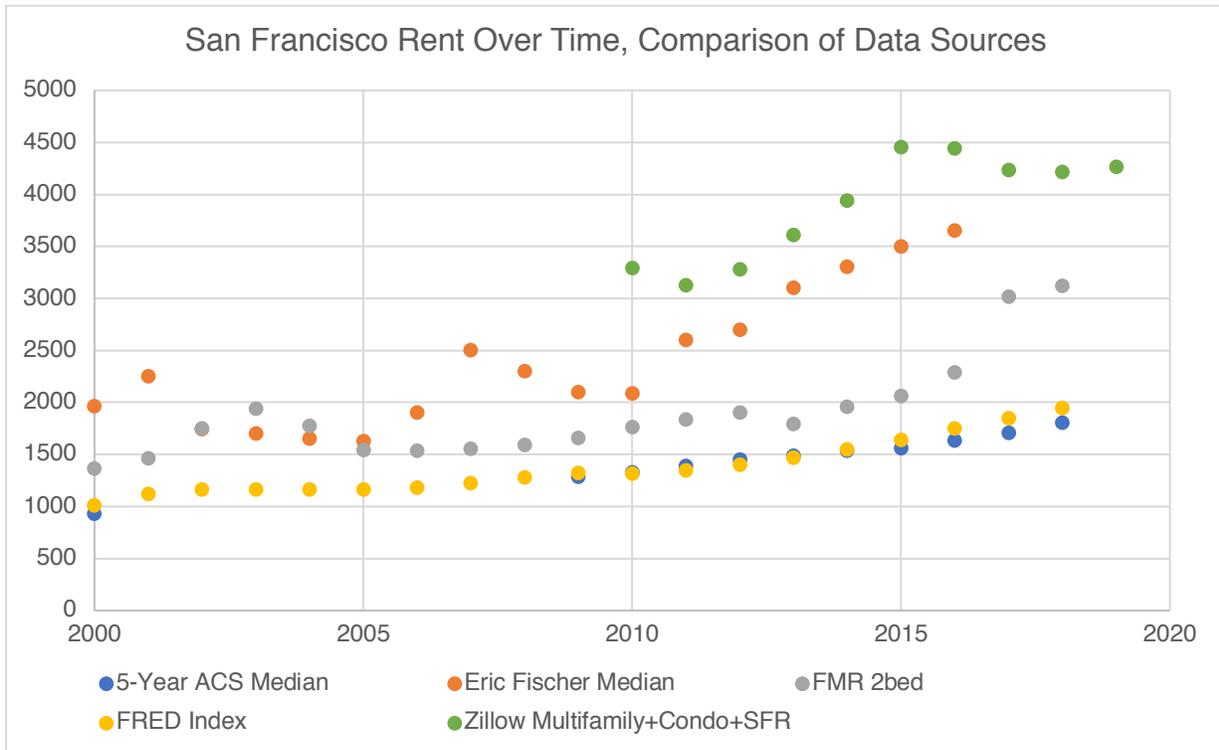


Figure 1: A comparison of rent in San Francisco over a 19-year period from various data sources.

How does this data line up with the theory presented above? Unsurprisingly, the FMR is larger than the ACS median, because of the inflation and recent mover adjustments. This is in line with the prediction that the FMR splits the difference between rent for continuing and searching renters. The Fischer rents are consistently larger than FMR, except for 2002-04. Notably, they diverge following the Financial Crisis, where previously the values were much closer. Prior to 2008 the Fischer rents are \$303 greater on average, compared to being \$943 greater after 2008.

This divergence illustrates exactly why a dual FMR could be helpful to voucher holders. The growth rate of rent for continuing tenants will not always be the same as that of market rents. A volatile market does not necessarily justify dramatically changing the FMR for voucher holders who already occupy a unit. Figure 1 also highlights why the data source for calculating adjustments to FMR is important. If HUD considers data outside of the ACS in the future, the

Department will need to reckon with structural differences between data sets, and the limitations implicit in each.

