Housing Vouchers and Neighborhood Effects: Can Expanding Access to Opportunity Pay for Itself?*

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Abstract

This paper examines whether more generous housing subsidies that expand low-income households' access to high-opportunity neighborhoods can generate income gains that offset the projected rise in government costs. I study a rental voucher reform that adjusts subsidy ceilings to finer ZIP code-level rent variation, an approach criticized for increasing federal spending. This presumed trade-off, however, overlooks that income may be endogenous to location. I find that the reform resulted in a net decline in per-voucher federal spending. In high-rent areas, income gains from positive neighborhood effects partially offset higher rents, accounting for approximately one-third of the projected increase. In low-rent areas, reduced payment caps lower government spending, curb landlord overcharging and tenant over-housing, and induce labor market responses from voucher households who increase work effort to cover higher out-of-pocket rent burdens. These findings highlight real-time fiscal feedback mechanism between improved economic opportunity and the cost of programs that enable it, offering a novel insight for welfare program design: subsidies can be expanded more efficiently when beneficiary contributions scale with income.

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1 Introduction

A substantial body of research has established that neighborhoods profoundly shape individuals' life trajectories, affecting educational attainment, income, and health outcomes (Chyn and Katz, 2021).[1] Yet, low-income and minority households, particularly those receiving housing assistance, remain disproportionately concentrated in high-poverty, low-opportunity neighborhoods (Bayer et al., 2021; Rosen, 2020), prompting considerable policy interest in expanding access to higher-opportunity neighborhoods for disadvantaged families.[2]

Solutions to promote such moves to opportunity, however, appear to face an inherent fiscal trade-off: improving locational outcomes for beneficiaries may substantially increase government costs. This concern is central to the Small Area Fair Market Rent (SAFMR) policy, a major redesign of the Housing Choice Voucher (HCV) program, which replaces metro-wide rent caps with ZIP code-level ones.[3] By tying subsidies to neighborhood-specific rent levels, SAFMR expands access to high-rent, low-poverty areas (Collinson and Ganong, 2018; Ellen et al., 2025; Eriksen et al., 2024; Park, 2024) but seemingly increases federal expenditures, since the government covers the difference between unit rents and tenant rent contributions—typically 30% of income.

This perceived fiscal trade-off, however, assumes that household income remains fixed following relocation. If moves to opportunity raise earnings, higher tenant contributions could offset part of the increased subsidy burden, fundamentally altering the fiscal calculus of the voucher program—and, more broadly, of policies that expand economic opportunity for beneficiaries.

This paper examines whether the higher subsidy costs of relocating voucher households to high-rent neighborhoods can be partially—or even fully—offset by income gains resulting from improved neighborhood opportunity. I also assess how this "tilting" of subsidy limits across neighborhoods affects the overall cost structure of the voucher program. Using a difference-in-differences

[1] Extensive evidence documents strong neighborhood effects on children (Chetty and Hendren, 2018; Chetty et al., 2016; Chyn, 2018; Chyn et al., 2025; Davis et al., 2021; Gennetian et al., 2012; Haltiwanger et al., 2024), while effects on adults are found primarily in mental and physical health (Ludwig et al., 2012, 2013).

[2] Policy efforts to expand access to high-opportunity neighborhoods and reduce residential segregation include mixed-income developments through inclusionary zoning (Kontokosta, 2014, 2015; Schwartz et al., 2012), the Low-Income Housing Tax Credit (Cook et al., 2025; Diamond and McQuade, 2019), and programs addressing information frictions in residential choice (Bergman et al., 2020, 2024). The most closely related to this paper involves mobility interventions using housing vouchers (DeLuca and Rosenblatt, 2017; Galiani et al., 2015; Wood et al., 2008), including interactions with source-of-income discrimination laws (Blanco and Song, 2024; Ellen et al., 2023; Freeman, 2012; Freeman and Li, 2014).

[3] HCV, commonly known as Section 8, is the largest federally administered tenant-based housing assistance in the United States, currently serving over 2.8 million households nationwide to find homes in the private rental market.

framework that exploits the staggered policy rollout across U.S. metropolitan areas, I analyze multiple mechanisms through which SAFMR influences program costs, including behavioral responses among voucher households and changes in landlord pricing behavior and overall market rents across neighborhoods.[4] I further examine whether these fiscal changes spill over to program accessibility, including waitlist duration and program expansion.[5] Finally, I examine the long-run fiscal sustainability of operating SAFMR over time.

SAFMR affects program costs through mechanical, behavioral, and market equilibrium channels. Federal spending rises mechanically as more voucher households lease higher-priced units in high-rent neighborhoods. These costs, however, may partly be offset if improved neighborhood conditions raise tenant earnings and, consequently, their rent contributions. Lower payment limits in low-rent areas mechanically reduce government costs. However, they may induce behavioral responses among remaining households, who now face larger out-of-pocket expenses, to increase labor market activity to cover higher rent burdens. On the other hand, de-concentration of neighborhood poverty from out-migration of voucher households may independently improve outcomes among those remaining in low-rent neighborhoods through improved neighborhood conditions (Brummet and Reed, 2019; McKinnish et al., 2010).[6] Better alignment of payment caps with neighborhood market rents also reduces wasteful spending by curbing landlord overcharging above prevailing market rents common under metro-wide limits (Desmond and Perkins, 2016) and discouraging tenants' tendency to over-house (i.e. voucher households occupying units with more bedrooms than the number of family members). Finally, shift in voucher demand may alter local rent equilibria, raising rents in high-rent areas and lowering them in low-rent ones, thereby further influencing overall program costs (Park, 2024).

This paper finds that improved access to higher-opportunity neighborhoods generates measurable income gains among voucher households which, in turn, partially offset roughly one-third

[4] Collinson and Ganong (2018) find that SAFMR is a budget-neutral reform, citing that the higher-rent payments in expensive neighborhoods are offset by a larger reductions in payments in lower-rent neighborhoods. Their study, however, is limited to a single metropolitan area and examines only the very short-term effects of the reform.

[5] Examining these aspects is especially important given longstanding criticisms against HCV as being oversubscribed and underfunded. The New York City Housing Authority, for example, reopened its waitlist in 2024 after a 15-year closure, giving 200,000 households a chance—however uncertain and long—at assistance (City Limits).

[6] An alternative possibility is that out-migration from high-poverty neighborhoods disproportionately involves residents with stronger earnings potential among voucher households. If so, this selective exit could slow or even reverse income growth among those who remain, as documented by Garin et al. (2025).

of the projected rise in federal spending from higher subsidies in high-rent areas.[7] This pattern is consistent with Aliprantis and Richter (2020) who find that moves to opportunity raise adult earnings among low-income households.[8] The result provides novel evidence of a *real-time*, *direct* fiscal feedback between improved economic opportunity and the cost of the welfare program that enables it, complementing the results of Hendren and Sprung-Keyser (2020) who document *long-run* returns from policy investments through fiscal externalities.[9] The mechanism identified in my paper operates more immediately: income gains from improved neighborhood access *directly* reduce federal costs through higher tenant rent contributions. This mechanism suggests a promising avenue for redesigning welfare programs: raising subsidy levels in welfare programs that expand economic opportunity, paired with income-based cost-sharing, can deliver larger benefits for the beneficiaries while mitigating public expenditure. Such principle could apply broadly across many welfare programs where beneficiary contributions adjust with improved economic outcomes.

Beyond partially paying for itself in high-rent neighborhoods, SAFMR also reduced *overall* program costs. Lower payment caps in low-rent neighborhoods mechanically decreased government spending but increased out-of-pocket rent burdens for voucher households. I find evidence that this undue burden prompted increased labor market activities to cover for higher out-of-pocket rent payments. Aligning payment limits more closely with market rents further reduced wasteful spending by curbing landlord overcharging and tenant over-housing. Together, these adjustments more than offset the higher subsidies associated with moves to costlier neighborhoods—even after

[7] In the analysis, I provide suggestive evidence that income gains among households in high-rent neighborhoods are not primarily driven by positive selection into relocation by tenants and landlords. Moves to opportunity occur across a wide range of household types, including those with limited labor market capacity.

[8] Evidence on the impact of moves to opportunity on economic mobility for adults is mixed. Some studies find gains primarily from long-distance moves (Deryugina et al., 2018) and reductions in mortality (Deryugina and Molitor, 2020), while *within*-metro moves often show limited labor market effects (Katz et al., 2001; Kling et al., 2007) from the Moving-to-Opportunity (MTO) experiments. However, Aliprantis and Richter (2020) document sizable improvements in both income and health outcomes, and other studies suggest positive but selective responses among adult movers (Clampet-Lundquist and Massey, 2008; Weinberg et al., 2004). Given these, null findings from MTO should also be interpreted cautiously, as that experiment induced only modest changes in neighborhood quality, primarily through lower poverty rates, and that the MTO estimates may be capturing "program" effects rather than "neighborhood" effects (Aliprantis, 2017; Aliprantis et al., 2024). My findings add to the smaller but growing body of evidence that neighborhood improvements can enhance adult labor market outcomes (Aliprantis and Richter, 2020; Mendenhall et al., 2006).

[9] Hendren and Sprung-Keyser (2020) show that some policy investments generate long-run fiscal returns through externalities, such as higher future earnings and tax revenues, captured by the concept of the marginal value of public funds (MVPF). The MVPF measures welfare delivered per dollar of government spending through long-run fiscal externalities with a value above one implying that a policy "pays for itself" over time. For example, early childhood interventions that raise adult earnings expand the future tax base, yielding fiscal returns that exceed the program's upfront cost spent today.

accounting for market rent increases in high-rent areas. However, despite these fiscal savings, SAFMR did not improve program accessibility: neither waitlist duration nor overall program size changed meaningfully.

Together with evidence from Park (2024), these results show that SAFMR operates as a "triple subsidy," simultaneously benefiting three distinct groups: (1) voucher households, (2) *unsubsidized* low-income renters, and (3) government administering the program. Voucher households gain improved access to higher-opportunity neighborhoods, the policy's intended effect. Unsubsidized low-income renters benefit from reduced market rents in low-rent neighborhoods due to decreased housing demand. This paper identifies the third, novel channel: SAFMR lowers per-voucher federal expenditures by increasing beneficiaries' incomes, raising rent contributions, and reducing wasteful spending. By expanding opportunity while relieving fiscal pressure on government and rent pressure on unsubsidized renters, SAFMR emerges as a more progressive and fiscally efficient program design than previously understood.

In addition to the main analysis, I also find that the fiscal effects of SAFMR vary systematically across metropolitan areas depending on their level of residential segregation, measured by the rent gap between the most and least expensive neighborhoods within metros. In both highly rent segregated and more integrated metros, voucher households experienced income gains following SAFMR, indicating that improved access to opportunity can produce positive economic effects regardless of degrees of segregation. However, these gains materialized more slowly in highly segregated metros, reflecting greater barriers to low-income households' relocation. Importantly, the cost-saving effects, particularly reductions in federal spending, were concentrated in low-segregation metros. Neighborhood-level analysis shows that while income increases were sufficient to offset higher rents in high-rent neighborhoods across both metro types, reductions in inflated rent payments in low-rent neighborhoods occurred mostly in more integrated metros. These findings suggest that although SAFMR can improve outcomes for voucher recipients across the board, its fiscal efficiency depends heavily on the local variation in housing price.

Finally, I examine the longer-run impacts of SAFMR through a case study of Dallas, the first metropolitan area to adopt ZIP code-level rent ceilings in 2011. Consistent with the main findings, voucher households' income increased steadily following SAFMR adoption, accompanied by proportional increases in tenant rent contributions. Federal spending declined as well in the first

six years, consistent with the medium-run cost-saving patterns observed from earlier. However, spending substantially increased in the later years of the policy which coincide with a sharp increase in the share of voucher households living in high-rent neighborhoods from 29% in 2017 to 43% in 2022. This result raises some concerns about long-term financial sustainability of SAFMR and highlights a trade-off between improving neighborhood access and maintaining the program's budget. This issue will become increasingly salient if the current budget allocations remain fixed and the policy continues to expand to additional metropolitan areas as planned by HUD.[10]

The rest of the paper proceeds as follows. Section 2 provides institutional background on the HCV program and SAFMR reform. Section 3 outlines the mechanisms through which SAFMR may affect government spending. Section 4 describes the data, and Section 5 presents the empirical strategy. Section 6 reports the main findings, and Section 7 discusses long-run implications. Section 8 concludes.

2 Institutional Background

2.1 Housing Choice Voucher Program

The Housing Choice Voucher (HCV) program, also known as Section 8, is one of the largest federally run tenant-based housing subsidy program in the U.S., helping low-income individuals and families access affordable housing in the private rental market. The program empowers eligible households to choose their own housing, with the government subsidizing the difference between the voucher tenant's contribution (typically 30% of household income) and the market rent. The subsidy is capped by a payment standard set by local Public Housing Authorities (PHAs), which is based on the Fair Market Rent (FMR) determined annually by the U.S. Department of Housing and Urban Development (HUD) for each metropolitan area as a whole.[11] These FMRs generally reflect the 40th or 50th percentile of the rent distribution of the area.

While HCV aims to provide voucher households access to greater set of neighborhoods, its reliance on a single metro-wide FMR has posed significant challenges. Because rents can vary considerably within a metropolitan area, the metro-wide FMR often falls below prevailing rents in

[10] HUD plans to extend SAFMR to additional sets of metropolitan areas every five years. The rule is written in a Federal Register notice on November 16, 2016 (Docket No. FR-5855-F-03).

[11] In non-metropolitan areas, FMRs are set at the county level.

higher-rent neighborhoods. This effectively limits voucher households' housing options and makes it difficult for them to lease up units in these areas.

Conversely, the FMR may exceed prevailing rents in lower-rent neighborhoods, potentially concentrating voucher households in these areas with fewer opportunities. Despite the program's intent, voucher households frequently reside in higher-poverty neighborhoods with limited access to quality schools, employment opportunities, and other resources (DeLuca and Rosenblatt, 2017; Horn et al., 2014; Mazzara and Knudsen, 2019). This concentration is partly due to the inability of metro-wide FMR to capture local rent variation. The metro-level FMR can thus unintentionally hinder the program's intention to facilitate voucher households' move to higher-rent, higher-opportunity neighborhoods and reinforce patterns of residential segregation.

2.2 Small Area Fair Market Rents

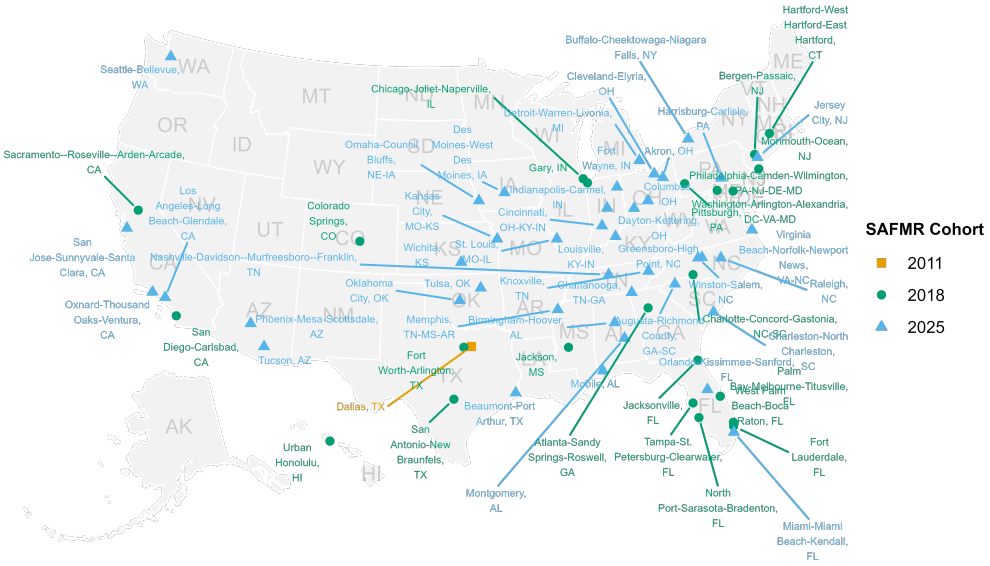
Recognizing the limitations of the traditional metro-wide FMR in expanding housing choice and access to high-opportunity neighborhoods for voucher households, HUD introduced Small Area Fair Market Rents (SAFMRs).[12] SAFMR is a redesigned and updated approach to setting FMR, shifting from a single, metro-wide FMR to neighborhood-level FMR based on rent distribution in specific ZIP codes. HUD calculates SAFMRs by multiplying the traditional metro-wide FMR by the ratio of the ZIP code median rent to the metro area median rent, known as the "rent ratio".[13] This means that the subsidy cap can be higher in high-rent neighborhoods, increasing availability of voucher-eligible units there, and lower in low-rent neighborhoods, which incentivize voucher households to take their vouchers to high-rent neighborhoods.

While HUD sets FMRs for each ZIP code, the actual payment standard that determines the payment limit for a housing voucher is established by the local PHAs. Generally, PHAs have the discretion to set their payment standards anywhere between 90% and 110% of FMRs that HUD has published for each ZIP code within their jurisdiction. Therefore, the payment standard, not

[12]The initial implementation of SAFMR can primarily be attributed to a legal case in Dallas, TX, known as Walker v. HUD. This lawsuit, brought by the Inclusive Communities Project, ruled that HUD's practice of setting FMR at the metropolitan level limited the housing options available to voucher holders, many of whom were from minority groups. In 2009, HUD reached a settlement in the case and agreed to set rent limits in the Dallas metropolitan area to the ZIP code level.

[13]The calculation involves using the most current rental data available, primarily from the American Community Survey to determine the median rent of ZIP codes and metros. SAFMRs are updated by HUD on an annual basis which takes effect at the beginning of the fiscal year.

Figure 1: Metropolitan Areas Where Housing Agencies Are Required to Use SAFMR



Notes: The figure plots metropolitan areas where PHAs are required to adopt SAFMR by respective years.

FMR directly, dictates the maximum amount the voucher will cover towards rent, less the voucher households' contribution towards rent. While voucher holders can choose to rent units with rents exceeding the payment standard, they are responsible for paying the difference out of their own funds. However, in practice, virtually all voucher households live in units with rents at or below the payment standards.

The initial implementation of these ZIP code-level rent limits happened in the Dallas metropolitan area in 2011, followed by a demonstration program in five PHAs in 2012. A decision to massively expand this program came in 2016. HUD mandated that PHAs in 24 selected metropolitan area, including the Dallas metro, to adopt SAFMR by 2018. These metros were selected based on several criteria. They needed to have 2,500 or more HCVs under lease, a significant portion of the standard quality rental stock located in ZIP codes where SAFMR was more than 110% of the metro-level FMR, and a high-level of voucher concentration in low-income areas. In addition, the rental vacancy rate for the metro had to be higher than 4%.[14] Later in 2023, HUD identified an additional 41 metropolitan areas to adopt SAFMR starting in January 1, 2025, abiding to the final ruling of November 16, 2016 that requires HUD to make SAFMR designations to new metropolitan areas

[14]Exact details on selection criteria can be found in a Federal Register notice on November 16, 2016 (Docket No. FR-5855-N-04).

every five year. A complete list of metropolitan areas where PHAs are required to adopt SAFMR is plotted on a map in Figure 1.

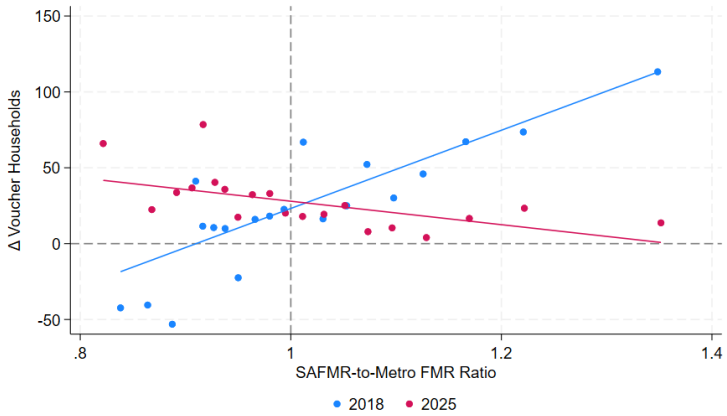
2.3 SAFMR Improves Access to Opportunity Neighborhoods

Success of SAFMR has been relatively well documented in the literature for various cohort based on implementation years. Dallas's implementation of SAFMR in 2011 was found to be successful in relocating voucher households to neighborhoods with lower crime rates and poverty rates and higher rent (Collinson and Ganong, 2018; Park, 2024; Reina et al., 2019). For the five PHAs part of the SAFMR demonstration program in 2012, Dastrup et al. (2018) report that voucher households in the SAFMR PHAs were more likely to live in higher-rent ZIP codes with increased opportunity. Dastrup et al. (2019) also find that SAFMR enabled voucher families with children to move to neighborhoods with lower poverty and better schools. For the most recent cohort of SAFMR metros which adopted SAFMR in 2018, Ellen et al. (2025) find that voucher households under SAFMR moved to higher-rent, lower-poverty neighborhoods, while Eriksen et al. (2024) find stronger effects for new voucher recipients.

Figure 2 displays a binned scatter plot showing the relationship between changes in the number of voucher households from 2017 to 2023 and the ratio of the new ZIP code-level FMRs to the traditional metro-level FMRs, calculated based on FMR values in 2018. The figure compares two cohorts: neighborhoods in metros that adopted SAFMR in 2018 shown in blue and those in metros that adopted SAFMR in 2025 shown in red. As expected from historical concentration of voucher households under the traditional design of FMR, the 2025 cohort saw the most increase in the number of voucher households in lower-rent neighborhoods. However, for the 2018 cohort, high-rent neighborhoods experienced the most pronounced increase in voucher counts. This pattern suggests that SAFMR facilitated greater access to high-rent neighborhoods, a consistent finding with previous research.[15]

[15]For reference, I estimate the causal effect of SAFMR implementation on the average demographic composition of neighborhoods where voucher households reside, using a difference-in-differences design that compares PHAs adopting the policy in 2018 with those adopting later in 2025 (as detailed in Section 5). The estimates indicate that SAFMRs reduced voucher households' exposure to neighborhoods with high poverty and minority shares, with no measurable change in exposure to neighborhoods with higher owner-occupancy rates. See Appendix Figure B.1.

Figure 2: Change in the Number of Voucher Households (2017-2023) by ZIP Code Rent Level



Notes: The figure above displays a binned scatter plot of the change in the number of voucher households living in ZIP codes between 2017 and 2023, plotted against the SAFMR-to-metro FMR ratio measured in 2018 data. The plot includes two cohorts: ZIP codes in the 2018 SAFMR-adopting metros in blue and ZIP codes in the 2025 SAFMR-adopting metros in red. Estimates are controlled for metro fixed effects.

3 Cost of Running Small Area Fair Market Rents

A central concern with the transition from metro-wide FMR to ZIP code based SAFMR is the potential increase in the overall cost of operating the voucher program itself. SAFMR is designed to expand voucher households' access to high-rent areas by raising the payment standards in those neighborhoods. However, this improvement in location choice may come at a fiscal cost borne by the government. If more voucher households lease units in neighborhoods with higher rent levels, the government may become responsible for higher subsidy payments. This shift could, in principle, increase the overall cost of operating HCV and/or shrink the overall size of the program serving less voucher-eligible households over time. This could be particularly more problematic if existing budget allocations are insufficient to cover increased subsidy levels.

Prior research suggests that the impact of SAFMR on fiscal cost of running the program has been modest. Studies have found the policy to be effectively budget-neutral: although subsidy payments increase for households relocating to high-rent neighborhoods, these increases were largely offset by reduced subsidies in low-rent neighborhoods where payment standards declined (Collinson and Ganong, 2018; Ellen et al., 2025). In other words, the change in the FMR design allowed voucher households to move to opportunity without increasing financial costs. However, these studies are limited in scope as they analyze short time horizons immediately after SAFMR adoption or may not

adequately capture indirect effects that could impact the financial cost and program administration.

Below I outline five key mechanisms through which SAFMR may affect the overall cost of the program:

Higher rents in high-rent neighborhoods The most direct channel is increased leasing of rental units in high-rent neighborhoods. As payment standards rise in these areas, more voucher holders can access more expensive units they previously could not access. These higher price tags mechanically raise the subsidy burden of the government, particularly in places where the newly set ZIP code-level FMR exceed traditional metro-wide caps by a substantial margin.

Offsetting income gains from neighborhood effects SAFMR may also reduce public spending via increased tenant contributions from improved economic opportunity, a novel channel for a social welfare program this paper identifies. Relocating to high-opportunity neighborhoods has been shown to raise earnings, employment, and income stability among low-income households (Aliprantis and Richter, 2020). Since voucher recipients typically pay a fixed portion of their income toward rent, rising incomes lead to higher tenant contributions and reduced federal subsidies, especially in high-rent neighborhoods.

Whether these neighborhood effects fully or only partially offset the increase in rent costs depends on the relative magnitude of income gains and price differences between low- and high-rent neighborhoods. If the increase in the overall price of rental units is greater than the increase in voucher households' income, the neighborhood effects can only offset the increase in rent price partly with the government's net subsidy burden still growing. However, if the neighborhood effects outpace the cost of rent increases, SAFMR may actually reduce federal expenditures by HUD over time.

Reduced overpayment Under the traditional metro-wide FMR, payment limits in low-rent areas often exceeded prevailing market rents, enabling landlords to charge voucher tenants above-market rents (Aliprantis et al., 2022; Desmond and Perkins, 2016). This was possible because voucher households pay the same amount from their income toward rent, regardless of the price of the unit as long as it is priced below the payment limit. By aligning payment limits more closely with neighborhood-level market rents, SAFMR prevents landlords in these areas from exploiting inflated

payments from voucher tenants, thereby reducing fiscal program costs (Collinson and Ganong, 2018).

Also, lower payment limits in low-rent areas mechanically imply smaller subsidies in these areas. This, however, creates a fiscal burden for existing voucher households living in low-rent neighborhoods. With lower payment caps, some now face rents that exceed the new limits, requiring them to cover the difference. Although there are tools that protect existing voucher families living in low-rent neighborhoods, some tenants still face higher out-of-pocket payments.[16] This sudden increase in voucher's rent contribution will also translate to lower government spending.

In addition, better alignment of payment standards with neighborhood-level rents may lessen tenants' tendency to occupy larger housing units than needed. Similar to landlords' behavior to maximize on their rent payments, over-housing can also arise from tenants' incentives to maximize housing consumption under a fixed rent contribution. By narrowing the gap between subsidies and true market rents, SAFMR may therefore reduce both fiscal leakage and inefficiencies in housing consumption.

Behavioral and labor market responses in low-rent neighborhoods Lower payment caps in low-rent areas may impose an undue financial burden on voucher households, forcing them to adjust to the new standard in several ways. One immediate response is to increase labor supply by taking on additional work or extending hours to cover higher rent obligations. While this reflects financial motivation and effort, it can also be welfare-reducing. Because typical voucher recipients are working poor, increased work hours may induce higher stress level and reduce parental time with children. The latter can be particularly damaging, as reductions in parental supervision are associated with greater behavioral problems and lower cognitive outcomes among children (Aizer, 2004; Ruhm, 2008).

At the same time, this labor adjustment may have more positive interpretations. A higher out-of-pocket rent burden could counteract the moral hazard associated with voucher receipt, which has been shown to reduce work effort and increase participation in other welfare programs (Jacob and Ludwig, 2012). Alternatively, the need to meet higher expenses may motivate households to relocate to other housing units—likely in higher-rent neighborhoods—that meet updated payment

[16] For example, voucher families were given one or two years of notice before new payment standards take effects. Some phased the payment standard reduction gradually (Center on Budget and Policy Priorities).

standards under SAFMR.

Among those who remain in low-rent neighborhoods, the policy may indirectly improve neighborhood quality through the de-concentration of poverty (or, equivalently, gentrification) (Brummet and Reed, 2019; McKinnish et al., 2010).[17]

Spatial distribution of voucher households affect market rents SAFMR induces higher demand for rental units in high-rent areas and reduce it in low-rent ones, putting upward and downward pressure on rents, respectively (Park, 2024).[18] These spillover effects will directly feed back into the government's cost structure, as rents at which voucher households lease their units at determine the subsidy amount.

The aforementioned impacts on fiscal cost could have meaningful implications on administration of not only the voucher program itself but also on other housing initiatives. Lower per-household costs free up resources that could be used to reduce waitlist times, admit more eligible households, and expand the overall size of the voucher program. Alternatively, local PHAs may choose to reallocate savings from SAFMR to other housing-related initiatives within their portfolio. While this might not directly expand HCV, it could still improve outcomes for households served by other forms of housing assistance, such as project-based subsidies or public housing. SAFMR potentially lowers the cost of vouchers over time and create space for programmatic expansion or investment into other programs.

Long-Run Implications

The impact of SAFMR on long-term cost trajectory remains uncertain. If the policy remains in place over many years and continues to relocate a growing share of voucher households into high-rent neighborhoods, cumulative increase in the fiscal cost may eventually outpace the offsetting effects from positive neighborhood effects and savings from low-rent neighborhoods. Over time, the federal subsidy burden could rise substantially, limiting the program's ability to admit new

[17] Park (2024) not only documents less voucher families living low-rent neighborhoods but also in-migration of higher-income households in these neighborhoods as it became more expensive for unsubsidized households to live in higher-rent neighborhoods.

[18] Susin (2002) also finds that the implementation of voucher program itself induces increase in prices of rental housing. The paper finds that vouchers have caused a $8.2 billion increase in the total rent paid by unsubsidized low-income households, whereas it only provided $5.8 billion to voucher recipients.

HCV-eligible households or maintain its current reach. This raises concerns about the long-term sustainability of SAFMR under current budget allocations.

4 Data

The primary data source for this study is the Picture of Subsidized Households (PoSH), a publicly available dataset published annually by the Department of Housing and Urban Development (HUD). This panel data provides comprehensive information on households receiving federal housing assistance, including residents of public housing and participants in the tenant-based rental assistance such as HCV. The data are aggregated from HUD's administrative records on subsidized households.

The main analysis employs the data at the PHA level spanning from 2014 to 2023 to examine how the costs and reach of the HCV program evolved before and after SAFMR implementation. Key variables include average household income of voucher households, average rent paid by voucher households, and average HUD subsidy amount per voucher-month—all of which are critical components affecting the fiscal program costs.[19,20] To assess changes in non-fiscal program components, I analyze measures including average waitlist time, the share of households that are newly admitted in the past year, and the total number of HCV-contracted units, which reflects the total households receiving vouchers.

Since PHAs administer voucher programs across multiple ZIP codes within their regions of operations, neighborhood-level analysis using PHA-level data is limited. To supplement the main analysis, I incorporate ZIP code-level PoSH data, which enables more geographically granular examination of SAFMR's heterogeneous impact on program costs across neighborhoods within SAFMR-adopting metros.[21] I provide average summary statistics at both PHA- and ZIP code-levels by SAFMR-adopting cohorts, using the Picture of Subsidized Households, and they are presented

[19]Rent paid by voucher households represents their gross contribution, including both rent and utility payments. HUD subsidy captures not only the monthly housing assistance payment (HAP) but also administrative costs.

[20]For the federal spending variable, I replace 2018 values with inflation-adjusted 2017 values due to a substantial one-time spending increase that happened in 2018 related to SAFMR implementation costs. PHAs incurred temporary expenses such as increased staff time, system updates, software changes, and training during the policy transition year. These represented the significant upfront expenditures from SAFMR implementation (Patterson and Silverman, 2019). I also exclude observations where federal spending per voucher-month exceeds $3,000, as these represent extreme outliers.

[21]ZIP code-level PoSH data are available beginning in 2017 and are therefore used from that year onward, unlike PHA-level data.