The Fischer rent data, available at the record-level, allows calculation of the corresponding percentile for the FMR – does it really line up with the 40th percentile of the available market? Figure 2 shows the percentile of the Fischer data which the FMR affords in a given year, from 2003 to 2019. The percentile is volatile, ranging from 11.6% to 38% in just five years, and peaking at 62.5% in the first year observed. A volatile FMR affordability is not a

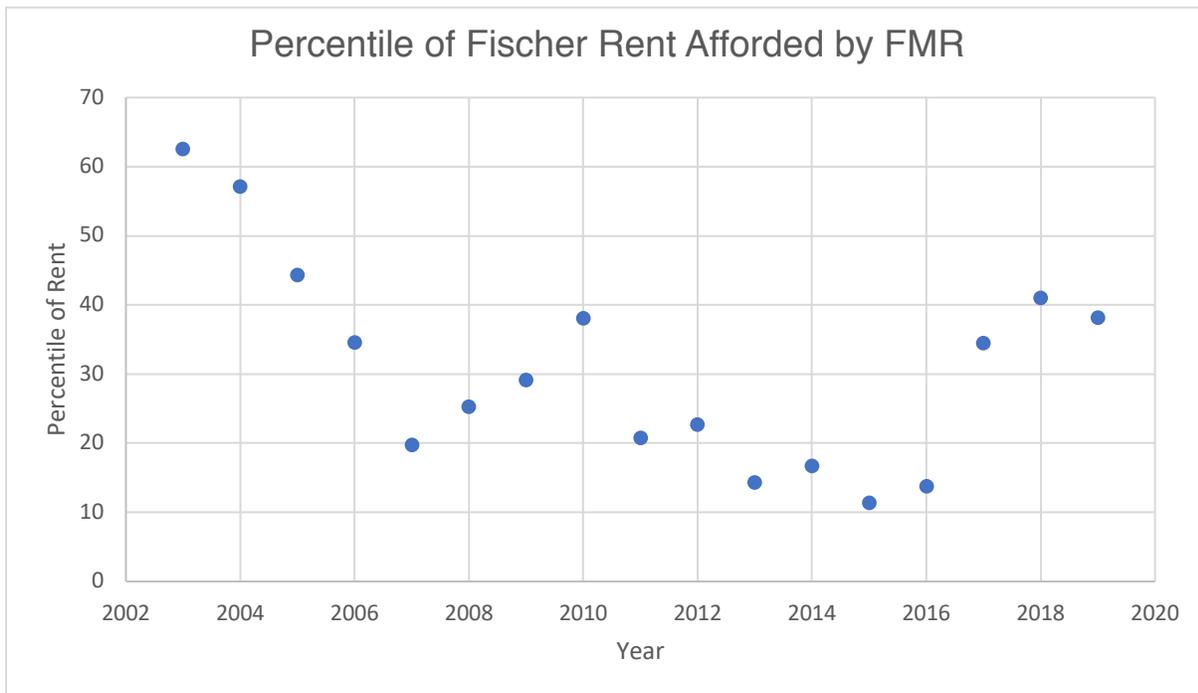


Figure 2: Percentile of units in Fischer rent data that would be afforded by a voucher in a given year.

desirable phenomenon from the perspective of a policymaker targeting a constant percentile. Notably, the percentile afforded is a local minimum in 2007, the first year of the Recession. This suggests that the FMR did not keep pace with inflation or speculation in housing costs, limiting access to housing to voucher holders in the years leading up to the Recession. The jump in 2017 observed in the FMR in Figure 1 is also apparent here, as FMR increased to be just around the 40th percentile target.

For continuing voucher holders, the affordability of a new voucher is not relevant unless they are considering moving to a new unit. For their landlords, it is possible that decreasing voucher affordability would enable larger increases in rent, knowing that the voucher holder would be constricted in their outside option. However, this would require close attention to the

distribution of rents, which landlords might not scrutinize closely enough to be a significant effect. But this is most significant for searching voucher holders, who have limited time to find a suitable unit. Just a few years can mean the difference, at least in the years observed for San Francisco, of more than half the available market being suitable for a voucher, or less than a fifth. When the searching time is limited to just a few months, the units available may be dramatically different in quality or limited in number compared to other periods. Landlords with available units renting below the FMR, if they know voucher affordability is low, could exploit this knowledge to increase rent or impose additional requirements on tenants. Again, this may not be a significant effect.

Bringing Policy in Line with Theory

The FMR methodology could be modified to reflect the theory of different growth rates for continuing rents and available rents. HUD could calculate two FMRs for each metropolitan area or ZIP code. One subsidy would be for continuing voucher holders, modeled using the increase in rent due to inflation and landlord-tenant bargaining. A second, higher subsidy would be offered to new voucher recipients, or those searching for a new unit. This recognizes that available units tend to be more expensive, due to renovation, vacancy costs, and the factors identified previously. This section will explore the reasoning behind the proposed approach, how it might change the program's budget, and how the agents involved will adapt to the changes.

The Continuing Renter FMR

The subsidy for continuing voucher holders will be approached like a typical continuing tenant renegotiating a contract with a landlord. Starting with a baseline rent from the ACS, like the current methodology, the FMR will be adjusted for inflation and the average increase due to bargaining. Considering the heterogeneous effects that influence rent increases for continuing tenants, it may initially see challenging to determine this adjustment. Rent changes due to bargaining are not necessarily the same for every locality, or even every type of unit. A tight housing market would allow landlords to increase rent more, because the outside option for tenants is costlier. Units in smaller buildings are more likely not to see a rent increase (Genesove, 2003). The administrative burden of tailoring the approach to each PHA would likely be

excessive. However, HUD could reliably calculate the continuing renter FMR by using data from the ACS.

The current methodology employs a recent mover factor to adjust FMR. A continuing renter FMR could adjust using 5-year ACS data on renters who have occupied the unit for more than one year. Without adding any burden of additional data collection, this approach better reflects the rent paid resulting from the forces acting on continuing tenants. While this approach is agnostic of the mechanism for rent increases, it samples the relevant population, and does not lump in renters who recently signed leases at market rent. The result is an FMR that acknowledges the structural difference between a continuing and searching renter.

The Searching Renter FMR

A separate FMR will be offered for new voucher holders, reflecting the forces that increase rent for units on the market. Available units are more expensive due to vacancy, renovation and new construction, rent de-control, or speculation. Again starting with the ACS and inflation adjustment, the searching renter adjustment will take these factors into account. The current recent mover adjustment is calculated using the ratio of the 1-year ACS recent mover gross rent to the 5-year ACS gross rent. A similar approach could be used for the new methodology. The 1-year ACS data is not contemporaneous with current market conditions, which suggests that immediately available data from online listings could supplement this approach.

Boeing et al. (2020) propose that policymakers use data from Craigslist to inform adjustments to FMR for each PHA jurisdiction. After analyzing millions of online listings, they find significant disparities between the listings, rent reported in the ACS, and FMRs. Because online listings are instantly accessible, at a fraction of the cost for a PHA to survey local renters by itself, they offer an affordable, contemporaneous measurement of market rents. However, which sources are reliable? Many renters may look to websites like Zillow or Apartment List to get a sense of the market, and at first glance it may seem like these websites are perfect to assess the available market. As Hertz (2016) explains in *City Observatory*, online listings can suffer from substantial bias. They do not include units offered by word of mouth or on flyers around a neighborhood. Some services require landlords to pay to show their units, which may be a barrier for smaller landlords. Craigslist, Zillow, and Apartment List are candidates for data with potential. Craigslist has no barriers to entry and can be scraped and cleaned relatively easily.

Meanwhile, the other two sources have proprietary models used to adjust for bias. This still does not address the challenge of units not posted publicly online.