Table 1: Average PHA- and ZIP Code-Level Summary Statistics for 2018 SAFMR Adoption Cohort

	PHA Level		ZIP Code Level			
			High Rent		Low Rent	
	2017	2023	2017	2023	2017	2023
Voucher Household Characteristics						
Number Voucher Households	1,817	2,024	171	209	382	387
	(2,857)	(3,161)	(242)	(278)	(473)	(459)
Percent Minority	70.4	71.8	66.1	70.0	72.1	73.3
	(24.0)	(22.8)	(25.0)	(22.9)	(24.1)	(23.3)
Percent Disabled	22.0	24.6	26.1	26.7	26.4	29.5
	(9.1)	(9.7)	(12.5)	(12.4)	(11.7)	(12.6)
Percent Female Head with Children	41.8	35.9	41.0	39.2	39.9	33.4
	(13.5)	(11.9)	(19.8)	(19.3)	(16.3)	(15.3)
Percent Over-Housed	17.8	18.4	16.4	16.9	20.2	20.4
	(9.3)	(9.3)	(9.4)	(9.5)	(11.0)	(10.8)
Fiscal Outcomes						
Household Income ($)	15,865	19,981	16,315	20,883	15,144	18,898
	(2,712)	(3,509)	(2,920)	(3,689)	(2,596)	(3,325)
Percent households whose major source of income comes from...						
Wage and business income	34.3	31.6	32.1	31.7	30.6	27.9
	(10.7)	(10.9)	(12.8)	(12.8)	(10.9)	(11.0)
Welfare	1.8	1.5	1.9	2.2	2.6	2.1
	(1.8)	(2.0)	(2.7)	(3.4)	(3.4)	(3.0)
Rent Contribution ($)	399	508	432	535	388	492
	(70)	(94)	(88)	(106)	(76)	(92)
Federal Spending ($)	876	1,116	857	1,242	841	1,158
	(322)	(329)	(190)	(251)	(191)	(264)
Non-Fiscal Outcomes						
Months on Waitlist	37	33	26	28	31	27
	(37)	(28)	(31)	(25)	(29)	(27)
Share Newly Moved In (%)	9.4	9.6	7.6	10.6	7.8	9.0
	(10.8)	(4.8)	(8.9)	(7.7)	(7.7)	(6.1)
Neighborhood Characteristics Where Voucher Households Reside						
Percent Poverty	19.9	16.3	13.6	10.5	21.3	17.3
	(23.6)	(22.3)	(8.2)	(7.1)	(10.3)	(9.6)
Percent Minority	52.4	55.3	41.1	44.9	53.5	56.5
	(23.6)	(22.3)	(23.0)	(24.0)	(27.4)	(27.4)
N	148-155		383-429		441-457	

Notes: This table reports average summary statistics of various characteristics at both the PHA and ZIP code levels for the 2018 SAFMR adopting cohort. For ZIP code–level stats, I categorize neighborhoods by rent level, defined using the ratio of the ZIP code–level FMR to the metro-level FMR in 2018: high-rent neighborhoods have a ratio greater than or equal to one, and low-rent neighborhoods have a ratio below one. The data are drawn from the Picture of Subsidized Households (PoSH) at both aggregation levels. The dollar amounts are displayed in each respective year's dollar. Standard deviations are in parenthesis. The number of observations varies across years because the PoSH occasionally omits some PHAs and ZIP codes. I therefore report the range of observations over the analysis period. All reported averages are weighted by the number of voucher households, except for the number of voucher households itself.

in Table 1. For ZIP code-level analysis, I also supplement neighborhood-level characteristics from the 5-year American Community Surveys from 2013-2017 to 2019-2023.

Data on Fair Market Rents (FMRs) at both metropolitan and ZIP code levels are obtained from HUD. For each fiscal year, HUD publishes FMR values for various geographical denominations, regardless of whether a region operates under SAFMR rules or not. This comprehensive coverage enables computation of ZIP code-to-metro FMR ratios, which I use to classify neighborhoods by rent levels.

5 Empirical Strategy

Throughout the analysis, I implement a difference-in-differences (DID) approach at the PHA level to estimate the causal impact of SAFMR on various program costs. I compare various outcomes for PHAs mandated to adopt SAFMR in 2018 (treated group) to those of PHAs mandated to adopt the policy later in 2025 (control group). The baseline specification employs an event-study framework as follows:

$$Y_{pt} = \alpha_p + \phi_t + \sum_{\tau} \beta_\tau \times \mathbb{I}_{pt}[t - t^* = \tau, \text{SAFMR}_p = 1] + \gamma X_{pt} + \varepsilon_{pt} \tag{1}$$

where Y_{pt} represents the outcome of interest for PHA p in year t. The model includes PHA and year fixed effects, α_p and ϕ_t, respectively. The summation term interacts an indicator variable for treatment status with an event time dummy $\tau = t - t^*$ where t^* represents the treatment year (i.e. $t^* = 2018$). The coefficients of interest are β_τ's which capture the changes of outcomes in treated PHAs relative to the control group in each year before and after SAFMR adoption. The coefficient of the treatment year (i.e. $\tau = 0$) is normalized to zero.

The primary outcomes of interest include both fiscal and non-fiscal program components. The fiscal outcomes include (1) average household income, (2) gross household rent contribution per month, and (3) federal spending per unit-month. I then examine the impact on non-fiscal components, including (1) average months voucher households spend on the waitlist, (2) percentage of voucher households newly admitted to the program (i.e. those that have been in the program for less than a year), and (3) total number of households receiving vouchers. The model also

controls for a set of time-varying PHA characteristics denoted X_{pt}. It includes the percentage of voucher households headed by a minority, percentage headed by a female with children, percentage of voucher households with a disability, percentage with an elderly with age 62 or older, the percentage of households living in a studio or a 1-bed, 2-bed, or 3-bed or more housing units, and percentage of over-housed households (i.e. those with more bedrooms than occupants).

I estimate the model using data from 2012 to 2024 as the control group is no longer a valid control group since they all adopt SAFMR starting January 1, 2025. Also, to account for heterogeneity in PHA size, I estimate the equation using weighted least squares, weighting observations by the total number of voucher households in each PHA.[22]

To complement this dynamic specification, I also estimate the following to estimate the average effects:

$$Y_{pt} = \alpha_p + \phi_t + \beta \times \mathbb{I}_{pt}[t > t^*, \text{SAFMR}_p = 1] + \gamma X_{pt} + \varepsilon_{pt} \tag{2}$$

where β is the coefficient of interest representing the average impact of SAFMR on the outcome variable. Here, the indicator variable interacts an indicator variable for whether the year pertaining to the observation is after SAFMR adoption (i.e. post-2018) with an indicator variable for whether the PHA is treated.

Later in the analysis, I replicate the above PHA-level specifications using ZIP code-level PoSH data to provide greater geographical granularity and explore heterogeneity in SAFMR's impact across neighborhoods. This allows me to examine how treatment effects vary within metropolitan areas, particularly with respect to neighborhoods' pre-existing rent levels. Due to data availability, ZIP code-level analyses are restricted to years from 2017 to 2023. Also, covariates are adjusted accordingly to control for various neighborhood characteristics.

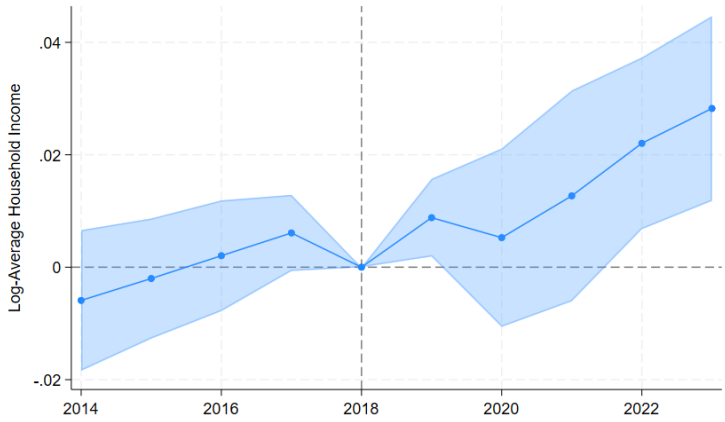
6 Empirical Results

6.1 SAFMR's Effects on Income of Voucher Households

I begin by estimating SAFMR's aggregate impact on the average income of voucher households in PHAs mandated to adopt the policy in 2018, using PHAs scheduled to adopt in 2025 as the

[22]No weights were used for analysis involving the total number of voucher households itself as an outcome.

Figure 3: Impact on Income of Voucher Households



Notes: The figure above plots the coefficients from difference-in-differences model estimating the impact of SAFMR on average household income at the PHA level. The regressions includes PHA- and year-fixed effects with control variables and are weighted by the total number of HCV-contracted units. 90% confidence intervals are shown. The standard errors are clustered at the PHA level.

comparison group. Figure 3 plots DID estimates from Equation (1), using average household income as an outcome variable.

Household income increased significantly following implementation. Six years after adoption, the average income of voucher households in SAFMR-mandated PHAs rose 2.8%, corresponding to an increase of approximately $529 per household per year (about $44 per month). The timing and persistence of these gains suggest that improved access to higher-opportunity neighborhoods to higher earnings among voucher households.

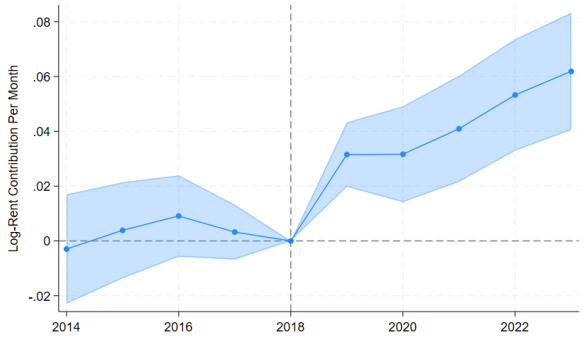
It is important, however, to interpret the estimates as an average effect across *all* voucher households within a PHA, not solely those who relocated to higher-rent neighborhoods. Part of the observed increase may reflect behavioral responses among households that remained in low-rent neighborhoods facing reduced payment standards under SAFMR. I examine these mechanisms in greater detail, again, in Section 6.3 below.

6.2 SAFMR's Effects on Overall Fiscal Costs of Voucher Program

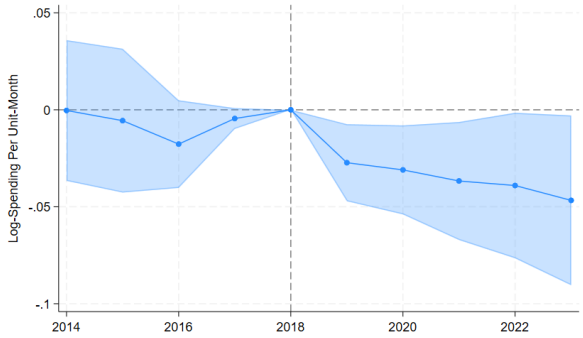
The income gains documented above have direct implications for the program's fiscal cost. Because voucher households contribute a fixed share of their income toward rent (provided the unit rent falls below the payment standard), higher earnings should mechanically increase rent contributions

Figure 4: Impact on Fiscal Components of Program Cost

(a) Rent Contribution by Voucher Household



(b) Federal Spending Per-Voucher Month



Notes: The figures above plot the coefficients from difference-in-differences regressions for respective fiscal outcomes. All regressions include PHA- and year-fixed effects with control variables. Regressions are weighted by the total number of HCV-contracted units. 90% confidence intervals are drawn, and the standard errors are clustered at the PHA level.

and feed back into lowering federal subsidies. Figure 4 illustrates these relationships.

The left panel of the figure shows that monthly rent contributions by voucher tenants increased steadily for treated PHAs, reaching a 6.2% increase by 2023, which is equivalent to $29 per month. However, this increase substantially exceeds what income gains alone would predict. The observed 2.8% income increase should generate approximately $13 in additional monthly rent contributions. The larger observed increase of $29 reflects an additional mechanism that SAFMR reduced payment standards in low-rent neighborhoods, forcing existing tenants to cover rent amounts previously subsidized by the government.[23] This explains the immediate 3.2% jump in rent contributions in 2019, when incomes increased by only 0.9%.

Consistent with rising tenant contributions, per-voucher federal spending significantly and steadily declined as well. The right panel of the figure shows a 4.7% reduction in federal subsidy payments by 2023, equivalent to $57 less per voucher monthly. This finding contradicts concerns that expanding access to high-rent areas would mechanically increase public costs. Instead, SAFMR generated *net fiscal savings*. The next section explores the mechanisms underlying these aggregate cost reductions in detail.

[23]For illustration, consider a voucher household earning $1,000 per month and renting a $1,200 unit in a low-rent neighborhood. Under the old metropolitan payment standard of, say, $1,200, the tenant would contribute $300 toward rent, with the remaining $900 covered by the voucher. After SAFMR implementation, suppose the local payment standard in that ZIP code falls to $1,000 to better reflect local market rents. If the household remains in the same unit, the tenant must now pay the remaining $200 difference. Their total out-of-pocket payment thus rises from $300 to $500 per month.

6.3 Mechanisms Behind Cost Reduction

The observed net decline in federal spending reflects competing forces across different neighborhoods based on rent levels as discussed in Section 3. To understand these mechanisms, I estimate a ZIP code-level version of Equation (1), comparing neighborhoods in metropolitan areas that adopted SAFMR in 2018 to those scheduled to adopt in 2025.[24] I run regressions separately for high- and low-rent ZIP codes to capture heterogeneity in treatment effects by local rent levels. I classify neighborhoods into high-rent if SAFMR-to-metro FMR ratio measured based on the 2-bedroom rates set for 2018 is greater than or equal to 1 and low-rent if the ratio is below 1.[25]

6.3.1 High-Rent Neighborhoods

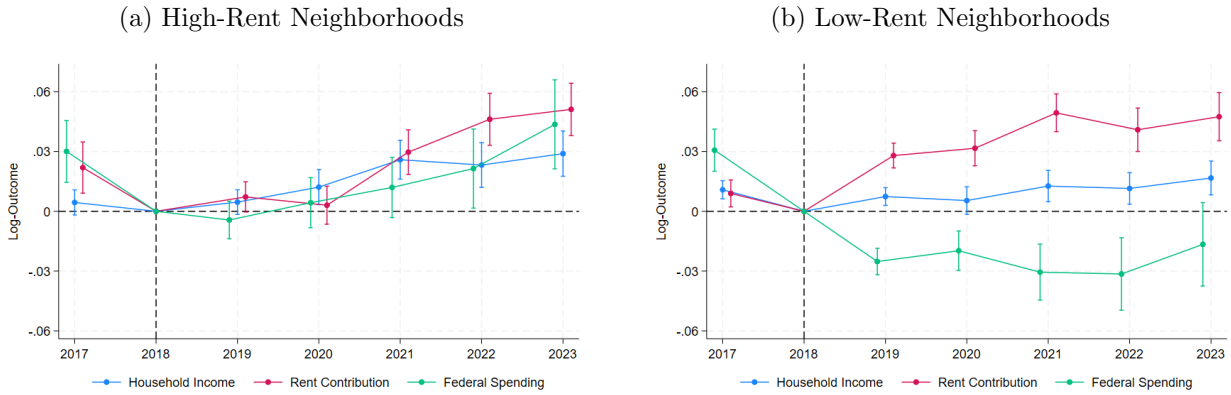
As shown in panel (a) of Figure 5, high-rent neighborhoods experienced income gains, consistent with neighborhood effects documented earlier. Average household income increased by 2.9%, with rent contribution rising proportionately. Higher payment standards, as expected, increased federal spending per voucher by 4.4% by 2023. Despite higher government costs in high-rent areas, it is important to recognize increased tenant contributions from increased incomes partially offset these higher costs. Without neighborhood effects, the mechanical increase in spending should have been much higher.

One potential concern in interpreting this result is positive selection. Households who relocated may have been disproportionately composed of those with greater labor market or income potential, such that the observed income gains reflect pre-existing advantages rather than neighborhood effects. While I cannot directly test for this, the available evidence suggests that relocation to high-rent neighborhoods occurred across a diverse range of household types, including minority families and families with elderly members, individuals with disabilities, and female-headed households with children as shown in Appendix Figure B.2. I also find that the moves from low- to high-rent areas came from all across the income distribution among voucher households as suggested in Appendix

[24] A total of 16 metros out of 23 metros that were mandated to adopt SAFMR starting in 2018 were used in the analysis to enable clean identification and prevent contamination from policy exemptions and geographical spillovers. I explain this in Appendix A.1.

[25] Because FMRs are proportional across bedroom sizes, alternative definitions of high-rent neighborhoods based on one- or three-bedroom FMRs yield nearly identical results. I use the two-bedroom rate as the primary measure, as it is the most representative unit size, accounting for approximately 34% of all voucher households in 2018, similar to the shares for one- and three-bedroom units (32% and 34%, respectively).

Figure 5: Impact on Fiscal Components by Neighborhood Rent Level



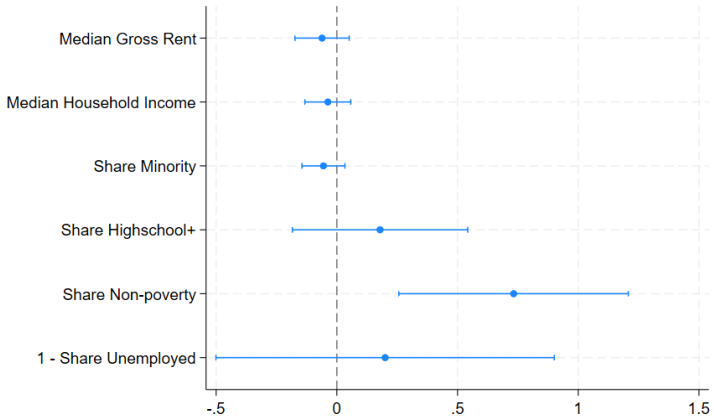
Notes: The figures above plot the coefficients from difference-in-differences regressions at the ZIP code level using household income and federal spending as outcome variables. The left panel shows results in high-rent neighborhoods, and the right panel shows results in low-rent neighborhoods. 90% confidence intervals are drawn, and the standard errors are clustered at the ZIP code level.

Figure B.3.

Another potential selection mechanism is through landlord behavior. Landlords operating in high-rent neighborhoods may prefer voucher tenants with relatively higher income or of non-minority groups. This constraint may be worse for those who are newly admitted to the voucher program because they face time constrains to secure housing before their vouchers expire (Ellen et al., 2024). If this type of screening were widespread, we would expect a compositional shift of voucher households being administered by SAFMR-adopting PHAs toward higher-income or non-minority households. However, Appendix Figure B.4 shows that the income and demographic profiles of voucher recipients remain unchanged over time, providing further evidence against this type of selection.

Neighborhood Characteristics of Opportunity Where, exactly, are neighborhoods of "opportunity"? Since relocation to high-rent neighborhoods was associated with income gains among voucher households, a natural question follows: which neighborhood characteristics are most predictive of the observed economic improvements? While rent levels may signal opportunity, they do not, by themselves, determine residents' economic outcomes. Rather, opportunity is likely linked to neighborhood attributes that are only loosely correlated with rent. Neighborhood opportunity can operate through various channels, including—but not limited to—peer effects, neighborhood

Figure 6: Correlates for Household Income in High-Rent Neighborhoods



Notes: The figure above displays the estimated coefficients from regression of log voucher household income on listed neighborhood characteristics. The sample only includes high-rent neighborhoods within 2018 SAFMR cohort metros. Regressions include metro fixed effects and additional ZIP code-level controls. 90% confidence intervals are drawn.

safety, physical environment, and access to jobs. However, identifying the causal relationship between specific neighborhood characteristics and better outcomes is challenging due to non-random selection of families into neighborhoods (Chyn and Katz, 2021).

Although the research setting does not allow causal identification of specific neighborhood features, I conduct a descriptive analysis to explore which characteristics are correlated with higher household income among high-rent neighborhoods. I regress log household income in 2023 (six years after SAFMR adoption) on various ZIP code-level characteristics, including log median gross rent, log median household income, and various demographic shares for high-rent neighborhoods within 2018 SAFMR cohort metros. Figure 6 presents the estimated coefficients on each neighborhood characteristics.

Somewhat surprisingly, neither rent levels nor median neighborhood income are meaningfully associated with higher voucher households' income. Similarly, neighborhood education levels and racial composition show no systematic relationship. The share of employed individuals over 16, as measured by 1 minus the unemployment share, shows no correlation with household income levels.

One characteristic, however, shows both statistically and economically significant associations with household income: neighborhood poverty levels. A one percentage point increase in the share of residents living above the poverty line is associated with a 0.73% higher average voucher household income. While this association is descriptive rather than causal, it suggests that living

in less impoverished neighborhoods may play a key role in shaping economic opportunities for low-income families.

6.3.2 Low-Rent Neighborhoods

Low-rent neighborhoods exhibited markedly different patterns after SAFMR implementation as shown in panel (b) of Figure 5. Rent contributions jumped immediately following policy adoption. This is due to sudden reductions in payment standards that require tenants to pay more out of their own pocket. After this initial shock, contributions increased more gradually, reflecting a steady rise in household income. By 2023, incomes had increased by about 2%. This income growth likely reflects either (1) increased labor market participation to cover higher out-of-pocket expenses or (2) compositional effects from poverty de-concentration improving neighborhood conditions (or both). The relatively sharp 0.8% jump in income one year after policy adoption suggests labor market responses may be a dominating channel. I test this directly in the next section my examining households' major income sources. In parallel with these patterns, federal spending fell sharply in the first year and remained at this lower level thereafter.

6.3.3 Income Sources and Work Incentives

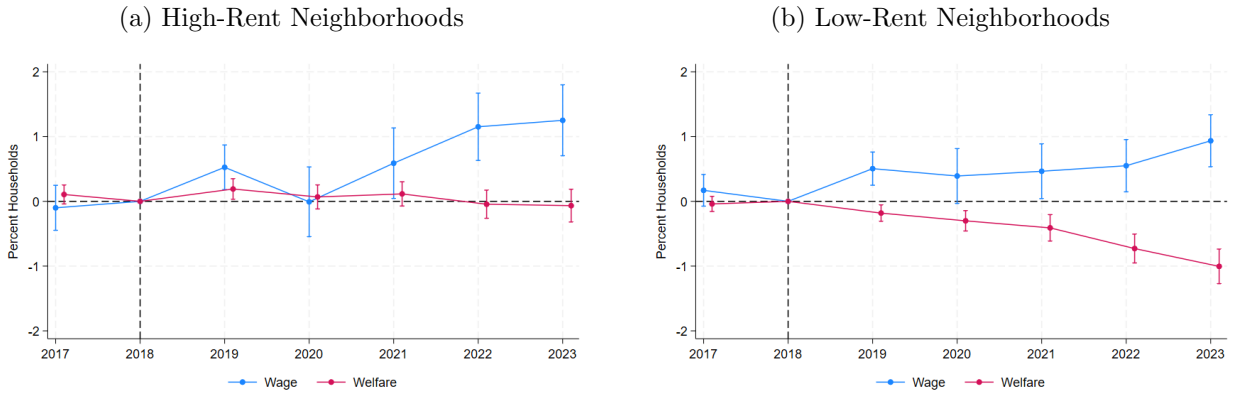
To further investigate the income-side mechanisms, I analyze changes in the share of households by major income source. Figure 7 shows results for high- and low-rent neighborhoods.[26]

In high-rent neighborhoods (left panel), the share of households whose primary income source is wage or business income rose steadily by more than one percentage point (from a baseline average of 33%). At the same time, there was no change in the share relying primarily on welfare income, supporting the interpretation that neighborhood access improved labor market outcomes rather than merely shifting the composition of beneficiaries. This aligns with positive neighborhood effects as a core mechanism for the observed income gains in high-rent areas.

In low-rent neighborhoods (right panel), the share of households primarily relying on welfare income declined significantly over time. The share earning income from labor, on the other hand, increased, supporting the notion that reduced subsidies from lower payment caps triggered greater labor market activity among voucher recipients. This behavioral response likely explains the post-

[26] I show comparable figure from the PHA-level DID analysis in the Appendix.

Figure 7: Share of Households by Major Income Source



Notes: The figures above plot the coefficients from difference-in-differences regressions at the ZIP code level using the share of households whose major income source is derived from wage and welfare (including Temporary Assistance for Needy Families, General Assistance, or Public Assistance), respectively, as outcome variables. The left panel shows results in high-rent neighborhoods, and the right panel shows results in low-rent neighborhoods. 90% confidence intervals are drawn, and the standard errors are clustered at the ZIP code level.

policy income growth in low-rent neighborhoods and represents one of key channels through which SAFMR contributes to federal cost reduction.

6.3.4 Effects on Landlord Overcharging Behavior and Market Rents

Beyond the aggregate spending reductions documented above, several interacting mechanisms under SAFMR may further influence program costs: (1) reduced landlord overcharging, (2) tenants' reduced tendency to over-house, and (3) changes in neighborhood market rents. While a full decomposition of these channels is not feasible with the available data, I provide indirect evidence for each mechanism in this and the following subsection.

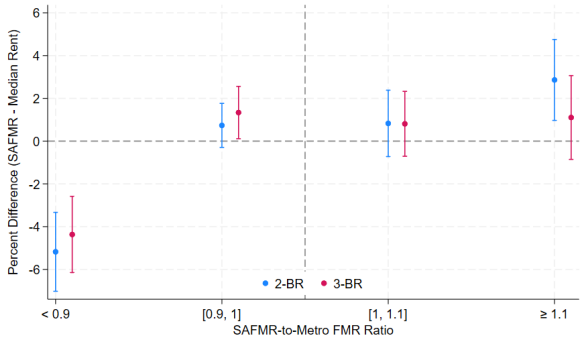
If landlords previously extracted inflated rents under metro-wide FMRs, SAFMR should narrow the gap between rent caps and prevailing market rents, particularly in low-rent areas with inflated pre-policy payment standards. To test this, I estimate a modified version of DID as follows

$$Y_{jt} = \alpha_p + \phi_t + \sum_{g \in \mathcal{G}} \beta_g \times \mathbb{I}_{jt}[t > t^*, \text{SAFMR}_j = 1, \text{Group}_j = g] + \gamma X_{jt} + \varepsilon_{jt} \tag{3}$$

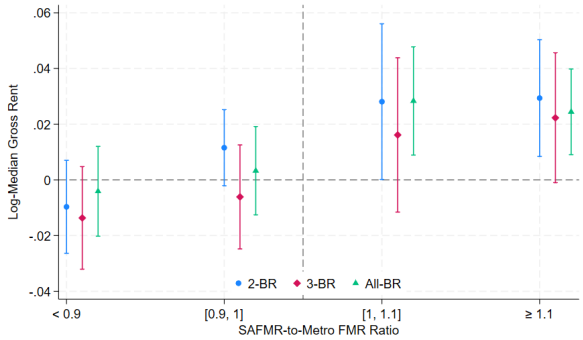
where ZIP codes j are grouped into four groups ($g \in \mathcal{G}$) based on their 2018 SAFMR-to-metro FMR FMR ratios: (1) below 0.9, (2) 0.9 to 1.0, (3) 1.0 to 1.1, and (4) above 1.1. The first group would be the lowest-rent neighborhoods, while the last group consists of highest-rent neighborhoods. The

Figure 8: Reduction in Overcharging and Changes in Market Rents

(a) Difference between SAFMR and Market Rent



(b) Median Gross Rent



Notes: The figures above plot the coefficients from difference-in-differences regressions at the ZIP code level. The left panel uses percent difference between ZIP code-level FMR and median gross rent of neighborhoods by rent levels of neighborhoods as outcome. Regressions are run separately for the difference in 2-bedroom and 3-bedroom rates. The right panel uses log of median gross rents as outcome. This regression was run using only 2013-2017 ACS and 2019-2023 ACS. 90% confidence intervals are drawn, and the standard errors are clustered at the ZIP code level.

outcome variable of interest, Y_{jt}, is the percent difference between SAFMR and median gross rent of neighborhood j in year t. I estimate this model separately using SAFMR and median gross rent values for 2-bedroom and 3-bedroom housing units.[27,28] In estimation, I use the weighted least squares with each ZIP code weighted by the number of voucher households to account for how prevalent the practice of overcharging may have been across different neighborhoods.

Panel (a) of Figure 8 shows that the SAFMR-median rent gap declined by approximately five percentage points in the lowest-rent neighborhoods where the SAFMR-to-metro FMR ratio was below 0.9. This result holds for both 2-bedroom and 3-bedroom units. This reduction suggests HUD's revised payment limits suppressed overcharging in these areas, bringing rent prices at which a typical voucher household lease at closer to what are perceived as "fair" levels. In higher-rent neighborhoods, the gap remained unchanged, implying that overcharging was limited under both the prior metro-wide design and the new ZIP code-specific standards, as expected.

I next examine whether neighborhood market rents themselves changed following SAFMR implementation by estimating the same equation using median gross rent as the outcome variables

[27] Data on median gross rent for each neighborhood comes from the 5-year American Community Survey. Each year of the PoSH data is matched to the last year the ACS represents. For instance, PoSH data from 2017 was matched to 2013-2017 ACS and data from 2023 was matched to 2019-2023 ACS.

[28] Note that this analysis relies on the simplifying yet strong assumption that voucher households typically will max out on their subsidy available to them and lease units near the median rent of their neighborhood. While this may not hold universally, it provides a reasonable approximation for assessing how closely payment standards align with prevailing market rents.

(both for 2-bedroom and 3-bedroom units). As shown in the right panel of the figure, the market rents seemed to have increased by about 2-3% in high-rent neighborhoods defined by those where the ratio of SAFMR-to-metro FMR is greater than 1. However, no noticeable changes were detected in the lower end of the rent distribution.[29] These findings suggest that some of the SAFMR's fiscal savings in low-rent areas stemmed from eliminating landlord overcharging rather than the reduced market rents.

6.3.5 Reduction in Over-Housed Households

Housing vouchers are known to reduce overcrowding and improve access to larger living spaces among low-income households (Ellen, 2020; Kole, 2022; Mills et al., 2006). By subsidizing a portion of rent, vouchers enable families to afford units with more bedrooms and square footage than they otherwise could on their own.

However, in some cases, households may over-consume housing space relative to their needs. Prior to SAFMR, relatively generous metro-wide payment standards, particularly in low-rent areas, enabled not only landlords to overcharge but also possibly allowed voucher recipients to lease units that exceeded their needs. With payment caps set well above prevailing market rents, households could rent larger units than their household size warranted, a pattern referred to as "over-housing."[30]

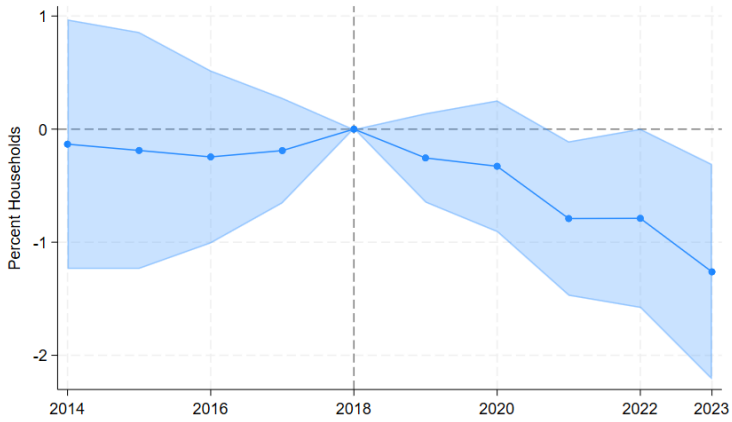
I find that the implementation of SAFMR limited these incentives. Using a PHA-level difference-in-differences regression, I estimate the effect of SAFMR on the share of over-housed households, defined as households occupying units with more bedrooms than household members. As shown in Figure 9, SAFMR reduced the share of over-housed households by 1.3 percentage points which represents a 6.8% decline relative to the 2017 baseline of 19.0% in treated PHAs.[31] The result suggests that by tying subsidy limits to ZIP code-level market rents, particularly for appropriately

[29] Park (2024) which studies the impact of SAFMR in the Dallas metro, on the other hand, finds that the market rents in low-rent neighborhoods decreased significantly. The difference in the results likely comes from the fact that there was no protection from lower payment standards in low-rent neighborhoods in Dallas for existing voucher households living in low-rent areas. With the sudden decrease in the payment limits, these households had to take more immediate actions to relocate to avoid having to pay more toward their own rents.

[30] In 2024, out of 2.8 million voucher households in the U.S., 22% of them were over-housed.

[31] One potential concern is that, in reverse, SAFMR could have pushed voucher households into more crowded housing conditions. However, I find no evidence of this outcome. As shown in Appendix Figure B.5, the share of households living in appropriately sized units, including those living in 1-bedroom, 2-bedroom, and 3-bedroom units remain stable following policy implementation. This suggests that the decline in over-housing did not come at the cost of increased overcrowding.

Figure 9: Impact on Over-Housed Voucher Households



Notes: The figure above plots the coefficients from difference-in-differences model estimating the impact of SAFMR on percent of over-housed voucher households (those living in housing units with more bedrooms than number of rooms) at the PHA level. The regressions includes PHA- and year-fixed effects with control variables and are weighted by the total number of HCV-contracted units. 90% confidence intervals are shown. The standard errors are clustered at the PHA level.

sized units, SAFMR reduced the financial feasibility of leasing over-sized units in low-rent areas where payment standards were adjusted downward.