The searching renter adjustment could be constructed using the change in market rents, collected from online listings, relative to a baseline rent, like the recent mover adjustment. The ACS offers the most accurate estimate of rents paid by recent movers, however there is a substantial time lag between its publication and when HUD calculates FMRs for a given year. In order to account for this time lag, I propose that each PHA use its individual discretion to modify the recent mover adjustment. In places like San Francisco with publicly-accessible data, like the Fischer data, PHAs may adjust the FMR to be more in line with contemporaneous market listings. Or, relying on online listings, they could construct a composite index of the available market. Substantial divergence between the FMR and local data may suggest the need for increased funding for a given PHA.

Effects on Program Budget

The proposed approach could lead to improved cost efficiency for the program and improved housing outcomes for tenants. In line with the reviewed research on SAFMRs, improving the efficiency of funding allocation could provide access to higher quality housing without increased program costs. However, it is not immediately clear whether this approach would require overly burdensome administrative costs, or how exactly it would be budgeted. This section offers hypothetical analysis of the administrative requirements to implement the program, as well as rough estimation of how funding could change, using data from San Francisco's HCV program.

HUD has considerable leeway in determining how FMRs are calculated. While all changes to FMR methodology must go through the process of review in the Federal Register, they do not require legislative action. As such, HUD could improve voucher holder outcomes without relying on additional funding support from Congress. Without significant changes in funding, reallocation of funding in accordance with the proposed methodology could enable PHAs to serve more voucher holders, and enable them to live in higher-quality housing. The initial efforts to modify the program would be significant. But once the data infrastructure is in place, upkeep to calculate FMRs would likely not differ substantially from the status quo.

The San Francisco tenant-based voucher program provided support to 6,215 voucher holders in 2018, at a total cost of almost \$12.9 million. The average payment per voucher was \$2,071, with the remainder being paid by tenants. The city set FMR at the 44th percentile of

rents. Facing budget issues and defaults, the some of the San Francisco Housing Authority's functions were assumed by the city after FY18. Prior to changes the SFHA employed 108 staff to run the HCV program (SF BLA, 2019). While data on San Francisco was not readily available, the average HCV program sees 11.1% turnover annually, the share of voucher holders that leave the program altogether (Baskett, 2018). A further 3% on average move units, but keep the voucher, using national data from 1998-2005 (Climaco et al., 2008). The same study found that the average time spent in the program was 4.7 years, and the median was 3.08 years.

Using the available data, roughly 85.9% of voucher holders from the previous year will continue in the same unit for a given year. These tenants will see a payment standard increase according to the continuing FMR methodology. The remaining 14.1%, plus any new vouchers that can be allocated with funding increases, will receive a subsidy amount in accordance with the searching FMR. Because the duration of program participation varies widely (the average being significantly larger than the median suggests a skewed distribution) it is difficult to make precise estimation on budget changes without record-level data.

However, using the average duration gives a clue as to how the average voucher might change in cost over time. In a given year, under the new methodology, using the most recent Fischer data as a proxy, suppose the searching FMR is \$3,650. Using the average participation duration of 4.7 years, assuming that the skewed distribution does not have a significant impact, we can approximate their continuing subsidy using the market rent from 5 years prior, increased according to the ACS annual growth rate. In this case, the Fischer rent of \$2,600 grows to \$3,087 using the average growth rate of 3.5%. It is important to note that the average cost payment per voucher (\$2,071 in 2018) is considerably lower than the FMR (\$3,121 in 2018), so it is difficult to tell exactly how changes in FMR will influence total program expenditures. Because PHAs pay the lesser of the difference between gross rent and tenant payment, or FMR and tenant payment, the degree of budget change will likely depend on location-specific patterns in the units occupied by voucher holders.

In summary, it is possible, but far from certain, that this proposal will lead to less spending in total. However, the case study suggests that the proposed theory is reflected in empirical data. Future research will be necessary to understand how a dual subsidy level could change how landlords set rents, and how voucher holders select units.