This reduction in over-housing reflects one of key ways that enhances the efficiency of the voucher program. By curbing excessive consumption of housing space, SAFMR helps reduce unnecessary subsidy expenditures. Alongside reductions in landlord overcharging, it contributes to the cost-effectiveness of the program without compromising voucher households' access to adequate housing.

6.4 Back-of-the-Envelope Calculation of Change in Cost Structure

The preceding analysis show that SAFMR generates cost-offsetting income gains in high-rent areas and reduces government costs in low-rent areas. But what do these findings imply for the overall cost structure of the voucher program? In this section, I synthesize the ZIP code-level analysis to assess how geographic redistribution of vouchers translates into changes in aggregate federal expenditures. In particular, I combine treatment effect estimates with simple neighborhood-level statistics to quantify the dollar impacts of SAFMR.

Table 2 summarizes these average treatment effects from 2023 found in Figure 5 in dollar terms, along with key neighborhood-level summary statistics. In high-rent neighborhoods, annual household income among voucher recipients increased by $580, or about $48 per month. Their

Table 2: Average Treatment Effects in 2023 in Dollars

	High-Rent Neighborhoods	Low-Rent Neighborhoods
Summary Statistics in 2023		
Number of Voucher Households	89,626	170,784
Average Unit Rent	$1649	$1509
ATE in 2023 in Dollars		
Annual Household Income	$580	$316
Monthly Rent Contribution	$26	$23
Federal Spending Per Voucher-Month	$52	-$35

Notes: The table above reports corresponding average treatment effects (ATE) in 2023 based on ZIP code-level difference-in-differences estimates, translated into dollar terms. It also reports the number of voucher households residing in each respective neighborhood, along with the average unit rents, simply calculated by subtracting average utility allowance from the sum of voucher households' rent contribution and federal spending.

monthly rent contribution increased by $26, while federal spending per voucher-month increased by $52. This means that, absent any income gains, federal costs would have risen by the full $78 per voucher-month ($52+$26). These results imply that one-third of this projected cost increase was offset by tenant income gains in high-rent neighborhoods—a key finding that identifies the existence of a welfare program (partially) paying for itself in real time. This real-time feedback mechanism complements well the longer-run channel found in Hendren and Sprung-Keyser (2020). Low-rent neighborhoods, on the other hand, experienced a $35 net decline in federal spending.

A simple back-of-the-envelope calculation using the total number of voucher households in each rent group shows that aggregate federal spending increased by $56 million (in annual term) in high-rent neighborhoods. However, this was more than offset by a $72 million decrease in low-rent neighborhoods, leading to a net savings of $16 million, which accounts for about 0.5% of the total government spending on voucher program in the treated PHAs. At 2023 median rents of $1,406 per month from the Census estimate, this amount could fund approximately 950 additional vouchers, implying a 0.4% potential increase in program size if the budget is to remain fixed.

6.5 Effects on Non-fiscal Program Administration and Accessibility

Beyond fiscal implications, SAFMR may affect the administrative functioning of the voucher program. This section evaluates SAFMR's impact on non-fiscal components of program delivery. Table

Table 3: Impact on Administrative Components and Program Accessibility of HCV

	Months on Waitlist	Percent New Household	Total Household
Post × Treated	0.077	0.010	0.012
	(0.080)	(0.376)	(0.020)
Adjusted R-squared	0.559	0.509	0.993
Observations	3090	3090	3090

Notes: The table above reports regression estimates of average treatment effects on respective program outcomes of running the voucher program. Months on waitlist and total households are in log scale. All regressions include PHA- and year-fixed effects with control variables. Regressions are weighted by the total number of voucher households, except for using total households as an outcome variable. Standard errors are clustered at the PHA level and are reported in parentheses. Stars signify: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

3 presents average effects from estimating PHA-level regression of Equation (2) on outcomes including average waitlist duration, the share of newly admitted households to voucher program, and the total number of households receiving vouchers.[32]

Overall, the results suggest that cost savings did not translate into observable improvements in program administration. Waitlist times did not decrease, the share of newly admitted households remained unchanged, and the total number of households served showed no significant expansion. These findings are somewhat surprising, as lower per-voucher costs could, in principle, free up resources to reduce wait times or expand program access.

This is a puzzling and somewhat worrisome finding because the fiscal savings do not appear to have been redistributed to improve program efficiency. One possibility is that the magnitude of the cost reductions was too small or too diffuse across PHAs to translate into a noticeable improvement. A modest incremental savings may not have been sufficient to release a meaningful number of new vouchers or shorten waitlists. Another possibility is informational. If local PHA administrators perceived these cost reductions as transitory or idiosyncratic shocks rather than policy-induced, they may have been reluctant to commit to longer-term changes in program operations. Or, given their expectation that SAFMR will raise costs, they may have maintained a cautious approach to spending. If so, communicating the fiscal impacts of SAFMR to administrators could help ensure that realized savings translate into greater program accessibility in the future.

Another possible explanation is that PHAs reallocated SAFMR-related savings toward other

[32]Dynamic version of the DID estimates are presented in the Appendix.

Table 4: Spillover Effects on Administration of Public Housing Program

	Public Housing			
	Federal Spending	Months on Waitlist	Percent New Household	Total Household
Post × Treated	-0.041	-0.105	1.688**	0.010
	(0.031)	(0.069)	(0.686)	(0.041)
Adjusted R-squared	0.886	0.843	0.767	0.973
Observations	1481	1454	1468	1481

Notes: The table above reports regression estimates of average treatment effects on administrative components of running the public housing program in SAFMR-mandated PHAs. All regressions include PHA- and year-fixed effects with control variables. Regressions are weighted by the total number of households living in public housing, except for using total households as an outcome variable. Standard errors are clustered at the PHA level and are reported in parentheses. Stars signify: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

housing programs they operate. To explore this possibility, I examine whether SAFMR adoption affected the size or operations of other subsidized housing programs. Using PHAs that administer both HCV and public housing programs, I estimate treatment effects on public housing outcomes, the only other major federal housing program with consistently available data in PoSH. Table 4 reports the results.

Federal spending per public housing household-month remained unchanged following SAFMR adoption. Most non-fiscal measures also show no significant effects.[33] However, the share of newly admitted public housing households (i.e., those admitted within the past year) increased by 1.7 percentage points. While modest, this change suggests SAFMR-adopting PHAs may have reallocated some capacity toward expanding public housing admissions. However, I cannot confirm whether this reflects financial reallocation or other operational changes without detailed administrative budget data.

6.6 Heterogeneous Impact Across Metropolitan Areas

SAFMR's effects may vary substantially across metropolitan areas due to local housing market conditions, demographic structures, and spatial distributions of poverty and race (Eriksen et al.,

[33] Another possibility is that SAFMR savings could have been redirected to the Low Income Housing Tax Credit (LIHTC) program, a project-based subsidy that incentivizes private investment in affordable housing development. Unfortunately, I cannot assess this directly as PoSH data do not track outcomes for LIHTC program. Nonetheless, it is unlikely that the savings had a substantial effect on LIHTC. The scale of investment required for LIHTC development far exceeds the relatively modest per-household savings generated by SAFMR. Even if some PHAs attempted such reallocation, meaningful LIHTC expansion would require significant complementary state or federal funding beyond what SAFMR savings could provide.

2024). These local differences shape how effectively the policy expands access to high-opportunity neighborhoods and influence the fiscal components of voucher program operations.

A key determinant of SAFMR's impact is the degree of *rent segregation*, the disparity in rent levels between the most and least expensive neighborhoods within a metro. In metros with little rent variation, ZIP code-level FMRs remain close to the original metro-wide FMR, limiting SAFMR's impact.[34] Conversely, in highly rent-segregated metros with significant differences between expensive and affordable neighborhoods, the shift to ZIP code-level FMRs creates more dramatic changes in payment limits, potentially intensifying SAFMR's effects of relocation.

I quantify rent segregation using the ratio of the highest to lowest ZIP code-level FMR for 2-bedroom units within each metro. Thus, ratios closer to 1 indicate small rent variation, while higher ratios reflect greater segregation. I classify metros as *high rent segregation* if this ratio exceeds the median ratio among SAFMR-adopting metros, and *low rent segregation* otherwise.[35]

To investigate how SAFMR's fiscal impact varies with local rent segregation, I estimate Equation (1) separately for PHAs operating in high- and low-segregation metros. The results are presented in Figure 10 focusing on the three fiscal outcomes: average household income, rent contribution, and federal spending.

Voucher households in PHAs operating in both contexts experienced increase in their income. By 2023, average household income rose by 2.8% in highly segregated metros and by 3.3% in more integrated metros. However, the timing of these gains differed. In low-segregation metros, income increased steadily beginning in 2018, suggesting a prompt relocation to higher-opportunity areas. In contrast, income gains were realized more gradually and only became significant after 2021 in high-segregation metros. This suggests greater mobility frictions among voucher households due to the ex-ante spatial concentration of these households in low-rent areas.

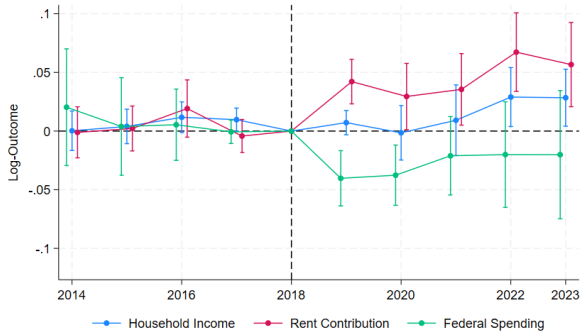
Tenant rent contributions followed similar patterns. In low-segregation metros, contributions increased gradually. In contrast, high-segregation metros experienced an immediate jump of 4.2% following policy adoption. This reflects steeper reductions in payment standards in low-rent neigh-

[34]Many other factors could determine the mobility rates of voucher households. Landlords tend to discriminate against voucher holders (Aliprantis et al., 2022; Ellen et al., 2023; Phillips, 2017). Also, given that 71% of all voucher holders in the U.S. is minority, they may face racial discrimination in the rental market (Christensen et al., 2021; Christensen and Timmins, 2023).

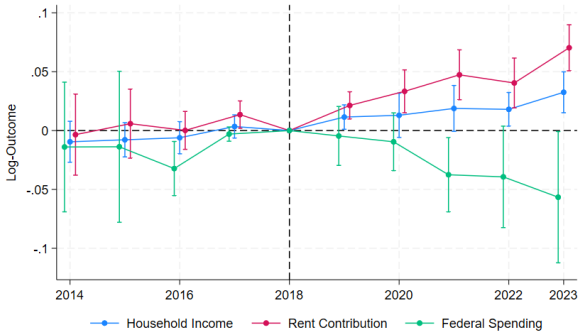
[35]Note that SAFMR-adopting metros were required to adopt the policy in part because of their relatively high levels of rent segregation in the first place. The full distribution of the ratios for all metros is shown in the Appendix.

Figure 10: Impact on Fiscal Components by Metro Rent Segregation

(a) High Rent Segregated Metros



(b) Low Rent Segregated Metros



Notes: The figures above plot the coefficients from difference-in-differences regressions at the PHA level using household income, rent contribution, and federal spending as outcome variables. The left panel shows results for PHAs operating in highly segregated metros based on the ratio of the highest-to-lowest SAFMR within metros, and the right panel shows results for PHAs operating in metros with low degree of segregation. The regressions are weighted by the total number of HCV-contracted units. 90% confidence intervals are drawn, and the standard errors are clustered at the PHA level.

borhoods, forcing tenants to cover a larger portion of rent from their own income. I illustrate this mechanism later in the Appendix where I dive into neighborhood-level heterogeneity across high- and low-rent neighborhoods.

Federal spending reveals a more dramatic difference between these types of metros. In high-segregation metros, spending declined in the first two years driven by higher tenant contributions. However, the decline stabilized thereafter, resulting in only a small net change. In contrast, low-segregation metros saw a sustained decline in spending, reaching 5.7% reduction by 2023. This suggests that in more rent-integrated metros, the income gains and cost savings from lower payment caps more than offset any increase in subsidies for high-rent units. Yet even in high-segregation metros, these channels also mitigated the projected increase in government fiscal costs. This is a key result given the projected increase in government rent burden would be much higher in these housing markets where the rents at which voucher households lease under SAFMR would increase much more substantially. I, again, explore this heterogeneity more deeply using the ZIP code-level analysis and the results are presented in the Appendix.

7 Small Area Fair Market Rents in the Long Run

The analyses thus far have focused primarily on the 2018 SAFMR cohort, capturing outcomes within the first six years following policy adoption. Would the patterns above persist over time in the longer run? It is plausible that neighborhood effects dominate in the short run. That is, the increase in voucher households' income from improved neighborhood conditions may more than offset the government's higher subsidy burden from voucher households' relocation to higher-rent neighborhoods. However, given the generally low mobility rates among low-income households, the full effects of SAFMR may take time to materialize (Jia et al., 2023). As more and more voucher households relocate to higher-rent neighborhoods over time, the cumulative effect on HUD's subsidy burden could grow.

In this section, I study SAFMR's longer run impact on fiscal and non-fiscal components using the Dallas-Plano-Irving, TX Metro Division as a case study. As the first metro to adopt SAFMR beginning in 2011, the Dallas metro has now operated the ZIP code-based payment standards for over 13 years and provides a valuable early case for assessing the policy's long-run impacts. However, I cannot simply apply a standard DID approach as before because I am examining a setting where the number of treated units (i.e. PHAs in Dallas) is small. It is also difficult to control for metro-specific idiosyncrasies given that Dallas is the only treated metro in this analysis. Given these, the parallel trends assumption underlying conventional DID is likely violated.

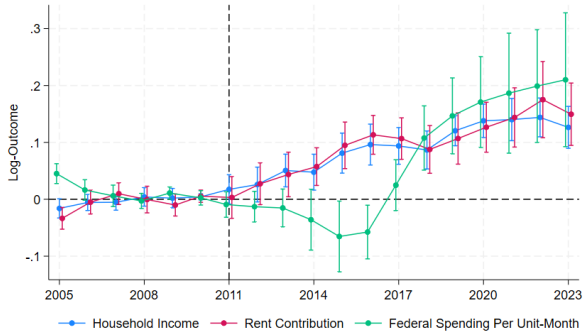
To address these limitations, I employ a synthetic difference-in-differences (SDID) approach following the method proposed in Arkhangelsky et al. (2021). This method is particularly well-suited for settings with a small number of treated units and where the parallel trends assumption required by DID may not hold. SDID combines the attractive features of both the DID and synthetic control methods, offering desirable robustness properties in this research setting.

SDID estimation proceeds in two stages. First, it constructs unit weights to align the pre-exposure trends in outcomes of unexposed control units with those of the treated units (i.e. PHAs in Dallas). For this study, I create synthetic versions of Dallas PHAs by reweighting control PHAs that adopted SAFMR in 2025.[36] These control PHAs are considered unexposed during the analysis

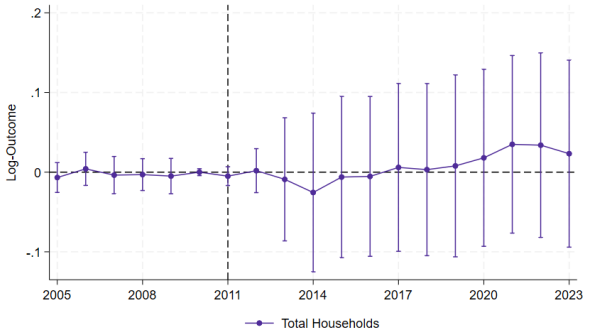
[36]The Dallas housing market experienced substantial and idiosyncratic changes during the period of analysis. To ensure valid comparisons, I describe in the Appendix how control metropolitan areas were selected for the long-run analysis. I also report results of SDID analysis using the full set of 2025 SAFMR-adopting cohort as the control group.

Figure 11: Long-Run Impact of Small Area Fair Market Rents

(a) Fiscal Outcomes



(b) Number of Voucher Households



Notes: The figures above plot the coefficients from synthetic difference-in-differences regressions for respective fiscal and non-fiscal outcomes. Placebo confidence intervals with 90% significance are drawn.

period for Dallas (2011 onward). The unit weights are derived by solving an optimization problem that matches pre-exposure trends. Second, it incorporates time weights that balance pre-exposure time periods (2005-2010) with post-exposure periods for the control units. These time weights emphasize periods that are similar to the target (treated) periods. Once these unit and time weights are determined, SDID estimator applies them within a two-way fixed effects regression to estimate the average treatment effect of SAFMR exposure. Overall, this procedure weakens the reliance on strict parallel trends assumptions by making the trends parallel through reweighting. Further details can be found in Arkhangelsky et al. (2021).

The first panel of Figure 11 presents results for fiscal outcomes. Household income shows a gradual upward trend, a consistent pattern with voucher households' relocating to higher-opportunity neighborhoods and improving economic prospects for these low-income households. Their rent contributions also increased steadily, in line with the increase in incomes. However, the long-run trend in federal spending shows an evolving pattern. In the early years following implementation, HUD spending declined, reflecting the pattern observed for the 2018 cohort in the previous analyses. Starting about six years after SAFMR adoption, however, this trend reversed and spending sharply increased.

This reversal suggests that while household income and rent contributions increased, they were eventually outpaced by the growing share of voucher households living in high-rent areas. As Appendix Figure B.10 shows, the share of voucher households living in high-rent neighborhoods

rose from 27% in 2010 to 43% in 2022. In absolute terms, this represents a jump from about 8,800 to 14,500 households. Out of the 16 percentage point increase, the majority of it (14 percentage points) occurred after 2017, coinciding precisely with the sharp increase in spending. Correspondingly, the number of households in low-rent areas fell approximately from 24,300 to 19,500.

The second panel presents the estimated impact on the number of voucher households, and the results provide no evidence that SAFMR caused a contraction in program size. The number of voucher households being administered by the PHAs in the Dallas metro remained constant over the period of analysis. Consistent with the program size, there is no detectable change in waitlist durations or new admissions, indicating that PHAs did not tighten program entry.[37] Overall, the long-run evidence points to no changes in non-fiscal components of administering the voucher program, although the fiscal costs seemed to have risen modestly.

8 Conclusion

This paper examines whether expanding access to high-opportunity neighborhoods through housing voucher redesign can generate sufficient income gains to offset the associated increase in fiscal costs, using the Small Area Fair Market Rent reform as a quasi-experiment. The findings reveal a striking result that challenges conventional assumptions about the trade-off in opportunity expanding policies. SAFMR not only improves locational outcomes for voucher recipients but also reduces federal expenditures.

The analysis identifies that SAFMR operates through multiple complementary channels that fundamentally alter the fiscal calculus of expanding opportunity though housing assistance. Voucher households who gained access to higher-rent neighborhoods experienced meaningful income gains, consistent with positive neighborhood effects documented in prior research. These income improvements translate directly into higher rent contributions that helped mitigate some increase in the increased government fiscal burden from higher subsidies.

Simultaneously, SAFMR reduced wasteful spending in low-rent neighborhoods. Lower payment caps in these areas eliminated chronic landlord overcharging that were prevalent under the traditional metro-wide Fair Market Rent system and de-incentivizes voucher households from over-

[37] See Appendix Figure B.12 for results on waitlist and new admission outcomes.

housing. They also induced labor market responses among remaining voucher households who increased work effort to cover higher out-of-pocket expenses.

The combination of these mechanisms more than offset the increased subsidy costs from voucher households' relocation to expensive neighborhoods. By 2023, federal spending per voucher had declined significantly, despite expanded access to more expensive, opportunity-rich areas. However, the Dallas case study, examining over a decade of the policy implementation, reveals important long-run fiscal saving effects that temper initial optimism about fiscal sustainability. Costs began rising substantially after six years as an increasing share of voucher households relocated to high-rent neighborhoods.

The findings in this paper offer important insights for welfare program design. The results demonstrate the existence of a direct, real-time fiscal feedback mechanism in social programs where beneficiaries contribute income-based shares toward costs. Improvements in economic opportunity translate immediately into higher beneficiary contributions, creating a self-reinforcing cycle that can make opportunity-expanding policies more fiscally sustainable than traditionally assumed. This altogether suggests a promising avenue for redesigning welfare programs more broadly: increasing subsidy levels while requiring meaningful income-based cost-sharing could potentially deliver greater benefits to recipients while reducing net government expenditures. This principle could apply across various welfare programs wherever program structure permits income-based beneficiary contributions that respond to improved economic outcomes.

The broader lesson for welfare program design is clear: policies that improve beneficiary outcomes while incorporating meaningful cost-sharing mechanisms can create virtuous cycles that benefit recipients, reduce fiscal burdens, and enhance program sustainability.

References

Aizer, A. (2004). Home alone: Supervision after school and child behavior. *Journal of public economics 88*(9-10), 1835–1848.

Aliprantis, D. (2017). Assessing the evidence on neighborhood effects from moving to opportunity. *Empirical Economics 52*(3), 925–954.

Aliprantis, D., H. Martin, and D. Phillips (2022). Landlords and access to opportunity. *Journal of Urban Economics 129*, 103420.

Aliprantis, D., H. Martin, and K. Tauber (2024). What determines the success of housing mobility programs? *Journal of Housing Economics 65*, 102009.

Aliprantis, D. and F. G.-C. Richter (2020). Evidence of neighborhood effects from moving to opportunity: Lates of neighborhood quality. *Review of Economics and Statistics 102*(4), 633–647.

Arkhangelsky, D., S. Athey, D. A. Hirshberg, G. W. Imbens, and S. Wager (2021). Synthetic difference-in-differences. *The American economic review 111*(12), 4088–4118.

Bayer, P., K. K. Charles, and J. Park (2021). Separate and unequal: Race and the geography of the american housing market. *Unpublished manuscript*.

Bergman, P., E. W. Chan, and A. Kapor (2020). Housing search frictions: Evidence from detailed search data and a field experiment. Technical report, National Bureau of Economic Research.

Bergman, P., R. Chetty, S. DeLuca, N. Hendren, L. F. Katz, and C. Palmer (2024). Creating moves to opportunity: Experimental evidence on barriers to neighborhood choice. *American Economic Review 114*(5), 1281–1337.

Blanco, H. and J. Song (2024). Discrimination against housing vouchers: Evidence from online rental listings. *Available at SSRN 4819763*.

Brummet, Q. and D. Reed (2019). The effects of gentrification on the well-being and opportunity of original resident adults and children.

Chetty, R. and N. Hendren (2018). The impacts of neighborhoods on intergenerational mobility i: Childhood exposure effects. *The quarterly journal of economics 133*(3), 1107–1162.

Chetty, R., N. Hendren, and L. F. Katz (2016). The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment. *American Economic Review 106*(4), 855–902.

Christensen, P., I. Sarmiento-Barbieri, and C. Timmins (2021). Racial discrimination and housing outcomes in the united states rental market. Technical report, National Bureau of Economic Research.

Christensen, P. and C. Timmins (2023). The damages and distortions from discrimination in the rental housing market. *The Quarterly Journal of Economics 138*(4), 2505–2557.

Chyn, E. (2018). Moved to opportunity: The long-run effects of public housing demolition on children. *American Economic Review 108*(10), 3028–3056.

Chyn, E., R. Collinson, and D. H. Sandler (2025). The long-run effects of america's largest residential racial desegregation program: Gautreaux. *The Quarterly Journal of Economics*, qjaf011.

Chyn, E. and L. F. Katz (2021). Neighborhoods matter: Assessing the evidence for place effects. *Journal of Economic Perspectives 35*(4), 197–222.

Clampet-Lundquist, S. and D. S. Massey (2008). Neighborhood effects on economic self-sufficiency: A reconsideration of the moving to opportunity experiment. *American Journal of Sociology 114*(1), 107–143.

Collinson, R. and P. Ganong (2018). How do changes in housing voucher design affect rent and neighborhood quality? *American Economic Journal: Economic Policy 10*(2), 62–89.

Cook, C., P. Z. Li, and A. J. Binder (2025). Where to build affordable housing? evaluating the tradeoffs of location. Working Paper.

Dastrup, S., M. Finkel, K. Burnett, and T. D. Sousa (2018). Small area fair market rent demonstration evaluation. *Available at SSRN 3615783*.

Dastrup, S., M. Finkel, and I. G. Ellen (2019). The effects of small area fair market rents on the neighborhood choices of families with children. *Cityscape 21*(3), 19–48.

Davis, M. A., J. Gregory, D. A. Hartley, and K. T. Tan (2021). Neighborhood effects and housing vouchers. *Quantitative Economics 12*(4), 1307–1346.

DeLuca, S. and P. Rosenblatt (2017). Walking away from the wire: Housing mobility and neighborhood opportunity in baltimore. *Housing policy debate 27*(4), 519–546.

Deryugina, T., L. Kawano, and S. Levitt (2018). The economic impact of hurricane katrina on its victims: Evidence from individual tax returns. *American Economic Journal: Applied Economics 10*(2), 202–233.

Deryugina, T. and D. Molitor (2020, November). Does when you die depend on where you live? evidence from hurricane katrina. *American Economic Review 110*(11), 3602–33.

Desmond, M. and K. L. Perkins (2016). Are landlords overcharging housing voucher holders? *City & Community 15*(2), 137–162.

Diamond, R. and T. McQuade (2019). Who wants affordable housing in their backyard? an equilibrium analysis of low-income property development. *Journal of Political Economy 127*(3), 1063–1117.

Ellen, I. G. (2020). What do we know about housing choice vouchers? *Regional Science and Urban Economics 80*, 103380.

Ellen, I. G., K. M. O'Regan, and S. Strochak (2024). Race, space, and take up: Explaining housing voucher lease-up rates. *Journal of Housing Economics 63*, 101980.

Ellen, I. G., K. O'Regan, and S. Strochak (2025). Pricing for opportunity: The impact of spatially varying rent subsidies on housing voucher neighborhoods and take-up. *Journal of Public Economics 250*, 105465.

Ellen, I. G., K. M. O'Regan, and K. W. Harwood (2023). Advancing choice in the housing choice voucher program: Source of income protections and locational outcomes. *Housing Policy Debate 33*(4), 941–962.

Eriksen, M., E. Kwon, and G. Yang (2024). The effect of targeted subsidies on the location choice of housing voucher recipients: Horizontal scaling of small-area fair market rents.

Freeman, L. (2012). The impact of source of income laws on voucher utilization. *Housing Policy Debate 22*(2), 297–318.

Freeman, L. and Y. Li (2014). Do source of income anti-discrimination laws facilitate access to less disadvantaged neighborhoods? *Housing Studies 29*(1), 88–107.

Galiani, S., A. Murphy, and J. Pantano (2015). Estimating neighborhood choice models: Lessons from a housing assistance experiment. *American Economic Review 105*(11), 3385–3415.

Garin, A., E. Jenkins, E. Mast, and B. A. Stuart (2025). Dynamic individuals, static neighborhoods: Migration and earnings changes in poor neighborhoods.

Gennetian, L. A., L. Sanbonmatsu, L. F. Katz, J. R. Kling, M. Sciandra, J. Ludwig, G. J. Duncan, and R. C. Kessler (2012). The long-term effects of moving to opportunity on youth outcomes. *Cityscape*, 137–167.

Haltiwanger, J. C., M. J. Kutzbach, G. Palloni, H. O. Pollakowski, M. Staiger, and D. H. Weinberg (2024). The children of hope vi demolitions: National evidence on labor market outcomes. *Journal of Public Economics 239*, 105188.

Hendren, N. and B. Sprung-Keyser (2020). A unified welfare analysis of government policies. *The Quarterly journal of economics 135*(3), 1209–1318.

Horn, K. M., I. G. Ellen, and A. E. Schwartz (2014). Do housing choice voucher holders live near good schools? *Journal of Housing Economics 23*, 28–40.

Jacob, B. A. and J. Ludwig (2012). The effects of housing assistance on labor supply: Evidence from a voucher lottery. *American Economic Review 102*(1), 272–304.

Jia, N., R. Molloy, C. Smith, and A. Wozniak (2023). The economics of internal migration: Advances and policy questions. *Journal of economic literature 61*(1), 144–180.

Katz, L. F., J. R. Kling, and J. B. Liebman (2001). Moving to opportunity in boston: Early results of a randomized mobility experiment. *The quarterly journal of economics 116*(2), 607–654.

Kling, J. R., J. B. Liebman, and L. F. Katz (2007). Experimental analysis of neighborhood effects. *Econometrica 75*(1), 83–119.

Kole, K. (2022). Housing vouchers reduce residential crowding. *Journal of Housing Economics 55*, 101822.

Kontokosta, C. E. (2014). Mixed-income housing and neighborhood integration: Evidence from inclusionary zoning programs. *Journal of Urban Affairs 36*(4), 716–741.

Kontokosta, C. E. (2015). Do inclusionary zoning policies equitably disperse affordable housing? a comparative spatial analysis. *Journal of Housing and the Built Environment 30*, 569–590.

Ludwig, J., G. J. Duncan, L. A. Gennetian, L. F. Katz, R. C. Kessler, J. R. Kling, and L. Sanbonmatsu (2012). Neighborhood effects on the long-term well-being of low-income adults. *Science 337*(6101), 1505–1510.

Ludwig, J., G. J. Duncan, L. A. Gennetian, L. F. Katz, R. C. Kessler, J. R. Kling, and L. Sanbonmatsu (2013). Long-term neighborhood effects on low-income families: Evidence from moving to opportunity. *American economic review 103*(3), 226–231.

Mazzara, A. and B. Knudsen (2019). Where families with children use housing vouchers. *Center on Budget and Policy Priorities 3*.

McKinnish, T., R. Walsh, and T. K. White (2010). Who gentrifies low-income neighborhoods? *Journal of urban economics 67*(2), 180–193.

Mendenhall, R., S. DeLuca, and G. Duncan (2006). Neighborhood resources, racial segregation, and economic mobility: Results from the gautreaux program. *Social Science Research 35*(4), 892–923.

Mills, G., D. Gubits, L. Orr, D. Long, J. Feins, B. Kaul, M. Wood, A. Jones, et al. (2006). Effects of housing vouchers on welfare families. *Washington, DC: US Department of Housing and Urban Development, Office of Policy Development and Research. Retrieved October 8*(2010), 2.

Park, J. (2024). Improving access to opportunity: Housing vouchers and residential equilibrium. Technical report, Working Paper.

Patterson, K. and R. Silverman (2019). Small area fair market rents (safmrs): An analysis of first year implementation in mandatory metropolitan areas and barriers to voluntary implementation in other areas. *Poverty and Race Research Action Council*.

Phillips, D. C. (2017). Landlords avoid tenants who pay with vouchers. *Economics Letters 151*, 48–52.

Reina, V., A. Acolin, and R. W. Bostic (2019). Section 8 vouchers and rent limits: Do small area fair market rent limits increase access to opportunity neighborhoods? an early evaluation. *Housing Policy Debate 29*(1), 44–61.

Rosen, E. (2020). *The Voucher Promise:" Section 8" and the Fate of an American Neighborhood*. Princeton University Press.

Ruhm, C. J. (2008). Maternal employment and adolescent development. *Labour economics 15*(5), 958–983.

Schwartz, H. L., L. Ecola, K. J. Leuschner, and A. Kofner (2012). Is inclusionary zoning inclusionary? a guide for practitioners. technical report. *RAND Corporation*.

Susin, S. (2002). Rent vouchers and the price of low-income housing. *Journal of Public Economics 83*(1), 109–152.

Weinberg, B. A., P. B. Reagan, and J. J. Yankow (2004). Do neighborhoods affect hours worked? evidence from longitudinal data. *Journal of Labor Economics 22*(4), 891–924.

Wood, M., J. Turnham, and G. Mills (2008). Housing affordability and family well-being: Results from the housing voucher evaluation. *Housing Policy Debate 19*(2), 367–412.

A Data and Analysis Appendix

A.1 HUD Metropolitan Areas Excluded from Neighborhood-Level Analysis

In the neighborhood-level analysis which uses ZIP code-level PoSH data, 7 of the total 23 metropolitan areas mandated to adopt SAFMR in 2018 were excluded to ensure clean identification of treatment effects and avoid potential confounding factors from policy exemptions and spillovers. Two distinct reasons motivate these exclusions.

First, several of the excluded metros contain major PHAs that participate in HUD's Moving to Work (MTW) demonstration program. MTW status grants PHAs broad flexibility in how they administer housing assistance, including the authority to opt out of HUD-mandated payment standard rules such as SAFMR. Even if HUD designates a metropolitan area for SAFMR adoption, MTW agencies may opt out and continue using alternative rent-setting policies.