Potential Changes in Agent Decision Making

This proposal may result in different behavior for the agents involved. It may influence landlord willingness to participate. Knowing that the yearly increase would be reduced, would landlords in lower quality units be less likely to participate, due to likely reductions in profit? Conversely, landlords in higher quality units maybe be more likely to participate because of subsidies that better reflect market prices. As previously examined, the financial incentive is the most significant determinant in landlord participation (Garboden et al., 2018). Increasing participation for units in better neighborhoods could improve voucher holder success rate in finding a suitable unit. The more viable units available, the greater the likelihood that a landlord will accept a voucher holder.

Under what circumstances should continuing voucher holders use the searching renter FMR to find a new unit? The program does not need additional restrictions because tenants will self-regulate moving to a new unit. It is unlikely a continuing voucher holder will move if the searching renter FMR is considerably greater than a continuing renters FMR, even after a number of years of continued tenancy. There is already disincentive to moving to a higher price unit because of search and moving costs. The barriers in place, including finding an acceptable landlord and potentially uprooting connections in their current community will likely limit an overwhelming number of voucher holders abusing the system.

Justice, Fairness, and Welfare

Regardless of the FMR methodology HUD employs, it must consider the distributional implications of its policy. Recognizing the inherent inequality in housing, how can HUD best serve voucher holders? The program uses federal tax dollars to support vulnerable households. However, it can only serve a fraction of those who qualify at the level it currently chooses. Without additional apportionments from Congress, serving more people means each household would receive a smaller share. This thesis does not answer the question of what is the optimal allocation of resources amongst those in need. HUD has determined that the tenant contribution, effectively a 30 percent tax on gross income, is an acceptable and desirable method to providing subsidized housing. But this is by no means the only policy design possible. Furthermore, because housing markets are so dramatically different across the country, a voucher in San Francisco does not necessarily afford the same opportunities as a voucher in Houston, for instance. Does this mean that certain places should have a higher percentile FMR, or a larger pool of resources?

For the proposed policy, is it fair that a new voucher holder has a greater or smaller subsidy than in other years? Under the current methodology, FMR increases and decreases annually. The recent changes will produce dramatic adjustments in some places. I do not believe that simply because some voucher holder may have the luck of being better off that changes should not be made. It is a fact that HUD cannot anticipate how housing markets change, but that the Department can attempt to best reach its stated goals of determining 40th percentile rents. So long as that is the policy, the proposed methodology aims to give searching voucher holders the opportunity to actually consider 40 percent of the available market. In conjunction with this proposal, HUD might consider policies that incentivize landlords to improve the quality of voucher-occupied housing, and continually maintain properties that are ideal for voucher holders. As with the current HCV program, any change in policy must balance serving a few people well, versus many people poorly. PHAs and policymakers must decide whether to improve the quality provided by a single voucher, or the total number of vouchers.

Conclusion

The Housing Choice Voucher program continues to be one of the most important low-income subsidy programs in the U.S. As the Public Housing Authorities contend with limited funding increases, improvements in methodology and program management can improve the efficiency of spending and voucher holder welfare. This thesis presents a theoretical justification for a dual approach to calculating Fair Market Rents. Continuing tenants face rent growth due to bargaining with landlords, limited by the outside option to either. Tenants searching are more likely to see new and renovated units, resulting in a more expensive distribution of options. By updating the HCV program to reflect this theory, HUD can potentially enable PHAs to make better use of their limited resources. Further research will be necessary to investigate this theory across different geographies, and pay special attention to administrative costs and changes in the program's incentive structure. As long as the HCV program exists, carefully scrutinized data and theory will be necessary to its success.