A prominent example is the Chicago Housing Authority, which operates within the Chicago-Joliet-Naperville, IL HUD Metro FMR Area. Although all PHAs in this metro were technically subject to SAFMR implementation beginning in April 2018, the Chicago Housing Authority chose to maintain its Exception Payment Standards policy. Under this policy, voucher values are increased—sometimes up to 150 percent of metro-level FMR—for units located in designated "mobility" areas, typically defined by low poverty and crime rates. Including this metro in the analysis could bias estimates, as its largest PHA is not truly treated by SAFMR. While smaller PHAs in the Chicago metro did adopt SAFMR, their influence is limited relative to the Chicago Housing Authority.

The following metropolitan areas were excluded from the analysis for this MTW-related reason: (1) Chicago-Joliet-Naperville, IL HUD Metro FMR Area, (2) Charlotte-Concord-Gastonia, NC-SC HUD Metro FMR Area, (3) Washington-Arlington-Alexandria, DC-VA-MD HUD Metro FMR Area, (4) Pittsburgh, PA HUD Metro FMR Area, and (5) San Antonio-New Braunfels, TX HUD Metro FMR Area. It is worth noting that not all MTW agencies opted out. For example, the Philadelphia Housing Authority, also an MTW agency, fully implemented SAFMR on schedule, and thus the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD metro remains in the analysis sample.

Second, I excluded two metros due to geographic proximity to existing SAFMR metro areas and metros with MTW agencies opting out of SAFMR, which could introduce spillover effects that confound estimation. Specifically, the Fort Worth-Arlington, TX HUD Metro FMR Area was dropped because of its immediate proximity to Dallas, which adopted SAFMR early in 2011. Similarly, Gary, IN HUD Metro FMR Area was excluded due to its close geographic adjacency to Chicago, whose largest PHA did not adopt SAFMR.

A.2 Heterogeneous Impact Across Metropolitan Areas: ZIP Code-Level Analysis

To explore the heterogeneity across metropolitan areas based on rent segregation more deeply, I run ZIP code-level analysis and further classify neighborhoods within metros by neighborhood rent level and metro rent segregation. I then estimate the same specification separately for each group, using the same set of fiscal outcome variables as outcomes. The results are shown in Figure B.9.

Effects on Household Income: Panels (a) and (b) show the impact of SAFMR on average household income across neighborhood rent levels in high- and low-segregation metros, respectively. Solid lines with circular markers represent the effects in high-rent neighborhoods, whereas dashed lines with X markers represent those in low-rent neighborhoods within respective metros. Incomes of voucher households in high-rent neighborhoods increased regardless of metro segregation levels, confirming that positive neighborhood effects exist in both urban contexts. However, the magnitude was larger in high-rent neighborhoods within highly segregated metros (3.3% by 2023 as opposed to 2.2% in low-segregation metros), suggesting greater potential for economic opportunity improvements where high-opportunity neighborhoods had previously been more inaccessible. Yet, these gains materialized approximately three years after the policy, compared to immediate increases in low-segregation metros. This again reflects greater mobility frictions for low-income families in segregated environments.

Low-rent neighborhoods in integrated metros also experienced meaningful income increases, suggesting voucher households successfully secured additional income to cover higher rent burdens from reduced payment standards. The sustained growth through 2023 from 1.0% in 2019 to 2.8% in 2023, however, may also reflect longer-term benefits from poverty de-concentration.

Effects on Rent Contribution: Panels (c) and (d) display changes in tenant rent contributions. In high-rent neighborhoods, contributions increased gradually in both segregation contexts, a synonymous pattern with income gains. In low-rent neighborhoods, contributions increased immediately after SAFMR adoption which is a direct consequence of lower payment standards. However, the increase was dramatically larger in highly segregated metros (4.9% immediately following adoption versus 1.6% in integrated metros), reflecting more extreme payment standard reductions due to greater differences between SAFMR and metro-wide FMRs. While it is mechanically expected, this highlights how sharply the subsidy structure changed for tenants who remained in or could not relocate from low-rent areas.

Effects on Federal Spending: Panels (e) and (f) show the impact on federal spending. In high-segregation metros, government spending remained flat in high-rent neighborhoods while decreasing significantly in low-rent neighborhoods where rent contributions rose substantially. In low-segregation metros, spending increased gradually in high-rent neighborhoods while remaining unchanged in low-rent areas.

One notable pattern emerges in 2023: a slight uptick in federal spending across all urban contexts. As I will discuss further in Section 7, this may reflect a longer-term cost borne by the government can still increase, as growing share of voucher households gradually relocate to high-rent neighborhoods, ultimately raising overall government subsidy obligations despite the income gains from subsidized households.

A.3 Selecting Control Metropolitan Areas for Long-Run Analysis

The long-run analysis of SAFMR uses the Dallas metropolitan area as a case study. However, Dallas exhibited highly distinct changes of housing market over the study period. Throughout the 2010s, the region experienced explosive population growth driven by substantial in-migration and rapid job growth. In response, the city also experienced aggressive suburban expansion. Housing demand consistently outpaced supply, leading to increases in home sales and significant upward pressure on market rents.

To account for this uniqueness of the housing market, I restrict the control group to metropolitan areas that experienced comparable rent appreciation from 2010 onward. Figure B.11 plots rental price indices for Dallas and other metropolitan areas in the 2025 SAFMR-adopting cohort between 2011 and 2018 with all indices normalized to 2011. Dallas clearly saw rent increases exceeding 20% over this time period, which is substantially higher than most other metros in the cohort. Thus, I limit the control group to metropolitan areas where rents increased by more than 15% over the same period. The resulting comparison group includes the following metropolitan areas: Charleston, SC; Chattanooga, TN; Cincinnati, OH; Columbus, OH; Fort Wayne, IN; Kansas City, MO; Knoxville, TN; Los Angeles, CA; Louisville, KY; Miami, FL; Nashville, TN; Orlando, FL; Phoenix, AZ; Raleigh, NC; and Seattle, WA. This restriction improves the plausibility of the identifying assumption in SDID analysis be ensuring that comparison areas faced similar changes in the rental market during the analysis period.

A.4 Long-Run Analysis with Full Set of 2025 SAFMR-Adopting Metros

In addition to the main long-run analysis where I restrict the control group to certain metropolitan areas, I conduct additional SDID analysis using the full set of 2025 SAFMR-adopting metropolitan areas as the control group. This expanded set includes not only metros that experienced rent growth similar to Dallas, but also those with more modest increases. The results are presented in Appendix Figure B.13.

As shown in the left panel of the figure. the result for fiscal outcomes remain broadly consistent with the main analysis: household incomes and rent contributions increased following SAFMR implementation, while federal spending initially declined before rising in the later years. However, the pace of the growth in federal spending appears much faster in this analysis. In addition, the number of voucher households served by PHAs in Dallas declined over time, although the estimated effects are statistically insignificant.

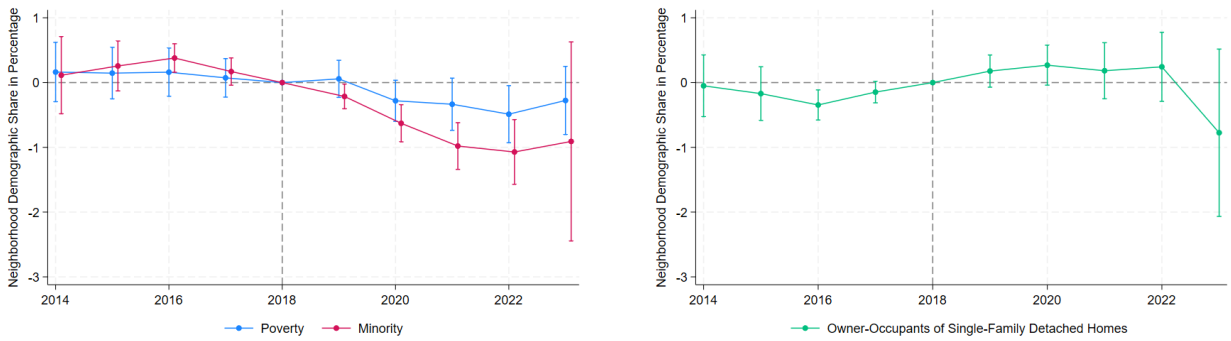
These results highlight an important nuance for cost implications of SAFMR. When compared to control metros including those that saw modest rent growth, Dallas stands out as a case where the overall cost of administering the voucher program may have increased dramatically as local market rents simultaneously rose significantly. This suggests that SAFMR can be a cost-reducing policy design if it is implemented in more stable or moderately appreciating housing markets. In rapidly appreciating markets, however, income gains and rent contributions may not be sufficient to fully offset the rising government's subsidy burden.

B Appendix Figures and Tables

Figure B.1: Impact on Demographic Characteristics of Neighborhoods Voucher Households Reside

(a) Census Tract Poverty and Minority Shares

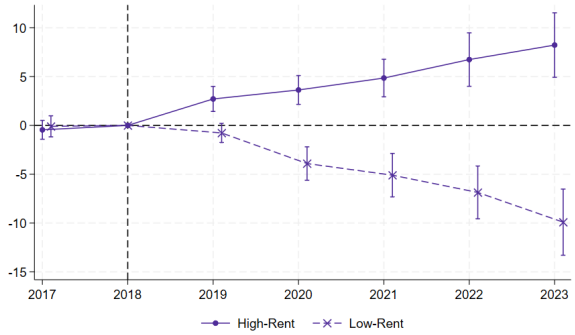
(b) Owner-Occupants of Single-Family Homes



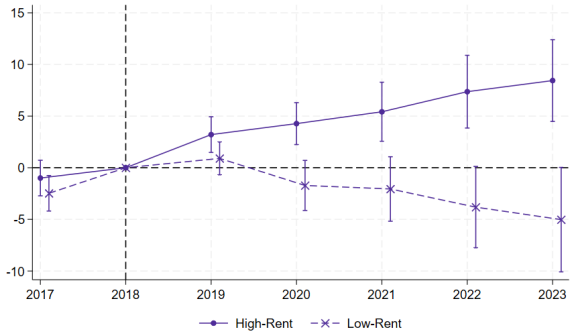
Notes: The figure above plots the coefficients from difference-in-differences model estimating the impact of SAFMR on demographic compositions of neighborhoods voucher households reside at the PHA level. The regressions include PHA- and year-fixed effects and are weighted by the total number of HCV-contracted units. 90% confidence intervals are shown. The standard errors are clustered at the PHA level. In the raw PoSH data, the poverty, minority, and owner-occupant of single-family homes shares were erroneously recorded as zero for 17 PHAs in Connecticut in 2023. For these cases, 2022 values were substituted.

Figure B.2: Impact on Number of Voucher Households by Subgroups

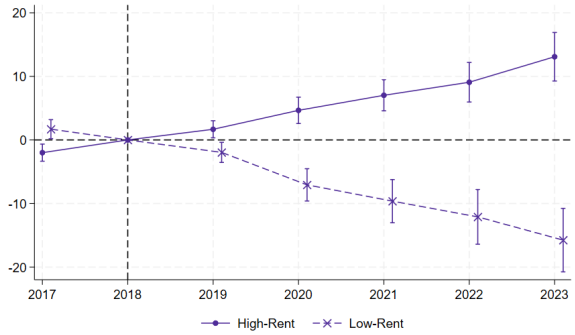
(a) Families with Disability



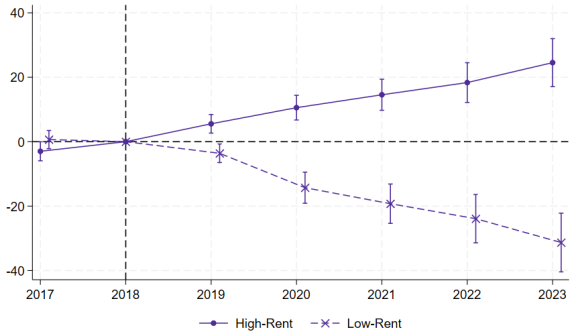
(b) Families with Individuals Older Than 62



(c) Female Headed Families with Children



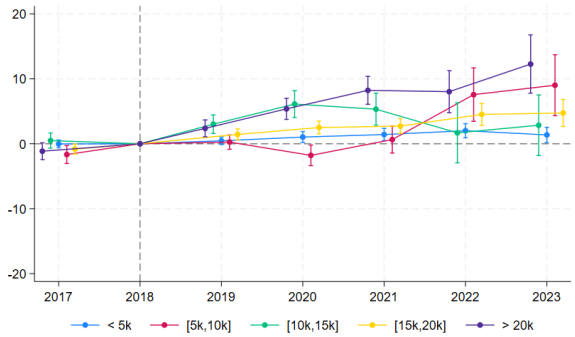
(d) Minority Families



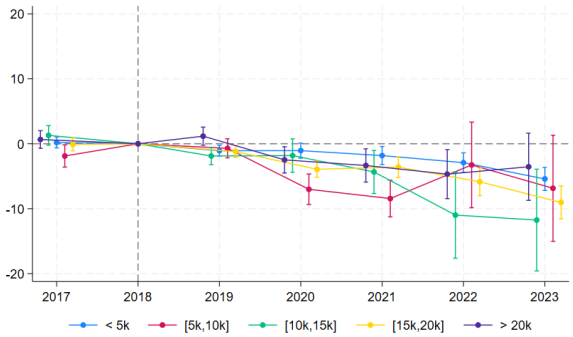
Notes: The figures above plot the coefficients from difference-in-differences regressions at the ZIP code level using number of voucher households in each respective demographic group as outcome variables. The estimates are presented for high- and low-rent neighborhoods. 90% confidence intervals are drawn, and the standard errors are clustered at the ZIP code level.

Figure B.3: Impact on Number of Voucher Households by Income Group

(a) High-Rent Neighborhoods



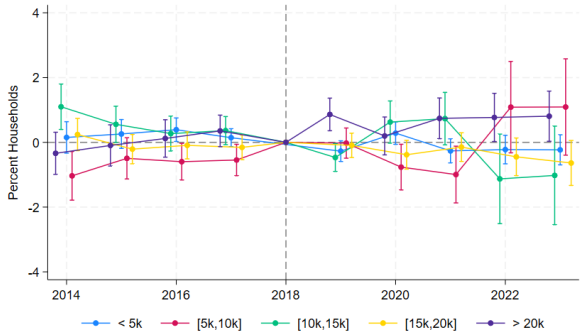
(b) Low-Rent Neighborhoods



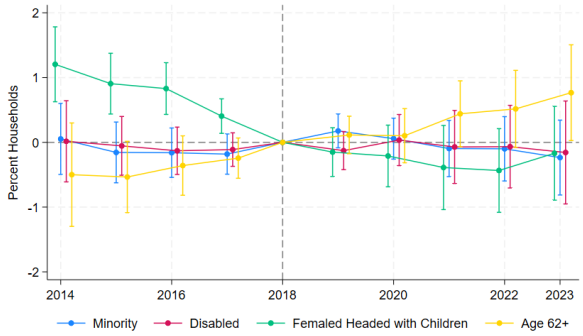
Notes: The figures above plot the coefficients from difference-in-differences regressions at the ZIP code level using number of voucher households in each respective income bin as outcome variables. The estimates for different income bins are stacked in each year. The left panel shows results in high-rent neighborhoods,and the right panel shows results in low-rent neighborhoods. Note that only treatment effect estimates are shown in the figures

Figure B.4: Impact on Composition of Voucher Households

(a) By Income Bins

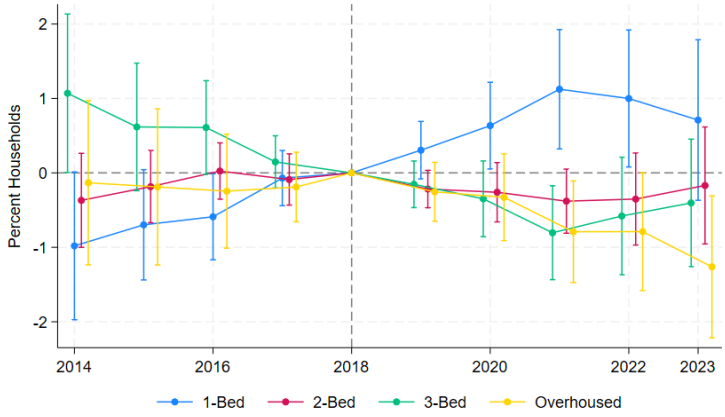


(b) By Household Characteristics



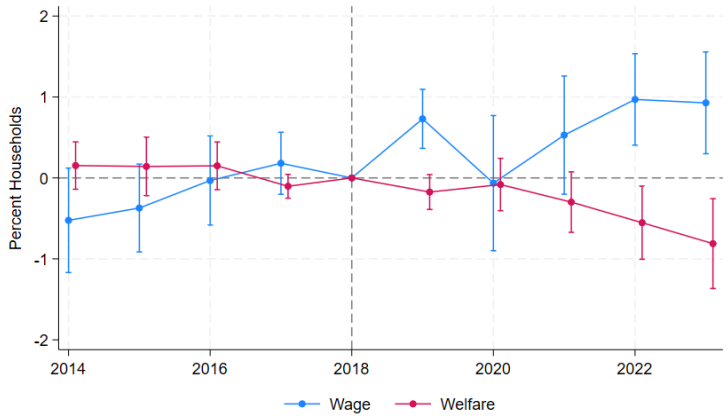
Notes: The figure above plots the coefficients from difference-in-differences model estimating the impact of SAFMR on demographic compositions of voucher households at the PHA level. The regressions include PHA- and year-fixed effects and are weighted by the total number of HCV-contracted units. 90% confidence intervals are shown. The standard errors are clustered at the PHA level.

Figure B.5: Impact on Bedroom Structure



Notes: The figure above plots the coefficients from difference-in-differences model estimating the impact of SAFMR on percent of households living in appropriately sized units, including 1-bedroom, 2-bedroom, and 3-bedroom, as well as those who are over-housed at the PHA level. The regressions includes PHA- and year-fixed effects with control variables and are weighted by the total number of HCV-contracted units. 90% confidence intervals are shown. The standard errors are clustered at the PHA level.

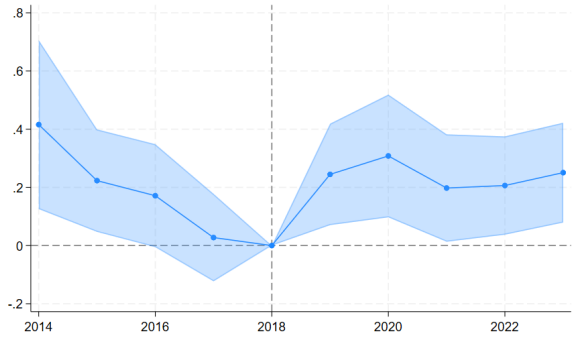
Figure B.6: Share of Households by Major Income Source



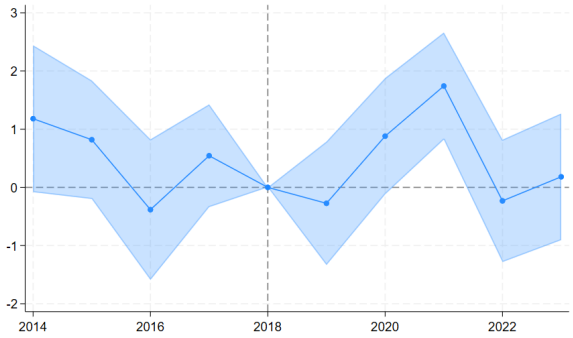
Notes: The figure above plots the coefficients from difference-in-differences model estimating the impact of SAFMR on the share of households whose major income source is derived from wage and welfare (including Temporary Assistance for Needy Families, General Assistance, or Public Assistance), respectively, at the PHA level. The regressions includes PHA- and year-fixed effects with control variables and are weighted by the total number of HCV-contracted units. 90% confidence intervals are shown. The standard errors are clustered at the PHA level.

Figure B.7: Impact on Non-Fiscal Components of Program Cost

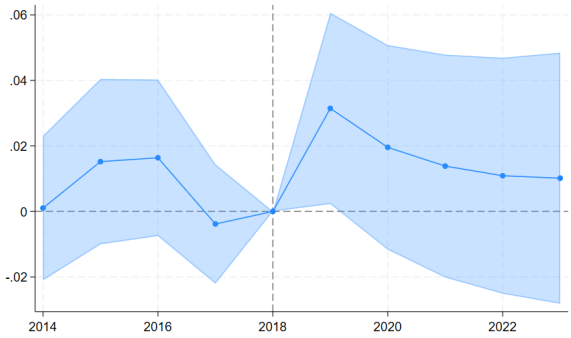
(a) Months on Waitlist



(b) Percent New Household

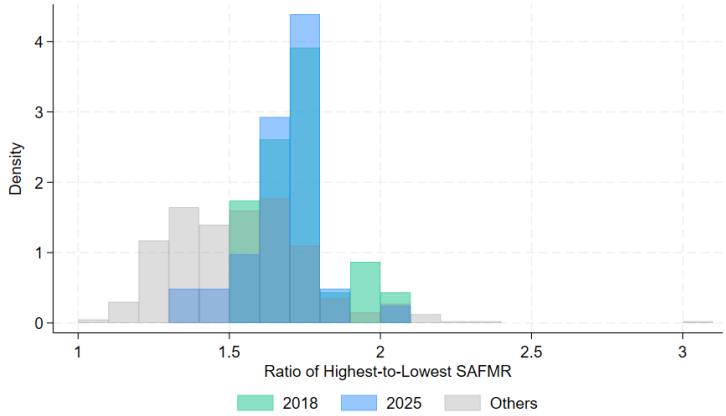


(c) Total Voucher Households Served



Notes: The figures above plot the coefficients from difference-in-differences regressions for respective non-fiscal outcomes. All regressions include PHA- and year-fixed effects with control variables. Regressions are weighted by the total number of HCV-contracted units. 90% confidence intervals are drawn, and the standard errors are clustered at the PHA level.

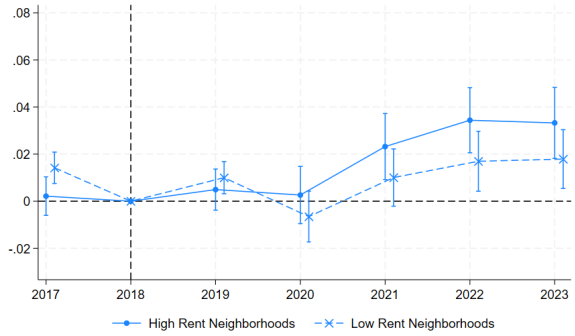
Figure B.8: Histogram of Highest-to-Lowest SAFMR Ratio



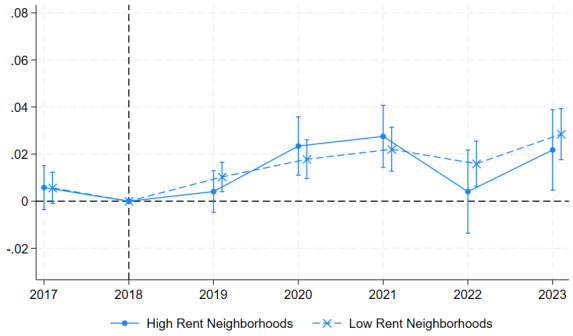
Notes: The figure above displays the distribution of rent segregation values, as measured by the ratio of highest-to-lowest ZIP code-level FMRs within each metro. Green bars show the distribution of the values for 2018 cohort, and blue bars show that for 2025 cohort. Gray ones represent all other metros that were not mandated to adopt SAFMR.

Figure B.9: Impact on Federal Spending by Neighborhood Rents and Metro Rent Segregation

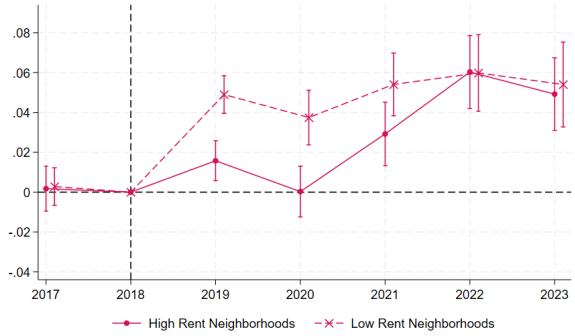
(a) High Segregation Metros - Household Income



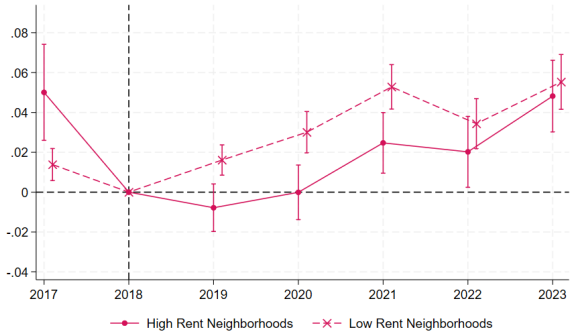
(b) Low Segregation Metros - Household Income



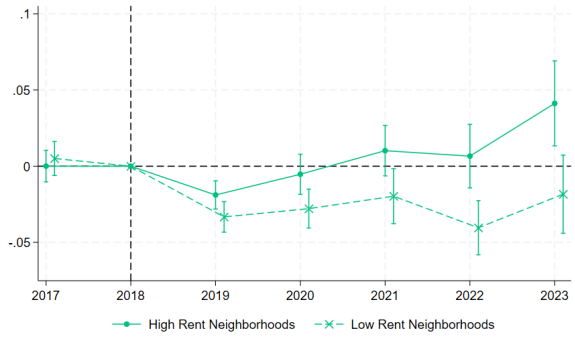
(c) High Segregation Metros - Rent Contribution



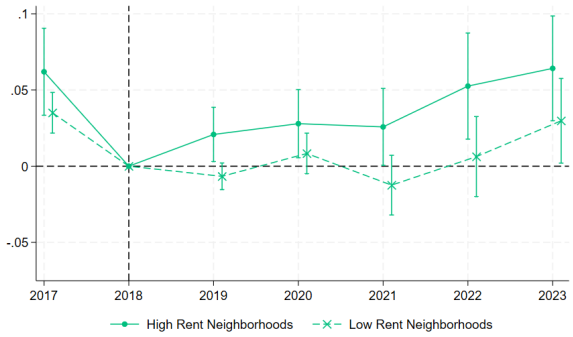
(d) Low Segregation Metros - Rent Contribution



(e) High Segregation Metros - Federal Spending

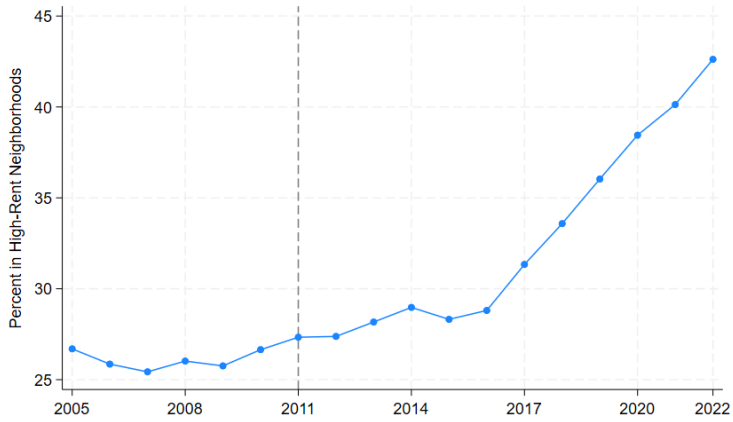


(f) Low Segregation Metros - Federal Spending



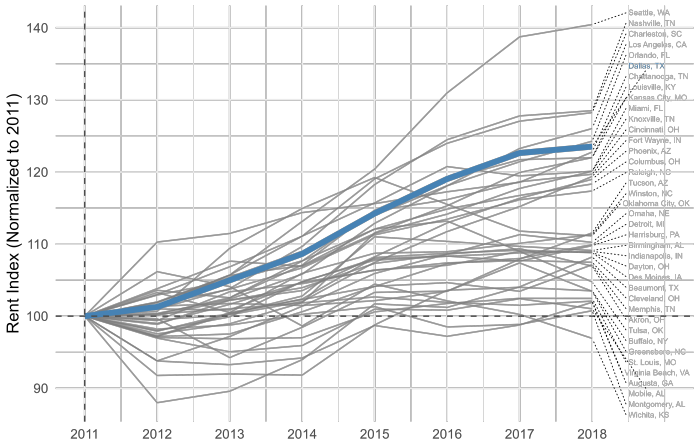
Notes: The figures above plot the coefficients from difference-in-differences regressions at the ZIP code level using federal spending as outcome variable. The left panel shows results in high segregation metros by rent level of neighborhoods, and the right panel shows analogous results for low segregation metros. 90% confidence intervals are drawn, and the standard errors are clustered at the ZIP code level.

Figure B.10: Share of Voucher Households Living in High-Rent Neighborhoods in Dallas



Notes: The figure above displays the share of voucher households living in high-rent neighborhoods in the Dallas metropolitan area. High-rent neighborhood is defined as those where the median gross rent of a Census tract is greater than the median gross rent of a metro.

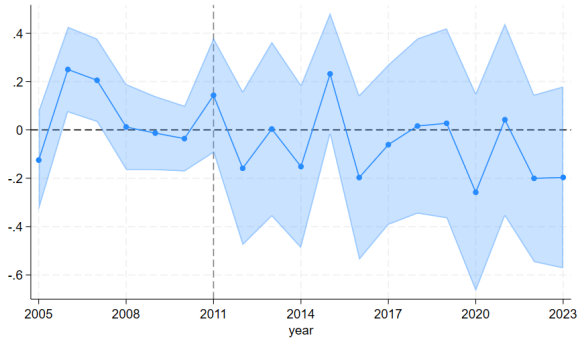
Figure B.11: Zillow Rental Index of Dallas and 2025 Cohort of SAFMR-Adopting Metros



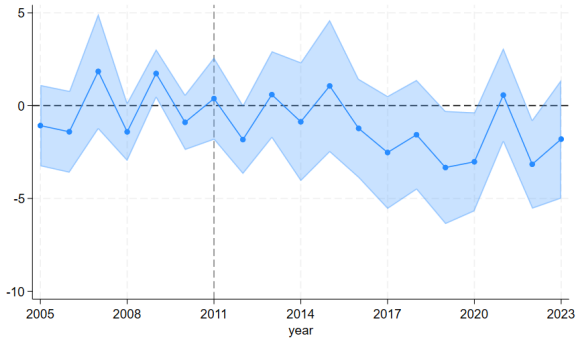
Notes: The figure above displays the Zillow Rental Index (ZRI) for Dallas and other cities in the 2025 SAFMR-adopting cohort from 2011 to 2018. Monthly ZRI values are averaged within each year to construct the annual series.

Figure B.12: Long-Run Impact of SAFMR on Waitlist Time and New Voucher Admits

(a) Months on Waitlist



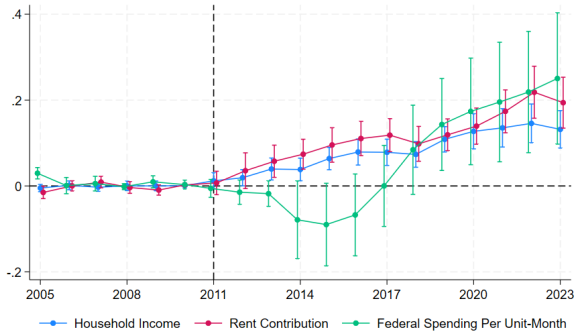
(b) Percent New Households



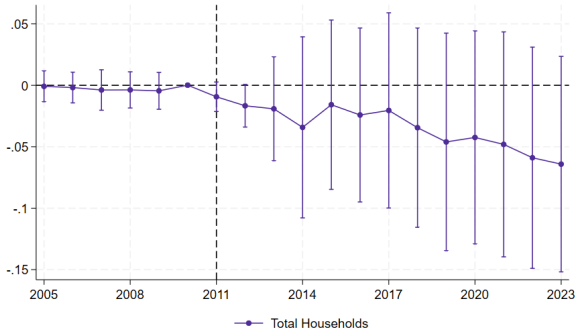
Notes: The figures above plot the coefficients from synthetic difference-in-differences regressions for respective outcomes. Placebo confidence intervals with 90% significance are drawn.

Figure B.13: Long-Run Impact of Small Area Fair Market Rents (Full Set of Control Metros)

(a) Fiscal Outcomes



(b) Number of Voucher Households



Notes: The figures above plot the coefficients from synthetic difference-in-differences regressions for respective fiscal and non-fiscal outcomes. The control group in this analysis includes all PHAs in the metropolitan areas that were required to adopt SAFMR in 2025. Placebo confidence intervals with 90% significance are drawn.