References

- Baskett, Katie Lynn. 2018. "Housing Choice Voucher Turnover in Areas Promoting Economic Mobility." Master's thesis, Georgetown University.
- Boeing, Geoff, and Paul Waddell. 2017. "New Insights into Rental Housing Markets across the United States: Web Scraping and Analyzing Craigslist Rental Listings." *Journal of Planning Education and Research* 37 (4): 457–76.
<https://doi.org/10.1177/0739456X16664789>.
- Boeing, Geoff, Jake Wegmann, and Junfeng Jiao. 2020. "Rental Housing Spot Markets: How Online Information Exchanges Can Supplement Transacted-Rents Data." *Journal of Planning Education and Research*, February, 0739456X20904435.
<https://doi.org/10.1177/0739456X20904435>.
- Center for Budget and Policy Priorities (2017). "Housing Choice Voucher Fact Sheets."
<https://www.cbpp.org/housing-choice-voucher-fact-sheets>.
- Climaco, Carissa G., Christopher N. Rodger, Judith D. Feins, and Ken Lam. 2008. "Portability Moves in the Housing Choice Voucher Program, 1998–2005," *Cityscape* 10 (1): 5–40.
- Collinson, Robert A., Ganong, Peter, 2016. "The Incidence of Housing Voucher Generosity. Working Paper." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=42255799.
- Dastrup, Samuel, Meryl Finkel, and Ingrid Gould Ellen. 2019. "The Effects of Small Area Fair Market Rents on the Neighborhood Choices of Families with Children." *Cityscape* 21 (3): 19–48. <https://doi.org/10.2307/26820646>.
- Desmond, Matthew, and Kristin L. Perkins. 2016. "Are Landlords Overcharging Housing Voucher Holders?" *City & Community* 15 (2): 137–62.
<https://doi.org/10.1111/cico.12180>.
- Diamond, Rebecca, Timothy McQuade, and Franklin Qian. 2019. "The effects of rent control expansion on tenants, landlords, and inequality: Evidence from San Francisco." No. w24181. *National Bureau of Economic Research*.
- Ellen, Ingrid Gould. 2020. "What Do We Know about Housing Choice Vouchers?" *Regional Science and Urban Economics* 80 (January): 103380.
<https://doi.org/10.1016/j.regsciurbeco.2018.07.003>.
- Federal Register. 2019. "Proposed Changes to the Methodology Used for Estimating Fair Market Rents." June 5, 2019. <https://www.federalregister.gov/documents/2019/06/05/2019-11763/proposed-changes-to-the-methodology-used-for-estimating-fair-market-rents>.
- Garboden, Philip M. E., Eva Rosen, Stefanie DeLuca, and Kathryn Edin. 2018. "Taking Stock: What Drives Landlord Participation in the Housing Choice Voucher Program." *Housing Policy Debate* 28 (6): 979–1003. <https://doi.org/10.1080/10511482.2018.1502202>.

- Genesove, David. 2003. "The Nominal Rigidity of Apartment Rents." *The Review of Economics and Statistics* 85 (4): 844–53.
- Glaeser, Edward, Joseph Gyourko, and Raven Molloy. 2005. "Why Is Manhattan So Expensive? Regulation and the Rise in House Prices." *Journal of Law and Economics* 48 (February): 331–69. <https://doi.org/10.1086/429979>.
- Hess, Christian, Rebecca J. Walter, Arthur Acolin, and Sarah Chasins. 2019. "Comparing Small Area Fair Market Rents With Other Rental Measures Across Diverse Housing Markets." *Cityscape* 21, (3) 159-186.
- HUD. 2017. "Fair Market Rents for the Housing Choice Voucher Program, Moderate Rehabilitation Single Room Occupancy Program, and Other Programs Fiscal Year 2018 and Adoption of Methodology Changes for Estimating Fair Market Rents." *Federal Register* 82 (169).
- Hertz, Daniel. 2016. "Here's your definitive field guide to median rent statistics." *City Observatory*. <http://cityobservatory.org/a-field-guide-to-median-rent-statistics-contd/>.
- San Francisco Budget and Legislative Analyst. 2019. "Performance Audit of the City's Assumption of the San Francisco Housing Authority's Essential Functions." https://sfbos.org/sites/default/files/BLA.PerformanceAudit_SFHousingAuthority.pdf
- "Zillow Rent Index Methodology (2012)." 2012. Zillow Research (blog). March 12, 2012. <https://www.zillow.com/research/zillow-rent-index-methodology-2012-26473/>.